





# Bibliometric Analysis of Publications on Autism Spectrum Disorder in Türkiye

## *Türkiye’de Otizm Spektrum Bozukluğu Üzerine Yapılan Yayınların Bibliyometrik Analizi*

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### ABSTRACT

**Objective:** This study aims to profile the studies conducted on ‘autism’ in the Turkish Psychiatry Index and ULAKBİM TR Index databases using bibliometric analysis methods.

**Method:** Publications containing the words ‘autism’ or “autism” in their titles or abstracts were searched on 01.07.2025; two publications with the keyword ‘nepotism’ and one publication with information that it had been withdrawn were excluded from the study, and studies that were common in both databases were included only once. A total of 655 publications were included in the study.

**Results:** 546 (83.3%) of the studies had more than one author. The analysis revealed that the studies gained momentum in 2018 and onwards, with the highest number of publications in 2021 (n=75), and the most frequently used keyword was autism spectrum disorder (n=258). The journal with the most articles on this topic was the Ankara University Faculty of Educational Sciences Journal of Special Education (n=43), the journal with the most citations was Educational Sciences: Theory & Practice (n=764), and the department with the most publications was Child and Adolescent Psychiatry (n=88). It was found that 197 of the publications had collaboration between departments or faculties. The most frequent collaboration was between the departments of child and adolescent psychiatry and psychiatry.

**Conclusion:** It is evident that autism is a developing and engaging topic in national academic literature. Promoting interdisciplinary and international collaborations in the field of autism spectrum disorder can enhance both scientific quality and the social impact of research.

**Keywords:** Autism, autism spectrum disorder, bibliometric analysis, Türkiye

### ÖZ

**Amaç:** Bu çalışmada, Türk Psikiyatri Dizini ve ULAKBİM TR Dizin veri tabanlarında yer alan “otizm” alanında şimdiye kadar yapılan çalışmaların profilinin bibliyometrik analiz yöntemi ile ortaya konması amaçlanmıştır.

**Yöntem:** 01.07.2025 tarihinde başlık veya özetlerinde “otizm” veya “autism” kelimeleri yer alan yayınlar taranmış; anahtar kelimesi nepotizm olan 2 yayın ve geri çekildiği bilgisi olan 1 yayının çalışmadan dışlanmış ve her iki veri tabanında ortak olan çalışmalar sadece bir kez alınmıştır. Çalışmaya toplam 655 makale dahil edilmiştir.

**Bulgular:** Araştırmaların 546’sı (%83,3) birden çok yazarlıdır. Analizler sonucunda çalışmaların 2018 ve sonrasında hız kazandığı, en çok yayının 2021 yılında yapıldığı (n=75); en sık kullanılan anahtar kelimenin Otizm Spektrum Bozukluğu (n=258) olduğu, bu konuda en çok makalenin yer aldığı derginin Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi (n=43) olduğu, en fazla atıf alan derginin Kuram ve Uygulamada Eğitim Bilimleri (n=764) olduğu ve en fazla yayının Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları (n=88) bölümü tarafından yapıldığı belirlenmiştir. İncelenen yayınların 197’sinde bölümler veya fakülteler arası iş birliği yapıldığı saptanmıştır. En sık iş birliği yapan bölümlerin çocuk ve ergen ruh sağlığı ve hastalıkları ile ruh sağlığı ve hastalıkları bölümleri arasında gerçekleştiği bulunmuştur.

**Sonuç:** Ulusal alan yazında otizm konusunun gelişmekte olan ve ilgi çeken bir konu olduğu görülmektedir. Otizm Spektrum Bozukluğu alanında disiplinler arası ve uluslararası iş birliklerinin teşvik edilmesi hem bilimsel kaliteyi hem de araştırmaların toplumsal etkisini artırabilir.

**Anahtar sözcükler:** Bibliyometrik analiz, otizm, otizm spektrum bozukluğu, Türkiye

## Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by limitations in social communication and interaction, restricted interests, commitment to routines, and repetitive behaviors (Rosen ve ark. 2021). According to biennially published data by the Autism and Developmental Disabilities Monitoring Network, the prevalence of ASD among eight-year-old children in 2022 was reported to be 32.2 per (Shaw 2025). While ASD is reported to be more prevalent in boys than in girls, the rising diagnosis rates among girls, particularly among non-white children (Shaw 2025), underscore the necessity of an integrated framework that can deliver equal diagnostic, treatment, and support services for all children. From this perspective, the increase

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in ASD awareness and prevalence makes it a highly promising topic in the literature.

Bibliometric analysis is a research technique that quantitatively evaluates the structure and dynamics of scientific production by examining data on authors, subjects, citations, and publication networks (Donthu ve ark. 2021, Kumar ve ark. 2023). In recent years, bibliometric analyses have gained significant momentum due to easier access to large scientific databases, the widespread use of advanced analysis software, and the ability to process large volumes of data. Compared to classical methods such as meta-analyses and systematic reviews, bibliometric analyses have the advantage of evaluating a broader field of literature with objective criteria (Donthu ve ark. 2021, Kumar ve ark. 2023). Additionally, bibliometric methods enable the quantitative analysis of unstructured big data, providing insights into the evolutionary characteristics of the field (Donthu ve ark. 2021). Furthermore, bibliometric studies can serve as a strategic guidance tool for mapping the current literature and determining future research topics (Donthu ve ark. 2021, Kumar ve ark. 2023).

