Psychomotricity, child development and psychomotor tests: an analysis of scientific research in Scopus

Psicomotricidad, desarrollo infantil y pruebas psicomotoras: un análisis de la investigación científica en Scopus

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Abstract

Introduction: The advances in the scientific literature in the fields of psychomotricity, child development and psychomotor tests have evidenced a growing trend in academic production during the period 2020-2025.
Objective: This study focused on analyzing this production through a bibliometric analysis in the SCOPUS database.
Method: The search equations used key descriptors such as "psychomotricity," "child development," and "psychometric test," resulting in a total of 25,174 documents recorded. A notable increase in scientific production was observed during the years 2023 to 2025, concentrating 69% of the total publications in this period.
Results: 85% of the documents correspond to research articles, predominating the areas of education (58.55%), psychology (13.70%) and neuroscience (19.05%). England and the United States led as the main information products, while Latin America had a limited participation, mainly represented by Uruguay with 1,022 documents. The predominant language in the publications was English, which reinforces the need to encourage greater inclusion of research in Spanish.
Conclusions: the data obtained highlight the importance of continuing to promote research in these areas, as well as international collaboration to strengthen academic networks and increase scientific production in less represented regions.

Keywords

Bibliometrics; child devel-opment; psychomotricity; scientific literatura.

Resumen

Introducción: Los avances en la literatura científica en los campos de la psicomotricidad, el desarrollo infantil y las pruebas psicomotoras han evidenciado una tendencia creciente en la producción académica durante el periodo 2020-2025.
Objetivo: Este estudio se centró en analizar dicha producción mediante un análisis bibliométrico en la base de datos SCOPUS.
Método: Las ecuaciones de búsqueda utilizaron descriptores clave como "psychomotricity," "child development," y "psycomotor test," resultando en un total de 25,174 documentos registrados. Se observó un notable incremento en la producción científica durante los años 2023 a 2025, concentrando el 69% del total de publicaciones en este periodo.
Resultados: Luego de la revisión documental, se pudo observar que un gran porcentaje correspondió a artículos de investigación (85%). En torno a los campos de estudio, con un 58.55% el ámbito educativo encabeza la lista, mientras que la psicología y la neurociencia ocupan el segundo y tercer lugar con un 13.70% y un 19.05% respectivamente. Los países que más destacaron en la difusión del conocimiento científico fueron Inglaterra y Estaos Unidos. América Latina tuvo una participación menor en comparación, con Uruguay liderando la producción regional con 1.022 documentos. El estudio reflejó el inglés como el idioma más frecuente, destacando la necesidad de potenciar el español como lengua de difusión científica para ampliar su visibilidad.
Conclusión: Los hallazgos destacan la importancia de seguir impulsando la investigación en estas áreas y de fortalecer la cooperación internacional para consolidar redes académicas y aumentar la producción científica en regiones con menor representación.

Palabras clave

Bibliometría; desarrollo infantil; literatura científica; psicomotricidad.

Introduction

The technological revolution has led to an exponential increase in the amount of information available, transforming the field of scientific research and facilitating advances in key areas such as psychomotor skills, child development and psychomotor testing (Gómez et al., 2023; Hoyos & Ordoñez, 2022). These disciplines, being interrelated, contribute to a comprehensive understanding of child development and learning processes, which provides a scientific basis for their analysis (González, 2022; Sánchez García & Samada Grasst, 2020).

Psychomotricity is a discipline that articulates the motor, cognitive and emotional development of the child (Miraflores Gómez & Goldaracena Arboleda, 2021) and is not limited to improving motor coordination and control, but also plays an essential role in the formation of social and emotional skills (León et al., 2021; Cabrera-Valdés & Dupeyrón, 2019; González André & Martínez Mínguez, 2024). For its part, child development involves fundamental transformations in the physical, cognitive and socioemotional spheres in the first years of life, constituting an essential pillar for comprehensive well-being and academic achievement in later stages (Huepp & Fornaris, 2021; Remorini & Rowensztein, 2022). Given that both processes are interconnected, psychomotor activities have a key role in improving skills that facilitate exploration and adaptation to the environment (Díaz et al., 2017).

