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RESEARCH ARTICLE

A Bibliometric Analysis of Research Conducted on Sport and Physical Activity in Individuals with Autism Spectrum Disorder

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Abstract
The study presents a bibliometric analysis of studies conducted on sport and physical activity in individuals with autism spectrum disorder (ASD). 490 articles determined on Web of Science database in line with the purpose of the study were included in the data analysis. The results obtained show that there was a limited number of studies in this field before 2006, but that research has gained pace in this regard in recent years. It was found that the relevant research concentrated in countries such as the USA, China, Canada, and Turkey. On the other hand, such research was encountered less in some African and Asian regions involving underdeveloped countries. In addition, the analyses performed demonstrated that the number of studies which emphasized the importance of sport and physical activity in individuals with ASD in terms of developing their educational and life skills was higher. Besides, it was determined that more research was needed on issues such as mental health, executive functions, and adapted physical activity. In conclusion, the importance of research on sport and physical activity in individuals with ASD was emphasized, and the need for more research in this field was expressed.

Keywords
Autism Spectrum Disorder, Sport, Physical Activity, Bibliometrics

INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental disorder of unknown origin which manifests itself with difficulties and impairments in social interaction and repetitive behaviors (American Psychiatric Association, 2013). Difficulties experienced in social relations process are among the most distinctive properties of ASD (Bodur, 2004). Individuals with ASD experience difficulties in social interactions (Jones and Frederickson, 2010; Wilmshurst and Brue, 2018), and this situation leads to problems in relations with others. ASD is generally characterized by resistance to change, difficulties in complying with social rules, and lack of motivation (Habib et al., 2018).

It has been stated that comorbid motor impairments can be seen in more than 87% of children diagnosed with ASD (Bhat, 2021). Among these motor difficulties are bilateral coordination impairment, uncoordinated gait, delay in acquiring gross and fine motor skills, weakness in balance skills, and insufficient mimicking skills (Bryson et al., 2007; Chan et al., 2021; Harris and Williams, 2017; Fournier et al., 2010). When compared against peers with normal development, individuals with ASD may have more difficulties related with gait, balance, flexibility, and movement speed (Akin and Alp, 2019; Derer, 2018; Kars, Huri, Kayihan and Ergul, 2020). It has been emphasized that these motor impairments seen in individuals with ASD can be present as of early childhood (Harris and Williams, 2017) and

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may continue to exist in adulthood as well (Ming et al., 2007).

It has not been understood yet whether this impairment in motor skills seen in individuals with ASD is a direct result of ASD or it results from lack of opportunities in applying these skills in individuals with ASD (Pan et al., 2017; Sansi et al., 2021). This situation makes it difficult for individuals with ASD to participate in activities with their peers and therefore restricts their opportunities for social communication. This especially affects the success of individuals in social participation levels and their ability to establish interactions with others (Bodison, 2015). Thus, individuals with ASD mostly prefer to spend their time on their own (Ciftci, 2020).

It has been stated that individuals with ASD can overcome these difficulties through sport activities. This is because participation in physical activities ensures socialization, while it significantly reduces depressive symptoms and improves motor skills (Kara, et al., 2019). It has been demonstrated in various studies that sport education has positive effects on physical and motor development (Pitetti et al., 2007), self-confidence (Todd et al., 2010), cognitive and social functions (Anderson et al., 2011), acquiring new skills and decreasing repetitive behaviors (Bahrami et al., 2012; Ferreira et al., 2019), and academic skills (Nicholson et al., 2011). It has also been stated that physical activity may contribute to improvements in social relations and communication skills of individual as one of the potential benefits (Bremer et al., 2016; Chan et al., 2021). For example, participation in martial arts has been claimed to assist improvement of mental and physical health of individuals with ASD in terms of developing their motor skills (Sarabzadeh et al., 2019). In addition, researchers have demonstrated that karate training can significantly decrease stereotype behaviors and improve social interaction (Bahrami et al., 2012; Movahedi et al., 2013). Moreover, it has been reported in many studies that activities in various sport branches support different developmental areas in individuals with ASD (Bremer et al., 2016; Chan et al., 2021).

It is seen that studies conducted in recent years have concentrated on the participation of individuals with ASD in sport and physical activities (Jones et al., 2017; Srinivasan et al., 2014). However, scientific maps that would reveal the structures of the studies conducted on this issue have not been presented. A systematic literature review aims to develop an overall perspective of current status of research, to answer one or more research questions, and to determine the criteria for excluding or including studies (Linnenluecke et al., 2019). However, the present study is presented as an exploratory analysis of research on physical activity and sport in regard to individuals with ASD, which is a relatively new research subject. Considering these factors, it was thought that bibliometric analysis applications could be better adapted to the study. This is because such an analysis helps understand the trends in academic activities (Camps, 2008). The study has dual purposes. First of all, the study aims to determine the main trends in research on physical activity and sport in regard to individuals with ASD and to ensure a better understanding of the development of the research subject. Secondly, the study aims to be useful for researchers who need a theme tree that would guide studies to be conducted in this field and present a map of the analyzed field.

