e-ISSN : 2597-6052

MPPKI MEDIA PUBLIKASI PROMOSI KESEHATAN INDONESIA

Research Articles Open Access

Global Research Trends in CBT for Children with ASD: A Bibliometric Analysis of Disparities Between Developed and Developing Countries

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ARTICLE INFO

Manuscript Received: 21 Feb, 2025
Revised: 21 May, 2025
Accepted: 26 May, 2025
Date of Publication: 03 Jul, 2025
Volume: 8
Issue: 7
DOI: 10.56338/mppki.v8i7.7331

KEYWORDS

Autism Spectrum Disorder;
Cognitive Behavioral Therapy;
Children;
Research Trends;
Bibliometric Analysis

ABSTRACT

Introduction: Autism spectrum disorder (ASD) is a neurodevelopmental condition with an increasing global prevalence that demands effective intervention strategies. Cognitive behavioral therapy (CBT) is a well-researched approach for treating various co-occurring disorders in children with ASD. However, despite the growing volume of research, there remains a lack of comprehensive bibliometric analysis that maps global trends, thematic focus, and collaboration patterns in CBT-related ASD studies, highlighting a critical gap that this study seeks to address.

Methods: This study used a bibliometric approach to analyze global research trends in CBT for treating children with ASD. It analyzed 148 articles published between 2007 and 2025. Data were collected from the Scopus database and analyzed using VOSviewer, Harzing's Publish or Perish, and Microsoft Excel. This bibliometric analysis provides a novel perspective by quantitatively mapping the evolution of research, identifying underexplored themes, and revealing disparities in scientific contributions between developed and developing countries, an area that has received limited attention in existing CBT-ASD literature.

Results: The results showed a significant upward trend in publications on CBT for ASD since 2007, peaking by 2025. The United States, the United Kingdom, Canada, and Australia dominated the geographical distribution of research, whereas developing countries had limited contributions. Collaboration patterns revealed strong connections between developed countries, with the United States as the main center. This study focused on the effectiveness of CBT in managing anxiety disorders, improving social skills, and addressing comorbidities, such as obsessive-compulsive disorder and sleep problems. However, there are research gaps in the application of CBT for severe ASD and in the involvement of developing countries.

Conclusion: This study offers a novel bibliometric insight into the evolution and focus of CBT research in ASD, highlighting underexplored areas for future inquiry. Its implications can be extended to health practitioners, policymakers, educators, and researchers. Future research should explore the adaptation of CBT to various cultural contexts and ASD severity, utilizing technological advancements and multidisciplinary collaboration to provide more inclusive and accessible interventions for children with ASD worldwide.

Publisher: Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Palu

INTRODUCTION

ASD is a neurodevelopmental condition characterized by impaired social communication and repetitive and restricted behavior. This condition has become a global concern as its prevalence continues to increase. According to the latest data from the Centers for Disease Control and Prevention (CDC) in 2023, the prevalence of ASD in children in the United States has reached 1 in 36 children, up from 1 in 44 children by 2021 (1). Globally, research suggests that approximately 1% of the pediatric population has ASD, with rates varying between countries depending on the detection and diagnosis systems used. Meanwhile, countries like Indonesia and Malaysia have reported rising trends in ASD diagnosis, with increased case detection in growth clinics and special needs schools (2).

This increase in the number of children with ASD demands effective intervention strategies to help them adapt to their social and academic lives. CBT is one of the most researched approaches for the treatment of ASD (3). CBT is a psychology-based therapy that aims to change maladaptive thought patterns and behaviors through systematic cognitive and behavioral strategies. In children with ASD, CBT has been used to treat various co-occurring disorders, such as anxiety, aggressiveness, difficulty in understanding emotions, and social communication disorders (4). Research shows that approximately 40-60% of children with ASD experience significant anxiety, and CBT is effective in reducing these symptoms and improving their social skills. A study conducted by (5) revealed that CBT had substantial positive effects on anxiety management and social response improvement in children with ASD. However, the effectiveness of CBT may vary depending on the severity of ASD, the therapeutic approach used, and parental involvement in the therapeutic process.

As the need for effective therapies for children with ASD increases, the number of studies on CBT in treating ASD continues to increase significantly. In the Scopus and Web of Science databases, the number of publications related to CBT for ASD has more than doubled over the past decade, indicating the high attention of scientists to this topic. This trend not only occurs in developed countries, such as the United States (6) and the United Kingdom (7), but is also beginning to emerge in developing regions such as Southeast Asia and Africa. However, research remains fragmented, with varying methodologies and study focuses that complicate the generalization of findings. Some studies have focused on CBT in the context of individuals with mild-to-moderate ASD, while children with severe ASD remain underrepresented. Additionally, barriers to access and cultural adaptation of CBT in low-resource settings hinder widespread application (8-10).

Despite the increasing number of studies on CBT for ASD, few have examined global trends in publication patterns, collaborations, or research focus areas. Most existing literature emphasizes the clinical efficacy of CBT without addressing how this area of research has evolved bibliometrically. Without this overview, it is difficult to assess the maturity of the research landscape or identify underexplored domains. Therefore, a bibliometric analysis is appropriate to fill this gap by offering a structured overview of scholarly output and collaboration (8). In addition, there are still gaps in the application of CBT to children with ASD across different levels of the spectrum. Most existing research focuses on children with mild to moderate ASD, while those with severe ASD, who often face greater challenges in verbal communication and behavioral regulation, remain underrepresented. This lack of focus hinders the development of inclusive and effective intervention strategies across the full range of ASD severity (9). While a few bibliometric studies have explored general ASD or CBT topics, they tend to either aggregate CBT with other interventions or do not disaggregate findings by ASD severity. They also fail to critically examine the thematic scope and geographic disparities within the CBT-ASD research landscape. Therefore, this bibliometric analysis offers a novel contribution by mapping global research trends and identifying the extent to which different ASD severities are addressed in CBT studies and where critical gaps persist.

Another gap is the low level of global collaboration, particularly in developing countries such as Indonesia. Based on analyses of indexed publications, research output remains heavily concentrated in developed nations despite the increasing prevalence of ASD worldwide. Factors such as limited funding, access to CBT-based interventions, and the need for cultural adaptation continue to restrict contributions from developing countries. Therefore, this study explores the extent of developing countries' involvement in CBT-ASD research and highlights opportunities for inclusive collaboration. This study offers a novel bibliometric insight into the developmental trend of CBT research for ASD. It maps out the field's progression and evolving research priorities by identifying publication patterns, collaborative networks, and frequently occurring keywords. This information is crucial for academics and researchers who want to understand the scientific landscape and develop innovative, evidence-based interventions.

