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# Bibliometric study of the scientific productivity of the COVID-19 impact on constructs affecting happiness in university students

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## Abstract:

COVID-19 has caused a wide range of psychological problems, such as panic disorders, anxiety, and depression. Knowing what others have researched on, what constructs they have focused on, will (a) summarize published information, (b) help identify research gaps, and (c) encourage future research that addresses these gaps. The aim of the study was to analyze the bibliometric indicators of scientific productivity of the impact of COVID-19 on constructs affecting undergraduate happiness. A bibliometric study was conducted. The PubMed database was used. Data summarized were: authors, year of publication, journal name, country, language of publication, and subtopic addressed. A total of 16 English-language studies were identified between April 2022 and December 2022. There were 12 countries that have published on the impact of COVID-19 on constructs affecting college students' happiness. Most of the studies were developed in the United States ( $n = 4$ , 25%) and China ( $n = 2$ , 12.5%). Thirteen journals publishing these topics were detected. The subtopics considered were organized into nine categories (e.g., a: Psychological impact, b: Adverse childhood experiences, c: Stress, d: Personality traits, e: Perception of the educational environment, f: Spiritual health, g: Distress, h: Uncertainty and socioemotional learning, i: Satisfaction with life). This study suggests that the number of countries and scientific journals that have published on the impact of COVID-19 on constructs affecting college students' happiness is small. In addition, the most discussed subtopics during the pandemic were related to constructs such as psychological impact and stress affecting college students' happiness.

## Keywords:

Bibliometrics, Covid-19, happiness, students

## Introduction

The epidemic of coronavirus disease 2019<sup>[1]</sup> emerged in Wuhan, China, spread throughout the country and then globally. This epidemic has caused a wide variety of psychological problems, such as panic disorder, anxiety, and depression.<sup>[1]</sup>

When COVID-19 spread worldwide and, following strict quarantine measures, universities were forced to temporarily

close, resulting in abrupt changes in teaching and learning activities.<sup>[2]</sup>

Many university students were displaced from their dormitories and peer groups and forced to leave campus immediately. In many cases, they are without their belongings and are continuing with their academic work as usual from a distance.<sup>[3]</sup> Some universities even adopted the approach of resuming academic activities under distance or online teaching methods, while those that lacked

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resources and/or preparation were advised to delay the semester.<sup>[4]</sup>

In fact, the implementation of quarantine has kept a large number of people (schoolchildren, university students, teachers, among others) in social isolation around the world. This has caused a profound psychological impact on the general public,<sup>[1]</sup> going beyond the massive contraction of global economic activities, which also points to the degradation of the quality of health and well-being.<sup>[4,5]</sup>

In essence, several studies have recently highlighted that the pandemic has had a negative impact on happiness and life satisfaction in university students.<sup>[6-8]</sup> Therefore, it is of interest to study the scientific productivity of the impact of COVID-19 on constructs affecting happiness in this at-risk population.

Happiness is often defined as a feeling or state of satisfaction that resides internally within the individual.<sup>[9]</sup> Often affecting aspects of happiness are personal, family, and social factors that influence students' happiness.<sup>[10]</sup> In fact, in recent years, there has been an ostensible increase in studies in various areas and stages of life, especially in university students.<sup>[11]</sup>

It is widely known that college students are increasingly recognized as a vulnerable population (before and after the pandemic), suffering from higher levels of anxiety, depression, substance abuse, eating disorders, and suicidal tendencies, especially during the pandemic.<sup>[11,12]</sup> In this context, this review focuses on presenting a description of identified research that addressed the constructs that affected happiness in the university population during the pandemic. This allows for a better understanding of where researchers have focused their attention, what topics were most investigated, what mode of study the university students were in, as well as recognizing gaps that require attention. In this way, it is possible to understand that the impact of COVID-19 was not only on the somatic, social, economic, and cultural spheres, but also on the psychological states of university students. This information is necessary to learn more about what others have researched, what constructs they have focused on, and summarize the published information. Consequently, to be able to develop new resources and strategies that will improve student well-being, as well as encourage future research to address those identified gaps.

Therefore, the aim of the study was to analyze the bibliometric indicators of scientific productivity of the impact of COVID-19 on the constructs that affect happiness in young university students. To achieve the aim of the study, we proposed the following question:

What will be the constructs or subthemes identified in the publications that affected the happiness of university students during the COVID-19 pandemic?