Under this interpretation, psychomotor tests are considered indispensable to understand and accompany progress in these areas (Pérez-Sánchez et al., 2021). Through these instruments, it is possible to perform assessments related to motor coordination, balance, laterality and spatial perception, facilitating the design of adapted and effective interventions in educational and therapeutic contexts (Burga, 2019). However, although these areas are of great relev-ance, there is a lack of bibliometric studies that evaluate in depth the scientific production in Latin America, which makes it difficult to identify trends and gaps in the literature (Quijano & Mogaña, 2021).

In this context, bibliometric analysis is a key resource for analyzing and documenting scientific productions, allowing the identification of trends, detecting promising authors, relevant entities and under-explored areas in these fields (Reyes, 2019). Therefore, the main objective of the present study is to perform a bibliometric analysis of the publications indexed in Scopus on psychomotor skills, child development and psychomotor tests, with the purpose of mapping their evolution and highlighting the most significant contributions in the scientific literature. This analysis will allow us to identify the predominant trends, the countries with the greatest production and the fields of study with the greatest impact, in addition to highlighting possible research gaps. The findings will contribute to the understanding of the relationship between these elements and may serve as a basis for future research to strengthen scientific production in under-represented regions.

Method

The general purpose of this study was to perform a bibliometric analysis of the publications indexed in Scopus on psychomotor skills, child development and psychomotor tests, with the purpose of mapping their evolution and highlighting the most significant contributions in the scientific literature. The state of the art consists of a type of research that focuses on compiling and analyzing bibliographic sources linked to a particular phenomenon, with the aim of mapping trends advances in the area, providing a theoretical framework that summarizes the knowledge achieved so far (Reyes, 2019).

For this purpose, a systematic review was conducted using mainly the SCOPUS database, which according to Quispe et al. (2021), is a methodological process that, through organized and precise steps, seeks the identification, evaluation and synthesis of existing studies on a given topic. This strategy employs inclusion and exclusion criteria to ensure the relevance and quality of the selected works. A rigorous filtering process was implemented to guarantee the validity of the studies analyzed, eliminating duplicate publications, articles not indexed in peer-reviewed journals and documents whose content did not fit the study topic. Priority was also given to research with explicit methodologies and verifiable results, thus ensuring the reliability of the final sample.

Consolidated Meta-analytical approach

For the execution of this project, the Theory of the Consolidated Meta-Analytical Approach (TEMAC) designed by Mariano and Rocha (2017) and based on the contributions of Abramo and D'Angelo (2011) was used, which incorporates the principles of the Meta-Analytical Approaches (EMA), with the intention of maintaining quality standards in the evaluation of scientific articles and ensuring the reliability of the results. This methodology includes several stages detailed below:

Preparation of the research

According to Mariano and Rocha (2017), initially the databases, key terms and documents to be analyzed should be appropriately chosen. In this study, it was decided to use SCOPUS, due to its high impact in the field and international reliability, as well as its remarkable number of cited references (Salgado et al., 2022). Subsequently, a preliminary review was carried out to identify the following keywords: a) psychomotricity, b) child development, and c) psychomotor tests, d) America. In order to ensure the quality and relevance of the studies selected, inclusion and exclusion parameters were established. Only scientific articles published in journals indexed in Scopus during the last five years (2020-2025), both qualitative and quantitative, that explicitly addressed the variables of interest were included. Duplicate papers, non-peer-reviewed publications, conference abstracts, book chapters and studies that did not present empirical results were excluded. To purge irrelevant data, a reading process was applied at the title and abstract level, followed by a detailed analysis of those articles that met the initial criteria. The following search equation was used in the database: TITLE-ABS-KEY ("psicomotricidad" OR "psicomotricity") AND ("desarrollo infantil" OR "child development") AND ("test psicomotores" OR "psychomotor tests" OR "motor asessment"), which made it possible to identify a significant number of relevant publications.

Presentation and interrelation of data

In this stage, according to Mariano and Rocha (2017), we proceeded with the establishment of parameters to specify the characteristics of the selected studies, such as the temporal trend of the publications, geographic location, the authors with the largest number of references and the main thematic areas. This research included a series of bibliometric indicators to be analyzed: the publications registered each year, the nations with the most scientific contributions, the most cited authors, and the most outstanding methodological approaches. The time frame was five years (2020 to 2025), covering studies from all regions of the Americas.