Hence, the purpose of the study is to analyze the studies conducted on sport and physical activity in individuals with ASD through bibliometric methods. With this study, a contribution will be made to the development of a perspective on main trends regarding physical activity-sport in individuals with ASD which other literature review methods could not offer. The aim in this study is not to interpret the quality of research or the definition of certain terms but to contribute to a comprehensive understanding of the literature. In this context, the study sought answers to the following research questions about the literature on the relationship between sport and physical activity and ASD:

- What is the distribution of the studies by year and countries?
- What is the status of international cooperation in issues discussed in the studies?
- What are the most influential articles and methods used in the studies?
- What are the most relevant journals on physical activity and sport in individuals with ASD?
- On what fields do the studies thematically concentrate?

MATERIALS AND METHODS

Determining Keywords and Screening

In the study, bibliometric methods were used in order to investigate previous studies conducted on sprot and physical activity in individuals with ASD. Bibliometric methods enable to objectively review studies in a research field based on bibliographic data without any subjective judgements and to see the current gaps in that field (Zupic and Čater, 2015). Recommended strategies in the literature were followed in the analysis of the relevant studies (Fahimnia et al., 2015). In this context, first of all, a decision was made on the database to be screened, and keywords were determined. In the second phase, the data were refined to a format suitable for analysis. In the third phase, data analysis was performed.

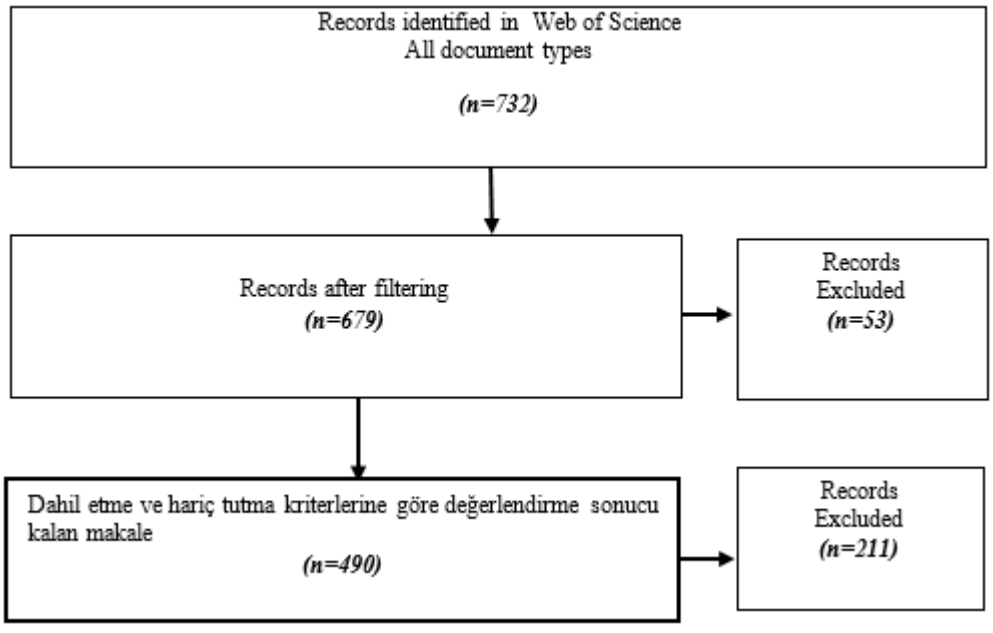


Figure 1. Flow diagram for screening in order to determine the articles to be included

A trial screening was performed by using the keywords and screening titles, abstracts, and topics. As a result of the trail, it was decided to use the following keyword sequence as it was comprehensive and included the relevant studies:

“(AB=("autism")) AND AB=("sport" or "physical activity" or "exercise")

As a result of the first screening, 732 articles were accessed. The screening process was terminated on 01.08.2023. By using the restriction options of WoS database, we limited document types and publication language. As document types, articles, review articles, and early access were chosen, and English was selected as the publication language. As a result of this limitation, the number of articles was reduced to 679. The titles and keywords of the remaining articles were examined by the two researchers in detail. Articles which were directly on sport and physical activity in individuals with ASD were included in the study. Research on rats, drug research, and articles that focused only on physical development were excluded. As a result these analyses, 211 articles were also excluded. Thus, the remaining 490 articles and bibliographic data of these articles (title, keyword, abstract, publication year, authors and countries, references) constituted the data set of the study.

