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Distance Education During the Pandemic: Short-Term Perspectives

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Abstract---A documentary review was carried out on the production and publication of research papers on the study of the Distance Education variable during the Pandemic in Latin America. The purpose of the bibliometric analysis proposed in this document is to know the main characteristics of the volume of publications registered in Scopus database during the period 2020-2021 in Latin American countries, achieving the identification of 220 publications. The information provided by this platform was organized by means of tables and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics were described, the position of different authors regarding the proposed topic was referenced by means of a qualitative analysis. Among the main findings of this research, it is found that Brazil, with 104 publications, was the Latin American country with the highest scientific production. Knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of Distance Education during the Covid-19 pandemic was Social Sciences with 100 published documents, and the Type of Publication that was most used during the period indicated above was the Journal Article, representing 66% of the total scientific production.

Keywords---distance education, pandemic, COVID-19, short-term.

Introduction

In March 2020, the World Health Organization, after analyzing the rapid growth and spread of the virus known as Covid-19, decreed the serious health situation

as a pandemic, thus generating great uncertainty in different sectors worldwide (Inter-American Development Bank, 2020). Among these, education was no stranger to the measures imposed by governments worldwide, ordering mandatory restrictive quarantine that sought to avoid crowds through social distancing. Once the quarantine was decreed, educational institutions based their methodologies on the use of technological tools, such as those designed through the MOOC (*Massive Open Online Course*) strategy, proposed by Dave Cormier and Bryan Alexander in Canada in 2008 (Lopez-Meneses & Vazques, 2020), which pursues academic training through the use of virtual platforms and the assignment of pedagogical activities by means of technological resources.

In this way, training is proposed by the educational management, at all levels in a remote way, which meant for trainers and administrative area of educational institutions, a major challenge to give continuity to the academic calendar in a synchronous or asynchronous way supported by ICT tools (Information and Communication Technology) for which teachers should have skills for the management of such technologies. This meant an additional effort for the educators to maintain not only their own motivation in the exercise of their functions, but also the motivation of the students who were exposed to environments that might not be adequate for their classes (Education, 2016). From any point of view, education is going through one of the most critical moments in recent history, because although technology facilitates in some way the scope and coverage of educational institutions, it is also a necessity to keep updated and trained in its use, since a virtual study methodology poorly conducted, may involve the loss of interest in students and therefore a failed teaching-learning process. For this reason, it is of great importance to know the current state of the literature published on the study of the current conditions of education in the context of a pandemic that generated great instability in multiple sectors worldwide. Therefore, the present study is proposed with the aim of answering the question: How has the production of scientific publications been regarding the study of the variable Distance Education during Covid-19 in the period 2020-2021 in Latin America?

General objective

To analyze from a bibliometric and bibliographic perspective, the production of high impact research papers on the Distance Education variable during Covid-19 during the period 2020-2021 in Latin American countries.

Methodology

Quantitative analysis of the information provided by Scopus is carried out under a bibliometric approach on the scientific production regarding Distance Education during the Covid-19 pandemic at Latin American level. Also, from a qualitative perspective, examples of some research papers published in the area of study mentioned above are analyzed from a bibliographic approach to describe the position of different authors on the proposed topic.

The search is performed through the tool provided by Scopus and the parameters referenced in Table 1 are established.

Methodological design

Table 1
Shows the methodological design proposed for this research

	PHASE	DESCRIPTION	CLASSIFICATION
PHASE 1	DATA COLLECTION	The data collection is carried out by means of the Scopus web page search tool.	Published papers whose study variables are related to distance education during the Covid-19 pandemic. Research papers published by authors affiliated with Latin American institutions. Research papers published during the 2020-2021 period. Without distinction of area of knowledge. Without distinction of type of publication.
PHASE 2	CONSTRUCTION OF ANALYSIS MATERIAL	The information identified in the previous phase is organized. The classification will be made by means of graphs, figures and tables based on data provided by Scopus.	Word Co-occurrence. Year of publication Country of origin of the publication. Area of knowledge. Type of publication
PHASE 3	DRAFTING OF CONCLUSIONS AND FINAL DOCUMENT	After the analysis carried out in the previous phase, the study proceeded to the drafting of the conclusions and the preparation of the final document.	