According to bibliometric studies of the international literature on autism, in addition to studies covering epidemiological information (Li ve ark. 2022) and general advances (Zhao ve ark. 2022, Chowdhury ve ark. 2024), there are also studies cover different subfields such as artificial intelligence research trends in ASD treatment (Zhang ve ark. 2022), virtual reality applications for ASD (Lorenzo ve ark. 2022, Husaeni ve ark. 2025), sleep disorders in children with ASD (Kılıçaslan ve ark. 2025), the role of the microbiome (Lin ve ark. 2022, Ying ve ark. 2025), inflammation (Chen ve ark. 2025) and biomarkers (Jin ve Wang 2024, Xie ve ark. 2024). Only two bibliometric studies on autism have been published in the national literature (Özgür ve Balcı 2022, Akgün 2023). These studies evaluated the journals that published the most ASD-related articles, their distribution by year, and the researcher institutions and collaborations. However, both studies only examined research included in the Web of Science (WoS) database and did not evaluate national publications outside the scope of WoS. A considerable majority of studies on ASD conducted in Türkiye are published in national databases. Consequently, existing bibliometric studies do not adequately reflect academic production in Türkiye. This study aims to conduct a bibliometric analysis of autism studies that are not visible in international databases such as WoS or Scopus but are included in the Turkish Psychiatric Index and the ULAKBİM TR Index, and to determine the profile of studies in this field. This is the first study to have this aim, and it helps make the national literature visible and provides the basis for future comparative research.

## Methods

The keywords for this study were determined as “otizm” from the Turkish Science Terms (<http://www.bilimterimleri.com>) and “autism” from the Medical Subject Headings (MeSH). Studies with the keyword “otizm” or “autism” in the title or abstract were examined in the Turkish Psychiatry Index and the ULAKBİM TR Index. Data screening was performed on both databases on 01.07.2025; no restrictions were applied in terms of year, and all studies published up to the search date were examined. The SOBİAD database was not included in the study because the publications in this national database broadly cover the social sciences and fall outside the scope of this study and the researchers’ area of expertise. As the majority of publications in the ULAKBİM TR Index and the Turkish Psychiatry Index were found to overlap with other databases, it was decided to analyze data from these two databases to assess field coverage and accessibility.

A total of 594 studies were extracted from the ULAKBİM TR Index and 168 studies from the Turkish Psychiatry Index. Bibliometric data of the studies (article type, publication year, authors, author affiliations, keywords, journal of publication, number of citations, etc.) were extracted from both databases in Excel format. Two studies containing the keyword “nepotism” in their title or abstract, which were found to be irrelevant to the subject, and one withdrawn study were excluded. One hundred four studies were identified in both databases; as a result, a total of 655 studies were included in the bibliometric analysis.

Each study was searched in Google Scholar to cover any missing information during data analysis. Based on Google Scholar results, missing data for the research variable were completed, and the citation counts for all studies were updated.

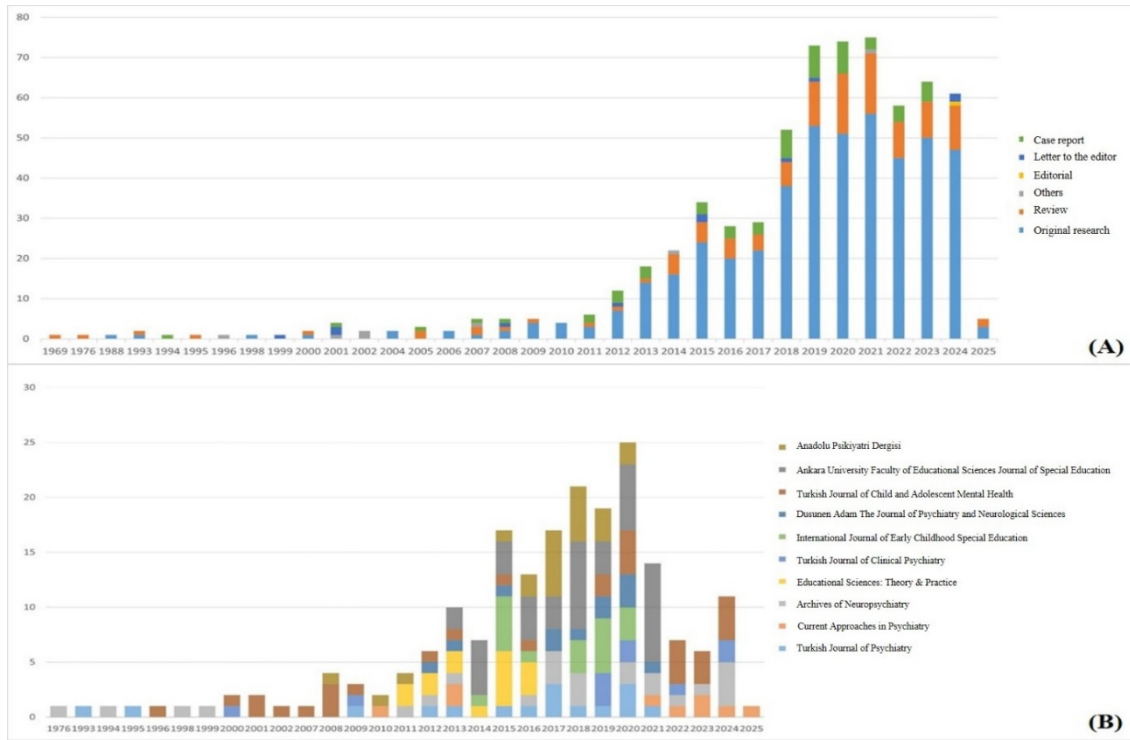
The types of articles, the distribution of publications by year, the authors, institutions, and the journals with the highest number of articles, and the most frequently used keywords are presented in single-variable tables. We conducted author-author network analyses to identify the social network among authors with studies in the field of autism, and performed keyword network analysis to identify related keywords. Additionally, we conducted collaboration network analysis to reveal interdisciplinary collaborations. In network analyses, the size of a node represents the frequency of a variable, while the thickness of a line indicates the strength of the relationship between variables.