Determination of the integrative model and presentation of evidence

In this step, Mariano and Rocha (2017) suggest using bibliometric indexes that can unveil patterns present but hidden in the literature. This is because it allows elucidating relationships between authors, countries and references, either in terms of collaboration or by citation. Based on the above, for the analysis of collaboration and citation networks, VOSViewer was used, which is presented by Van & Waltman (2020) as an effective tool for the generation and analysis of bibliometric maps. Its functions were applied to generate node maps illustrating the density of co-authorships among researchers, co-citation of key references and bi-bliographic coupling between related studies. Through the application of this technique, it was possible to identify connections or links between authors and sources, providing a solid basis for the discussion of results in terms of the main thematic axes associated with psychomotor skills, child development and psychomotor testing.

In short, this methodological framework allowed for a detailed and structured review of the scientific production on the topic of study, revealing the main trends and gaps in research, which contributes directly to the objective of the present study: to map the evolution of the literature on psychomotor skills, child development and psychomotor testing and to highlight the most significant contributions in this field. The findings provide a solid basis for future research and proposals in the educational field.

Results

In this stage, the reconciliation of findings of relevance within the research is established, taking into consideration different outlines of the pioneer theory TEMAC (Theory of the Consolidated Meta-Analytic

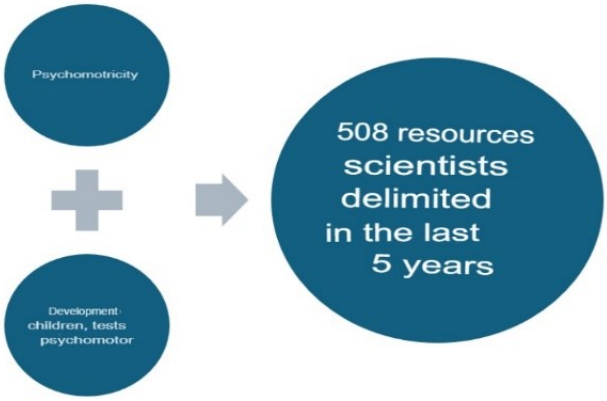
Approach). To achieve the purpose of the research, 3 main stages are structured: the first refers to the preparation of the relevant research, consequently, the integrative model and the evidence of the results are established by means of the co-occurrence analysis of the most cited authors. Finally, the integrative model is determined by discussing the evidence collected in 508 documents after extraction from the SCOPUS database.

Preparation of relevant research

According to Mariano and Rocha (2017), the TEMAC methodology begins with an exploratory search in the selected databases, followed by the determination of the type of documentation to be included and the systematization of the total number of studies found. In this sense, the database selected was SCOPUS and the terms used in the search were: a) psicomotricity, b) child development, and c) psychomotor tests, d) America. It is worth mentioning that only scientific articles published during the last five years were included.

The choice of SCOPUS was justified by its international recognition within the academic community and by the advanced features of its interface, which facilitate the search and bi-bliographic analysis (Mariano and Rocha, 2017). Regarding the search descriptors or keywords, the combination "PSYCHOMOTRICITY AND CHILDHOOD DEVELOPMENT AND PSYCHOMOTO-RAS TESTS" was used, which initially generated a total of 25.174 unfiltered documents, i.e., without applying spatial or temporal restrictions (see Figure 1).

Figure 1. Preparation of the relevant research



Source: own elaboration based on condensed information from SCOPUS.

Between 2020 and 2025, scientific production related to psychomotor skills, child development and psychomotor testing showed a growing trend in terms of academic publications, reaching a total of 25,174 registered documents. These are distributed according to the variables and search descriptors detailed in the respective tables. During the period 2020-2025, a notable increase was observed, concentrating 69% of the total number of publications in these last years. This increase could be attributed to the growing importance that the topics of child development and psychomotor skills are achieving in the academic field, especially in recent years, where the interest in improving educational and therapeutic approaches in the area of children has gained relevance at a global level.