Source: Own elaboration (2021)

Results

The results of the proposed bibliometric analysis are presented below, as well as the development of the bibliographic review of some examples to determine the position of different authors on the subject referenced in this article.

Co-occurrence of words

Figure 1 shows the relationship between the keywords used in the development of the research, which allows us to identify the scope and impact of the research published on the topic proposed in this article.

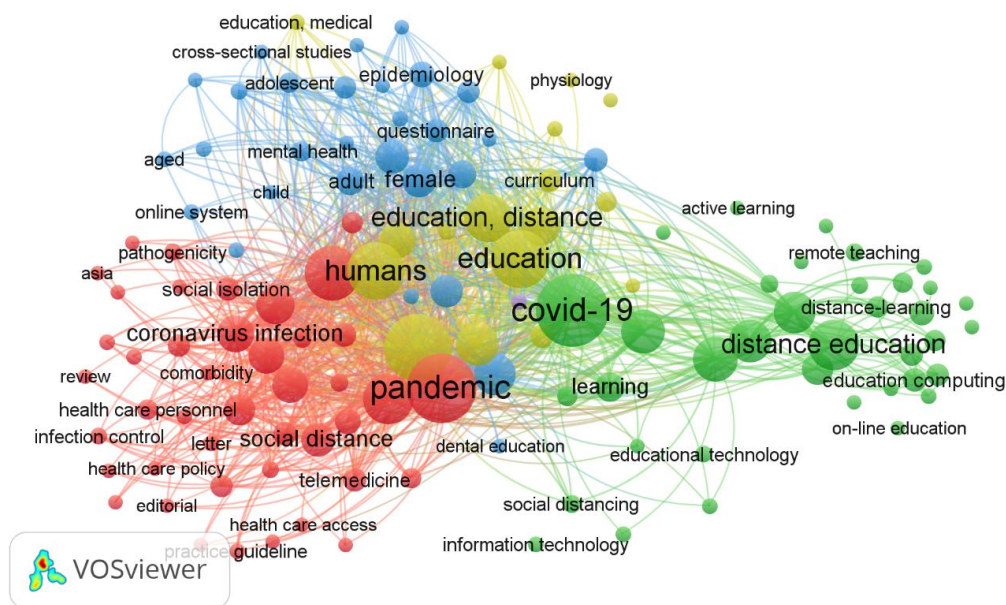


Figure 1. Co-occurrence of words

Source: Own elaboration (2021); based on data provided by Scopus.

Of the three key words proposed in this document, the most related topics can be identified within its study; Covid-19 was the most studied variable within the publications that resulted from the search applied in Scopus under the parameters established in the methodological design. Its study is directly related to topics such as Learning, Technologies for Education, Distance Education, the latter being the determining factor in the impact sought to be analyzed in the development of the following points. Pandemic was a term related to studies in Social Distancing, Teleducation, Coronavirus Infection, Comorbidity, Human, Health Care Policies.

From the latter, it can be inferred that the focus of the research is directed to the care of the physical integrity of people through restriction measures to avoid crowds, which according to health authorities, are one of the main sources of

Covid-19 infection, as well as the impact generated by such measures in the academic training processes, since the virtualization of the contents ceased to be an option for students and teachers, and became the mandatory methodology. Thanks to this, researchers around the world have sought to identify the impact that the change in the study modality has generated in both teachers and students, as they are exposed to different external agents that can be distracting during the teaching process. Similarly, the physical and mental health of the actors involved in this process, motivate experts to handle different methodologies to advance research projects in search of new and better teaching strategies to meet the challenges that a pandemic of such magnitude impose not only in the educational field, but from different social fronts.

Distribution of scientific production by publication period

Figure 2 shows how scientific production is distributed according to the year of publication, taking into account that the period to be analyzed corresponds to the years 2020 and 2021.