In order to minimize potential errors, all words have been capitalized and formatted without Turkish characters. The analyses were conducted using Microsoft Excel and R-4.5.1 for Windows, RStudio (Posit team 2025), Bibliometrix (Aria ve Cuccurullo 2017), and wordcloud2 (Lang ve Rudis 2016) packages. It was determined that raw keyword frequencies exhibited a highly skewed distribution. A logarithmic transformation ( $\log(x+1)$ ) was applied to the keyword frequencies prior to word cloud visualization in order to ensure that less frequently used but meaningful words remain visible in the graph, to prevent disproportionate emphasis on the most frequently used keywords, and to make the word cloud more readable and interpretable.

All data used in this study are publicly available and do not contain any personal health record information. Therefore, ethical committee approval is not required. However, all procedures were conducted with scientific rigor to ensure the reliability of the research.

## Results

The types of studies, publication years; authors, institutions, and journals with the most publications, keywords, and author-author social network analyses were conducted.



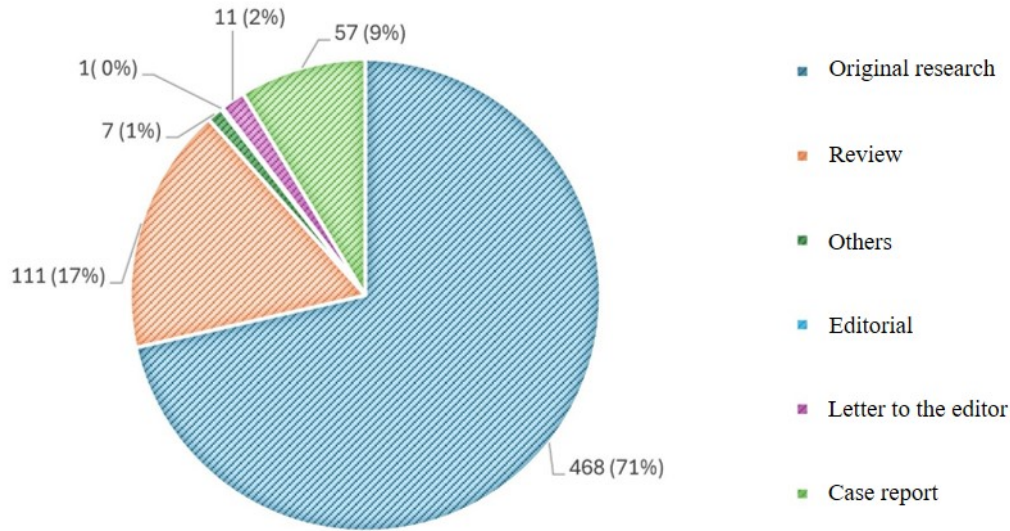
**Figure 1. A. Annual distribution of studies by type, B. Yearly publication trends in the ten most frequently publishing journals**

**Table 1. Journals with the highest number of publications and citation counts**

Journal	Number of Publications	Number of Citations
Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi	43	718
Çocuk ve Gençlik Ruh Sağlığı Dergisi	31	224
Nöropsikiyatri Arşivi	24	111
Anadolu Psikiyatri Dergisi	22	199
International Journal of Early Childhood Special Education	18	311
Türk Psikiyatri Dergisi	16	176
Kuram ve Uygulamada Eğitim Bilimleri	15	764
Düşünen Adam - Psikiyatri ve Nörolojik Bilimler Dergisi	12	50
Klinik Psikiyatri Dergisi	10	104
Psikiyatride Güncel Yaklaşımlar	9	94

Of the 655 studies, 434 (66%) were in Turkish. The first study published on autism was the article titled 'Primer bebeklik autisması' (Primary infantile autism)' written by E. Sümer in 1969. A significant increase in the number of studies was observed in 2018 and subsequent years, with the highest in 2021 (n=75) (Figure 1). When the

studies were examined by type, 468 (71%) were research articles, 111 (17%) were reviews, and 57 (9%) were case reports. When examining the temporal distribution of studies by type, it is noteworthy that research and review studies have increased since 2018, while case reports have decreased in recent years (Figure 1A). The distribution of studies by type is detailed in Figure 2.



**Figure 2. Distribution of studies by type (n, %)**

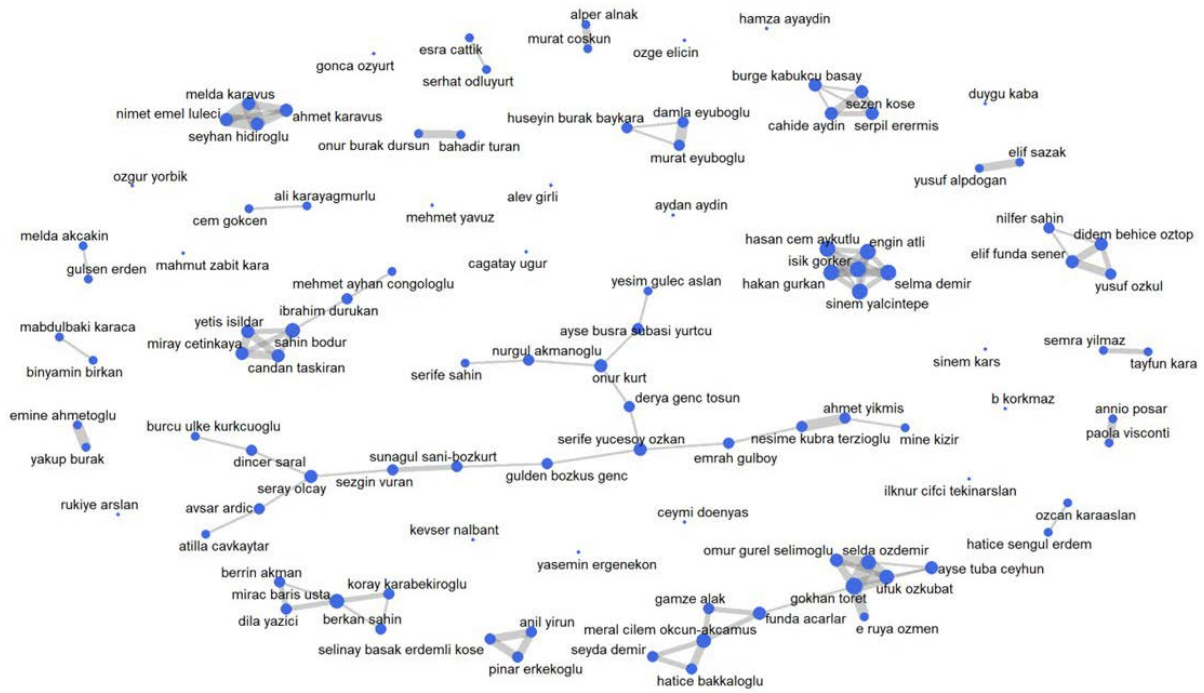
**Table 2. Authors with the most publications**