## Materials and Methods

### Data sources and search strategy

The electronic search of this documentary study (bibliometric) was performed in the PubMed database of the National Library of Medicine of the United States (<https://pubmed.ncbi.nlm.nih.gov/>). This database has high coverage of biomedical and life sciences literature. It is also one of the closest to our object of study (happiness). The search strategy was applied during the period between April 2022 and December 2022.

The relevant search terms for this bibliometric review were: (1) Happiness, enjoyment, well-being, joy; (2) university students, young people; (3) isolation, quarantine, confinement; (3) COVID-19, pandemic, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), coronavirus, virus, disease, and infection. Boolean operators "AND" and "OR" were considered. Initially, all keywords were used together and sorted with the boolean operators. Then, a new search was performed by combining two or three [happiness and university students and COVID-19].

### Data management and extraction

The extraction of the scientific productivity indicators was recorded in an observation sheet. For each article, the year of publication, language of publication, mode of study, country of publication (defined as the country of affiliation of the first author), journal name, and happiness-related subtopic were identified.

The indicated terms were searched for in the title, abstract, and keywords of the manuscripts. The following were considered as inclusion criteria: (i) articles that provided the required bibliometric indicators; (ii) peer-reviewed articles; (iii) articles published in English on COVID-19; (iv) articles published during 2021 and 2022. Studies whose topic was not related to happiness and COVID-19 or that involved animal research were excluded from the analysis.

Two of the authors (Marco Cossio and Rossana Gómez) performed the extraction procedure separately, identifying the bibliometric indicators. The information record made was cross-checked by a third observer, who certified the extraction process. If there was no match, the third observer made the pertinent corrections.

Following the proposal of Moher *et al.*,<sup>[13]</sup> the guidelines established by Preferred Reporting Items for Systematic

Reviews and Meta-Analyses (PRISMA) were used, which allowed the identification and extraction of data for the review [Figure 1].

From a total of 63 articles initially identified, 26 studies were eliminated because they were not related to the research topic. In the next stage, the titles and abstracts were read considering the inclusion criteria, and 10 articles were eliminated. Of the 27 eligible studies, in the third stage, literature reviews, systematic reviews, and meta-analyses were excluded. In the last stage, 16 studies were considered and included in the research, from which the general bibliometric matrix was generated.

### Data analysis

The organization of the results was carried out through the data collected in the bibliometric matrix using Microsoft Excel spreadsheets. The data were presented in frequencies, ranges, and percentages through tables and graphs.

## Results

Table 1 shows the characteristics of the original studies that have been published on the impact of COVID-19 on constructs affecting happiness in young university students. A total of 14 studies were identified that have been conducted on graduate students (88%) and two on postgraduate students (12%). Twelve countries were

identified that have published on this topic, and most of them were developed in the United States ( $n = 4$ , 25%) and China ( $n = 2$ , 12.5%). However, the other countries conducted one study during the COVID-19 pandemic.

In relation to the journals, 13 journals were detected that have been published on these topics. In addition, the journal *PLOS ONE* showed 3 articles, followed by the journal *Frontiers in Psychology* with two articles and the others with one article.

Figure 2 shows the subthemes identified, with percentages for each. These were organized into nine categories (psychological impact, adverse childhood experiences, stress, personality traits, perception of educational environment, spiritual health, distress, uncertainty and socioemotional learning, and satisfaction with life).

In general, it is observed that the most studied subtopic was the psychological impact on university students ( $n = 37.5\%$ ), followed by stress (18.75%). The other topics considered were at 6.25%.

## Discussion

The aim of this study was to analyze the bibliometric indicators of scientific productivity of studies related

