

The Retos journal is in the second quartile of Scopus: a bibliometric analysis from 2016 to 2023 La revista Retos está en el segundo cuartil de Scopus: un análisis bibliométrico de 2016 a 2023

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Abstract. The Journal of Retos has been selected to be included in Scopus' second quartile in the fields of education, orthopaedics and sports medicine, physiotherapy, sports therapy, and rehabilitation starting from January 25, 2024. Although it is worth mentioning that this accomplishment came almost ten years after the magazine Retos was included in Scopus in 2016, it has now risen to the second quartile. The objective of the study is to present a graphical representation of the scientific patterns observed in the journal Retos from 2016 to 2023. Bibliometric analysis facilitates the identification and examination of scientific trends, as well as the assessment of research structure, patterns, and trends. Hence, bibliometric analysis is a pertinent and crucial approach for attaining the goals of this study. We conducted an analysis on a dataset consisting of 2334 entries obtained from the Scopus data center. This study employed the software VOSviewer and Rstudio for doing bibliometric analysis. The findings suggest that the topics of physical education and physical activity are prevailing. The growing specialized topics are BAPNE techniques and neuromotricity. Journal Retos has made significant contributions to the advancement of knowledge in various areas, including education, orthopaedics, sports medicine, physiotherapy, sports therapy, and rehabilitation, on a global scale.

Keywords: Bibliometric; Retos Journal; Scientific Journals; Second Quartile of Scopus.

Resumen. El Journal of Retos ha sido seleccionado para ser incluido en el segundo trimestre de Scopus en las esferas de la educación, la ortopedia y la medicina deportiva, la fisioterapia, la terapia deportiva y la rehabilitación a partir del 25 de enero de 2024. Aunque vale la pena mencionar que este logro llegó casi diez años después de que la revista Retos se incluyera en Scopus en 2016, ahora ha ascendido al segundo trimestre. El objetivo del estudio es presentar una representación gráfica de los patrones científicos observados en la revista Retos de 2016 a 2023. El análisis bibliométrico facilita la identificación y el examen de tendencias científicas, así como la evaluación de la estructura, los patrones y las tendencias de la investigación. Por lo tanto, el análisis bibliométrico es un enfoque pertinente y crucial para alcanzar los objetivos de este estudio. Hemos realizado un análisis sobre un conjunto de datos compuesto por 2334 entradas obtenidas del centro de datos Scopus. Este estudio empleó el software VOSviewer y Rstudio para hacer análisis bibliométrico. Los hallazgos sugieren que predominan los temas de educación física y actividad física. Los temas cada vez más especializados son las técnicas BAPNE y la neuromotricidad. La revista Retos ha hecho importantes contribuciones al avance del conocimiento en diversas esferas, incluyendo la educación, la ortopedia, la medicina deportiva, la fisioterapia, la terapia deportiva y la rehabilitación, a escala mundial.

Palabras clave: Bibliométrica; La revista Retos; Revistas científicas; Segundo Cuartil de Scopus.

Fecha recepción: 23-01-24. Fecha de aceptación: 15-04-24

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Introduction

The Journal of Retos is in the second quartile of Scopus in the following fields: education (64th percentile, position 518 of 1469); orthopedics and sports medicine (53rd percentile, position 138 of 298); and physiotherapy, sports therapy, and rehabilitation (58th percentile, position 94 of 226). On January 25, 2024, the journal Retos announced it. However, access to this second quarter enhancement has only been achieved since the 2016 journal Retos was indexed on the Scopus database. It shows that to reach the second quarter, the journal Retos took almost a decade. In order to maintain and enhance access to the quarter, writers who intend to publish their scientific articles in the journal Retos need to know the scientific trends in the magazine Retos. It is necessary to develop scientific knowledge in the related fields of science that correspond to the focus and scope of the journal Retos.

