

Knowledge, attitudes and practices instrument applied in a crisis: scientometric study during the pandemic period

Instrumentos de conhecimento, atitudes e práticas aplicados em situação de crise: estudo cienciométrico durante o período de pandemia

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Abstract

Introduction: health education is a continuous task of modern and global life. Healthcare deficiencies become worse in times of crisis, such as in the recent COVID-19 pandemic. Implementation of knowledge, attitudes and practices (KAP) instrument is a strategy to elevate health maintenance. **Objective:** to Conduct a scientometric study of the literature on KAP and COVID-19 in order to identify the main research gaps on this topic. **Method:** the research was conducted using the WOS and PubMed platforms with the terms "KAP and COVID-19". A total of 335 articles were selected from the databases using the following eligibility criteria: articles published in the stated period that used KAP as a research instrument and to deal with various aspects of the COVID-19 pandemic. **Results:** KAP-based research has increased significantly since 2020, when the COVID-19 pandemic began. The high point of KAP publications was reached in 2021. The most frequent issue found as a central theme was the knowledge that included prevention and awareness (44.47%). Africa stood out as the continent with the highest number of publications (63.77%) followed by Asia (15.94%). Most KAP interventions described analyzed were aimed at the general population. **Conclusions:** it is possible that in underprivileged countries, search for health knowledge, attitudes and practices of the citizens is critical to control a collective health emergency, as revealed thought the pandemic of COVID-19. This study demonstrated that the strategy of recognizing fundamental health issues in each population is a useful tool for the development of new and efficient health policies.

Keywords: Health promotion; Health policy; COVID-19.

Resumo

Introdução: a educação em saúde é uma tarefa contínua da vida moderna e global. As deficiências de saúde agravam-se em momentos de crise, como na recente pandemia de COVID-19. A implementação do instrumento de conhecimentos, atitudes e práticas (CAP) é uma estratégia para elevar a manutenção da saúde. **Objetivo:** realizar um estudo cienciométrico sobre CAP e COVID-19 para fins de identificar as principais lacunas de pesquisa sobre este tema. **Método:** pesquisa realizada nas plataformas Web of Science e PubMed com os termos "KAP and COVID-19". Foram selecionados 335 artigos usando os seguintes critérios de elegibilidade: artigos publicados nos anos de 2020 a 2022 que usaram o instrumento CAP em vários aspectos da pandemia de COVID-19. **Resultados:** a pesquisa baseada em CAP aumentou significativamente desde 2020, com maior número de publicações em 2021. O tema mais frequente foi o conhecimento sobre prevenção e conscientização (44,47%). A África apresentou o maior número de publicações utilizando o CAP (63,77%) seguido pela Ásia (15,94%). A maioria das intervenções CAP descritas e analisadas foram direcionadas à população em geral. **Conclusões:** é possível que em países desfavorecidos, a busca por conhecimentos, atitudes e práticas de saúde dos cidadãos seja fundamental para o controle de uma emergência de saúde coletiva, como revelado na pandemia da COVID-19. Este estudo demonstrou que a estratégia de reconhecer questões fundamentais de saúde em cada população é uma ferramenta útil para o desenvolvimento de novas e eficientes políticas de saúde.

Palavras-chave: Promoção da saúde; Políticas de saúde; COVID-19.

INTRODUCTION

Health education is a constant challenge, especially in countries with greater economic and social instability. In countries with a wide territorial extension, where differing financial conditions coexist and consequently, determine differentiated access to medical care, different health care realities are encountered. The health system's access inequalities and distinctive structural conditions for self-care can be mitigated by establishing appropriate public health policies (Price, Khubchandani, & Webb, 2018). Public health policy is defined as the regulations, actions and decisions taken by governments within society to promote wellness and health goals. Scientific development contributes to health access increase (Salman et al., 2020). Improvement science can give practitioners the tools to plan, implement and evaluate new approaches in practice (Marshall, Baker, Rafi, & Howe, 2014).