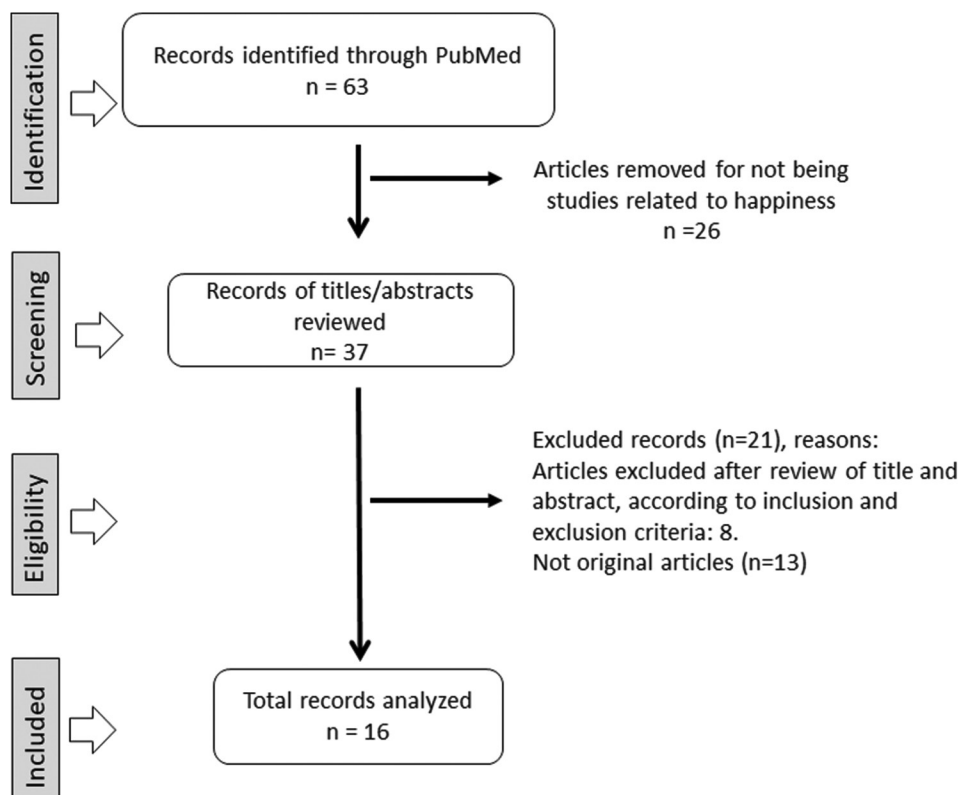


Figure 1: Process of screening and selection of records according to the PRISMA (Preferred Reporting Items for Reviews and Meta-Analyses) flowchart