The results will inform various stakeholders, including academics, health practitioners, and policymakers. Academics can design targeted studies and build international collaborations. Health practitioners may adopt the most effective therapeutic models based on current evidence. Policymakers can support increased access to CBT interventions in underserved settings through supportive policies (11-13). Although many studies evaluate CBT's clinical impact on ASD, few focus on mapping the evolution of this research through bibliometric techniques. Bibliometric analysis allows a deeper understanding of the structural dynamics of scientific output, such as publication trends, institutional collaboration, and research topics. This comprehensive insight supports more informed, scalable, and contextually appropriate intervention development.

Therefore, this study aimed to analyze research trends related to CBT in treating children with ASD using a bibliometric approach. This study identifies publication patterns, scientific collaborations, and main keywords to provide insight into the direction and evolution of CBT research in ASD. It is expected to uncover underexplored areas such as CBT adaptation using digital technologies, engagement of family systems, and strategies for effective implementation in resource-limited countries like Indonesia.

Research Objectives

This study aims to provide an overview of global research trends in CBT over the last two decades. The research questions addressed in this study are as follows: 1) What is the trend of research publications on CBT in the Management of Disorders in Children with ASD? 2) What are the citation trends of research on CBT in the Management of Disorders in Children with ASD? 3) What is the geographical distribution of research on CBT in the management of disorders in children with ASD? 4) What is the pattern of research collaboration on CBT in the Management of Disorders in Children with ASD? 5) What is the research focus on CBT in the Management of Disorders in Children with ASD? 6) What is the novelty of research on CBT for treating children with ASD?

METHOD

Study Design

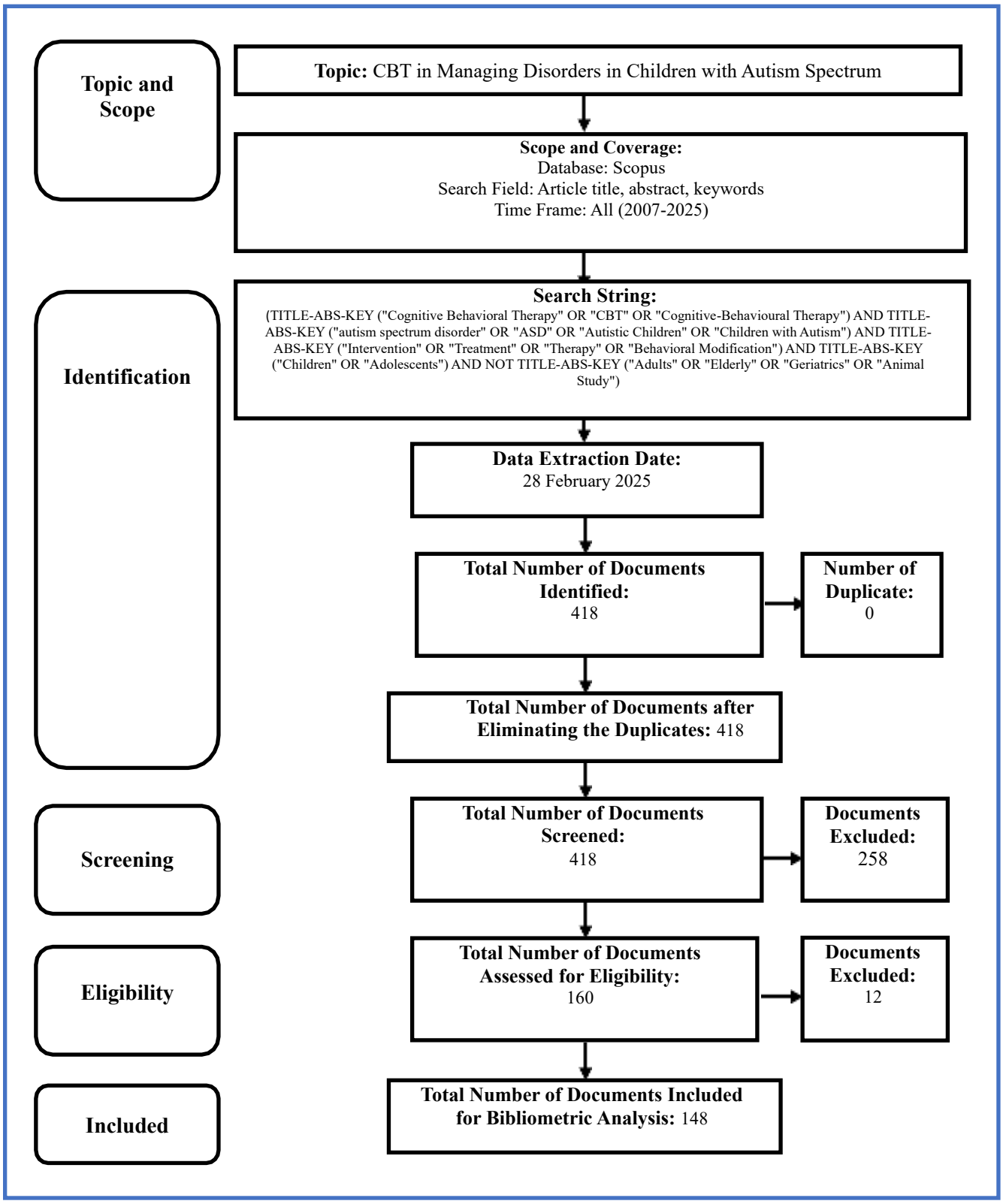
This study used a bibliometric analysis approach, a quantitative method used to evaluate trends in scientific publications in a particular field. This study refers to the systematic stages developed by (14), which consist of four main steps: identification, screening, eligibility, and inclusion (Figure 1). This approach was applied to understand the development of global research related to CBT in managing disorders in children with Autism Spectrum, based on scientific publications available in the Scopus database. The analysis was conducted to identify publication patterns, collaboration between researchers and institutions, and the most-studied research themes. Using bibliometric methods, this study aims to provide a comprehensive mapping of the academic landscape in the field of CBT and identify research gaps that still need to be explored further.