Authors	Number of Publications
Gökhan Töret	12
Selda Özdemir	9
Onur Kurt	8
Meral Çilem Ökcün-Akçamuş	7
Nurgül Akmanoğlu	7
Serhat Odlyurt	7
Miraç Barış Usta	7
Ahmet Yıkılmış	7
Emine Ahmetoğlu	6
Funda Acarlar	6
Nesime Kübra Terzioğlu	6
Seyhan Hıdıroğlu	6
Çağatay Uğur	6
Melda Karavuş	6
Sezen Köse	6
Koray Karabekiroğlu	6
Melda Akçakın	6
Sezgin Vuran	6

The distribution of studies across journals showed that the journal with the most publications was the Ankara University Faculty of Educational Sciences Journal of Special Education, with 43 studies. Among the journals publishing research in this field, the journal with the highest number of citations was the Educational Sciences: Theory & Practice, with 764 citations. The top 10 journals in which the studies examined in the research were most frequently published, and the number of citations, are presented in Table 1, and the temporal distribution of the number of publications in these journals is presented in Figure 1B.

Among all, 546 studies (83.3%) had multiple authors, with the study with the most authors having 17. The ten

authors with the highest number of articles, along with the author-author network analysis, are presented in Table 2 and Figure 3.



**Figure 3. Social network analysis of authors with three or more publications**

**Table 3. Institutions with the most published articles**

Institutions	Number of Publications
Anadolu University	67
Hacettepe University	49
Ankara University	43
University of Health Sciences	33
Gazi University	29
Trakya University	22
Abant İzzet Baysal University	20
İstanbul University	17
Marmara University	16
Ege University	15

Of the 624 studies with available institutional information, Anadolu University ( $n = 67$ ) was determined as the institution with the most studies. Top 10 institutions with the highest number of studies are listed in Table 3.

The examination of 646 articles with accessible citation information was conducted. 486 articles received at least one citation, with a total of 5,492 citations received by these articles. The highest number of citations was 107; the number of publications receiving 10 or more citations was 157. The bibliographic details and citation counts of the five most-cited publications are provided in Table 4. Examining the cited publications revealed that 198 publications were in the health sciences and received 1,803 citations, while 177 publications were in the education sciences and received 2,896 citations.

### Keyword Analyses

A total of 628 studies were accessible by keyword. A total of 1,484 different keywords were used in the studies. The five most frequently used keywords were otizm spektrum bozukluğu ( $n=258$ ), otizm ( $n=194$ ), autism spectrum disorder ( $n=33$ ), çocuk ( $n=28$ ), and autism ( $n=25$ ). The 10 most frequently used keywords are presented in Table 5, and the keywords used in 5 or more studies are visualised in the word cloud (Figure 5).