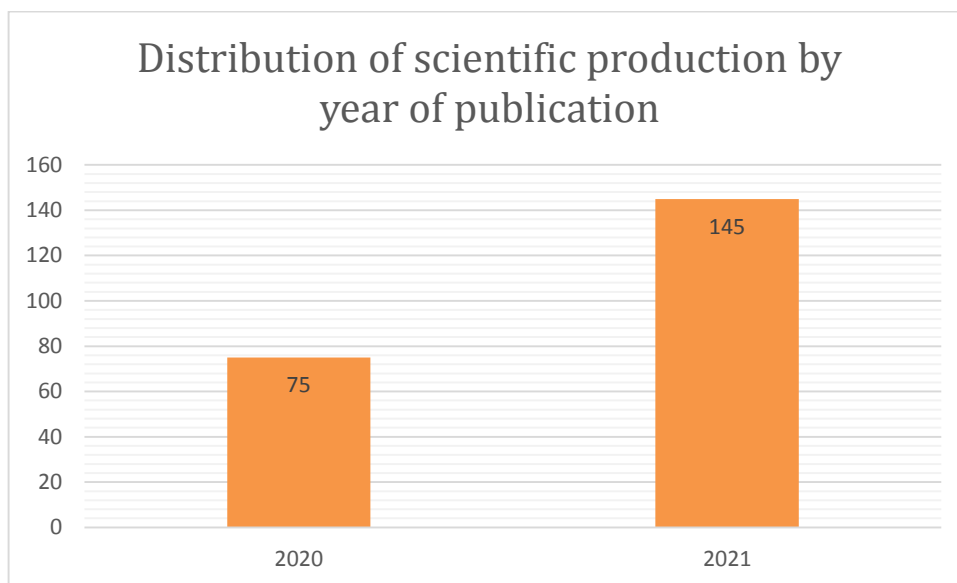


Figure 2. Distribution of scientific production by year of publication.
Source: Own elaboration (2021); based on data provided by Scopus.

Although Covid-19 began in the year 2019, the present document gathers information from the years 2020 and 2021 since it is expected to know the studies of greater impact related to Distance Education during the pandemic. Therefore, it is expected to find more advanced research in the aforementioned years. For the year 2020, 75 publications were identified in high impact journals indexed in the Scopus database. Among these was the article entitled "*Higher education in times of pandemic: guidelines for university management*", whose objective was to propose guidelines for the management of higher education in times of pandemic (Gusso et al., 2020), whose objective was to propose guidelines to guide the work of university managers when evaluating the difficulties and

restrictions imposed by the emergency situation caused by the pandemic, as well as to face them, in order to promote viable and safe working and pedagogical conditions for teachers, taking into account the possible complications that could arise due to the virtualization of academic content, among which could be, exposure to environments unsuitable for classes, the difficulty of separating from certain tasks at home, difficult accessibility to electronic devices or even internet connectivity.

For the year 2021, a total of 145 publications were recorded, surpassing the previous year by a large percentage. It can be determined that the research carried out in 2021 had more historical data, so the analysis of the impact generated by Covid-19 in education could be more specific from the different areas of study. Among the publications with the greatest impact was the article entitled “*The impact of distance cataract surgical wet lab training on cataract surgical competency of ophthalmology residents*” (Geary et al., 2021), whose objective was to evaluate the impact of distance cataract surgical wet lab training on the surgical competence of ophthalmology residents at a tertiary level ophthalmology training center in Trujillo, Peru. The study was conducted by evaluating three five-week distance wet-lab courses via Cybersight, Orbis International's telemedicine platform. The students' practice was evaluated by means of a rubric for each exercise performed on the aforementioned virtual platform, yielding positive results for the simulation of surgical procedures, which undoubtedly represents an important contribution to educational management and the virtualization of academic content, since the objectives are achieved without the need for the face-to-face attendance of traditional models.

Distribution of scientific production by country of origin

Figure 3 shows the distribution of scientific production according to the nationality of the authors.