The bibliometric analysis carried out incorporated at least 120 countries and 235 entities, revealing notable discrepancies among them, with England leading the production with 5,853 publications, followed by the United States with 3,169 scientific publications. This predominance of Anglo-Saxon countries may reflect the strong investment in research and educational resources in these nations, which translates into a greater number of scientific publications in areas such as psychomotor skills and child development. In contrast, the representation of Latin American countries, such as Uruguay with 1,022 publications, could be influenced by various factors, such as the lack of funding in some Latin American regions, or the low priority of these topics in educational and health policies compared to other areas of knowledge. In this scenario, it was possible to determine that English and Spanish are the predominant

languages in most of the scientific articles on the subject studied. The high representation of English reflects its dominant role as the global language of science, especially in the academic field, which facilitates access and dissemination of results at the international level.

Approximately 210 journals and sources responsible for the publication of these works were also analyzed, which revealed a predominance of publications in academic journals in the psychological, educational and health fields. The results of this bibliometric analysis evidence the wide generation of scientific knowledge related to these topics, showing a clear difference between the descriptors in both languages, together with the evident leadership of some institutions and countries in the academic environment.

The different countries are continuously expressed at the international level under the number of documents during the research period. It is clearly expressed that European, Nordic and North American countries predominate within the analysis in question.

Consequently, Table 1 shows the different countries of relevance based on the number of documents registered, with Uruguay alone being the Latin country with a total of 1,022 resources. The English search descriptors "psychomotricity" and "child develop-ment" showed the highest number of registered publications with a total of 11,540 and 12,034 respectively. This reflects the growing academic interest in integrated approaches to child development, which include psychomotor as well as other areas of human development.

Table 1. Scientific resources published by country and region according to the period of inquirí

Country	Psychomotricity	Child development	Psycomotor test	Totality of documents
England	2.748	2.458	647	5.853
USA	1.486	1.578	105	3.169
Portugal	947	845	102	1.894
Ireland	841	832	100	1.773
France	769	821	98	1.688
Spain	755	812	97	1.664
China	689	714	80	1.483
Japan	645	710	78	1.433
Canada	600	700	70	1.370
Germany	556	647	68	1.271
Greece	547	634	54	1.235
Uruguay	432	541	49	1.022
Switzerland	315	428	32	775
Uzbekistan	210	314	20	544
Total	11.540	12.034	1.600	25.174

Source: own elaboration based on condensed information from SCOPUS.

Table 2. Relative connection between descriptors and the journals consulted

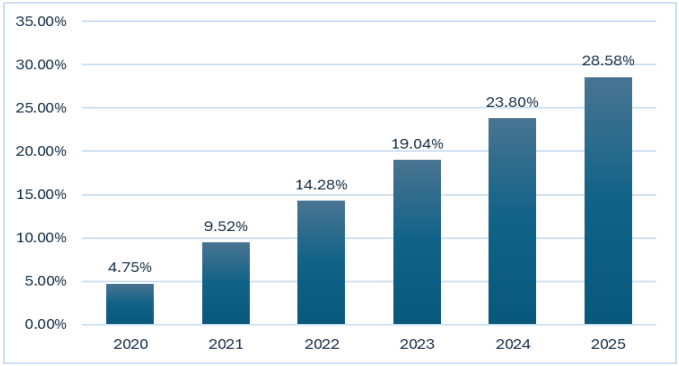
Magazine	Psychomotricity	Child development	Psycomotor test	Total
Early Childhood Research Quarterly	25	30	15	70
Children and Youth Services Review	68	78	14	160
Journal of Experimental Child Psychology	141	100	38	279
Journal of Affective Disorders	80	71	69	220
The Lancet Child and Adolescent Health	110	123	85	318
Infancy	93	94	15	202
Developmental Science	194	134	20	348
Child Development	41	0	1	42
Autism	37	190	46	273
Frontiers of Education in China	79	119	0	198
Scientific Reports	71	72	0	143
Annals of the New York Academy of Sciences	109	85	2	196
Sciencial Science and Medicine	12	28	140	180
BMC Psychology	174	125	4	303
Documents	1.234	1.249	449	2.932

Source: own elaboration based on condensed information from SCOPUS.