Refining and Formatting The Data

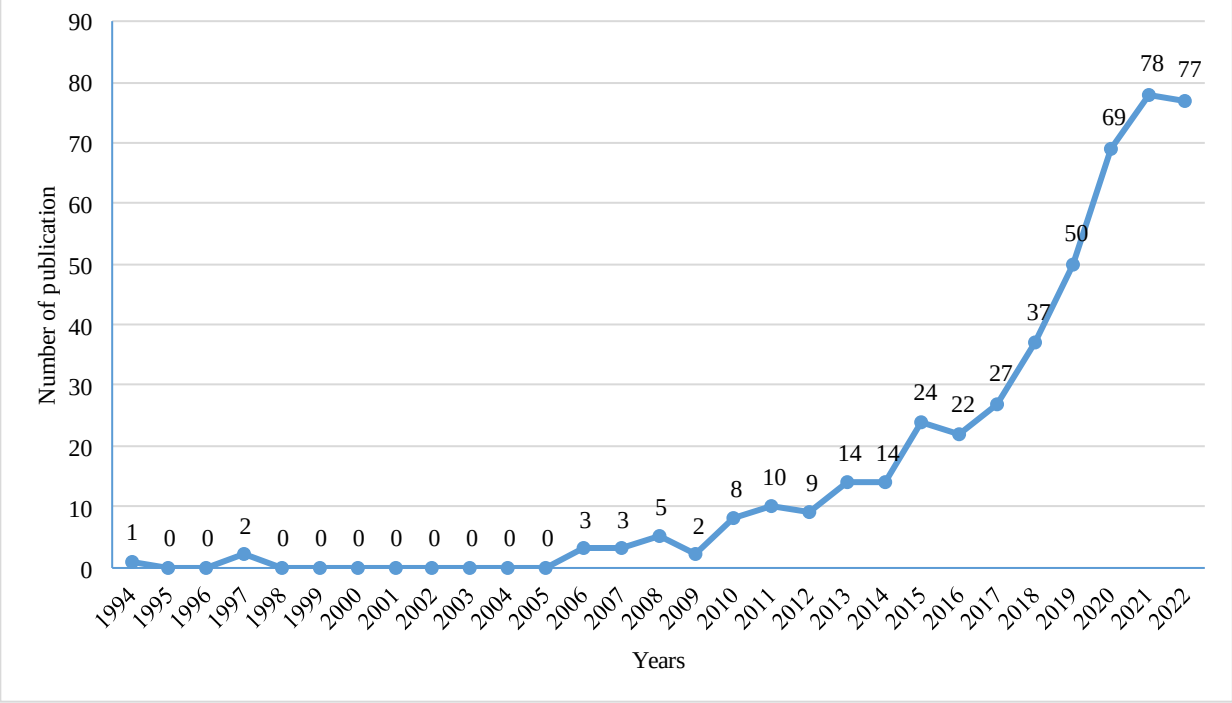
In order to check and refine the data, bibliographic data of the 490 articles were downloaded from WoS database as a simple text file and saved in computer environment. In the next stage, the data file was converted into CSV format, authors’ names, publication titles, country names, and keywords were examined, and missing data were reviewed and checked. In addition, in order to use in the analyses, a thesaurus and keywords file was created and saved as .txt file in computer environment. Thus, the data were made ready for analysis.

Data Analysis

In the analysis of the data, Microsoft Excel 2016, VOSviewer, and open-source Biblioshiny package software created in R programming language for bibliometric analyses were used. VOSviewer is a program that is compatible with WoS database and is used for visualization in data analysis (Van Eck and Waltman, 2010). In bibliometric analyses, publication and citation number, and keyword frequency are commonly used measurements (Ucar et al., 2023). In this context, in the present study, publication frequency by years was used in order to evaluate the historical development of the research on sport and physical activity in individuals with ASD. Likewise, number of publications of the corresponding authors by their countries was evaluated in order to determine publication productivity of countries. Additionally, co-author analysis, which enables to determine international cooperation networks, was benefited from (Sun and Rahwan, 2017). In order to determine the influential journals in the field, number of publications was considered, and in order to identify influential documents and publications, local and global citation numbers were evaluated. While local citation expresses the citations made to the study in the articles included in analysis, the global citation refers to the total citation number in the relevant database (Baransel Sabanci et al., 2023). In order to determine thematic research areas, common word analysis and strategic diagrams were used. Keyword frequencies and trend analyses were employed in order to determine commonly studied subjects and current research trends. More current subjects in a research field can be identified with trend analyses (Aria and Cuccurullo, 2017).

RESULTS

The distribution of 455 articles by years on sport and physical activity in individuals with ASD published between 1994-2022 is presented in Figure 2. Accordingly, it is noted that there were only three studies published between 1994-2005. No significant increase was observed in the number of publications until 2010. The period between 2006-2010 can be evaluated as the time period when the ground was laid for research. The period between 2016-2022 is the period when research area grew fast. In addition, a continuous increase in the number of studies until 2022 is notable. This situation shows that the research area has not completed its development yet.



Note: In terms of the interpretability of the graph and in order to avoid bias, publications in 2023 are not included in this graph

Figure 2. Distribution of publications by years (1994-2022)

The first 10 countries with the highest number of publications according to the countries of the corresponding authors are presented in Table 1. Accordingly, studies on sport and physical activity in individuals with ASD were published in 37 different countries, and the USA significantly leads the list. It is followed by China, Canada, and Turkey. MCP (Multiple Country Publications) refers to the study of authors from more than one country, while SCP (Single Country Publications) refers to the number of articles by the authors from the same country. In this context, it can be stated that international cooperation network where the number of studies by the same country is higher is relatively low. In fact, when Figure 3 presenting international cooperation network is examined, it is seen that there are five clusters where cooperation network is weak. The USA has the strongest connection, that is, cooperation network, with other countries.