The study aims to provide a visualization of the scientific trends of the journal Retos from 2016 to 2023. The scientific trends of the journal Retos include: most productive and influential authors; trends in published topics; subject areas; thematic evolution; and distribution and network citation by country. The results of this study are expected to

provide an overview for prospective authors who intend to publish their scientific articles in the journal Retos. As well as being a reference for the editorial team to maintain and even upgrade the quarterly journal Retos. The use of bibliometric analysis is crucial so that the journal Retos remains at the forefront of its field.

A bibliometric analysis of scientific trends from a database of scientific journals can provide valuable insights into the research landscape and help identify new topics and influential authors. This bibliometric research method has been widely used in scientific production and research trends in many disciplines (Su et al., 2021). Such studies provide ideas and information to practitioners, governments, and stakeholders related to research collaboration and publication (Nandiyanto et al., 2023). This method is useful for developing further scientific trends (Syta et al., 2021). It can determine the scientific structure, developments, patterns, and trends of research (Herrera-Franco et al., 2021). Bibliometric analysis can be done to current study objectives.

Methods

This study uses the bibliometric analysis method for the

RETOS journal based on the Scopus database from 2016 to 2023 using Microsoft Excel, VOSviewer, and RStudio. Microsoft Excel 16.63.1 (2021) was used to organize and store captured metadata forms. Microsoft Excel can be used for frequency analysis (Yaakop et al., 2023). VOSviewer 1.6.18 was used in the bibliometric analysis of this study. VOSviewer is used to visualize research topics and cluster analysis (Anugerah et al., 2022) to identify useful scientific trends (Sytar et al., 2021). Next, using RStudio software, we visualized the use of themes based on countries and related issues. An examination of decision trees (Robinson et al., 2022) and thematic evolution was carried out with RStudio.

The data sources and search strategy method (Figure 1) employed the PRISMA flow chart, which was derived from various prior studies (Anugerah et al., 2022; Díaz-Tejerina & Fernández-Río, 2023; Fithroni et al., 2024; Luarte-Rocha et al., 2023; Simbolon et al., 2023). According to previous studies (Gamonaes et al., 2022; Lopez & Castro, 2021; Ramos Álvarez et al., 2021; Simbolon et al., 2023; Villarejo-García et al., 2023) use Boolean logic functions, such as "AND" "OR" in Scopus, the following was done for this study: SRCTITLE (Retos) AND PUBYEAR > 2015 AND PUBYEAR < 2024 AND (LIMIT-TO (EXACTSRC-TITLE , "Retos")). This search on the Scopus database yielded 2334 documents.

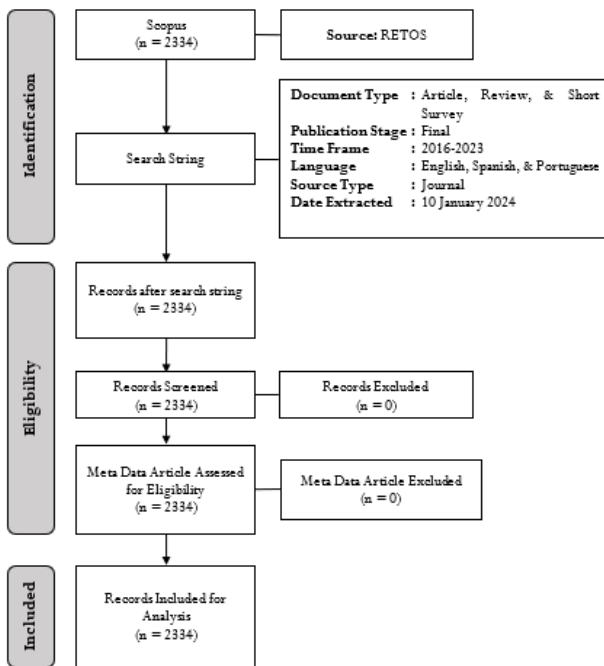


Figure 1. The search strategy flow diagram

Results

Figure 2 shows a description of the main information from Scopus data about Retos from 2016 to 2023, which has been analyzed using RStudio. It was found that Retos had a total of 2334 documents and 6160 authors.