Data Collection

Data were collected using the Scopus database, one of the largest and most credible sources of scientific literature. The first stage in data collection was identification, where the search was conducted using keywords related to CBT in the Management of Disorders in Children with Autism Spectrum, such as ("Cognitive Behavioral Therapy," "CBT" OR "Cognitive-Behavioural Therapy") AND ("Autism Spectrum Disorder" OR "ASD" OR "Autistic Children" OR "Children with Autism") AND ("Intervention" OR "Treatment" OR "Therapy" OR "Behavioral Modification") AND ("Children" OR "Adolescents") AND NOT ("Adults" OR "Elderly" OR "Geriatrics" OR "Animal Study"). The initial search identified 418 documents that matched the search criteria.

The next stage is screening, which involves filtering documents based on document type and source type. In this process, irrelevant documents such as editorials, comments, review articles, and book reviews were eliminated explicitly to maintain focus on original research output, leaving 160 papers that met the initial requirements for further analysis. At the eligibility stage, the documents were assessed for eligibility based on the publication language, and only articles written in English were included in the study. This was done to ensure that the literature used was globally comparable and had a wide academic readership. In this process, the number of documents that met the criteria was reduced to 148. The final stage was inclusion, where the 148 papers that had passed the previous stage were categorized based on the research theme and analyzed further. The data collected from these documents included

publication title, author name, year of publication, institutional affiliation, keywords, and number of citations, which were then processed to identify research patterns in CBT.



Data Analysis

Data analysis was conducted using various software designed for bibliometric processing: 1) VOSviewer (15): used to visualize the relationship between authors, institutional collaboration, and perform network analysis of keyword co-occurrence in CBT publications related to ASD. 2) Harzing's Publish or Perish (16): employed to evaluate citation metrics and author/institutional impact based on citation counts and h-index. 3) Microsoft Excel (17): utilized for quantitative trend analysis, such as annual publication volume, geographic distribution of research, and top thematic categories. These tools provided complementary insights across different analytical layers, allowing for an in-depth examination of publication trends, collaboration networks, and methodological patterns in global CBT research for children with ASD. The PRISMA-like framework (Figure 1) was also updated with enhanced visual quality and integrated more clearly into the manuscript layout.

RESULTS AND DISCUSSION

The number of publications obtained at the inclusion stage was 145 in the last two decades, from 2007 to 2025. The data source was research articles (100 %).

Publication Trend

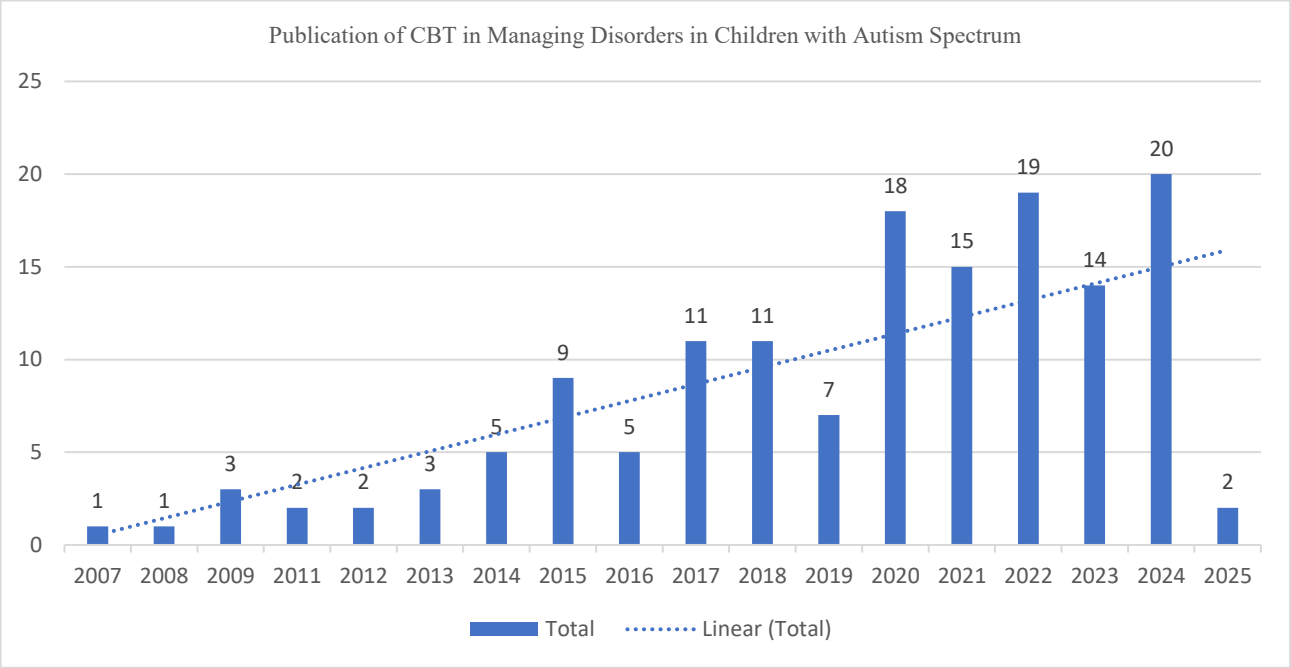


Figure 2. Publication Trend

Figure 2 shows that research on CBT in treating children with ASD has experienced a significant upward trend from 2007 to 2024. While publication numbers were minimal in the early years, with only one study in 2007, the post-2014 period marks a phase of accelerated growth. This aligns with a broader recognition of ASD as a public health priority and increasing endorsement of CBT as an evidence-based intervention in clinical guidelines. The publication peak in 2024 (20 articles) and the surge in 2020 (18 articles) underscore sustained interest in this field. Although minor declines occurred in 2019 and between 2021 and 2022, these fluctuations may reflect external influences such as research funding shifts or competing academic priorities. The low count in 2025 (2 publications) is likely due to the incomplete indexing of current-year studies.