Table 1. The number of articles according to the countries of the corresponding authors

Country	Articles	SCP	MCP
USA	219	201	18
CHINA	60	44	16
CANADA	31	24	7
TURKEY	30	28	2
IRAN	18	11	7
AUSTRALIA	15	13	2
SPAIN	13	10	3
ITALY	12	12	0
JAPAN	11	11	0
UNITED KINGDOM	10	9	1

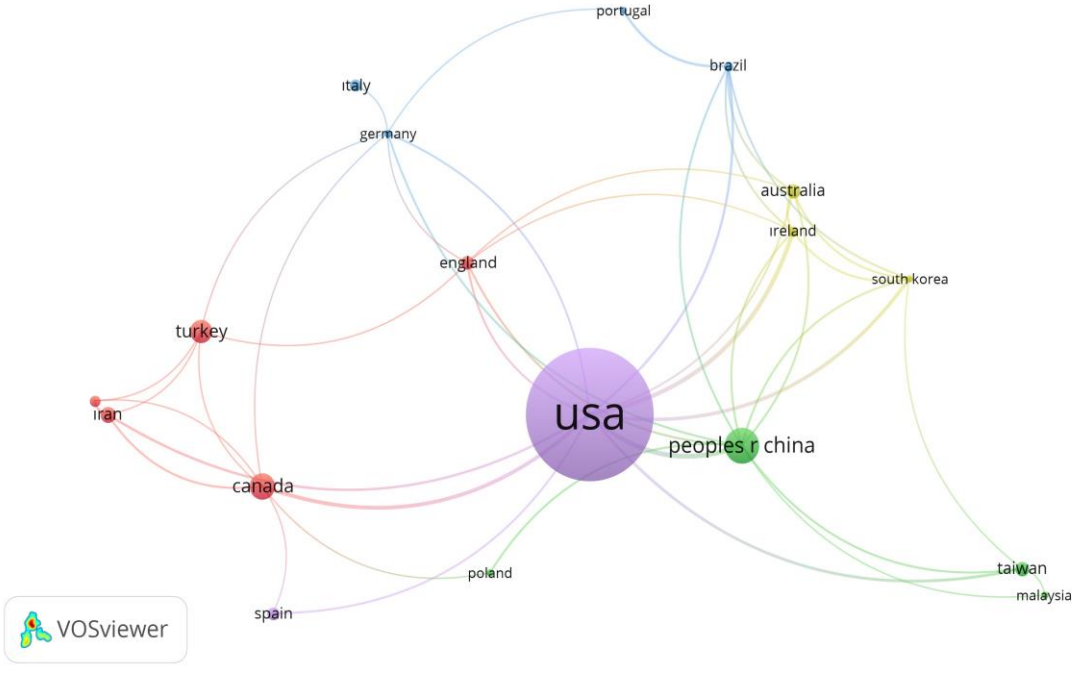


Figure 3. International cooperation network

The most influential publications on sport and physical activity in individuals with ASD according to local citations are presented in Table 2. The systematic review on physical exercise in individuals with ASD by Lang et al. (2010) leads the list. It is followed by the meta-analysis study conducted by Sowa and Meulenbroek (2012), which focused on the benefits of physical exercise

for individuals with ASD. The study by Pan and Frey (2016), in which they examined activity types according to age in individuals with ASD, comes in third place. The first three studies also have the highest global citation numbers. Hence, it can be stated that in general, the most influential studies have focused on the effect of physical activity on health and wellfare, factors that prevent physical activity, an low level of physical activity in individuals with ASD.

Table 2. The most influential studies according to local citation numbers

Author(s)	Type of article	Local citations	Global citations
Lang, R., Koegel, L. K., Ashbaugh, K., Regester, A., Ence, W., & Smith, W. (2010). Physical exercise and individuals with autism spectrum disorders: A systematic review.	Systematic review	91	238
Sowa, M., & Meulenbroek, R. (2012). Effects of physical exercise on autism spectrum disorders: A meta-analysis.	Meta-analysis	89	187
Pan, C. Y., & Frey, G. C. (2006). Physical activity patterns in youth with autism spectrum disorders.	Cross-sectional	78	164
Bandini, L. G., Gleason, J., Curtin, C., Lividini, K., Anderson, S. E., Cermak, S. A., ... & Must, A. (2013). Comparison of physical activity between children with autism spectrum disorders and typically developing children.	Cross-sectional	75	137
Pan, C. Y. (2008). Objectively measured physical activity between children with autism spectrum disorders and children without disabilities during inclusive recess settings in Taiwan.	Cross-sectional	54	110
Bremer, E., Crozier, M., & Lloyd, M. (2016). A systematic review of the behavioral outcomes following exercise interventions for children and youth with autism spectrum disorder.	Systematic review	54	122
Must, A., Phillips, S., Curtin, C., & Bandini, L. G. (2015). Barriers to physical activity in children with autism spectrum disorders: Relationship to physical activity and screen time.	Cross-sectional	52	124
McCoy, S. M., Jakicic, J. M., & Gibbs, B. B. (2016). Comparison of obesity, physical activity, and sedentary behaviors between adolescents with autism spectrum disorders and without.	Cross-sectional	51	114
Obrusnikova, I., & Cavalier, A. R. (2011). Perceived barriers and facilitators of participation in after-school physical activity by children with autism spectrum disorders.	Cross-sectional	50	140
Jones, R. A., Downing, K., Rinehart, N. J., Barnett, L. M., May, T., McGillivray, J. A., ... & Hinkley, T. (2017). Physical activity, sedentary behavior and their correlates in children with autism spectrum disorder: A systematic review.	Systematic review	49	115

