# La depresión en Iberoamérica en el contexto del COVID-19: un análisis de la producción científica en Scopus

Depression in Ibero-America in the COVID-19 context: An analysis of scientific production in Scopus

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#### Abstract

**Introduction:** During the COVID-19 pandemic, mental health problems such as depression have increased in the general population and health care personnel.

**Objective:** Describe the characteristics of publications on depression in the COVID-19 context, with authors affiliated to Ibero-American institutions.

**Method.** The study describes the main characteristics of the publications on depression in the Covid-19 context conducted by authors affiliated to Ibero-American institutions. A retrospective and descriptive analysis of 1,072 articles indexed in the Scopus database between January 2020 and September 2021 was performed.

**Results.** The results show that original and review articles are the most carried out. Spain is the Ibero-American country that contributes the largest number of scientific articles on depression, representing 33.68% of the Ibero-American production, followed by Brazil and Portugal, countries that exceed 10.00% of the production. The authors are mainly affiliated with institutions in Brazil, Spain and Portugal. Also, International Journal of Environmental Research and Public Health and Frontiers in Psychology are the journals with the largest number of publications. The most cited article is documentary review and was published by authors affiliated with Ibero-American institutions in Brazil and Paraguay. Finally, it was found that the most used keywords were the descriptors depression, mental health, pandemic and Covid-19.

**Conclusions.** The scientific production on depression is unequal, and it is important to consolidate the scientific literature through collaborative networks between researchers and institutions in Ibero-America.

**Key words:** Depression; Ibero-America; Scientific production; Covid-19; Pandemic.

## Resumen

**Introducción:** Durante la pandemia de COVID-19, los problemas de salud mental como la depresión han aumentado en la población general y en el personal sanitario.

**Objetivo:** Describir las características de las publicaciones sobre depresión en el contexto de COVID-19, con autores afiliados a instituciones iberoamericanas.

**Método.** El estudio describe las principales características de las publicaciones sobre depresión en el contexto de la COVID-19 realizadas por autores afiliados a instituciones iberoamericanas. Se realizó un análisis retrospectivo y descriptivo de 1.072 artículos indexados en la base de datos Scopus entre enero de 2020 y septiembre de 2021.

**Resultados**. Los resultados muestran que los artículos originales y de revisión son los más realizados. España es el país iberoamericano que aporta el mayor número de artículos científicos sobre depresión, representando el 33,68% de la producción iberoamericana, seguido de Brasil y Portugal, países que superan el 10,00% de la producción. Los autores están afiliados principalmente a instituciones de Brasil, España y Portugal. Asimismo, International Journal of Environmental Research and Public Health y Frontiers in Psychology son las revistas con mayor número de publicaciones. El artículo más citado es la revisión documental y fue publicado por autores afiliados a instituciones iberoamericanas de Brasil y Paraguay. Finalmente, se encontró que las palabras clave más utilizadas fueron los descriptores depresión, salud mental, pandemia y Covid-19.

**Conclusiones**. La producción científica sobre depresión es desigual y es importante consolidar la literatura científica a través de redes de colaboración entre investigadores e instituciones de lberoamérica.

**Palabras clave:** Depresión; Iberoamérica; Producción científica; Covid-19; Pandemia.

#### Introduction

In the early 2020s, disease from the new coronavirus (CO-VID-19) began to spread worldwide<sup>1,2</sup>. The rapid increase in confirmed cases generated devastating social, economic and political impacts that will leave deep and lasting traces<sup>3</sup>. Health systems collapsed and confinement was inevitable to reduce the number of deaths, but even so, millions of lives were lost<sup>4</sup>. The outbreak of the pandemic began in China, and then Europe and the United States<sup>5,6</sup>, where the number of infections grew rapidly, threatening to collapse the health system of that country. Then it reached South America<sup>7</sup>, Brazil being the first country where the disease was reported, and in a few weeks, all Latin American countries<sup>8,9</sup>.