Beyond reporting numerical increases, this trend reveals a shifting theoretical landscape in ASD treatment research. CBT is increasingly viewed as a behavioral management strategy and a framework for targeting core deficits in cognition, emotion regulation, and social communication. This reflects a growing alignment with transdiagnostic and developmental models emphasizing individualized, strength-based interventions (18–20). Nevertheless, the

analysis reveals persistent gaps. Most studies focus on children with mild to moderate ASD, with limited attention given to those with severe presentations. This creates a theoretical bias in the literature, raising concerns about the current CBT models' inclusivity and external validity. Children with more complex symptoms—including those who are nonverbal or have co-occurring intellectual disabilities—remain underserved in both clinical practice and research. Geographical disparities also emerge, with high-income countries like the United States, the United Kingdom, and Australia dominating publication output. In contrast, developing nations contribute minimally, highlighting structural inequities such as limited research capacity, inadequate training in CBT modalities, and reduced access to specialized mental health services. These gaps suggest the need for more culturally contextualized and scalable CBT interventions to improve access and applicability worldwide.

A promising area for future research lies in integrating CBT with technological innovations. Recent studies have explored: 1) Telehealth-based CBT delivery models to expand access in rural or underserved regions (21), 2) Virtual Reality (VR) applications to simulate real-life social interactions in a controlled therapeutic setting (22), and Artificial Intelligence (AI)-driven CBT tools that provide real-time feedback and adaptive interventions (23). These tools offer opportunities to personalize therapy, reduce therapist burden, and enhance engagement. However, their integration still requires further empirical testing and theoretical development to ensure alignment with core CBT principles (24). Overall, while publication trends reflect increasing attention to CBT for ASD, challenges remain in ensuring theoretical inclusivity, global accessibility, and technological rigor. This bibliometric analysis highlights knowledge growth and serves as a roadmap for future research, calling for deeper international collaboration, innovation in delivery models, and commitment to equity in mental health interventions.

Citation Trends

Table 1. Citation Analysis of Publications on CBT for ASD. This table presents detailed bibliometric metrics for each year, including: TP (Total Publications), NCP (Number of Cited Publications), TC (Total Citations), C/P (Average Citations per Publication), C/CP (Average Citations per Cited Publication), h (h-index), and g (g-index). These indicators reflect the academic influence and growth of CBT research in the context of ASD over time.

Table 1. Citation analysis of publications

Year	TP (%)	NCP	TC	C/P	C/CP	*h*	*g*
2025	2	0	0	0	0	0	0
2024	20	14	27	1.35	1.93	3	5
2023	14	13	49	3.50	3.77	4	6
2022	19	18	88	4.63	4.89	5	7
2021	15	13	86	5.73	6.62	6	8
2020	18	18	494	27.44	27.44	9	18
2019	7	12	143	20.43	11.92	5	7
2018	11	14	163	14.82	11.64	8	11
2017	11	16	218	19.82	13.62	9	11
2016	5	12	283	56.60	23.58	5	5
2015	9	12	293	32.56	24.42	7	9
2014	5	9	301	60.20	33.44	5	5
2013	3	8	315	105	39.38	3	3
2012	2	7	290	145	41.43	2	2
2011	2	5	125	62.50	25	2	2
2009	3	10	655	218.3	65.50	3	3
2008	1	2	47	47	23.50	1	1
2007	1	3	107	107	35.67	1	1

Notes. TP=total of publication, NCP=number of cited publication, TC=total citations, C/P=average citations per publication, C/CP=average citations per cited publication, h=h-index, g=g-index

Table 1 shows the citation analysis of publications, revealing significant growth in research output and citation impact over time. The total number of publications (TP) has increased notably since 2014. More importantly, metrics such as total citations (TC), average citations per publication (C/P), average citations per cited publication (C/CP), h-index, and g-index demonstrate important patterns of scholarly influence. In 2007–2013, publication

frequency was low (1–3 per year), yet citation impact was remarkably high. For instance 2009, three publications accumulated 655 citations (C/P = 218.3), making it one of the highest-impact years. A similar effect was observed in 2013, with a C/P of 105, indicating strong influence despite limited output. This may reflect the novelty and scarcity of research in this area during that time. From 2014 to 2019, output increased, but citations varied. 2014 had five publications and 301 citations (C/P = 60.2). In 2016, citations peaked at 283 with only five publications (C/P = 56.6). 2017 marked a productivity peak (TP = 11; TC = 218), with rising h and g indices reflecting broader academic recognition.

2020 represented a breakthrough, with 18 publications and 494 citations (C/P = 27.44). Both h-index (9) and g-index (18) peaked, coinciding with the global shift toward online interventions during the COVID-19 pandemic. These metrics suggest intensified scholarly attention to CBT interventions for ASD. Following 2020, citations gradually declined, although publication output remained steady. In 2024, publication numbers reached 20, but citation counts were still modest (TC = 27), likely due to the recent nature of those works. As of 2025, two publications have not yet accrued citations, a normal lag for newly released articles. Future citation growth is expected, particularly for 2023–2024 publications, driven by emerging innovations, international collaboration, and high-impact journal dissemination. For researchers aiming to increase academic visibility, aligning research with clinical needs, technological advancements, and strategic publishing is essential (25–29).