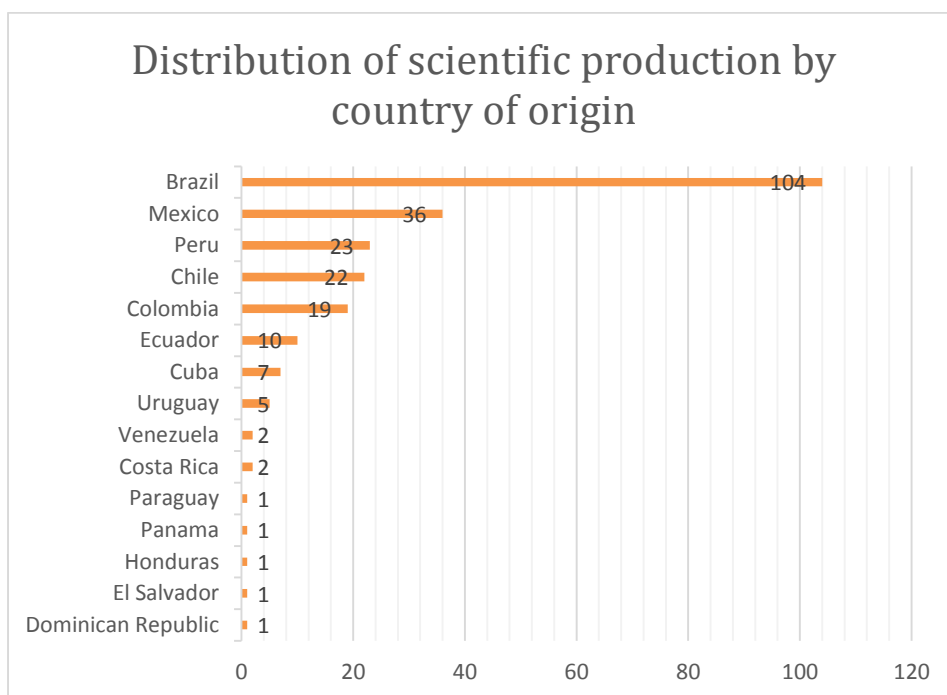


Figure 3. Distribution of scientific production by country of origin.
Source: Own elaboration (2022); based on data provided by Scopus.

Authors affiliated with institutions in Brazil had the largest number of publications referring to the study of Distance Education during the Covid-19 pandemic with a total of 104 documents, among which is the article entitled “*Experiences of in-service teacher training for the creation and use of digital teaching materials in times of pandemic*” (de Oliveira et al., 2021), whose objective was to evaluate the perception of teachers on the use of technologies and digital teaching materials. This was carried out thanks to a survey applied to a group of teachers, most of whom stated that there is no insecurity when using digital tools, but that training in pedagogical processes regarding the virtualization of academic content should be strengthened. In fact, one of the main objectives of the educational management was precisely the education and training of teachers in their adaptation to digital media through which continuity was given to academic training, since on this depended the success in the teaching-learning process to students at all levels, namely preschool, primary, secondary, university and postgraduate.

At this point, it should be noted that the production of scientific publications, when classified by country of origin, presents a special characteristic and that is the collaboration between authors with different affiliations to both public and private institutions, and these institutions can be from the same country or from different nationalities, so that the production of an article co-authored by different authors from different countries of origin allows each of the countries to add up as a unit in the overall publications. This is best explained in Figure 4, which shows the flow of collaborative work from different countries.