The Covid-19 pandemic is considered to be a cause of psychological and social consequences that could generate impact on people's mental health during and after the pandemic<sup>10</sup>, as mental health problems increase during adversities<sup>11</sup> and during unexpected situations such as quarantine <sup>12</sup>. According to the Pan American Health Organization before the pandemic, depression, as well as anxiety, dementia and alcohol abuse were the most disabling mental health problems in the world, constituting the main health care burden<sup>13</sup>; However, isolation measures, the discontinuity of health services and the limited availability of medicines began to represent barriers to preserving good mental health during the pandemic<sup>14</sup>.

Depression is a mental health problem that affects 3.8% of the world's population, with approximately 280 million people suffering from it<sup>15</sup>, becoming a serious health problem when it is recurrent and of moderate to severe intensity. During the pandemic, the number of people with depressive-like feelings has increased in almost all countries. This increasingly wide-spread disorder was also associated with insomnia, characterized by lack of sleep, either in quality or quantity, which can also affect people's daily activities<sup>16</sup>. In relation to the rate of clinical diagnoses, it is found that, the higher the rate of depression in 2017, the higher the percentage of people reporting depression in 2020 and 2021, with the rate being higher in women <sup>17,18</sup>.

With the pandemic, emotional states are unbalanced and have serious repercussions on mental health. <sup>19</sup>. All of the above explains why depression is considered a real public and mental health problem, which deserves to be studied by mental health professionals and professionals of related sciences, in order to generate solutions to this problem.

Scientific production analyses favors the review of the literature<sup>19</sup> and even more so in an international public health emergency such as the one we are experiencing. In these circumstances, we believe it is important to investigate the psychological impact that the pandemic is producing, thus developing strategies that can reduce the psychological impact during the crisis. This paper aims to describe the characteristics of publications on depression in the COVID-19 context, with authors affiliated to Ibero-American institutions.

#### Materials and methods

Retrospective and descriptive study considered as a unit of analysis the publications on depression in the COVID-19 context, in journals indexed in Scopus, from January 2020 to September 2021 and whose authors are affiliated to Ibero-American institutions. Scopus includes more than 40,804 journals of science, technology, social sciences, arts, humanities and medicine. Therefore, it was decided to use this database due to the large number of journals it includes and its rigorous journal selection process, which allows the collection of the most relevant studies on the subject. The search included all published and indexed articles, using the fields Article Title, Abstracts, Keywords, using the search terms: "depression" OR "depressions" OR "depressed" OR "despondent" OR "gloomy" OR "depressive" and their relation to the terms "2019-nCoV" OR "SARS-CoV-2" OR "2019 novel coronavirus" OR "COVID-19" OR "Coronavirus disease 2019". With the extracted documents, a database was organized in Microsoft Excel that included the following data: name of the signing authors, title of the publication, type of publication, affiliation institutions of the signing authors, journal of publication and country of edition. Finally, using VOSviewer software, a network was created with the main themes associated with the key words of the publications.

### Results

A total of 1,072 articles published and indexed in Scopus with authors affiliated to Ibero-American institutions were found. The analysis included 07 types of publishable documents. 85.03% of documents are research articles (Table 1).

Table 1- Types of documents of the publications on depression in the COVID-19 context			
Type of document	Ν	%	
Article	799	74.53	
Reviews	131	12.22	
Letters to the editor	77	7.18	
Editorials	27	2.52	
Notes	23	2.15	
Book chapter	8	0.75	
Conference paper	7	0.65	

Spain is the Ibero-American country that contributes with the largest number of scientific articles on depression, representing 33.68% of the Ibero-American production, followed by Brazil and Portugal, countries that exceed 10.00% of the production. There are 03 Ibero-American countries (Costa Rica, Guatemala, Costa Rica) with at least 01 publication (table 2).