Geographical Distribution of Publications

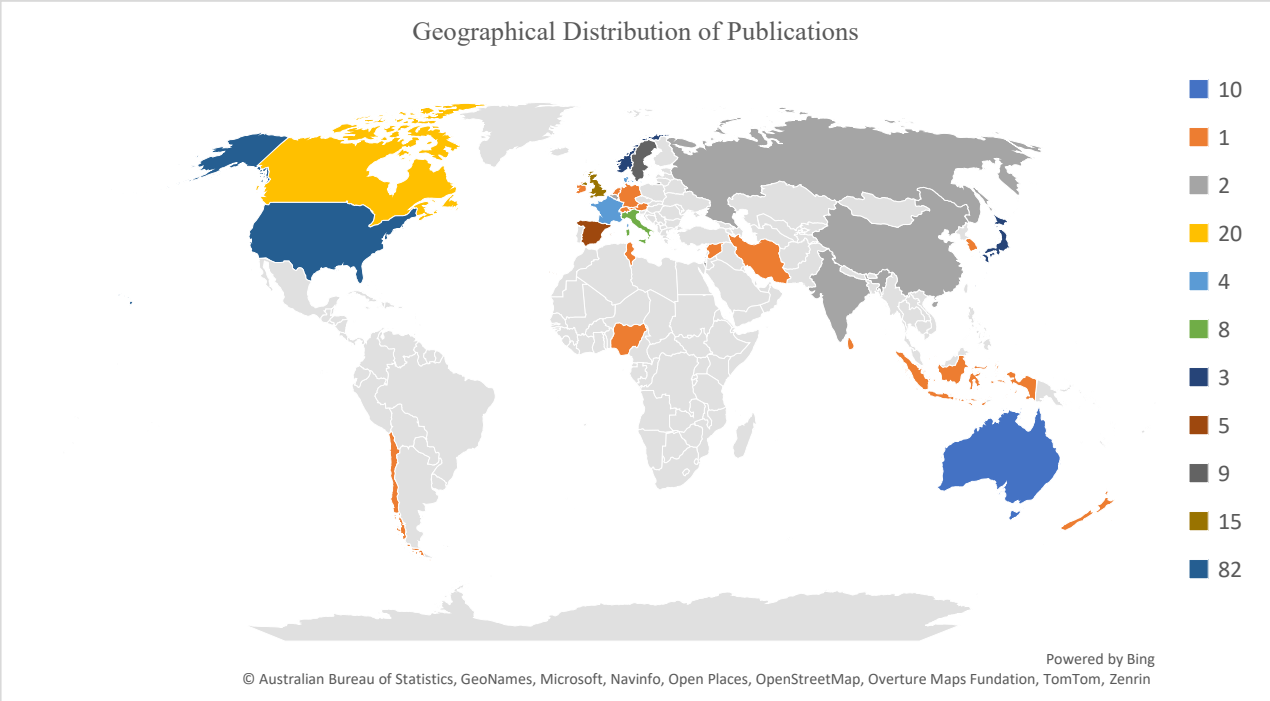


Figure 3. Geographical Distribution of Publications

Figure 3 shows the dominance of research by developed countries, particularly the United States, the United Kingdom, Canada, and Australia. Based on the distribution map, the United States was the most significant contributor with 82 publications, followed by Australia with 20 publications, and the UK and Canada with notable numbers. Other European countries, such as Spain, Germany, and Italy, contributed to a lesser extent. This pattern reflects the concentration of research on the effectiveness of CBT for ASD in nations with strong research infrastructures, robust academic ecosystems, and supportive health policies for evidence-based interventions.

However, many developing countries remain significantly underrepresented. While countries like China, India, and Turkey have made some contributions, much of Africa, Southeast Asia, and Latin America exhibit minimal or no research output in this domain. This underrepresentation highlights a substantial research gap influenced by

systemic inequities, such as limited funding access, a shortage of trained personnel in CBT and neurodevelopmental disorders, and a lack of localized, culturally-sensitive therapeutic models.

Theoretically, this disparity underscores a global imbalance in knowledge production, where CBT is predominantly studied within Western-centric frameworks. Such a narrow lens restricts the applicability and generalizability of findings to diverse cultural, linguistic, and healthcare system contexts, thereby limiting the potential global impact of CBT for ASD.

To address this, future opportunities lie in expanding equitable global research collaborations, particularly those that support capacity building and contextual adaptation of CBT in non-Western settings. International academic partnerships, targeted research grants, and technology-driven interventions—such as telehealth, mobile-based CBT, and AI-assisted therapies—can play a crucial role in overcoming geographical, logistical, and economic barriers (30–32). These scalable approaches may be especially effective in increasing access to therapy in underserved regions and building robust, locally relevant evidence bases. Thus, with strategic investment and collaborative action, research on CBT for ASD can be more equitably distributed worldwide, enabling broader access to evidence-based interventions and ultimately improving the quality of life for children with ASD across varied global contexts.

Collaboration Pattern

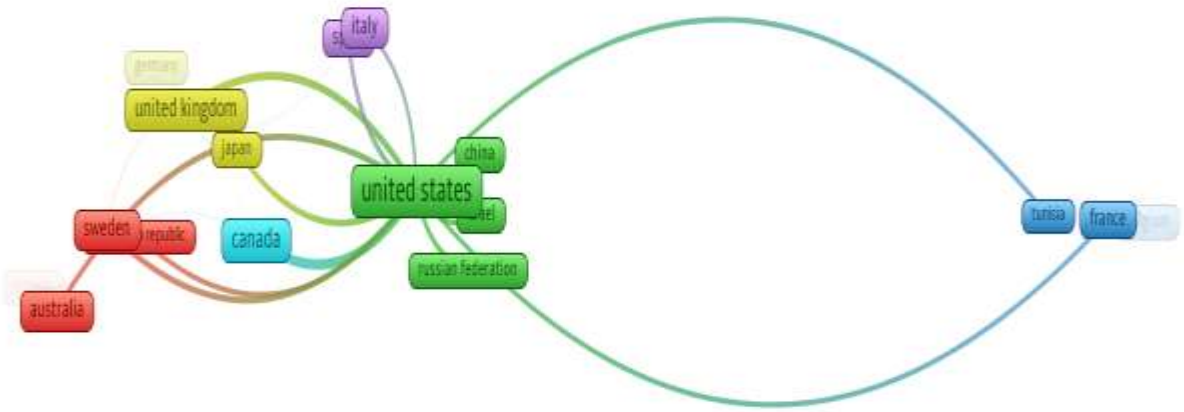


Figure 4. Collaboration Pattern

Figure 4 shows strong collaborative ties among high-income countries, with the United States at the center. The visualization reveals extensive bilateral and multilateral collaborations between the United States and countries such as the UK, Canada, Germany, Japan, Italy, China, and Russia. This illustrates that the United States leads in publication volume and is central in shaping global research networks on CBT for ASD. Countries with advanced academic infrastructures—the UK, Canada, Australia, and Sweden—also form tight collaborative clusters, enabling data exchange, methodological standardization, and cross-contextual implementation of CBT interventions. However, the limited presence of developing countries in these collaboration networks raises significant concerns regarding epistemic exclusion—the marginalization of diverse cultural perspectives and knowledge systems. Most connections are concentrated among a select group of nations with historically strong research systems, leaving

countries in Asia, Africa, and South America vastly underrepresented. Even countries with emerging research capacity, such as China and Russia, show relatively sparse connectivity in global CBT-ASD collaborations.