**Table 4. Publications with the most citations and citation counts**

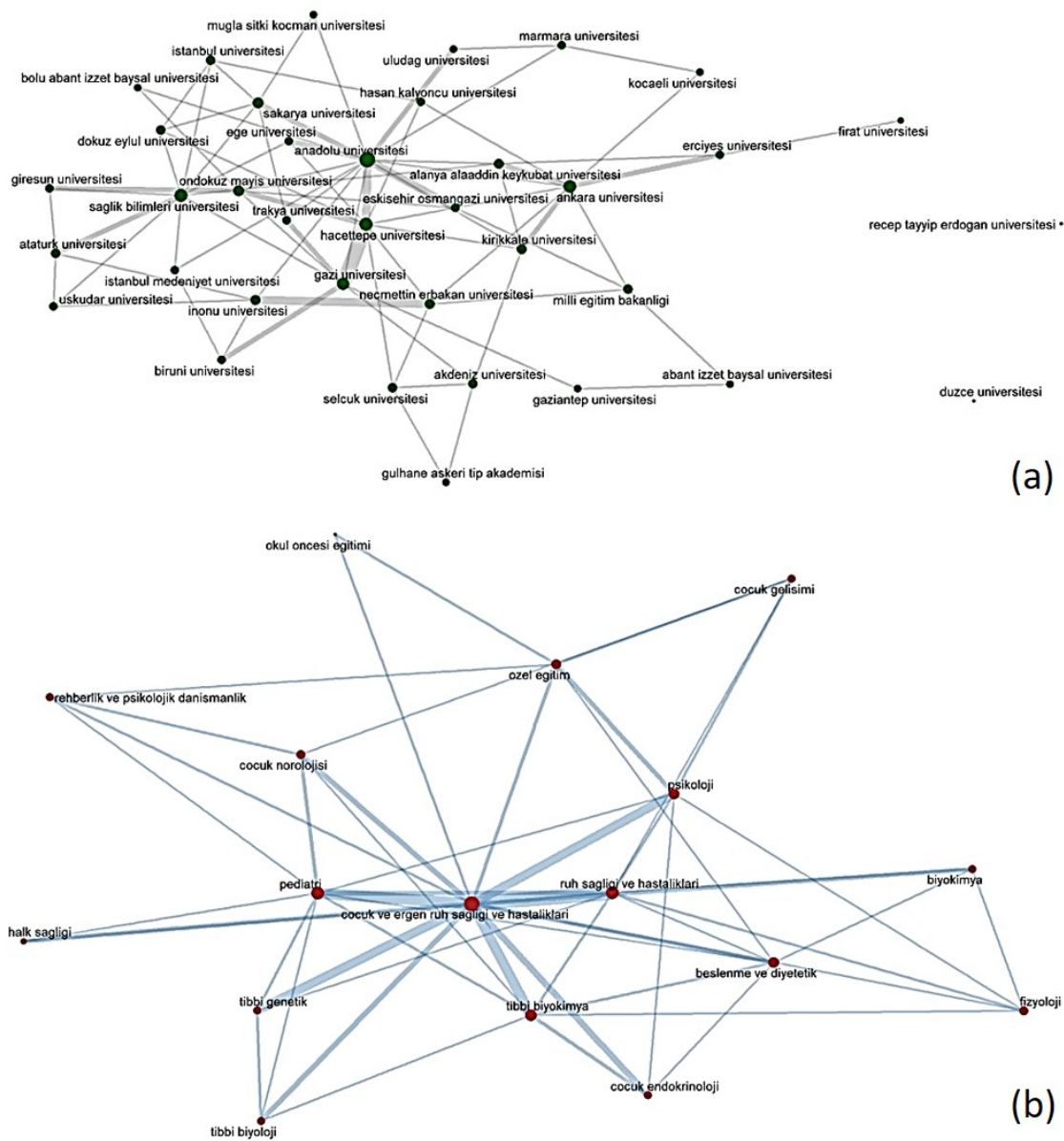
Title	Authors	Affiliations	Journal	Publication year	Citation counts
Effectiveness of Video Modeling Provided by Mothers in Teaching Play Skills to Children with Autism	Fatma Besler	Anadolu University, Faculty of Arts, Department of Sociology, Eskişehir, Türkiye	Educational Sciences: Theory & Practice	2016	107
	Onur Kurt	Anadolu University, Research Institute for Individuals with Disabilities, Eskişehir, Türkiye			
Exploring the Validity and Reliability of Turkish Version of Gilliam Autism Rating Scale-2: Turkish Standardization Study	İbrahim H. Diken	Anadolu University, Faculty of Education, Department of Special Education, Eskişehir, Türkiye	Education and Science	2012	90
	Özlem Diken	Anadolu University, Faculty of Education, Department of Special Education, Eskişehir, Türkiye			
	James E. Gilliam				
	Avşar Ardiç	Pamukkale University, Faculty of Education, Department of Special Education, Denizli, Türkiye			
Gluten-Free Casein-Free Diet for Autism Spectrum Disorders: Can It Be Effective in Solving Behavioural and Gastrointestinal Problems?	Hülya Yardımcı	Ankara University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Ankara, Türkiye	Eurasian Journal of Medicine	2020	87
	Büşra Başpınar	Ankara University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Ankara, Türkiye			
Otizmlı Çocuğa Sahip Olan Ebeveynlerin Görüşleri: Otizm Tanımlamaları ve Otizmin Nedenleri	Gökhan Töret	Gazi University, Faculty of Education, Department of Special Education, Ankara, Türkiye	Ankara University Faculty of Educational Sciences Journal of Special Education	2014	86
	Ufuk Özkubat	Gazi University, Faculty of Education, Department of Special Education, Ankara, Türkiye			
	Ömür Gürel Selimoğlu	Gazi University, Faculty of Education, Department of Special Education, Ankara, Türkiye			
	Selda Özdemir	Gazi University, Faculty of Education, Department of Special Education, Ankara, Türkiye			
An Analysis of the Use of Social Stories in Teaching Social Skills to Children with Autism Spectrum Disorders	Sunagül Sani-Bozkurt	Anadolu University, Faculty of Education, Department of Special Education, Eskişehir, Türkiye	Educational Sciences: Theory & Practice	2014	81
	Sezgin Vuran	Anadolu University, Faculty of Education, Department of Special Education, Eskişehir, Türkiye			

### Social Network Analysis

In order to determine collaborations between institutions, data from 624 articles for which the authors' affiliations were available were evaluated. A network of 37 institutions with 5 or more studies was analysed. The







**Figure 5 a) Inter-institutional collaboration network analysis, b) Interdisciplinary collaboration network analysis**

## Discussion

This study aims to evaluate research trends, collaborations, and thematic interests by comprehensively examining academic publications in the field of ASD published in the ULAKBİM TR Index and the Turkish Psychiatry Index. For this purpose, a bibliometric analysis was conducted on a total of 655 publications included in these indices. Results indicate a notable rise in publications in recent years, with research articles being the most common and the majority of publications having multiple authors. Anadolu University is among the institutions that contribute most to the national literature, with research themes mainly focusing on autism spectrum disorder and educational interventions. The bibliometric analysis findings are discussed under the following headings.

This study found a significant increase in ASD publications over time, with a notable acceleration after 2018. Several reasons may explain this trend. Comprehensive changes in ASD diagnostic criteria with the transition from DSM-IV to DSM-5 in 2013, particularly the grouping of Asperger syndrome and other pervasive developmental disorders under a single umbrella (Grzadzinski ve ark. 2013), may have indirectly expanded the diagnosed population and broadened the research scope. The increase in clinical referrals, along with social



awareness of ASD (Liu ve ark. 2023), the spread of early diagnosis and screening practices, and the availability of national research funds for special needs projects (e.g., TÜBİTAK 4008) may also have led to increased research in this area. Concurrently, the shift in educational approaches and interventions for children with special needs following the COVID-19 pandemic may have stimulated interest in this field (Lyu ve ark. 2023). The adoption of big data applications, artificial intelligence-based methods, electronic health records, and internet-based data collection may have enabled researchers to conduct more participatory and comprehensive studies, thereby supporting the growth of ASD research.