Significant scientific advances are observed in the presence of global environmental threats, resulting from resource allocation, planning and joining efforts around a common goal (Ardito, Coccia, & Messeni Petruzzelli, 2021; Coccia, 2021). Scientific development takes on unique contours with undeniable social impacts in times of crisis, such as the one recently observed during the COVID-19 pandemic, in which the development of science and technology was greatly encouraged (Siddiquea, Shetty, Bhattacharya, Afroz, & Billah, 2021).

Interestingly, this situation makes clear the existing deficiencies in social organization and the structuring of effective health plans to limit damage, including health experts in decision-making, as well as developing policies and interventions tailored towards bridging the gap. In this context, many studies have aimed to validate instruments that evaluate knowledge, attitudes, and practices (KAP) among different populations (Al-Hanawi et al., 2020; Park, 2021; Siddiquea et al., 2021).

It is a fundamental step for public health policies to create action from research and find shared solutions to previously identified problems. By definition, KAP establishes the baseline (reference value) for use in future assessments and helps measure the effectiveness of the health education activities' ability to change health-related behaviours. Interestingly, KAP surveys may reveal considerable gaps between what is said and what is done (USAID, 2011).

In parallel to KAP surveys, scientometrics studies have been emerging on the scientific scene due to their importance for evaluating scientific production, providing indicators and subsidies for the community and society in general, in addition to pointing out possible problems related to the quantitative model, indicating solutions for observe the social reality of the researcher, or the research, and also contribute to visualizing gaps and topics little investigated through academic research (Parra, Coutinho, & Pessano, 2019).

Due to the quantitative nature of the scientometric study, this type of analysis makes it possible to identify emerging areas of scientific research, examining the development of a given investigation over time, or the geographic and organizational distributions of the research. Since the 1970s, scientometric analyzes have grown in popularity and are used to describe: the growth, structure, interrelationships, and productivity of published scientific studies (Verma, Khan, & Yuvaraj, 2023). In general, scientometric studies clearly provide the development of a specific study area in relation to: authors, thematic areas listed in the studies, geographical distribution of productions, linguistic distribution, literature growth rate, in addition to several other possibilities for quantitative analysis, based on the researcher's needs. Scientometrics studies began to be more recognized by the scientific community in 1978, with the launch of the renowned scientific journal *Sciencitometrics*, published by Springer, an international journal for all quantitative aspects of science, science communication and science policy (Parra et al., 2019).

Public health policy can take advantage of the scientometric approach to evaluate scientific publications and to compare and rank topics and countries to show an overview of their scientific performances (Atlasi, Chakoli, Kalhori, Moradi, & Naemi, 2021; Sá, Garcia, Bernuci, & Yamaguchi, 2019; Yamaguchi et al., 2023). Considering that scientific and technological development is part of actions that can increase access to health and perpetuate more egalitarian conditions for human development, this study aimed to produce a scientometric analysis of KAP and COVID-19 in order to identify the main research gaps on this topic. Furthermore, this study also aimed to identify the main themes covered in KAP surveys during the COVID-19 pandemic and map the use of these studies worldwide.

METHODS AND SEARCH STRATEGIES

The present research is a descriptive exploratory study, with a quantitative character embedded in the context of a scientometric study of information. We sought to understand the extent of scientific studies in the field of COVID-19 that used the KAP questionnaire as an evaluation tool. The first step was to identify the research object; in this case, relevant publications that dealt with the use of the KAP to assess different aspects of the COVID-19 pandemic. The second step was the definition of the keywords and databases that would be used to search for articles. The keywords chosen were "KAP and COVID-19" and the databases chosen were PubMed¹ and Web of Science²

With these aspects defined, the search for articles in the databases began, and the search extended from March 2022 to March 2023. After the search, the selection of the articles found was carried out, which occurred by reading the titles and abstracts, and evaluating whether the theme of each article was in accordance with the theme proposed in the present research.