This concentration mirrors broader academic inequities and highlights the need for intentional integration strategies. These include capacity-building initiatives, co-authorship mechanisms, and investments in digital infrastructure. Joint programs supported by international agencies—such as UNESCO or WHO—have been proposed as pathways to foster South–North research integration, leveraging cloud-based data platforms and virtual collaboration tools (33–34). Furthermore, the growing trend of multidisciplinary collaboration, involving psychology, education, neuroscience, and health informatics, represents a promising avenue. Such integrative approaches can foster richer conceptual frameworks and more adaptable CBT models across diverse contexts (35–37). For instance, developing technology-assisted CBT through AI, telehealth, or virtual reality opens new collaborative opportunities that transcend geographic and institutional boundaries. Building inclusive research ecosystems and expanding the global representation in CBT-ASD scholarship is essential. Through equitable collaboration, future research can better reflect the lived experiences of children with ASD worldwide and promote more culturally and contextually grounded therapeutic innovations (38–39).

Research Focus

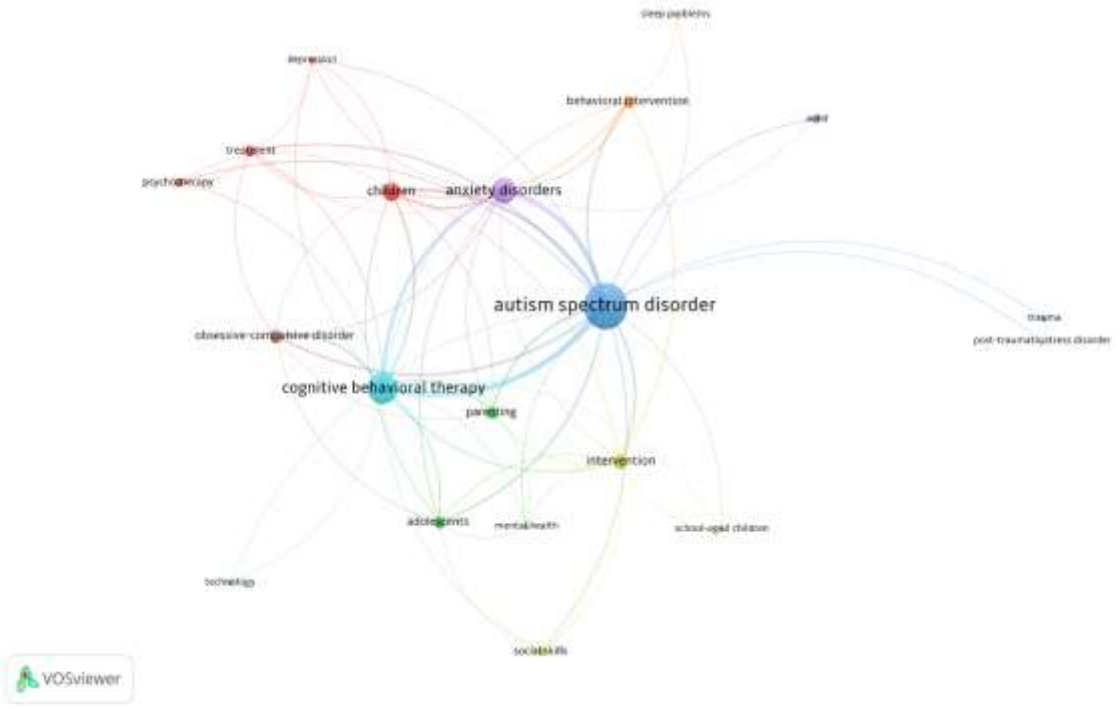


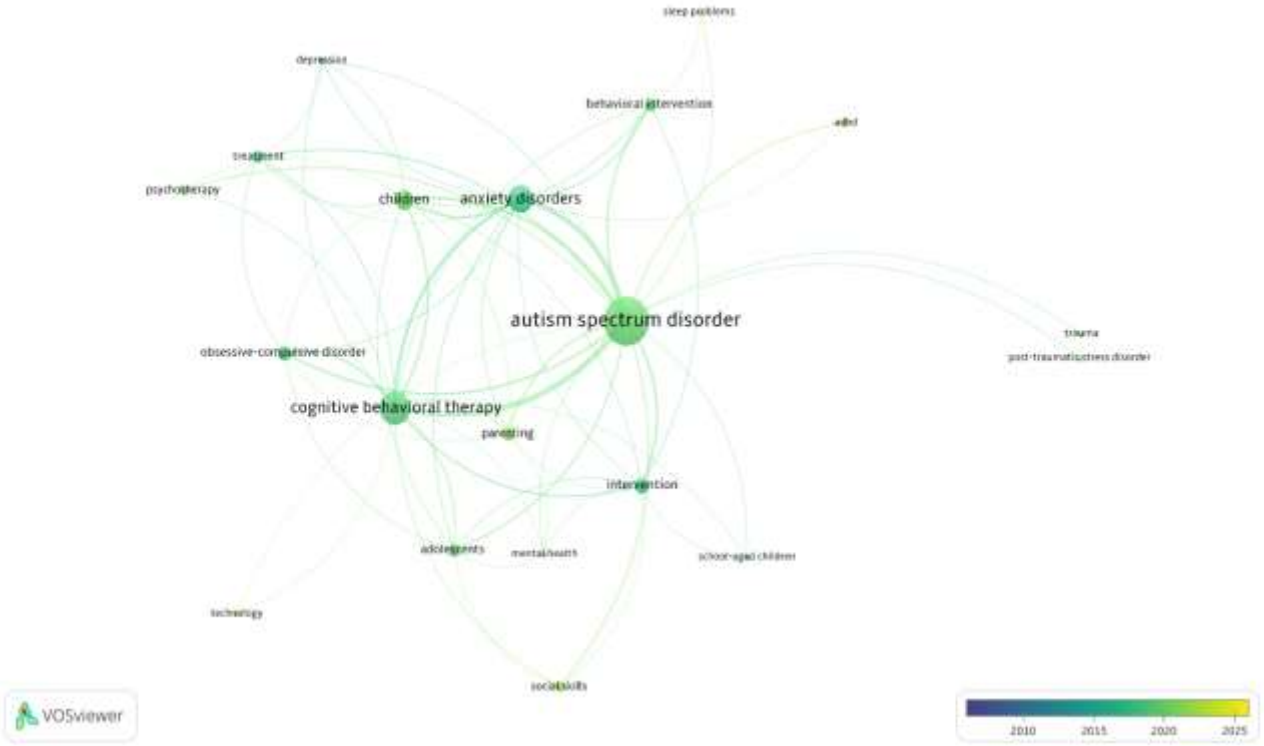
Figure 5. Research Focus

Figure 5 presents the research focus areas in the CBT-ASD domain, visualized using VOSviewer. The keyword network indicates that key terms such as cognitive behavioral therapy, anxiety disorders, children, and intervention dominate the landscape. These findings suggest that much of the scholarly attention centers on addressing common comorbid conditions in ASD, particularly internalizing symptoms like anxiety and externalizing behaviors that impair social functioning. A prominent theme is the strong linkage between ASD and anxiety disorders, reaffirming the critical role of CBT in managing emotional dysregulation. Additionally, the presence of keywords such as obsessive-compulsive disorder (OCD), social skills, and behavioral therapy indicates that CBT research is heavily focused on symptom-specific interventions aimed at improving communication, emotional recognition, and interaction abilities in children with ASD.