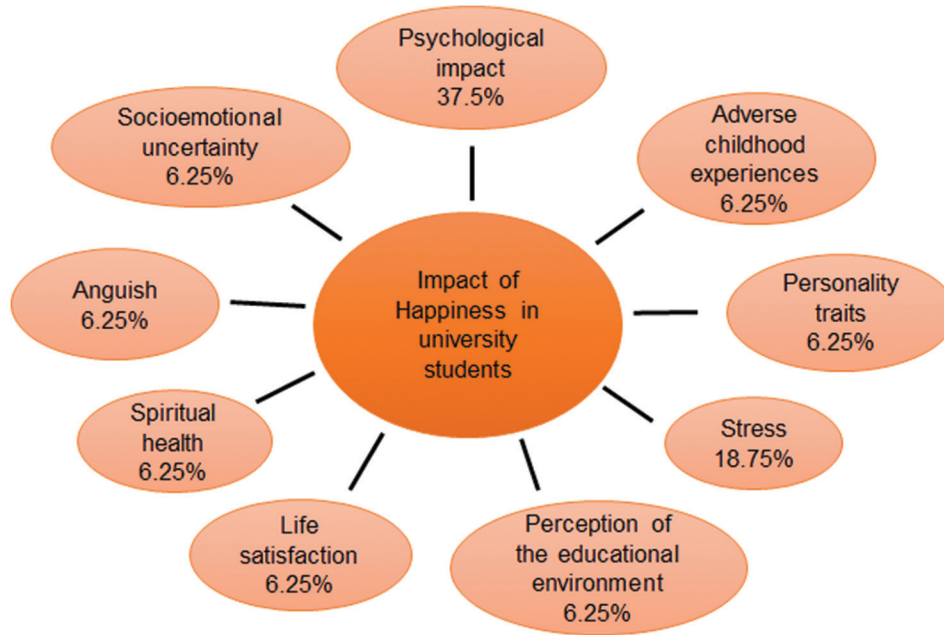


Figure 2: Identified subtopics and their percentages

Table 1: Characteristics of the identified research used in the study

Author	Journal	Country	Modality
Year 2021	10	62.50%	
Browning <i>et al.</i> <sup>[12]</sup>	PLOS ONE	USA	Postgraduate
Copeland <i>et al.</i> <sup>[2]</sup>	J Am Acad Child Adolesc Psychiatry	USA	Graduate
Huang <i>et al.</i> <sup>[14]</sup>	Child and Family Social Work.	China	Graduate
Wan <i>et al.</i> <sup>[4]</sup>	Frontiers in Psychiatry	Malaysia	Graduate
Isaradisaikul <i>et al.</i> <sup>[15]</sup>	Korean journal of medical education	Thailand	Graduate
Rettew <i>et al.</i> <sup>[16]</sup>	PLOS ONE	USA	Graduate
Lin <i>et al.</i> <sup>[17]</sup>	BMC Medical Education	Korea	Graduate
Chen <i>et al.</i> <sup>[18]</sup>	Frontiers in Public Health	Korea-Taiwan	Graduate
Martínez <i>et al.</i> <sup>[19]</sup>	Wiley Periodicals LLC	Mexico	Postgraduate
Li <i>et al.</i> <sup>[20]</sup>	Frontiers in Psychology	China	Graduate
Year 2022	6	37.75%	
Gallegos <i>et al.</i> <sup>[21]</sup>	Family Relations	USA	Graduate
Abdolkarimi <i>et al.</i> <sup>[7]</sup>	Frontiers in Psychology	Iran	Graduate
Albani <i>et al.</i> <sup>[22]</sup>	Wiadomosci lekarskie	Greece	Graduate
Hobbs <i>et al.</i> <sup>[23]</sup>	PLOS ONE	United Kingdom	Graduate
Büyükçolpan and Ozdemir <sup>[8]</sup>	Current Psychology	Turkey	Graduate
Datu <i>et al.</i> <sup>[24]</sup>	Journal of American College Health	Philippines-USA	Graduate
Total	16	100%	

to the impact of COVID-19 on the constructs affecting the happiness of young university students. The results have shown that the number of countries that have published original scientific articles on the impact of COVID-19 on factors affecting happiness was 12. Most of them were carried out in the USA and China ( $n = 6$ , 37.5%), followed by some countries in Europe (England, Greece), Asia (Turkey, Thailand, Malaysia) and Central America (Mexico), respectively.

In general, with the discovery of a new infectious coronavirus disease (COVID-19) and the pandemic in

2019, many countries in the world have prioritized and driven the development of research. Those have been from vaccines, as well as treatments, issues related to patient transport safety, occupational safety of health professionals, biosafety of laboratories and facilities, social security, and food safety.<sup>[25]</sup> As well as the consequences it produces on the mental health and social well-being of students.<sup>[26-28]</sup>

In fact, the USA, due to the size of its economy and the level of research development, has long been a world scientific leader,<sup>[29]</sup> this manages to confirmed and



allows to contrast with the results of this bibliometric study. Even China, in recent years, has also developed research on the consequences of the pandemic in various populations.<sup>[30-32]</sup> This places both countries with higher scientific productivity.

These findings are corroborated by studies of similar characteristics, where the USA and China were the countries with the highest number of publications during the pandemic. Both play a crucial role in mental health research related to the COVID-19 outbreak worldwide.<sup>[2,6]</sup>

The emergence of COVID-19 has caused a downward spiral in human mental health due to its cumulative effect on existing mental stressors.<sup>[33]</sup> From that perspective, this study reviewed 13 scientific journals that have published on the impact of COVID-19 on the constructs affecting university students' happiness. In addition, there were nine subthemes categorized subtopics (psychological impact, adverse childhood experiences, stress, personality traits, perception of educational environment, spiritual health, distress, uncertainty and socioemotional learning, life satisfaction). Overall, the psychological impact on university students was addressed by six studies (37.5%), followed by three studies (18.75%) that investigated academic stress. The other categories were published by seven journals (i.e., one topic in each journal). We also highlight that the journals *PLOS ONE* and *Frontiers in Psychology* were the ones that published a total of five original articles related to the happiness of university students.