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 Table 2- Ibero-American countries with scientific production on depression in the COVID-19 context

Country	N	%
Spain	361	33.68
Brazil	213	19.87
Portugal	134	12.50
Mexico	86	8.02
Peru	58	5.41
Colombia	54	5.04
Chile	53	4.94
Argentina	50	4.66
Ecuador	24	2.24
Paraguay	10	0.93
Cuba	7	0.65
Venezuela	5	0.47
Jamaica	4	0.37
Dominican Republic	4	0.37
Bolivia	2	0.19
Honduras	2	0.19
Uruguay	2	0.19
Costa Rica	1	0.09
Guatemala	1	0.09
Puerto Rico	1	0.09

In terms of productivity by institution, 327 international institutions have participated in the Ibero-American production on depression. The list of the top 10 is presented, among which institutions from Brazil, Spain and Portugal stand out, three non-university institutions appear on it, and all university institutions are in the top 25 of the Ibero-American Ranking of Higher Education Institutions, 2020.

Table 3- Ibero-American institutions participating in the research on depression in the COVID-19 context

Institution	Country	Ibero- America SIR 2020	N
Universidade de São Paulo	Brazil	1	83
Universidade do Porto	Portugal	6	52
Centre for Biomedical Research Network on Mental Health	Spain	-	50
Universitat de Barcelona	Spain	5	47
Universidad Complutense de Madrid	Spain	10	46
Universitat de València	Spain	12	37
Universidade Federal de São Paulo	Brazil	24	35
Carlos III Health Institute	Spain	-	34
Universidade Federal do Rio Grande do Sul	Brazil	11	32
Hospital Clinic Barcelona	Spain	-	32

Table 4 shows the list of the 10 most productive journals, among which the International Journal of Environmental Research and Public Health and Frontiers in Psychology (with more than 40 publications) stand out. These journals are located in quartile 2 of the SJR. The topics of these 10 journals are medicine, psychology, multidisciplinary sciences and neurosciences. Scientific production is concentrated in European journals, which shows that researchers in this region prefer to produce and publish their research in another environment.

Table 4- Most productive journals on depression in the COVID-19 context					
Journal	Country	Quartile	Торіс	Documents	
International Journal of Environmental Research and Public Health	Switzerland	Q2	Medicine	81	
Frontiers in Psychology	Switzerland	Q2	Psychology	41	
Frontiers in Psychiatry	Switzerland	Q1	Medicine	26	
Journal of Affective Disorders	Netherlands	Q1	Medicine and Psychology	24	
Psychiatry Research	Ireland	Q1	Medicine and Neuroscience	20	
Plos One	United States	Q1	Multidisciplinary	13	
Brain Sciences	Switzerland	Q3	Neuroscience	10	
Journal of Psychiatric Research	United Kingdom	Q1	Medicine and Neuroscience	10	
Revista de Psiquiatria y Salud Mental	Spain	Q3	Medicine	10	
BMJ Open	United Kingdom	Q1	Medicine	9	

Table 5 shows the authors who to date have contributed the largest number of studies on depression in the COVID-19 context. A total of 1,221 authors were found out of the 1,072 documents analyzed, those who have contributed the same or more than ten documents. Researchers such as Haro, Josep Maria, Neto, Modesto Leite Rolim and Vieta, Eduard stand out. Authors from Brazil, Spain and Peru stand out in the list of the top 10 authors on this topic.

Table 6 shows articles on depression in the COVID-19 context that contain the highest number of citations (more than 250). The most cited article is a documentary review and was published by authors affiliated to Ibero-American institutions in Brazil and Paraguay.