Figure 2. Main Information about the data

Publication Trends

Retos has published a total of 2334 documents (from 2016 to 2023). Figure 3 shows the distribution of total annual documents. In 2016, there were a total of 95 documents. In 2017, there were a total of 112 documents. In 2018, there were a total of 214 documents. In 2019, there were a total of 279 documents. In 2020, there were a total of 337 documents. In 2021, there were a total of 390 documents. In 2022, there were a total of 424 documents. In 2023, there were a total of 483 documents. Retos were published twice per year from 2016 to 2020 and four times per year from 2021 to 2023. In 2024, Retos has announced that it will publish six times per year.

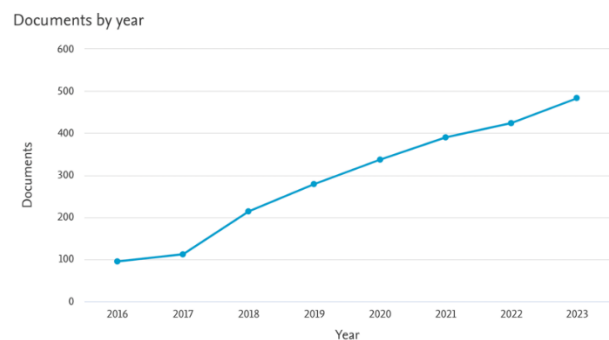


Figure 3. Yearly allocation of overall publications (Sourced from scopus.com)

The article entitled "Impact of a physical activity program on older adults' depression and subjective well-being" (Pereira et al., 2018) made him the author with the largest total article citation (TC). Meanwhile, the article entitled "Football for people with amputations: Exploratory systematic review" (Gamonaes et al., 2021) made him the author with the largest total article citations per year (TCpY). Figure 4 shows authors' production over time in the Retos Journal.

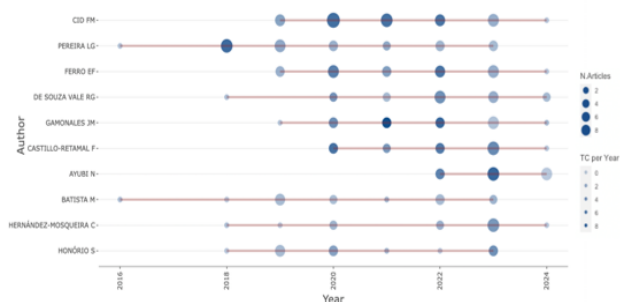


Figure 4. Authors' production over time in the Retos Journal

Physical education became the most trending topic in Retos from 2019 to 2022, with a frequency of 492. The highest increase in this topic occurred in 2021. Furthermore, physical activity became the second trending topic, with a frequency of 273 in 2019–2022. Figure 5 shows the topic trend over time in the Retos journal.

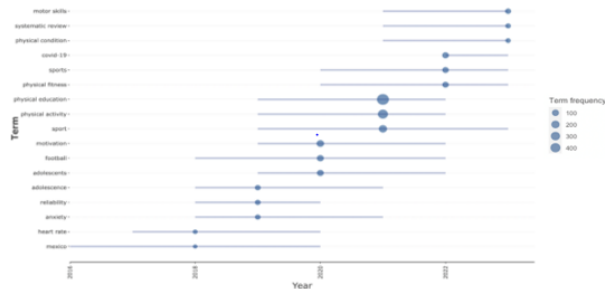


Figure 5. Trend topics over time

Subject Area in Retos

Co-occurrence analysis of author keywords uses the full counting method with a minimum threshold of 15 keywords appearing. A Vosviewer visualization of 4349 keywords and a map of 99 keywords that met the threshold and were selected can be seen in Figure 6. Figure 6a shows the author's keyword grouping diagram. From this figure, we can clearly see the frequency of research, research hot spots, and the relationship between keywords that have been published in the Retos journal. It can be seen from the picture that the publication hot spots on Retos are “Physical Education”, “Physical Activity”, “Health”, “Sport”, “Motivation”, and so on. If you take into account the time of publication, it is noted that keywords in yellow (Figure 6b) such as “Physical Fitness”, “Exercise”, “Covid-19”, and “Sports” appeared relatively recently.