The most relevant journals are presented in Figure 4. Accordingly, the journals with the highest number of publications on individuals with ASD are “Journal of Autism and Developmental Disorders”, “Autism”, and “Research in Autism Spectrum Disorder”. It is seen that the most relevant journals are especially the journals with a focus on autism and those which publish articles on individuals with disabilities.

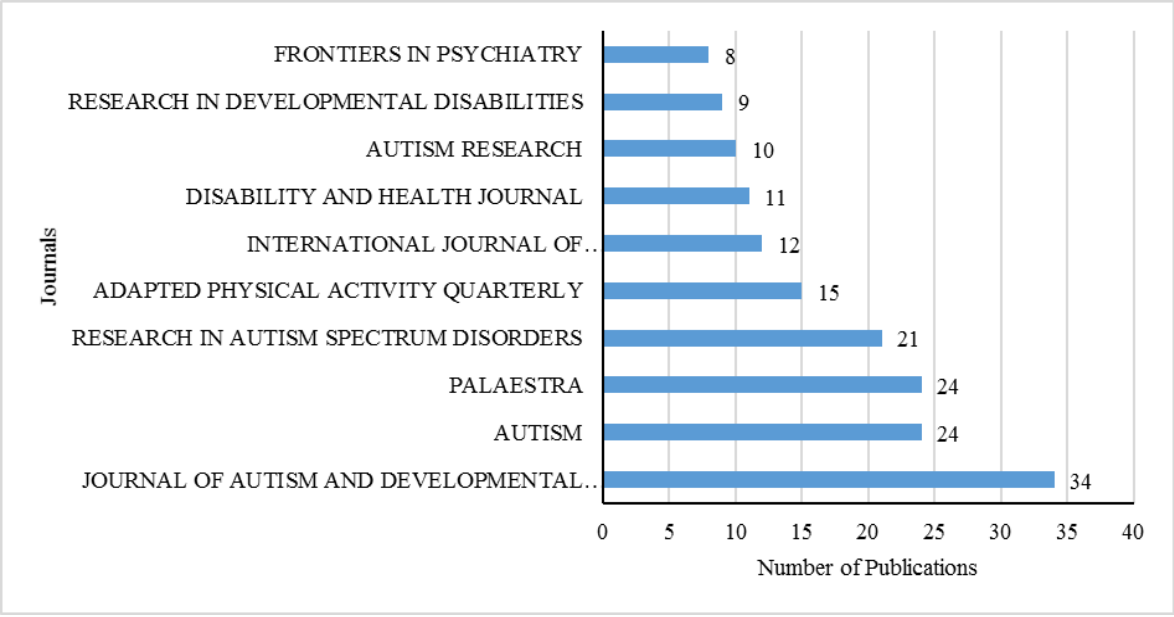


Figure 4. The most relevant journals

Table 3 shows the frequency of the occurrence of the keywords. These keywords also represent research trends. Accordingly, obesity (f=34), intervention programs for individuals with autism (f=33), sleep (f=26), and social development (f=24) are the most frequently studied subjects. In addition, child, adolescent, and preschool terms are frequently used, and it can be stated that studies on these groups are more intense

Table 3. Occurrence of the keywords

Words	Occurrence	Words	Occurrence
Autism	370	Social skills	12
Physical activity	162	Meta-analysis	11
Children	58	Preschool	11
Exercise	51	Sensory processing	11
Obesity	34	Mental health	10
Intervention	33	Parental involvement	10
Sleep	26	Physical exercise	10
Social development	24	ADHD	9
Disability	23	Adolescent	9
Motor skills	18	Physical education	9
Adolescents	17	Quality of life	9
Development disorder	17	Videogames	9
Intellectual disability	17	Community program	8
Sport	16	Physical fitness	8
Stereotypy	15	Systematic review	8
Covid-19	14	Fitness	7
Health	13	Health behavior	7
Motor development	13	Participation	7
Screen time	13	Swimming	7
Youth	13	Anxiety	6
Accelerometer	12	Dance	6
Cognition	12	Executive function	6
Inclusion	12	Martial arts	6
Parents	12	Neurodevelopmental disorder	6
Sedentary behavior	12	Adapted physical education	5

Trend topics between 2012-2022 are presented in Figure 5. The thickness of the nods show the frequency of research on the topics, and the lines represent the years when the topics were studied. It is seen that in physical activity studies in individuals with autism in recent years, COVID-

19, meta-analysis, and mental health are trend topics. In addition, it is seen that research on quality of life, anxiety, and communication skills has recently come to the fore. As evident in keyword frequencies, research on children has intensified.