To assist in the organization, layout and analysis of the collected data, Excel software was used, through tables in which relevant aspects of the selected articles were raised. First, two separate tables were created for the articles found in the two databases, in which columns were inserted for the following aspects of each article:

¹<https://pubmed.ncbi.nlm.nih.gov/>

²<https://clarivate.com/products/scientific-and-academic-research/research-discovery-and-workflow-solutions/webofscience-platform/>

title, authors' names, year of publication, country of origin of the author, country of origin of the research, DOI, main objective of the research, target audience and type of KAP questionnaire.

The studies analyzed for selection in the research followed the following inclusion criteria: works that addressed the COVID-19 theme as a central point, that used the KAP questionnaire to carry out the research on COVID-19, that were published between 2020 and 2022, and that were found in the databases mentioned above. Studies that did not address the COVID-19 pandemic in some aspect or did not use the KAP questionnaire in the context of COVID-19 were excluded.

Once the articles in the tables had been categorized two of the authors (BPP and MBM) of the present study subjected them to a classification process that grouped the articles found into specific themes. Each author classified all the articles separately, after which any differences in classification were resolved together, and the final classification that would be used in this research was decided. Thus, the themes that brought together the articles were: general knowledge about the disease, transmission, adherence to government measures, impact on mental health, vaccination, socioeconomic impact, use of PPE, diagnostic tests, impact on the treatment of comorbidities, fear, cleanliness and disinfection, food safety, and other themes.

In the next step, a third table was created in which all the articles found were gathered and repeated articles and those that did not fit the inclusion criteria were excluded. Firstly, 252 articles from the PubMed and 258 from the Web of Science databases were selected, totaling 510 articles. These articles were grouped into a third table and 169 repeated PubMed articles and 6 Web of Science articles that did not fully fit the inclusion criteria were excluded; finally producing a total of 335 selected articles: 252 coming exclusively from the Web of Science and 83 from the PubMed databases (Figure 1).

After selection and classification, the articles were submitted to a final classification in an Excel table using the following criteria: the number of articles that were published by country, by authors' nationality, by year, by target audience, by theme and by type of questionnaire. The data obtained was transformed into graphs using Excel software.