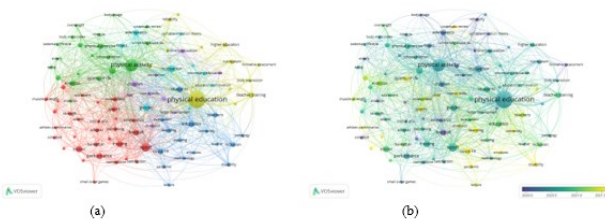


Figure 6. Co-occurrence Network (a) and overlay (b) visualization of the Keywords of papers published in Retos between 2016 to 2023

Based on 4349 authors's keywords, a thematic mapping was formed (Figure 7), which can be used to create classifications by projecting keywords into the studied dataset. Based on the cluster analysis, certain concepts such as

Top 10 Cited Documents

Table 1. Ten articles with the most citations based on Scopus

No	Title	Authors	Year	Cited by
1	Cooperative learning: Pedagogical model for physical education	(Fernández-Rio & Méndez-Giménez, 2016)	2016	63
2	Association between physical education, school-based physical activity, and	(Marques et al., 2017)	2017	53

"bapne" and "neuromotricity" appear in the niche themes. Emerging or declining themes, “motor skills” and “executive functions,” are seen in this analysis. Meanwhile, in basic themes, "physical education," "physical activity," and "sport" are seen in this analysis.

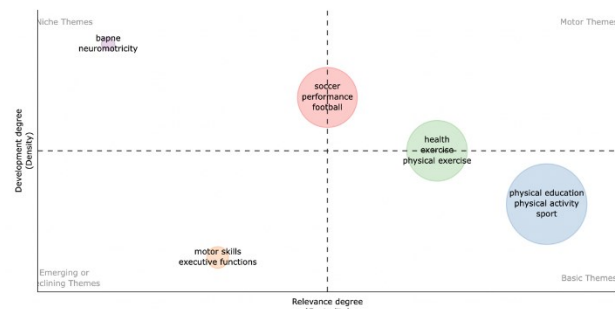


Figure 7. Thematic Map in Retos

The thematic evolution in the Retos journal was analyzed using a Sankey diagram (Figure 8), which is divided into three different periods: early 2016–2019, 2020–2022, and after 2023. As a result, in the first period, the focus of articles published by Retos centered on exploring themes such as “fitness industry, emotional intelligence, physical performance, youth, women, exercise, physical activity, sport, training, body composition, dance, perception, sports management, corporate expression, physical education, teacher training, higher education, reliability, methodology, pedagogy, attention, balance, learning, competition, combat sports, biomechanics, prevention, volleyball, and handball.” The second period centered on exploring themes such as "physical education, physical activity, soccer, body image, team sports, and the ACSM survey." Finally, the third period focuses on exploring themes such as "physical activity, motor competence, aging, cognition, physical education, soccer, sports performance, early childhood education, biomechanics, observational methodology, BAPNE, and elite."

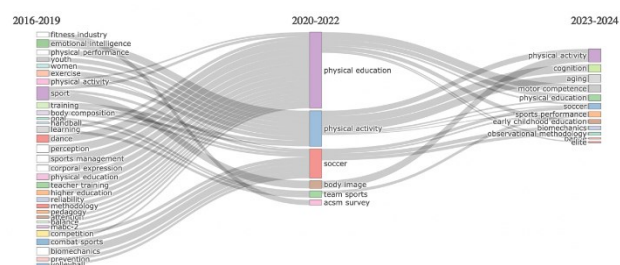


Figure 8. Thematic Evolution in Retos with Sankey Diagram

Table 1.