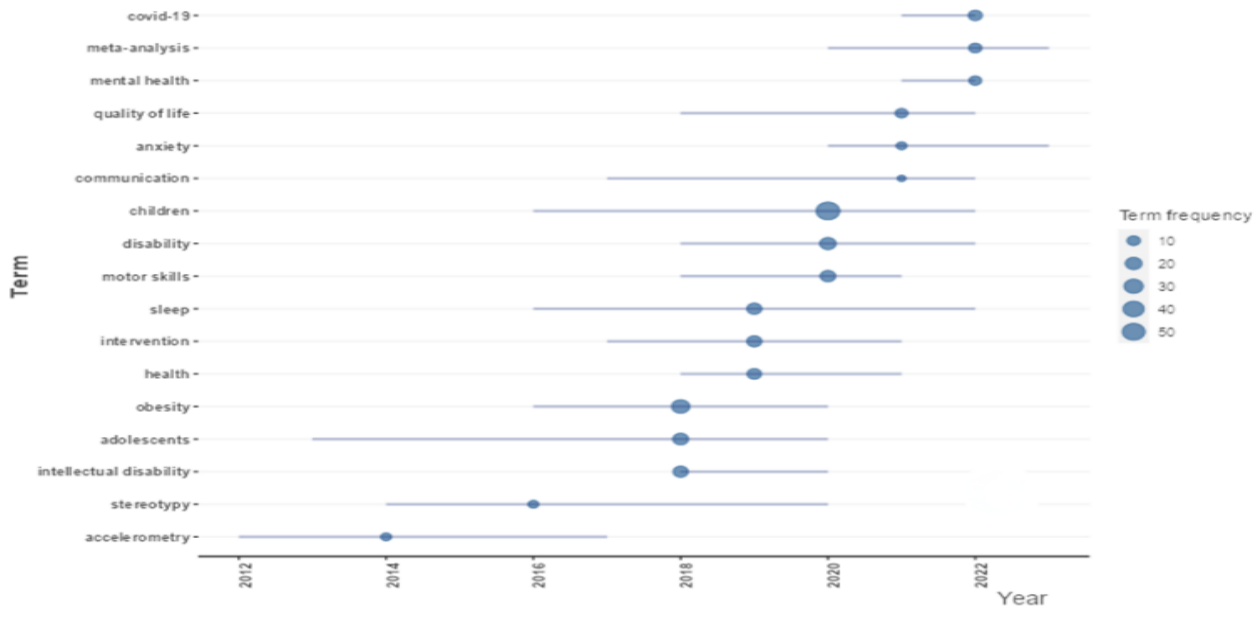


Figure 5. Trend topics

As a result of co-citation analysis, four clusters emerged. In the red cluster, researchers such as Pan, Healy, and Obrusnikova are more prominent. This cluster includes studies that mostly focus on the barriers to physical activity and consequences of physical activity in individuals with autism. Authors such as Lang, Sowa, and Todd are in the center of the green cluster which covers a relatively wide research network. This cluster mostly involves systematic review studies and intervention research. The blue cluster, which includes researchers such as Srinivasan and Bremer, covers an area in which research on motor skills in children and intervention programs are more intense. Finally, the yellow cluster, which is rather small and dispersed among the other clusters, covers studies focusing on nutrition and obesity in individuals with autism.