These results showed that the number of journals that published 16 studies in the PubMed database on the impact of COVID-19 on the constructs affecting university students' happiness is small. A larger number of scientific articles and journals promoting research on the impact of COVID-19 on students' happiness was expected. However, both researchers and scientific journals have initially prioritized publications from secondary sources,<sup>[25]</sup> and approximately half of the early publications during the pandemic were review articles, letters, editorials, and other types of papers.<sup>[18]</sup>

Overall, bibliometric results from recent studies suggest that, although scientific output is much higher than during previous epidemics,<sup>[34]</sup> the rapid and timely accumulation of knowledge and empirical evidence is critical. Therefore, making decisions based on published scientific evidence is essential for policymakers as well as emergency managers facing this crisis.<sup>[25]</sup> In addition, this type of information can be critical for universities to prepare for and address the ongoing effects of the pandemic on the mental health of their students and faculty in general.<sup>[2]</sup>

This bibliometric study presents some strengths related to changes in life circumstances due to the pandemic. In addition, the studies have reflected changes in happiness and life satisfaction among young university students, thus revealing new lines of future research. This situation provides an opportunity to analyze the current panorama of scientific journal publications, thus highlighting the importance of bibliometrics. This will make it possible to determine trends, identify topics and subtopics of publications within a research discipline. In this way, the whole community will benefit, both researchers and society in general.<sup>[34]</sup> In addition, these results can serve as a baseline for future research, since subthemes related to happiness in university students have been labeled.

Notwithstanding the above, a possible limitation of the study is that a single database (PubMed) was used and that cross-sectional studies were considered. Both aspects could have biased the results of this study, so future bibliometric studies should take these aspects into account.

## Conclusions

In conclusion, this bibliometric study suggests that the number of countries and scientific journals that have published original scientific articles on the impact of COVID-19 on the constructs affecting the happiness of university students is small. In addition, psychological impact and stress were the subthemes identified that affected the happiness of university students during the pandemic. These results suggest that universities and researchers should be prepared to address the changing and continuing pandemic factors on mental health among their students.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *Gen Psychiatr* 2020;33:e100213.
2. Wang J, Hong N. The COVID-19 research landscape: Measuring topics and collaborations using scientific literature. *Medicine (Baltimore)* 2020;99:e22849. |