Ten articles with the most citations based on Scopus

No	Title	Authors	Year	Cited by
	academic performance: a systematic review			
3	Application of motion capture technology for sport performance analysis	(Pueo & Jimenez-Olmedo, 2017)	2017	48
4	Challenges of physical education in XXI century	(Pastor et al., 2016)	2016	48
5	Influence of stress control in the sports performance: Self-confidence, anxiety and concentration in athletes	(Campos et al., 2017)	2017	42
6	Correlates of physical activity in young people: A narrative review of reviews. Implications for physical education based on a socio-ecological approach	(Martins et al., 2017)	2017	40
7	The cooperative learning cycle: A guide to effectively implement cooperative learning in physical education	(Fernández-Río, 2017)	2017	40
8	Beyond the textbook. Gamification through ITC as an innovative alternative in Physical Education	(L. E. Q. González et al., 2018)	2018	40
9	Influence of motivation and dispositional flow on the intention to do physical activity in adolescents from four countries	(Álvarez et al., 2017)	2017	38
10	Benefits of physical activity on self-esteem and quality of life of older people	(A. J. G. González & Froment, 2018)	2018	38

Distribution and Network Citation by Country

The distribution of article posts by country can be seen in Figure 9. Darker colors indicate more articles have been published in that country (Simbolon et al., 2023). In sequence, the ten countries that publish the most articles in the Retos journal are: Spain, Chile, Brazil, Mexico, Colombia, Portugal, Indonesia, Ecuador, Peru, and Ukraine.

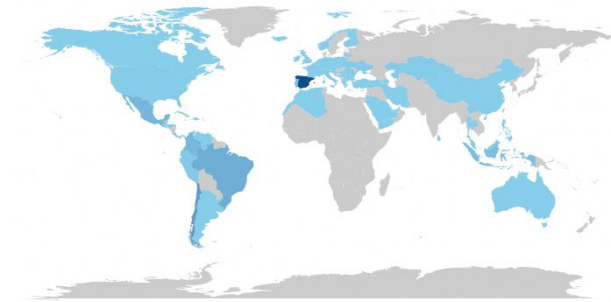


Figure 9. Countries' scientific production in the Retos journal

Figure 10 presents the nine leading countries by number of publications recorded as program statistics. Spain is the country with the highest publication rate in the Retos journal, both in Multiple Country Publications (MCP) and Single Country Publications (SCP). Spain has published a total of 849 articles from 755 SCPs and 94 MCPs. Chile has published a total of 258 articles on 163 SCPs and 95 MCPs. Brazil has published a total of 134 articles from 93 SCPs and 41 MCPs. Colombia has published a total of 120 articles on 100 SCPs and 20 MCPs. Mexico has published a total of 111 articles from 76 SCPs and 35 MCPs. Portugal has published a total of 102 articles from 72 SCPs and 30 MCPs. Indonesia has published a total of 30 articles from 16 SCPs and 14 MCPs. Ecuador has published a total of 28 articles from 18 SCPs and 10 MCPs. Peru has published a total of 12 articles from 11 SCPs and 1 MCP.

Co-authorship analysis shows that Spain, Chile, Brazil, Portugal, and Colombia are the top 5 countries in terms of collaborative networks (Figure 11). The size of the circles and the thickness of the lines in the diagram indicate the total link strength of a country and the network strength between two countries, respectively (Jeong et al., 2020). Based on the strength and pattern of the network, seven

clusters can be found in 85 countries; 36 countries meet the threshold; the number of countries selected is 36; but only 35 countries are related. Cluster #1: Colombia, Kazakhstan, Panama, Poland, the Russian Federation, Ukraine, Uruguay, and Venezuela. Cluster #2: Australia, Cuba, Ecuador, Germany, Honduras, Iran, and Switzerland. Cluster #3: Austria, France, Indonesia, Malaysia, and Rwanda. Cluster #4: Brazil, Chile, Italy, Peru, and the United States. Cluster #5: Canada, Ireland, Portugal, and the United Kingdom. Cluster #6: Argentina, Costa Rica, and Mexico. Cluster #7: Greece, Saudi Arabia, and Spain.