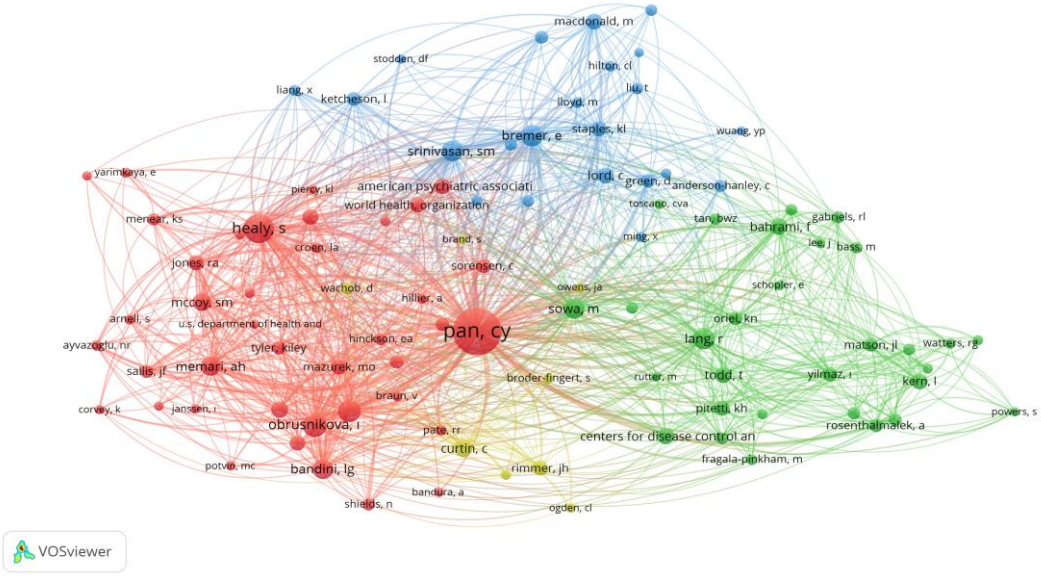


Figure 6. Co-citation analysis

DISCUSSION

In the present study, studies conducted on sport and physical activity in individuals with autism spectrum disorder were examined through bibliometric analysis method. 490 articles listed in WoS database were analyzed. The ability of individuals with ASD to control their motor functions is important in terms of acquiring independent life skills. It is also known that sport and physical activity contribute to individuals controlling their actions consciously and having fun in the activity process. The ability of individuals with ASD to control their actions consciously can contribute to the development of different skills in them. In addition, as sport enables individuals to do things in an order and at regular intervals, it gets them to gain the habit of working in a disciplined way. These properties of sport make it all the more important for individuals with ASD. Therefore, there have been many studies in recent years on individuals with ASD and sport. The results of these studies have shown that sport is an indispensable tool for both entertainment and education for individuals with ASD. The results of these studies conducted on sport and physical activity in individuals with ASD which continue to increase in number provide the methods of a quality life for individuals with ASD for the policy developers, educators, and families with children with ASD in the field. Additionally, these studies are considered important in terms of showing the researchers working in the field of educational and health sciences the research topics in recent years, multidiscipline areas, regional trends, and new research areas.

When the results obtained in this study are examined, it is understood that there was a limited number of publications until 2006, and that only a few studies per year were conducted between 2006-2010. It is seen that research on this issue increased every passing year between 2010-2016, and that the relevant research area developed fast between 2016-2022. A possible reason for this is that a revised diagnosis system was introduced by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the disorder was explained more comprehensively and clearly (American Psychiatric Association, 2013). This situation shows that publications in this research area will continue to increase in the coming years. The contribution of doing sport to positive social life skills that occur in the education, speaking skill, increased eye contact, weight loss, decreased clumsiness, and gait and stair climbing balance of individuals with ASD has been effective in the increase in the interest in examining sport in individuals with ASD (Fragala-Pinkham, Haley and O'Neil, 2011; Hidiroglu et al., 2022; Rogers, Hemmeter and Wolery, 2010). In addition, when the desire of individuals with ASD for an order in their routines and the order and discipline properties of sport are considered, studies on sport have increased (Srinivasan, Pescatello, Bhat, 2014; Zhao and Chen, 2018). The results of the study and other studies conducted show that research on individuals with ASD and sport and physical activity will continue to be conducted. It is seen that new findings are needed in this field, and that the effects of sport and physical activity on individuals with ASD will continue to be studied and understood.

According to the results obtained in the study, the highest number of studies on ASD and sport and physical activity was conducted in the USA, China, Canada, and Turkey. It is thought that this situation resulted from the populations of these countries, effective legal regulations applied for individuals with special needs, and awareness studies (Karaca, 2021). It is known that financial support is provided to research conducted on ASD especially in the USA (Shekarro et al., 2023). It is also believed that another reason for higher number of studies in these countries compared to the other countries is social rights and incentives provided for individuals with special needs and their education (Cinar, 2020; Cinar, Cinar, Sarikaya and Yagizefe, 2023). Considering the continuing fast increase in the rate of individuals with ASD, it can be stated that research to be conducted on this subject will be needed more (CDC, 2023). The fact that no publications on ASD and sport and physical activity were determined in many underdeveloped African and Asian countries suggests that research on disorders that require special needs such as ASD can be associated with the development levels of countries. Treatment of disorders such as ASD which require meeting special needs and related educational expenses require a significant cost. Meeting such costs without the contribution and support of the state appears to be rather difficult. When it is considered that the opportunities for academicians to conduct research on areas where they have no chance of application

in countries with little support would also be limited, the lower number of studies on ASD and sport and physical activity in these countries compared to developed countries overlaps with these findings. Another result of the study is the geography of the cooperation between authors in research on ASD and sport and physical activity. In this regard, authors from the USA work in cooperation with researchers from almost all countries. In the bibliometric study conducted by Shekarro et al. (2023) on individuals with ASD, it was reported that other English-speaking countries following the USA had a large volume of scientific production regarding ASD, and that cooperation of these countries was mainly with the USA.