Table 2 shows the relational behavior of the descriptors that structured the search equation, whose behavior was circumscribed in the bibliometric size within the different sources of the scientific resources considered. It is clear from this table that the bulk of the journals were conglomerated in journals specialized in educational sciences, psychology and child health and development, such as Early

Childhood Research Quarterly, Autism, The Lancet Child and Adolescent Health as the source of the largest number of publications from countries such as England and the United States, considering English as the main language.

Figure 2. Publication behavior during the research period



Source: own elaboration based on condensed information from SCOPUS.

Figure 2 shows the chronological behavior of the frequency of publication of the scientific resources considered in the bibliometric analysis (25.174) established within the time interval 2020 to 2025. However, within the bibliometric analysis it was observed that the highest concentration of resources occurred in the years 2023 to 2025, which could reflect a resurgence of interest in these topics due to changes in educational and health policies that began to be implemented in those years.

Table 3. Relationship connection between keywords or descriptors and the number of citations or resources published among authors

Author	Psychomotricity	Child development	Psycomotor test	Documents
Yoshikawa, H.	74	85	91	250
Cuartas, J.	65	74	85	224
McCoy, D.C.	64	73	65	202
Saboi, T.J.	60	69	5	134
Akil, M. et al.	55	49	0	104
Ladois-Do Pilar Rei, A. y Miravete, S.	50	45	0	95
Udayanga, S.	45	43	1	89
Long, H.L. et al.	42	42	1	85
Finders, J.K. et al.	40	40	1	81
Zhang, Y. y Cheng, C.	35	39	0	74
Heinz, H. et al.	30	35	0	65
Thomas, E.K. et al.	25	30	1	56
Yousafzai, A.K. et al.	20	21	0	41
Eyoh, E.E. y Elison, J.T.	19	18	1	38
Total	624	663	251	1.538

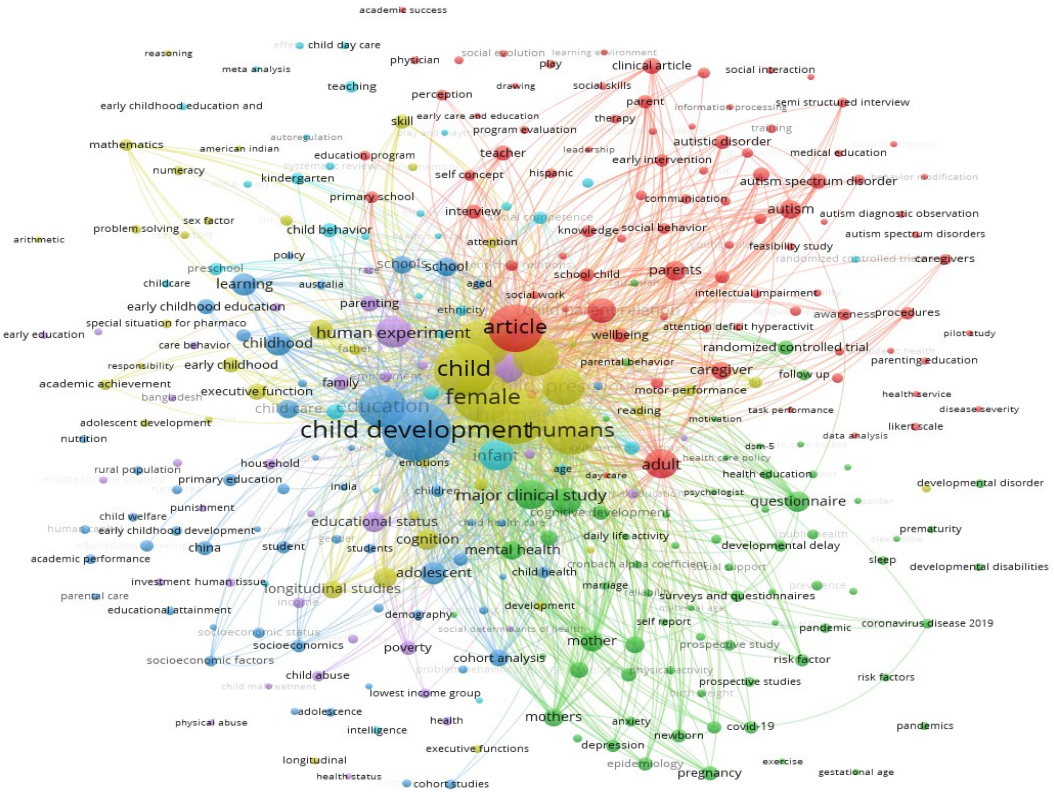
Source: own elaboration based on condensed information from SCOPUS.