However, the 2018 revision of the associate professorship regulations, which introduced minimum national publication and academic score requirements, may have increased publication activity among academics who are interested in ASD (Resmi Gazete 2018). Furthermore, the increase in open-access journals, special-topic issues, and conference organizations, as well as the rise of systematic reviews, meta-analyses, and bibliometric studies, may have accelerated publication output. However, it is important to note that there has been a significant decline in the number of case reports in the field of ASD. While the number of publications in the field of ASD in educational science journals has decreased compared to previous years, publications in medical journals have increased (Figure 1A). These findings suggest that more comprehensive research is needed to understand the reasons behind the increase in publications and the changes in the field.

Our research shows that articles on ASD are most frequently published in special education and educational sciences journals. This suggests that in Türkiye, ASD is widely addressed from educational and behavioral perspectives. On the other hand, research in psychiatry, pharmacology, neurodevelopment, and health sciences remains limited. A study of publications on autism in the WoS database found that the most common fields were psychology (36.4%), neuroscience/neurology (22.6%), psychiatry (21.2%), rehabilitation (11.9%), and educational research (11.5%) (Özgür ve Balcı 2022). Interest in the neurobiological foundations of mental disorders has increased significantly in recent years. There is a growing trend, particularly alongside scientific advances in neuroimaging, genetics, epigenetics, and neuroinflammation (Eyring ve Geschwind 2021, Yamada ve Sumiyoshi 2021). The association of mental disorders with biological and neurodevelopmental mechanisms, as well as behavioral aspects, has further increased the importance of multidisciplinary approaches. Consequently, the number of studies focusing on the biological underpinnings of complex neurodevelopmental disorders such as ASD is expected to increase in the coming years.

Our research shows that the majority of publications are conducted at particular universities. Institutions with a longstanding history of research in special educational needs and disabilities are central to ASD research. Academic specialization appears to contribute positively to publication output (Heng ve ark. 2020). However, these results may be related to institutional awareness or specialization on ASD, as well as institutional capacity. When conducting studies on institutional productivity, it is important to normalize publication numbers by considering institutional size and the number of academic staff. The recent rise in publications in psychiatry and medical journals likely results from advances in diagnosis, treatment, and biomedical research in the health sector. Conversely, the decline in publications in education may be related to the shutdown of educational institutions during the COVID-19 pandemic, limited fieldwork opportunities, and difficulties in data collection. These findings show that institutional productivity and thematic trends are shaped not only by academic motivations but also by developments in the health, societal, and policy. On the other hand, the limited number of publications on ASD in some institutions may be interpreted as a need for a more balanced, nationwide development of research activities in this field.

Inter-institutional collaboration was identified in nearly one-third of the studies. A bibliometric analysis of global scientific publications on ASD indicated that 30.1% of articles from the ten most productive countries involved international collaboration. This finding highlights the need for collaboration in ASD research (Sweileh ve ark. 2016). Another bibliometric review of ASD-related research from 2002 to 2022 also identified opportunities for increased regional and institutional collaboration (Wu ve ark. 2023). Our results suggest that institutional collaborations in ASD-related studies are valuable and that more joint publications could be produced. Regarding interdisciplinary collaboration, studies most frequently involved the departments of child and adolescent psychiatry, adult psychiatry, and biochemistry. The presence of medical biochemistry in interdisciplinary collaborations may suggest that researchers follow global publications and recent advances in ASD research (Jensen ve ark. 2022).

The most common keywords identified in this research are basic diagnostic terms, including “Otizm Spektrum Bozukluğu (Autism Spectrum Disorder)”, “Otizm (Autism)”, and “Otistik Bozukluk (Autistic Disorder)”. A bibliometric analysis of 59,653 studies on autism in the WoS database similarly found that “autism” and “autism spectrum disorder” were the most frequently used keywords (Özgür ve Balcı 2022). In our study, which covers

two large national databases, the presence of keywords such as “farkındalık (awareness)”, “yaşam kalitesi (quality of life)” ve “özel eğitim (special education)” suggests that ASD is considered not only in clinical terms but also as a multidimensional condition affecting individuals' lives. Conversely, neurobiological, genetic, or intervention-based technical terms appear less frequently among the keywords, which may indicate that a limited emphasis on biomedical-focused research. A recent bibliometric study reported that thematic focuses have shifted and expanded over the past decade (Zhao ve ark. 2022). The study showed that terms related to diagnosis, such as “diagnostic interview” and “deficit hyperactivity disorder”, were prominent between 2012 and 2015. On the other hand, experimental and comparative research terms, such as “randomized controlled trial” and “typical development”, came to the fore in the 2016–2018 period. Between 2018 and 2021, prominent themes included “caregiver”, “disabilities monitoring network”, “gut microbiota” and “technology.” This shift suggests that the international literature on ASD now addresses not only its diagnostic and behavioral aspects, but also biological, technological, and environmental contexts. The limited presence of these themes among the keywords in our study suggests that ASD research in Türkiye is still predominantly shaped by basic awareness, diagnosis, and special education. However, there is potential for more integration with international thematic trends in the future.