It is seen that other countries study in cooperation with authors from certain countries. While countries such as China, Taiwan, Malaysia, South Korea, and Australia mostly cooperate with each other, countries such as the United Kingdom, Italy, Germany, Portugal, and Brazil work with one another. As for Turkey, while authors from this country collaborate with English-speaking countries such as the UK, Canada, and the USA on one hand, they work in cooperation with authors from neighboring Iran, on the other hand.

Regarding citations made from studies conducted on sport and physical activity in individuals with ASD, it is seen that the article with the highest citation is a systematic review study on physical exercise in individuals with ASD (Lang et al., 2010). This article is followed by a meta-analysis study in which the benefits of physical exercise for individuals with ASD were analyzed. The third article with the highest number of citations is a study in which age-related activity types in individuals with ASD were examined (Pan and Frey, 2006). The common characteristic of these studies is their focus on physical activity in increasing health and quality of life of individuals with ASD. When the literature is reviewed, it is seen that there are many studies on the effect of physical activity on increasing quality of life of individuals with ASD (Aksoy, 2022; Ozbey, 2005). As stated in this study, it has been reported in many studies conducted in the literature that doing physical activities will support and improve physical and mental health of individuals with ASD (Turk and Gokcen, 2022). The results of the present analysis reveal that more research is needed on sport and physical activity in individuals with ASD every passing day. Hence, it seems that research on this topic will continue.

In the analysis conducted, the most relevant journals for research on the relationship between ASD and sport and physical activity were determined. In this context, the journals with the highest number of publications in this regard are Journal of Autism and Developmental Disorders, Autism, and Research in Autism Spectrum Disorders. The fact that these journals were related with ASD and they prioritized studies conducted in the field of ASD in their publication policy may have resulted in the highest number of publications in these journals. In addition, another reason for the highest number of publications in these journals could be their long history of publications and the number of publications per year. These journals may guide researchers who want to publish in this field or want to have access to the relevant publications. In the analysis conducted, it was determined that the first 10 keywords with the highest frequency of keywords in the articles examined were Autism, Physical Activity, Children, Exercise, Obesity, Intervention, Sleep, Social Development, Disability, and Motor Skills. These keywords are concepts that determine the quality of life of individuals with ASD. Research on these concepts is an indicator of studies that aim to increase individuals and social development and quality of life of individuals with ASD (Fragala-Pinkham, Haley and O'Neil, 2011). As it was revealed that the most frequent problems encountered in individuals with ASD were clumsiness, obesity, sleep disorders, and inability to concentrate, it is natural that these concepts have been studied (Alver and Gumus, 2020; Gursoy et al., 2019). It is seen that these concepts have been studied in order to understand things to be done so as to eliminate the problems experienced by individuals with ASD through sport. The analysis conducted in this study also revealed the least frequent keywords used. Adapted physical education, martial arts, and executive functions have less frequency. More research is needed in these fields as well.

In the present study, concepts that came to the fore according to years were examined, and it was found that while quality of life, communication, and anxiety came to the fore in 2021, COVID-19, meta-analysis, and mental health were the popular topics in 2022. These concepts are related with the problems most frequently

observed in individuals with ASD. It is thought that the concept of COVID-19 was commonly investigated in order to understand how a disease that affected the whole world in the recent past affected individuals with ASD. In addition, the concept of "mental health" examined in recent years can indicate that the details of the problems seen in individuals with ASD are now being analyzed. It shows that following the examination of general difficulties of individuals with ASD, their mental, physical, and mental health have started to be investigated in detail (Caglar and Ozkan, 2021; Gultekin and Basyigit, 2018). These detailed studies conducted can provide and opportunity to improve the social, emotional, and psychomotor skills of individuals with ASD through sport and physical activity.

In conclusion, it is seen that the number studies on ASD and sport and physical activity displays an upward trend, and that there is more cooperation and financial support in this field. It was determined that the USA, China, Canada, and Turkey are the leading countries in this respect, and that the authors in these countries cooperated with the authors of different countries. However, it was noted that such research is rather limited in underdeveloped countries in Africa and Asia. It was therefore emphasized that more research and support are needed for individuals with ASD in those countries.

The study has shown the size and importance of studies conducted in the field of ASD and sport and physical activity. Continuation of studies in this field and provision of more cooperation and financial support are important in terms of increasing quality of life in individuals with ASD and to maximize their potentials. Moreover, it has been emphasized that these studies have helped to develop strategies that can be used in increasing quality of life of individuals with ASD, and that the need for more research in this field continues to exist.

Conflict of Interest

No conflict of interest is declared by the authors. In addition, no financial support was received.

Ethics Committee

This is a review article. There was no need to apply to the ethics committee for this article.

Author Contributions

Study Design, OT, MAK NÇ; Data Collection, MAK, OT, Statistical Analysis, MAK, OT, NÇ; Data Interpretation, MAK OT NÇ; Manuscript Preparation, MAK, OT,NÇ ; Literature Search, MAK,OT,NÇ. All authors have read and agreed to the published version of the manuscript.

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