Table 3 shows the collection of authors with the highest number of cited publications in relation to the descriptors that structured the search equation. It should be noted that authors who have published more than two resources in the database under another subject that does not correspond to the one analyzed were excluded; for this reason, when disaggregated by descriptors, a total of 508 conciliated documents were found. It is clear that for the authors Ahun, M.N. et al. a total of 250 citations were highlighted. Consequently, Howard S.J. et al. was established with a total of 224 citations.

Basing the analysis under the WOSviewer tool, Figure 3 shows the correlation of the collection of citations and relevant descriptors within the context of analysis. By plotting the node diagram, the correlation with other keywords established within the study is clarified, taking as main nodes the analysis of "article" together with other keywords such as "child", "child development", "humans", "education", among others. This analysis allows us to identify the main lines of research within the topic, and highlights how these fields are intertwining with other topics such as education and health. Continuously, the density scheme (Figure 4) is presented in relation to the authors who have the highest number of

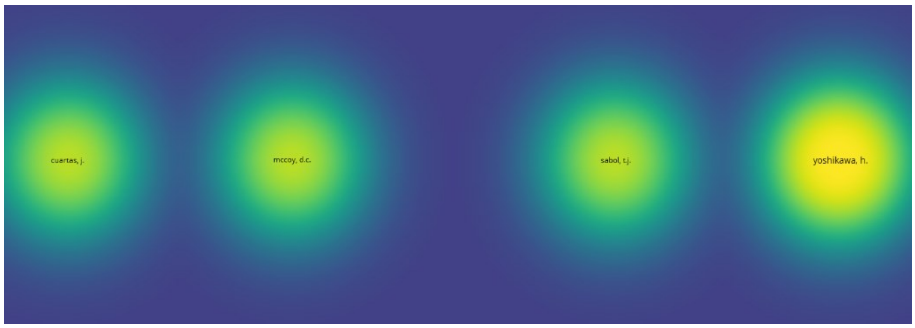
citations and manipulate the keywords established in the previous figure. It is evident that the predominant density is established in the author Yoshikawa, H., followed by Cuartas, J., Mccay, D.C. and Sabol, T.J.

Figure 3. Node map correlating the most relevant descriptors and citations among authors



Source: VOSViewer.

Figure 4. Density map correlating the most relevant descriptors and citations among authors.



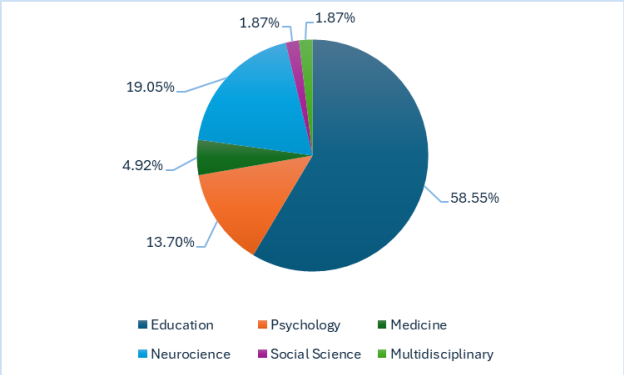
Source: VOSViewer.

Table 4. Analysis by area or topic of research

Area/topic	Documents	Percentage
Education	14.741	58.55%
Psychology	3.451	13.70%
Medicine	1.241	4.92%
Neurocience	4.798	19.05%
Social Science	471	1.87%
Multidisciplinary	472	1.87%
Total documents	25.174	100%

Source: own elaboration based on condensed information from SCOPUS.

Figure 5. Documents by area or topic of research



Source: own elaboration based on condensed information from SCOPUS.