However, beyond descriptive mapping, this concentration on symptom relief highlights a theoretical narrowing of scope. There remains limited exploration into broader developmental outcomes, cross-systemic applicability, or the longitudinal impact of CBT across the lifespan. For example, adolescents with ASD—a population with distinct cognitive and social needs—are still underrepresented in intervention studies. Notably, emerging keywords such as PTSD, ADHD, and sleep disorders signal a gradual shift toward a transdiagnostic approach, where CBT is conceptualized as a flexible framework for addressing overlapping psychological and neurodevelopmental challenges. Yet, empirical grounding in these areas remains sparse, particularly in culturally diverse and resource-limited contexts.

In parallel, terms like technology, telehealth, virtual reality, and AI are gaining traction, reflecting a growing interest in digital behavior change models. These innovations can transform CBT delivery through increased personalization, scalability, and accessibility. Nevertheless, the theoretical integration of digital tools within core CBT principles is still evolving and demands further empirical and conceptual development. Looking forward, research opportunities lie in expanding CBT frameworks to address underexplored ASD subtypes, integrating culturally sensitive practices, and testing digital CBT interventions across diverse settings. Multidisciplinary collaboration—spanning psychology, education, neuroscience, and digital health—is critical to shaping more adaptive and inclusive CBT models (40–48). Thus, while current research remains centered on comorbidity management, the trajectory of CBT for ASD is gradually broadening toward more systemic, developmental, and tech-integrated approaches that can better serve the heterogeneous needs of the ASD population worldwide.

Novelty of Research



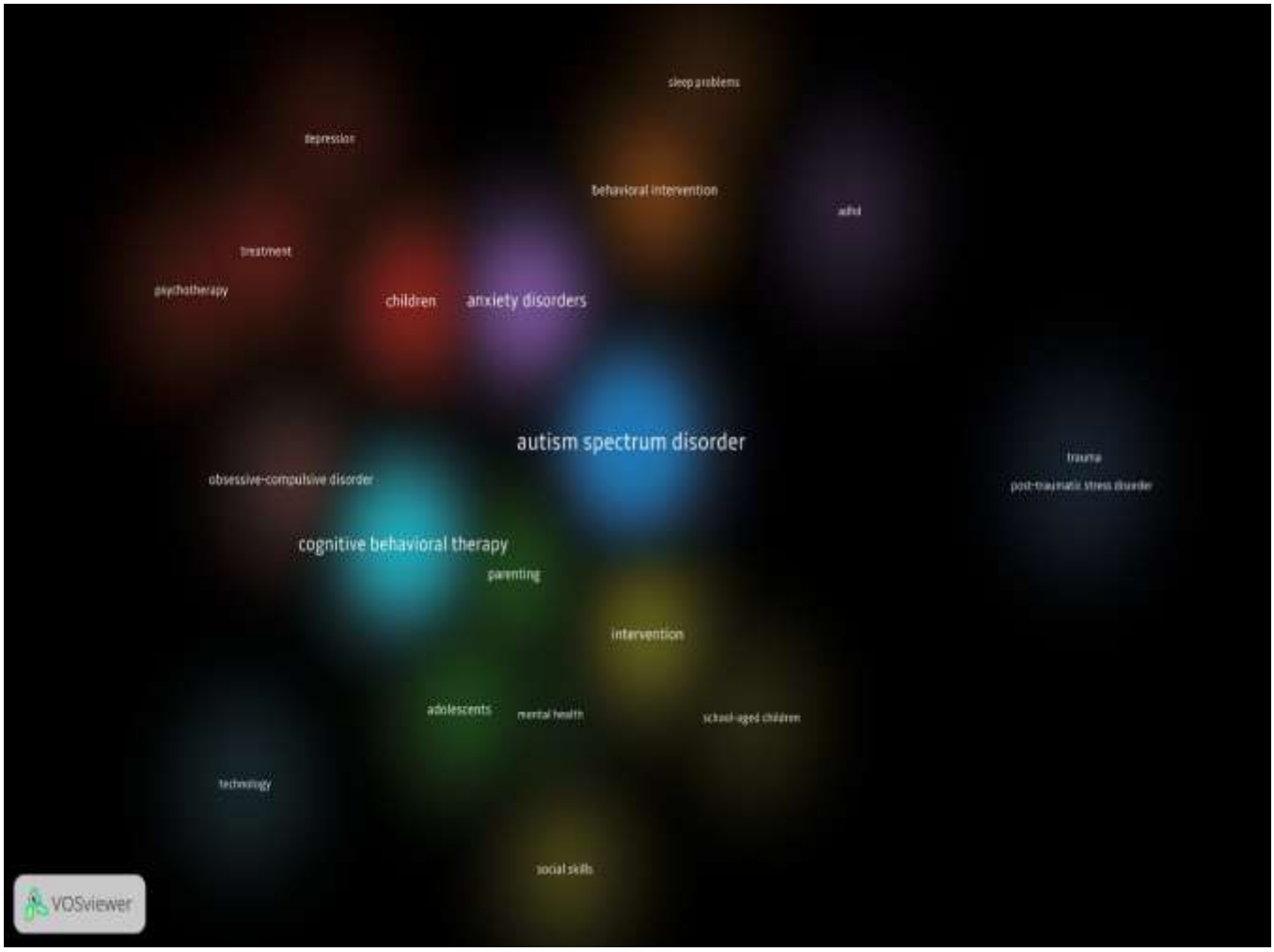


Figure 6. Novelty of Research

Figure 6: Novelty of the research analysis based on item and cluster density provides insight into the development and under-researched research areas in applying CBT for ASD. In the visualization shown, light-colored areas indicate topics that have been widely researched and have a close relationship with other concepts. In contrast, darker or fainter areas indicate areas of research that are still rarely explored and have great opportunities for further development. Figure 6 visualizes the novelty of research themes using item and cluster density mapping. In this visualization, dense and light-colored clusters represent extensively researched areas, while darker zones indicate underexplored yet theoretically promising topics. This pattern offers insight into the saturation of existing knowledge and the potential frontiers for expansion in CBT research for ASD.