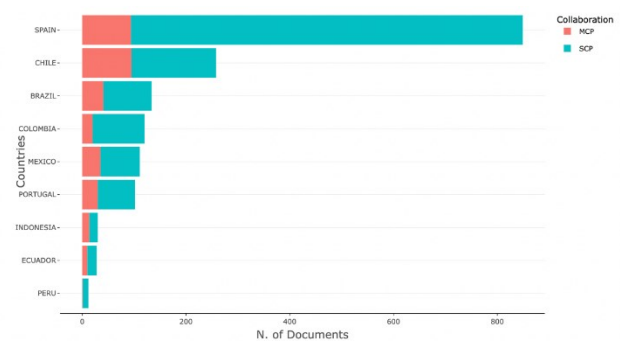


Figure 10. Corresponding author's countries (MCP: Multiple Country Publications, SCP: Single Country Publications)

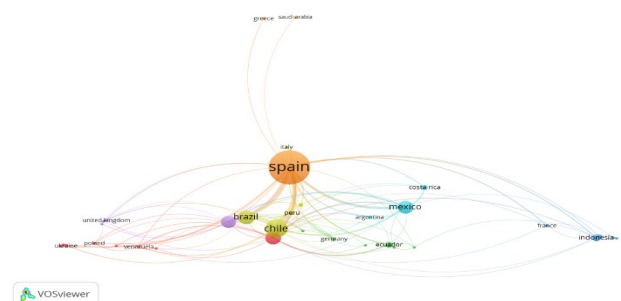


Figure 11. Network visualization citation by country (Source: Scopus database)

Discussion

This study uses data sourced from Scopus, which is visualized using VOSviewer and RStudio software. Research published in the journal Retos from 2016 to 2023 was

analyzed. This paper intends to provide a reference and basis for the development of related fields through the visualization of regular patterns and the development of research trends. As a general observation, "physical education" followed by "physical activity" is the dominant theme in the publication of scientific articles in the journal Retos. The cooperative learning model in physical education (Fernández-Río & Méndez-Giménez, 2016) is the most cited article on the theme of physical education as well as the most globally cited document. Meanwhile, the most frequently cited physical activity theme was a systematic review that found that physical education and school-based physical activity were positively related to academic performance in children (Marques et al., 2017). However, it was found that Fernando Maureira Cid was the most productive writer in the journal Retos, with a total of 28 articles. It was also found that the most productive affiliate, contributing around 46.87% of the total 2334 publications in the Retos journal, was the Universidad de Granada.

This study also offers insight into the evolution and growth of research accepted for publication in the journal Retos. Specific themes, such as BAPNE and neuromotricity, have opportunities for further research development. The first publication discussing this specific theme appeared in the journal Retos in 2022. The aim of this article is to analyze the terminology related to human motor skills and propose the neologism neuromotor skills (neuromotricity) as a concept for the 21st century (Andreu-Cabrera & Romero-Naranjo, 2022). Furthermore, there are three recent publications related to the theme of the BAPNE Method and Neuromotricity that were published in volume 50 in 2023 in the journal Retos (Mas-Mas et al., 2023; Naranjo et al., 2023; Naranjo & Cabrera, 2023). We found that there were 12 articles related to this specific theme published in the journal Retos until 2023. As both the first author and member author, Francisco Javier Romero Naranjo from the Universidad de Alicante appeared in 12 of these documents.

Conclusions

Based on the data we collected from the Scopus database, we carried out a bibliometric analysis to provide a visualization of research trends in the Retos journal from 2016 to 2023. The Retos journal succeeded in reaching the second quartile of Scopus by highlighting themes in the field of physical education and physical activity in general. In particular, the themes of the BAPNE method and neuromotricity emerged in recent Retos journal publications. Writers with research themes in physical education and physical activity still have a great opportunity to publish their manuscripts in the Retos journal. We also found that the Retos journal is still dominated by local writers from Spain. However, the journal Retos has encouraged MCP in the corresponding author's countries. This places the Retos journal in the development of science in the global community.

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