Figure 5 illustrates the distribution in percentage terms of the articles published, differentiated by area of research or research topic, showing that the highest percentage is in the education sector with 58.55%. This is followed by studies in the psychological area with 19.05%, while the health area occupies 13.70%. Other areas such as neuroscience (4.92%) and social sciences (1.87%) have less participation, as does the multidisciplinary area, which also reaches 1.87%. This translates into a predominance of the educational approach in comparison with the other areas analyzed, which could be related to the growing interest in integrating psychomotricity and child development in the school environment to improve educational results and child welfare.

Discussion

Over time, the analysis of psychomotor skills, child development and psychomotor testing has positioned itself as a key topic in scientific research, due to the growing interest in these topics in key sectors such as the educational, psychological and health fields (Limaymanta et al., 2020). From the year 2020 to the present (2025), research addressing these topics evidenced an exponential growth in the volume of published articles, which in-cluded a total of 25,174 disseminated papers, thus reflecting the academic and professional interest in addressing these issues. This trend reflects the development of available analytical tools and techniques, such as co-occurrence analyses and bibliometric network visualizations, which facilitate a more structured organization of the research process (Mariano & Rocha, 2017).

The findings of the present bibliometric analysis reflected the predominance of England in scientific production with 5,853 published articles, followed by the United States with 3,169. However, Latin American countries have little contribution, only Uruguay stands out in this analysis of the region, with a total of 1,022 registered documents, which highlights the need to promote greater collaboration and presence of Latin American entities and academics in the international scenario. Similarly, the results show that English continues to dominate, reflected in a notable number of articles published in renowned academic journals in Europe and the United States.

The analysis of citations and co-authorship carried out using the VOSViewer tool revealed evident patterns in academic collaboration. Prominent figures such as Yoshikawa, H., Cuartas, J. and Saboi, T.J., stand out for their impact, although a concentration in a small group of key researchers and journals is also apparent. This trend limits the diversity and scope of international collaborations, especially with regions of smaller bibliometric size, such as Latin America (Mamani-Jilaja et al., 2023).

Similarly, the use of SCOPUS is positioned as one of the most reliable and reputable sources for cataloging academic papers (Orjuela, 2010; Rodríguez & Ibarzabal, 2018). However, a lack of prominent institutional partnerships was observed in regions such as Latin America, which could hinder the dissemination of research in these areas (Solano et al., 2009). This fact raises the need to implement strategies that promote the integration of more institutions and journals in the region into high impact platforms.

In terms of the disciplines researched, education occupies first place with 58.55% of the publications, followed by psychology and neuroscience, which highlights the relevance of these fields in current scientific research. However, the low proportion of multidisciplinary disclosures (1.87%) highlights the opportunity to expand integrated approaches in future research.

Finally, the relevance of international authors and journals emphasizes the urgency of promoting global alliances that strengthen academic ties, for which the use of ICTs should be integrated to improve access and participation of researchers from underrepresented areas, thus promoting greater equity in global scientific production (Bermeo Giraldo et al., et al., 2021).

Conclusions

The present investigation showed a great variety of scientific production covering psychomotor, child development and psychomotor testing, with articles and reviews emerging as the predominant types of published documents. The use of bibliometric tools such as SCOPUS made it possible to process an extensive amount of data, organizing them by descriptors and regions, which favors the identification of trends and potential areas for future research.

The findings showed that most of the articles disseminated originated in Europe and North America, with England, the United States and Portugal standing out. In contrast, the contribution from Latin America is low, and only Uruguay participated, which highlights the low representation of the region. It was also noted that English is the main language in the documents analyzed, followed by Spanish, which limits access and the inclusion of Spanish-speaking authors.

It is recommended that for future bibliometric evaluations, further research be carried out on the existing networks of collaboration between academics, organizations and areas, in order to encourage greater inclusion of studies originating from countries with smaller bibliometric size. Similarly, it is vital to promote the use of technological tools and educational platforms that encourage scientific production in languages other than English and in less represented regions, which will surely lead to an increase in the dissemination of publications and strengthen the academic impact in this field.

In addition, it would be relevant to carry out more integrated analyses between disciplines, which would allow a broader vision of scientific trends and how different areas of knowledge are interrelated. The exploration of other languages and regions in bibliometric studies would also offer an enriching perspective, broadening the scope and diversity of studies related to the subject matter addressed.

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