Yet it should be acknowledged that keyword patterns may be influenced by factors beyond research trends, such as journal profiles, funding priorities, the historical development of the field, and publication practices in Turkish. In Türkiye, the long-standing dominance of educational science journals may explain the frequent use of keywords related to diagnosis and awareness. At the international level, biomedical and technological themes are becoming increasingly prevalent due to funding policies and the influence of interdisciplinary collaborations. Furthermore, the transition from DSM-IV to DSM-5 has also changed diagnostic categories and criteria for ASD, which may have affected clinical practices and research terminology. Further systematic studies are needed to examine the relationship between these differences in keyword preferences and journal policies, national funding strategies, and changes in the diagnostic framework.

In our study, we observed that the most frequently cited publications focused on educational interventions for ASD, scale development, and validity-reliability studies and assessments for families of individuals diagnosed with ASD. Globally, the most frequently cited articles on ASD predominantly focus on its genetic and biomedical determinants, the development of diagnostic tools, and experimental interventions (Sweileh ve ark. 2016). There are noteworthy bibliometric analysis studies evaluating specific topics related to ASD, such as genetic factors, cellular signaling pathways, and artificial intelligence applications in treatment (Lyu ve ark. 2024). This may have led to citations in international ASD studies generally concentrating on biomedical and technological themes. Our study suggests that field-based applications and social dimensions are more influential in ASD studies in Türkiye. Furthermore, the results indicate that a significant proportion of highly cited publications originate from education faculties and special education departments (177 publications, 2,896 citations), suggesting that research priorities across the country may align with pedagogical approaches.

The citation distribution of the studies revealed that a significant proportion gained academic visibility, with the most cited publications generally containing application-oriented content that appeals to a broad audience. Although studies published in Turkish are highly cited nationally, their contribution to the international literature is limited. Supporting this, a bibliometric study in the field of autism reported that 97% of studies were in English and that the ten most-cited publications were also in English (Özgür ve Balcı 2022). Accordingly, this suggests that international publication policies need to be promoted to increase the visibility of ASD research in Türkiye in the global literature.

This study has some limitations. First, it should be noted that the analyses are limited to publications included in the ULAKBİM TR Index and the Turkish Psychiatric Index, and international databases such as WoS and Scopus have been excluded. This may have resulted in some internationally indexed publications from Türkiye not being included in the analysis. During the planning phase of the study, the WoS Core Collection database was reviewed for studies based in Türkiye. It was noted that a significant limitation exists: a study is classified as “Türkiye-based” if even one author is affiliated with Türkiye, which may result in the inclusion of studies that were either not conducted in Türkiye or that had only a minimal contribution from Turkish researchers. As a result, this could lead to an inaccurate representation of Türkiye's publication profile and research capacity. It was acknowledged that excluding certain publications from the analysis was an unavoidable limitation of the study. Moreover, the exclusion of the SOBIAD database may have led to limited representation of the social sciences and, in turn, to the dominance of the educational and health sciences. Furthermore, bibliometric analyses are limited to publication counts and citation data, excluding a qualitative assessment of content depth and quality. The productivity of institutions has been evaluated based only on publication counts. The size of an institution or the number of academic staff are not considered for normalization. In addition, the study did not

include the productivity of institutions outside the ASD. When analyzing inter-institutional collaborations, only publication partnerships were considered. The individual contributions of authors and the structure of research teams were not examined in detail.

## Conclusion

This study comprehensively reveals the characteristics and trends of academic literature published in the field of ASD in the ULAKBİM TR Index and the Turkish Psychiatry Index. The findings show a significant increase in publications in recent years. While research in previous years focused mainly on educational interventions, scale development, and family-centered assessments, studies in the medical sciences have increased in recent years. The concentration of institutional distribution in certain universities may indicate that academic specialization can increase productivity. Increasing interdisciplinary collaborations and supporting biomedical research are essential for promoting the research ecosystem. Moreover, while Turkish publications receive high citations at the national level, their international visibility remains limited. This indicates a need to support international publishing strategies so that research in OSB in Turkey can play a more active role on global scientific platforms.

The present study is distinguished by its scope, which differs from the two bibliometric studies previously published in the national literature on ASD, and it makes significant contributions. Unlike previous studies, which focused on publications within the scope of WoS, this study comprehensively examines national databases, such as ULAKBİM TR Index and Turkish Psychiatry Index, thereby providing a more holistic view of national academic production. A further strength of our study is that it analyses interdepartmental and interfaculty collaboration networks, which are not covered in other studies, as well as interinstitutional collaborations. This analysis is significant in highlighting that research on ASD in the national literature is not confined to a single discipline; it has the potential to develop through collaborations among education, health sciences, and social sciences. In this context, encouraging interdisciplinary and international collaborations in ASD research can enhance both the scientific quality and societal impact of research.

In future studies, with a particular focus on institutional productivity, an assessment of productivity that incorporates not only the number of publications but also considers the size of the academic staff and institutional resources will contribute to a more precise interpretation of the results. Furthermore, incorporating underrepresented national and international databases into bibliometric studies could provide a more comprehensive view of academic output regarding ASD in Türkiye. Finally, research that systematically examines the impact of external factors, such as the COVID-19 pandemic, on publication trends could contribute to understanding the dynamics of academic productivity.