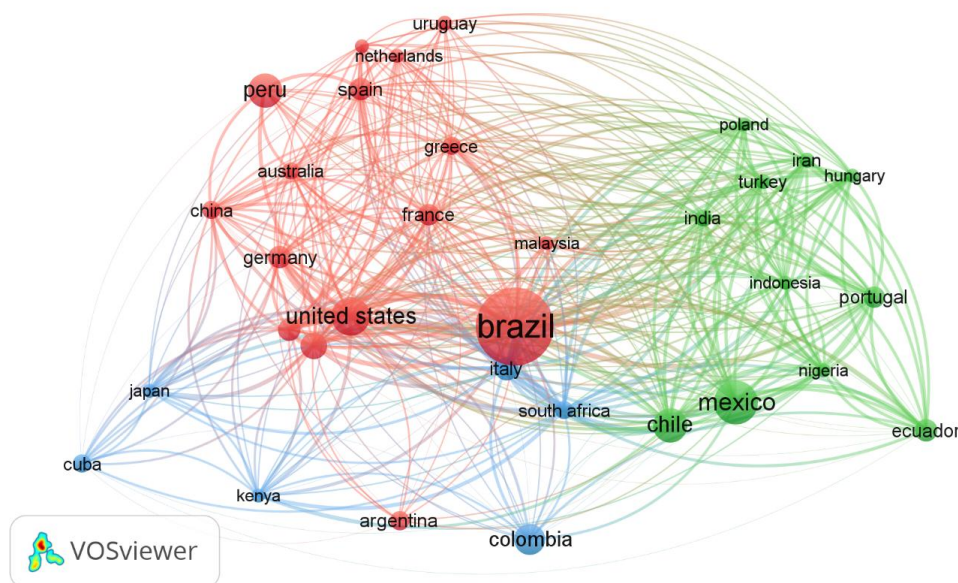


Figure 4. Co-citations between countries

Source: Own elaboration (2022); based on data provided by Scopus

Brazil, leading the scientific production of works related to Distance Education during the Covid-19 pandemic, also showed the highest number of participations with authors affiliated to other countries, both Latin American and from other regions. As shown in Figure 4, a constant exchange of co-citations between authors from that country is present with those affiliated to institutions in the United States, Malaysia, France, Germany, Peru, Uruguay, Spain, among others. Mexico, which ranked second with 36 publications, shows high participation in research projects with authors from Chile, Ecuador, Portugal, and Asian countries such as Indonesia and India, among others. Colombia, with 19 research papers published in high impact journals indexed in the Scopus database, ranked fifth, showing collaboration with authors from Cuba, South Africa, Kenya, Japan, Israel, Italy, among others, as shown in the article entitled “*Transforming ophthalmology education into e-learning during the COVID-19 pandemic: a global perspective*”, the purpose of which was to measure the effectiveness of ophthalmology education in e-learning during the COVID-19 pandemic (Chatziralli et al., 2021), whose purpose was to measure the effectiveness of efforts to maintain quality education through digital resources, in response to the measures imposed to reduce Covid-19 infections and deaths, among which was the social distancing that prevented face-to-face sessions within the training in different areas.

For this purpose, the authors designed a worldwide survey that was applied among physicians actively involved in education related to Ophthalmology, between April 3 and 14, 2020. The expert survey, developed on the basis of literature search and focus group discussions, comprised 23 questions addressing the use of e-learning in Ophthalmology during the COVID-19

pandemic. The analysis of the results revealed some insecurity among students, especially in the practice of surgeries, since traditionally this knowledge was taught in a face-to-face manner, with the purpose that students knew the procedures during surgical interventions. However, online teaching models or distance education have allowed to successfully carry out the different scenarios in this area of knowledge, providing even new alternatives for education once the pandemic by Covid-19 is overcome.

Distribution of scientific production by area of knowledge

Figure 5 shows how the production of scientific publications is distributed according to the area of knowledge through which the different research methodologies are executed.