3. Copeland WE, McGinnis E, Bai Y, Adams Z, Nardone H, Devadanam V, *et al.* Impact of COVID-19 pandemic on college student mental health and wellness. *J Am Acad Child Adolesc Psychiatry* 2021;60:134-41.e2.
4. Wan Mohd Yunus WMA, Badri SKZ, Panatik SA, Mukhtar F. The unprecedented movement control order (Lockdown) and factors associated with the negative emotional symptoms, happiness, and work-life balance of Malaysian University students during the coronavirus disease (COVID-19) pandemic. *Front Psychiatry* 2021;11:566221.
5. Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: A social crisis in the making. *Lancet Public Health* 2020;5:e243-7.
6. Chen Y, Zhang X, Chen S, Zhang Y, Wang Y, Lu Q, *et al.* Bibliometric analysis of mental health during the COVID-19 pandemic. *Asian J Psychiatr* 2021;65:102846.
7. Abdolkarimi M, Masoomi M, Lotfipour SS, Zakeri MA. The relationship between spiritual health and happiness in medical students during the COVID-19 outbreak: A survey in southeastern Iran. *Front Psychol* 2022;13:974697.
8. Büyükcölpın H, Özdemir NK. The influences on happiness and life satisfaction of young people during COVID-19 pandemic: Evidence for positive youth development. *Curr Psychol* 2022;1-10. doi: 10.1007/s12144-022-03548-3.
9. Uchida Y, Oishi S. The happiness of individuals and the collective. *Jpn Psychol Res* 2016;58:125-41.
10. Jiang Y, Lu C, Chen J, Miao Y, Li Y, Deng Q. Happiness in university students: Personal, familial, and social factors: A cross-sectional questionnaire survey. *Int J Environ Res Public Health* 2022;19:4713.
11. Holm-Hadulla RM, Koutsoukou-Argyriaki A. Mental health of students in a globalized world: Prevalence of complaints and disorders, methods and effectiveness of counseling, structure of mental health services for students. *Ment Health Prev* 2015;3:1-4.
12. Browning M, Larson LR, Sharaievska I, Rigolon A, McAnirlin O, Mullenbach L, *et al.* Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. *PLoS One* 2021;16:e0245327.
13. Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PLoS Med* 2009;6:e1000097.
14. Huang CC, Chen Y, Cheung S, Hu H, Wang E. Adverse childhood experiences, mindfulness and happiness in Chinese college students during the COVID-19 pandemic. *Child Fam Soc Work* 2021;26:677-86.
15. Isaradisaiikul SK, Thansuwonnon P, Sangthongluan P. Impact of COVID-19 pandemic on happiness and stress: Comparison of preclinical and clinical medical students. *Korean J Med Educ* 2021;33:75-85.
16. Rettew DC, McGinnis EW, Copeland W, Nardone HY, Bai Y, Rettew J, *et al.* Personality trait predictors of adjustment during the COVID pandemic among college students. *PLoS One* 2021;16:e0248895.
17. Lin Y, Kang YJ, Lee HJ, Kim DH. Pre-medical students' perceptions of educational environment and their subjective happiness: A comparative study before and after the COVID-19 pandemic. *BMC Med Educ* 2021;21:619.
18. Chen WL, Song SY, Yap KH. The unintended consequences of the pandemic: The new normal for college students in South Korea and Taiwan. *Front Public Health* 2021;9:598302.
19. Martínez Arriaga RJ, González Ramírez LP, de la Roca-Chiapas JM, Hernández-González M. Psychological distress of COVID-19 pandemic and associated psychosocial factors among Mexican students: An exploratory study. *Psychol Sch* 2021;58:1844-57.
20. Li Y, Hu F, He X. How to make students happy during periods of online learning: The effect of playfulness on university students' study outcomes. *Front Psychol* 2021;12:753568.
21. Gallegos MI, Zaring-Hinkle B, Bray JH. COVID-19 pandemic stresses and relationships in college students. *Fam Relat* 2022;71:29-45.
22. Albani E, Strakantouna E, Vus V, Bakalis N, Papathanasiou IV, Fradelos EC. The impact of mental health, subjective happiness and religious coping on the quality of life of nursing students during the Covid-19 pandemic. *Wiad Lek* 2022;75:678-84.
23. Hobbs C, Jelbert S, Santos LR, Hood B. Evaluation of a credit-bearing online administered happiness course on undergraduates' mental well-being during the COVID-19 pandemic. *PLoS One* 2022;17:e0263514.
24. Datu J, Fincham F, Buenconsejo JU. Psychometric validity and measurement invariance of the caring for Bliss Scale in the Philippines and the United States. *J Am Coll Health* 2022;1-7. doi: 10.1080/07448481.2022.2076562.
25. Haghani M, Bliemer M, Goerlandt F, Li J. The scientific literature on Coronaviruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review. *Saf Sci* 2020;129:104806.
26. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, *et al.* The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res* 2020;287:112934.
27. Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, *et al.* Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *Lancet Psychiatry* 2020;7:547-60.
28. Kokkinos CM, Tsouloupas CN, Voulgaridou I. The effects of perceived psychological, educational, and financial impact of COVID-19 pandemic on Greek university students' satisfaction with life through mental health. *J Affect Disord* 2022;300:289-95.
29. Patiño-Barbosa AM, Bedoya-Arias JE, Cardona-Ospina JA, Rodríguez-Morales AJ. Bibliometric assessment of the scientific production of literature regarding Mayaro. *J Infect Public Health* 2016;9:532-6.
30. Zhang Y, Ma ZF. Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: A cross-sectional study. *Int J Environ Res Public Health* 2020;17:2381.
31. Xu T. Psychological distress of international students during the COVID-19 pandemic in China: Multidimensional effects of external environment, individuals' behavior, and their values. *Int J Environ Res Public Health* 2021;18:9758.
32. Zeng W, Huang D, Li Q, Xu Y, Xu Z, Wu C, *et al.* Negative emotions and creativity among Chinese college students during the COVID-19 pandemic: The mediating role of psychological resilience and the moderating role of posttraumatic growth. *Arch Public Health* 2022;80:194.
33. Novihoho MA, Gardiner HR, Walker AN, Okeke M. The impact of COVID-19 pandemic on students' mental health: Overview of research indexed in the Scopus database. *J Contemp Stud Epidemiol Public Health* 2022;3:ep22007.
34. Arrizabalaga O, Otaegui D, Vergara I, Arrizabalaga J, Méndez E. Open Access of COVID-19-related publications in the first quarter of 2020: A preliminary study based in PubMed. *F1000Res* 2020;9:649.