## References

- Akgün NR (2023) Otizm spektrum bozukluğunda yardımcı teknolojilerin eğilimleri: web of science veri tabanına dayalı bibliyometrik analiz (1998–2023). *Cumhuriyet Uluslararası Eğitim Dergisi*, 12:777-794.
- Aria M, Cuccurullo C (2017) Bibliometrix: An R-tool for comprehensive science mapping analysis. *J Informetr*, 11:959-975.
- Chen Y, Du X, Zhang X, Li F, Yuan S, Wang W et al. (2025) Research trends of inflammation in autism spectrum disorders: a bibliometric analysis. *Front Immunol*, 16:1534660.
- Chowdhury M, Gould M, Ganti L (2024) Advances in autism: a bibliometric analysis. *Health Psychol Res*, 12:125844.
- Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM (2021) How to conduct a bibliometric analysis: an overview and guidelines. *J Bus Res*, 133:285-296.
- Eyring KW, Geschwind DH (2021) Three decades of ASD genetics: building a foundation for neurobiological understanding and treatment. *Hum Mol Genet*, 30:236-244.
- Grzadzinski R, Huerta M, Lord C (2013) DSM-5 and autism spectrum disorders (ASDs): an opportunity for identifying ASD subtypes. *Mol Autism*, 4:12.
- Heng K, Hamid M, Khan A (2020) Factors influencing academics' research engagement and productivity: A developing countries perspective. *Issues in Educational Research*, 30:965-987.
- Husaeni A, Novia D, Rahman EF (2025) Effectiveness of Using Augmented Reality-Based Picture Exchange Communication System (PECS) in Improving communication skills of autistic students in Indonesian language subjects: bibliometric analysis. *Pertanika J Sci Technol*, 33:1459-1482.
- Jensen AR, Lane AL, Werner BA, McLees SE, Fletcher TS, Frye RE (2022) Modern biomarkers for autism spectrum disorder: future directions. *Mol Diagn Ther*, 26:483-495.
- Jin F, Wang Z (2024) Mapping the structure of biomarkers in autism spectrum disorder: a review of the most influential studies. *Front Neurosci*, 18:1514678.
- Kılıçaslan F, Karataş H, Doğan Ü (2025) A bibliometric and visualized analysis of sleep problems in children with autism spectrum disorder. *Res Dev Disabil*, 158:104943.

- Kumar M, George RJ, PS A (2023) Bibliometric analysis for medical research. *Indian J Psychol Med*, 45:277-282.
- Lang D, Rudis B (2016) wordcloud2: Create Word Cloud by 'htmlwidget' (Version 0.2.1) [R package]. <https://cran.r-project.org/package=wordcloud2> (Accessed 01.08.2025).
- Li YA, Chen ZJ, Li XD, Gu MH, Xia N, Gong C et al. (2022) Epidemiology of autism spectrum disorders: global burden of disease 2019 and bibliometric analysis of risk factors. *Front Pediatr*, 10:972809.
- Lin X, Zhou R, Liang D, Xia L, Zeng L, Chen X (2022) The role of microbiota in autism spectrum disorder: a bibliometric analysis based on original articles. *Front Psychiatry*, 13:976827.
- Liu A, Lu Y, Gong C, Sun J, Wang B, Jiang Z (2023) Bibliometric analysis of research themes and trends of the co-occurrence of autism and ADHD. *Neuropsychiatr Dis Treat*, 24:985-1002.
- Lorenzo G, Newbutt N, Lorenzo-Lledó A (2022) Global trends in the application of virtual reality for people with autism spectrum disorders: conceptual, intellectual and the social structure of scientific production. *Journal of Computers in Education*, 9:225-260.
- Lyu K, Li J, Chen M, Li W, Zhang W, Hu M (2023). Effect of COVID-19 on autism spectrum disorders: A bibliometric analysis based on original articles. *Medicine*, 102:e35310.
- Lyu K, Li J, Chen M, Li W, Zhang W, Hu M et al. (2024) A bibliometric analysis of autism spectrum disorder signaling pathways research in the past decade. *Front Psychiatry*, 15:1304916.
- Özgür EG, Balcı S (2022) The evolution of autism: a bibliometric analysis. *Acta Medica Nicomedia*, 5:1-7.
- Posit team (2025) RStudio: Integrated Development Environment for R. <http://www.posit.co/>. (Accessed 01.08.2025).
- Resmi Gazete (2018) Doçentlik Yönetmeliği. <https://resmigazete.gov.tr/eskiler/2018/04/20180415-3.htm> (Accessed 01.08.2025).
- Rosen NE, Lord C, Volkmar FR (2021) The diagnosis of autism: from Kanner to DSM-III to DSM-5 and beyond. *J Autism Dev Disord*, 51:4253-4270.
- Shaw KA, Williams S, Patrick ME, Valencia-Prado M, Durkin MS, Howerton EM et al. (2025) Prevalence and early identification of autism spectrum disorder among children aged 4 and 8 years—Autism and Developmental Disabilities Monitoring Network, 16 Sites, United States, 2022. *MMWR Surveill Summ*, 74:1-22.
- Sweilhe WM, Al-Jabi SW, Sawalha AF, Zyoud SeH (2016) Bibliometric profile of the global scientific research on autism spectrum disorders. *Springerplus*, 5:1480.
- Wu X, Deng H, Jian S, Chen H, Li Q, Gong R et al. (2023) Global trends and hotspots in the digital therapeutics of autism spectrum disorders: a bibliometric analysis from 2002 to 2022. *Front Psychiatry*, 14:1126404.
- Xie X, Zhou R, Fang Z, Zhang Y, Wang Q, Liu X (2024) Seeing beyond words: visualizing autism spectrum disorder biomarker insights. *Heliyon*, 10:e30420.
- Yamada Y, Sumiyoshi T (2021) Neurobiological mechanisms of transcranial direct current stimulation for psychiatric disorders; neurophysiological, chemical, and anatomical considerations. *Front Hum Neurosci*, 15:631838.
- Ying J, Zhang MW, Wei KC, Wong SH, Subramaniam M (2025) Influential articles in autism and gut microbiota: bibliometric profile and research trends. *Front Microbiol*, 15:1401597.
- Zhang S, Wang S, Liu R, Dong H, Zhang X, Tai X (2022) A bibliometric analysis of research trends of artificial intelligence in the treatment of autistic spectrum disorders. *Front Psychiatry*, 13:967074.
- Zhao J, Lu Y, Wu X, Zhou F, Fei F, Wu X et al. (2022) Bibliometric analysis of research themes and trends in childhood autism spectrum disorders from 2012 to 2021. *Front Public Health*, 10:925475.

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