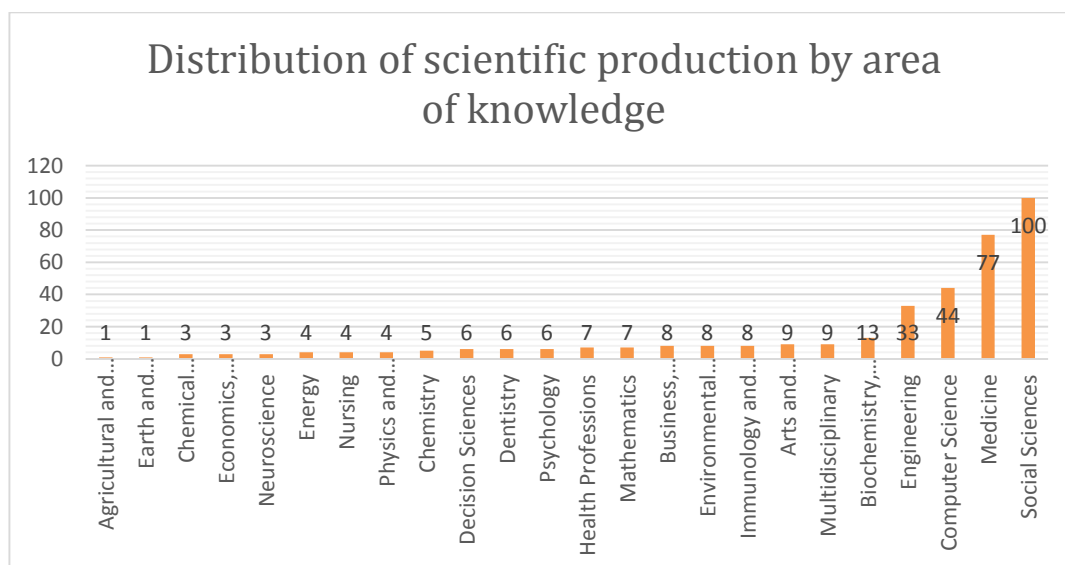


Figure 5. Distribution of scientific production by area of knowledge.
Source: Own elaboration (2022); based on data provided by Scopus.

Social Sciences was the area of knowledge with the largest number of registered publications, a total of 100 documents were written taking into account theories that involve the study of the social and its impact on the development of educational methodologies in the context of the pandemic by Covid-19 and Distance Education. Among these documents is the article entitled “*Remote education in the context of pandemic: characterization of the educational process in Chilean universities*” (Villarroel et al., 2021), whose objective was to characterize the distance education processes in Chile during the COVID-19 pandemic from the experience of professors and students. The study based its results on the application of a questionnaire to 1750 students and 654 professors from 34 Chilean universities. The results determined that it is necessary to constantly train teachers not only in the use of technological tools, but also in the strengthening of motivation and the student-teacher relationship that is achieved through communication, which traditionally face-to-face scenarios facilitate to a greater extent than remote or distance sessions.

Medicine and Computer Science occupy the second and third place with 77 and 44 publications respectively, followed by Engineering with 13 documents. It is important to note that the areas with the greatest influence in the development of research related to the topic proposed in this article, base their methodologies on the impact that social distancing measures have had on education, and how the knowledge that has traditionally been acquired through classroom practice seeks to evolve in favor of a more inclusive education by establishing models that although they were created in response to restrictive measures, will always be a vital contribution in the search for an education with greater scope and impact.

Type of publication

Figure 6 shows how the bibliographic production is distributed according to the type of publication chosen by the authors.