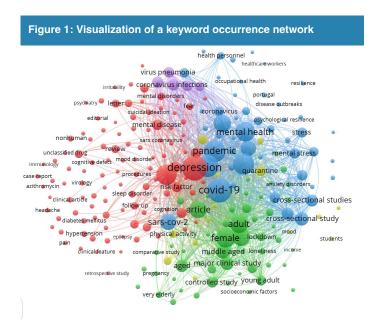
Author	Institution	Country	H Index	Published documents
Haro, Josep María	Centre for Biomedical Research Network on Mental Health (CIBERSAM)	Spain	92	12
Neto, Modesto Leite Rolim	Faculty of Medicine of Juazeiro do Norte- Estácio FMJ	Brazil	13	10
Vieta, Eduard	Hospital Clinic Barcelona	Spain	25	10
Huarcaya-Victoria, Jeff	Guillermo Almenara Irigoyen National Hospital	Peru	4	9
Jacob, Louis	Parc Sanitari Sant Joan de Déu, Sant Boi de Llobregat	Spain	19	9
Azevedo, Luiz Otávio	Fundacao Oswaldo Cruz	Brazil	7	8
Carvalho Malta, Deborah	Universidade Federal de Minas Gerais	Brazil	54	8
Olaya, Beatriz	Centre for Biomedical Research Network on Mental Health (CIBERSAM)	Spain	25	8
Szwarcwald, Ce´lia Landmann	Fundacao Oswaldo Cruz	Brazil	40	8
Fundacao Oswaldo Cruz, Rio de Janeiro, Brazil	Universidade Estadual Paulista "Júlio de Mesquita Filho"	Brazil	11	8

 Table 6- Most cited articles on depression in the COVID-19 context

Title	Journal	Documentary type	Authors	Citations
The outbreak of COVID-19 coronavirus and its impact on global mental health	International Journal of Social Psychiatry	Review	Torales, J., O'Higgins, M., Castaldelli-Maia, J.M., Ventriglio, A.	814
Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain	Brain, Behavior, and Immunity	Article	González-Sanguino, C., Ausín, B., Castella- nos, M.Á., Saiz J, Ugidos, C., López-Gómez A, Muñoz, M.	
Stress, anxiety, and depression levels in the initial stage of the COVID-19 outbreak in a population sample in the northern Spain	Cadernos de Saude Publica	Article	Ozamiz-Etxebarria, N., Dosil-Santamaria, M., Picaza-Gorrochategui, M., Idoiaga- Mondragon, N.	272
Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university	Psychiatry Research	Article	Odriozola-González, P., Planchuelo-Gómez, Á., Irurtia, M.J., de Luis-García, R.	251

Figure 1 shows the most frequent descriptors, with depression being the one with the highest number of occurrences (n=676). The number of term co-occurrences indicates the number of publications in which they appear in the selected documents and the colors indicate clusters of keywords relatively related to each other according to the strength of association obtained by the VOSviewer program, as well as the visual difference of clusters. With the 6,641 descriptors recorded in the 1,072 documents retrieved and the five clusters, the thematic focus of each cluster was analyzed. Cluster 1 (red) analyzes the relationship between risk factors for depression and how it has been influenced by the COVID-19 pandemic, becoming one of the most prevalent mental ill-

nesses. Cluster 2 (green) indicates the frequency of studies that have been conducted on depression in the COVID-19 context, with clinical studies in young and adult populations being the most predominant. Cluster 3 (blue) shows the relationship between depression, anxiety, burnout and stress, as diseases that affect mental health during the pandemic context, highlighting the studies of these psychological variables in health personnel. Cluster 4 (yellow) presents a focus on mental health promotion and intervention through a healthy lifestyle with physical activities and quality sleep in order to reduce cases of depression in the student population. Finally, cluster 5 (purple) shows in a general way how the coronavirus infection has had an impact on people's mental health. 67



#### Discussion

The aim of the study was to analyze the Ibero-American scientific production on depression in the Covid-19 context. The study was important because, in times of pandemic, people tend to experience fear of catching the virus or disease, generating mental health problems such as depression<sup>20,21</sup>.

The results show that the scientific production in Ibero-America is guite different. (meaning 'variable'?) Spain leads the studies on depression in the Covid-19 context, followed by Brazil, Portugal and Mexico, and to a lesser extent, Peru, Colombia, Chile, Argentina and Ecuador. Similar results were found in a study of scientific production on suicide during the Covid-19 pandemic in Ibero-America, where the largest number of research studies was carried out in Latin American countries such as Brazil and Mexico and in European countries such as Spain and Portugal<sup>22</sup>. Another study was also conducted on the application of artificial intelligence in the treatment of depressive disorders, in which Spain is the Ibero-American country with the largest number of publications, followed by Chile, Mexico and Portugal<sup>23</sup>. The results could be due to the proposal presented in the bibliometric analysis of global health and human rights research outputs (1900-2017). It was found that most research studies were conducted by high-income countries in the Americas and Europe, where regulations on tenure in academic institutions in the United States and other developed countries require researchers and academics to conduct research studies. These academic regulations may be absent or lax in many developing countries<sup>24</sup>.