Well-established domains—such as anxiety, social skills, parenting, and intervention—are highly represented, confirming that CBT has been widely applied to manage comorbid anxiety and enhance socio-emotional functioning in children with ASD. Similarly, increasing linkage with terms like obsessive-compulsive disorder and technology reflects a growing interest in integrating digital platforms and exploring CBT's transdiagnostic utility. However, darker regions in the cluster density map highlight underdeveloped research areas. These include topics like trauma, PTSD, adolescents, and culturally adapted CBT. Despite the high prevalence of traumatic experiences and emotional dysregulation among individuals with ASD, the application of CBT to address comorbid PTSD remains limited. Likewise, while many children with ASD experience sleep disturbances and ADHD, these themes appear less frequently in the literature compared to anxiety or behavioral intervention.

Particularly underrepresented are adolescent and transitional age populations. As individuals with ASD mature into adolescence and adulthood, their developmental needs shift significantly. Yet, research on CBT targeting these age groups' life skills, independence, and emotional regulation is still sparse (49–54). This suggests a need to broaden the theoretical framework of CBT for ASD beyond childhood interventions. Furthermore, the emerging prominence of keywords such as AI, virtual reality, and telehealth points to the early-stage integration of technology-based CBT delivery models. While these innovations offer promising avenues for personalized and scalable mental health care, their application remains nascent and requires stronger empirical evidence and theoretical grounding (34, 55–65. While the volume of CBT-ASD research has expanded over the past two decades, its conceptual breadth and global inclusivity remain limited. Addressing these gaps will require a shift toward methodological innovation, culturally responsive frameworks, and intentional collaboration across regions and disciplines. Strengthening research in these underrepresented areas could significantly enhance the inclusivity, relevance, and accessibility of CBT for diverse ASD populations worldwide.

Interpretation of Key Findings

This bibliometric analysis highlights a clear upward trend in global publications on CBT for children with ASD, particularly after 2014, with a peak in 2024. The dominance of developed countries, notably the United States, the United Kingdom, Canada, and Australia, reveals a geographical imbalance in research contributions. Key research themes focus on CBT's efficacy in treating anxiety, improving social skills, and addressing comorbid conditions such as OCD and sleep problems in children with ASD. Technological advancements such as digital-based and AI-assisted CBT are emerging as promising innovations. However, children with severe ASD and populations in developing countries remain underrepresented, signaling the need for more inclusive and context-sensitive research.

Limitations and Cautions

This study has several limitations. First, the bibliometric analysis relies solely on the Scopus database, which may exclude relevant studies indexed in other databases such as Web of Science or PubMed. Second, including only English-language publications may introduce language bias and underrepresent valuable research from non-English-speaking countries. Furthermore, while bibliometric data offer insights into publication trends and collaboration networks, they do not assess the methodological quality or clinical efficacy of the studies reviewed. These limitations suggest caution in generalizing findings to all research contexts or practice settings.

Recommendations for Future Research

Future studies should focus on expanding the scope of research to include more contributions from developing countries, possibly through international research collaborations and funding support. Longitudinal and experimental studies are also needed to evaluate the clinical impact and scalability of CBT, especially in populations with severe ASD. Researchers are encouraged to explore culturally adapted CBT interventions and investigate their effectiveness across diverse socio-economic contexts. Integrating emerging technologies such as virtual reality, mobile apps, and AI into CBT interventions can enhance accessibility and customization. There is also a need for more studies on adolescents with ASD and those with complex comorbidities like PTSD and sleep disorders.

CONCLUSION

This study provides a comprehensive bibliometric overview of global research trends in CBT for children with ASD from 2007 to 2025. While the volume of research has grown significantly, especially in high-income countries, the bibliometric analysis reveals persistent gaps, including limited representation of severe ASD populations and minimal contributions from developing nations. The study's bibliometric approach uniquely maps out evolving research foci, collaboration patterns, and emerging themes such as technology-integrated CBT. To operationalize these findings, stakeholders such as health ministries, educational institutions, and research funders should foster inclusive policies that promote cross-cultural adaptation of CBT, expand international research partnerships, and support technology-enabled intervention models. This synthesis highlights the need for equitable, scalable, and culturally responsive CBT strategies, ensuring that future research and clinical practice are more globally relevant and inclusive.

AUTHOR'S CONTRIBUTION STATEMENT

Conceptualization, VYL and LS; methodology, VYL and AA; software, VYL; validation, VYL, TS and MLIW; formal analysis, VYL and NA; investigation, VYL; resources, LS; data curation, VYL; writing—original draft preparation, VYL; writing—review and editing, AA; visualization, VYL; supervision, VYL; project administration, LS; funding acquisition. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest related to this study. All efforts have been made to ensure an objective and balanced analysis of the available literature.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

This article is the original work of my team of writers, without involving artificial intelligence (AI) such as ChatGPT in the writing process or compiling the manuscript's contents. We only use Grammarly software for grammar and spelling checking purposes without relying on AI-based features that generate or compile text automatically. The entire manuscript's contents, including the analysis, interpretation, and arguments, result from the author's thoughts and efforts. All authors are fully responsible for this manuscript's authenticity and scientific integrity and are ready to accept academic consequences if there is a difference with this statement.

SOURCE OF FUNDING STATEMENTS

No external funding or sponsorship influenced the findings and interpretations presented in this review.

ACKNOWLEDGMENTS

We thank PT Ghema Berkat Abadi (Book Publisher) for their cooperation and support, which helped guide and accompany this publication.

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