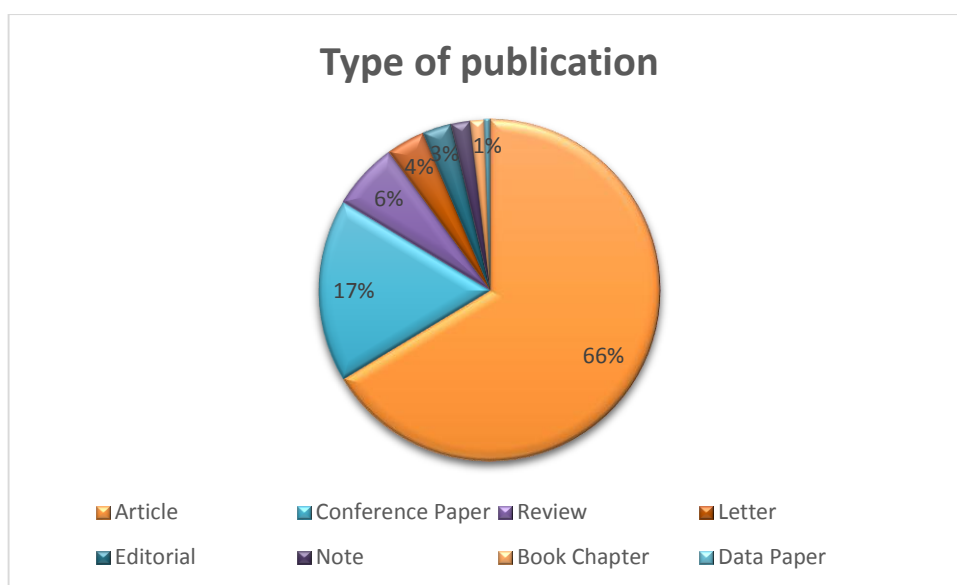


Figure 6. Type of publication.

Source: Own elaboration (2022); based on data provided by Scopus.

The publications made during the years 2020 and 2021 made in the study of Distance Education during the pandemic by Covid-19 in high impact journals indexed in Scopus database, were mostly Journal Articles. Sixty-six percent of the total production corresponds to this type of publication. In second place, Conference Articles with 17%, among which is the one entitled “*Virtual Health Education during the COVID-19 Pandemic*” (Rojas-Salas et al., 2021), whose objective was to analyze the experiences of university obstetrics during the period of the COVID-19 pandemic. The information for its analysis was collected through two discussion tables formed by 14 obstetrics students from three public universities in Lima, Ica and Tacna and two private universities in Arequipa and Cusco. Among the results, it is highlighted that the students have expressed uncertainty due to the same situation experienced by the confinement, which involves social, economic, cultural and academic aspects. The difficulties to carry

out academic exercises from home were also part of the discussion among the students.

Conclusions

Thanks to the bibliometric analysis carried out in the development of this article, it is possible to conclude that within the Latin American community, Brazil was the country with the highest number of research studies published during the years 2020 and 2021 (104 in total) related to the study of the impact of the Covid-19 pandemic on education and how distance education became an option in academic training, to an obligation due to the restrictive measures decreed by governments worldwide in response to the suggestions of world organizations such as the World Health Organization (WHO) that prevented, among other measures, the agglomerations seeking social distancing, to which the classrooms were no strangers and went from a traditional face-to-face system to a remote one through technological tools.

Similarly, it was established that the Social Sciences was the area of knowledge with the greatest influence in the application of theories for the construction of research that sought to measure the impact that the pandemic has had on social aspects such as education, economy, culture, health, among others, highlighting by the nature of this document, the education sector thus measuring the consequences of the measures adopted by the institutions who complied with the ordinances of the competent governmental actors, and migrated their training processes to remote environments thanks to the use of Information and Communication Technologies (ICT) which greatly facilitated the assignment of pedagogical activities, synchronous and asynchronous sessions, measurement by evaluation of knowledge, student-teacher-student interaction, and other aspects to be considered within the variables that measure the quality of teaching and learning processes.

Moreover, aspects such as mental health, emotional stability and motivation were one of the motivators for authors from different countries to seek to understand the response of students to the methodological change as well as the degree of commitment of teachers, as well as the skills needed for the use of virtual platforms and control of a group of students from home, already assumed the difficulty to carry out remote sessions as close as possible to the traditional face-to-face ones. From the above, it is important to highlight the effort of educational management to maintain quality in all training processes from the knowledge of the perception of stakeholders, namely students, teachers, administrative staff of educational institutions, families and guardians of students, among others, since based on the knowledge of the impact generated in them, it is possible to submit the teaching-learning processes to a meticulous evaluation where aspects to improve can be identified, all with the purpose of ensuring good levels of quality in academic training. For this reason, this article concludes by reaffirming the importance of knowing the current state of the published bibliography related to the study of Distance Education during the Covid-19 pandemic, since thanks to this it is possible to design new strategies in this methodology based on the identified antecedents.

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