Articles as a product of a research work reveal the tendency to publish articles compared to others such as reviews, letters to the editor, editorials or notes. Similar results were found in a bibliometric analysis on Covid-19 in Latin America. Of scientific publications on health, it was found that most publications are original articles, followed by editorials, rapid communications, letters and review articles<sup>25</sup>.

It was also found that the 10 lbero-American institutions with the largest number of scientific articles on depression in the Covid-19 context are from Brazil, Spain and Portugal; the university institutions are among the top 25 in the lbero-American Ranking of Higher Education Institutions, 2020, which show the report on the classification of institutions according to the number of papers indexed in the Scopus database, based on three factors: research, innovation and social impact<sup>26</sup>. A study on publications in the field of lbero-American psychology showed that the lbero-American institutions with the largest number of publications are from Spain, Colombia, Argentina, Brazil and Mexico<sup>27</sup>.

Articles that stand out are those published in Q1 and Q2 quartiles of journals with the largest number of research studies on depression in the COVID 19 context from countries such as Switzerland, Ireland, Netherlands, the United States and the United Kingdom. Currently, researchers seek to publish in prestigious journals in order to achieve better positioning and greater global visibility<sup>28</sup>.

Moreover, the Ibero-American authors with the largest number of scientific articles are from countries such as Spain, Brazil and Peru, where authors have an h-index greater than 4. It is important to bear in mind that the h-index has become the benchmark for measuring the impact of authors and their publications in the main databases such as Scopus, Web of Science (WOS) and Google Scholar<sup>28</sup>.

The outbreak of COVID-19 coronavirus and its impact on global mental health is among the most cited research studies, and it was published in the International Journal of Social Psychiatry. It has 814 citations to date, being one of the first review articles published on Covid-19 and mental health in 2020. It considers that the pandemic is generating worldwide mental health problems such as stress, anxiety and depression<sup>29</sup>.

Finally, in the keyword occurrence network, the descriptor with the largest number of occurrences was found to be depression. There are clusters of different approaches to studies conducted, with trends related to the relationship between risk factors for depression and COVID-19, clinical studies in young and adult population, relationship between depression, anxiety, burnout and stress, as diseases that affect the mental health of people during the pandemic, promotion and intervention of mental health through a healthy lifestyle to reduce cases of depression in the student population and studies on the impact of coronavirus on people's mental health. A study that aimed to analyze Spanish psychology publications and journals indexed in the Emerging Source Citation Index (ESCI) found that depression, anxiety, psychotherapy and intervention were the most frequently used terms<sup>30</sup>. A research with similar results on Latin American scientific production on mental health in times of Covid-19 was found, showing that mental health research studies present a tendency to words like COVID-19 and its different adopted names, risk factors and the necessary treatments to develop to face mental

health problems<sup>31</sup>. The Covid-19 pandemic led to the vulnerability of the general population and health personnel, since it not only causes physical health problems, but also psychological disorders such as depression<sup>32</sup>, requiring specialized psychological intervention alternatives and better access to mental health services<sup>33</sup>.

## Conclusions

The Ibero-American scientific production on depression is unequal, with some countries such as Spain, Brazil, Portugal and Mexico carrying out the largest number of research studies. In spite of finding a significant number of research studies, research should continue in all countries and be strengthened in countries where fewer studies have been found, until there is solid scientific evidence that leads to the development of public policies for the prevention and treatment of depression in the general population and health personnel.

Likewise, in order to consolidate the scientific literature on depression in times of Covid.19 in Ibero-America, it is important to develop collaborative networks among researchers and institutions, since the variability of studies does not generate solid scientific development in all Ibero-American countries.

## **Conflict of interests**

The authors declare that they have no conflicts of interest.

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