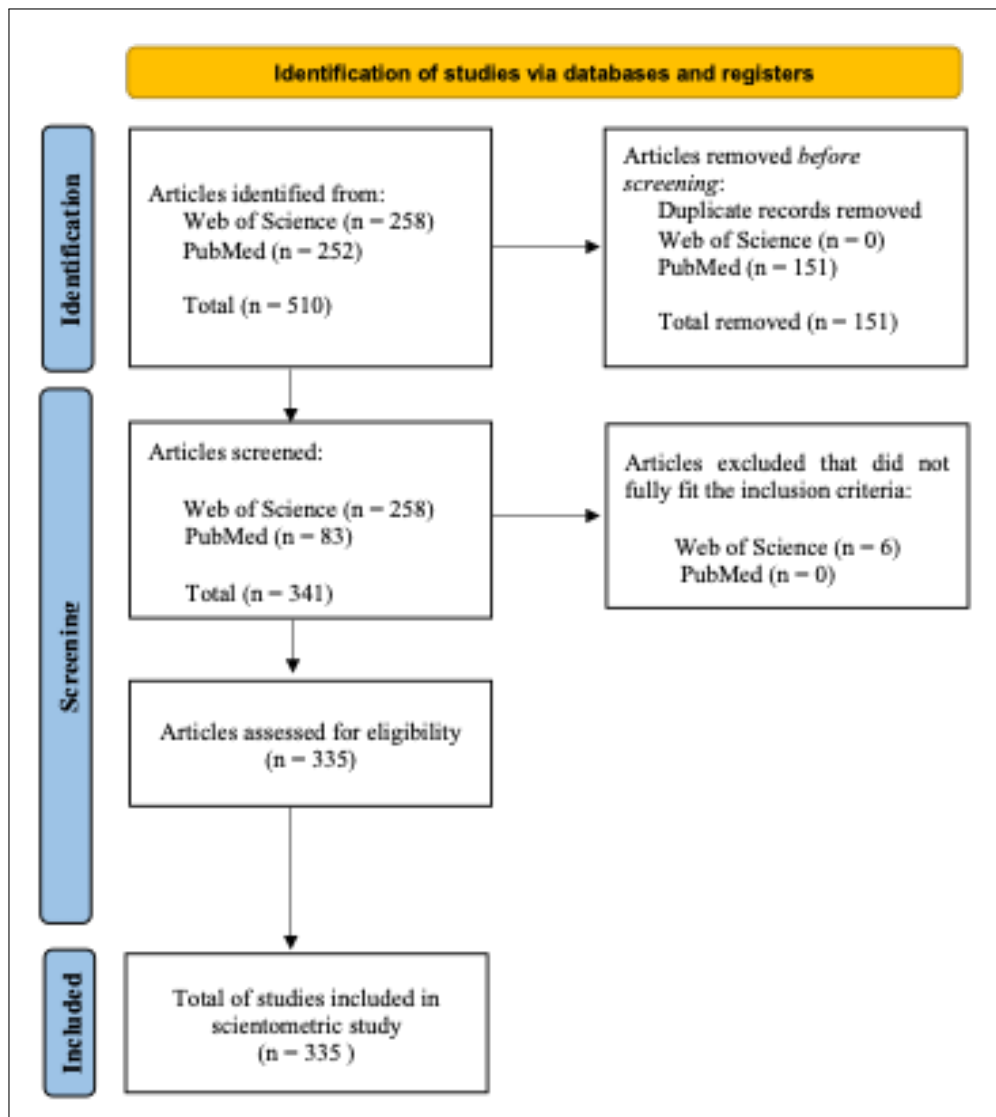


Figure 1. Flow diagram of the searches in PubMed and Web of Science databases.

RESULTS AND DISCUSSION

All articles were categorized into one of thirteen themes: knowledge (which included prevention and awareness), infection, adherence to government measures, mental health impact, vaccination, socioeconomic impact, use of personal protective equipment (PPE), the impact on treatment of comorbidities, diagnostic exams, cleaning and disinfection, fear, food safety and others. The prevalence of these central themes addressed in the articles is presented in Figure 2.

The most frequent issue found was knowledge which also included prevention and awareness. This subject was presented in 149 articles which represent 44.47% of the total. Particularly, in the face of a lack of effective and definite treatment for COVID-19, and the importance of collective attitudes to prevent infection, the use of KAP as an index of health education seems appropriate, especially to guide new and resolute health program development. This condition also includes the second most recurrent theme which was infection which represents 17.91% of the total central themes examined in 335 publications.

Therefore, the pandemic had dramatic mental-health impacts, increasing anxiety and depression due to social isolation, among other things, and these mental health impacts have featured prominently in public discussion (McElroy, 2020). COVID-19-induced mental-health impacts were one of the most recurrent themes found in the literature analyzed. It is suggested that the COVID-19 effects on mental health result from its direct psychological effects and long-term economic and social consequences (Kola et al., 2021; Santomauro et al., 2021).

The top five themes found in this analysis included the adherence to government measures, which comprise social isolation among other factors. Interestingly, it was suggested that most of the physiological adverse effects came from the imposition of a restriction condition; as voluntary quarantine was associated with less distress and fewer long-term complications (Brooks et al., 2020). And, finally, vaccination was another topic that usually is included as a debate of either the most economically privileged, and those that are most populous countries

during, or not COVID-19 milieu (Gur-Arie et al., 2021; Zhang, Luo, & Ma, 2021).

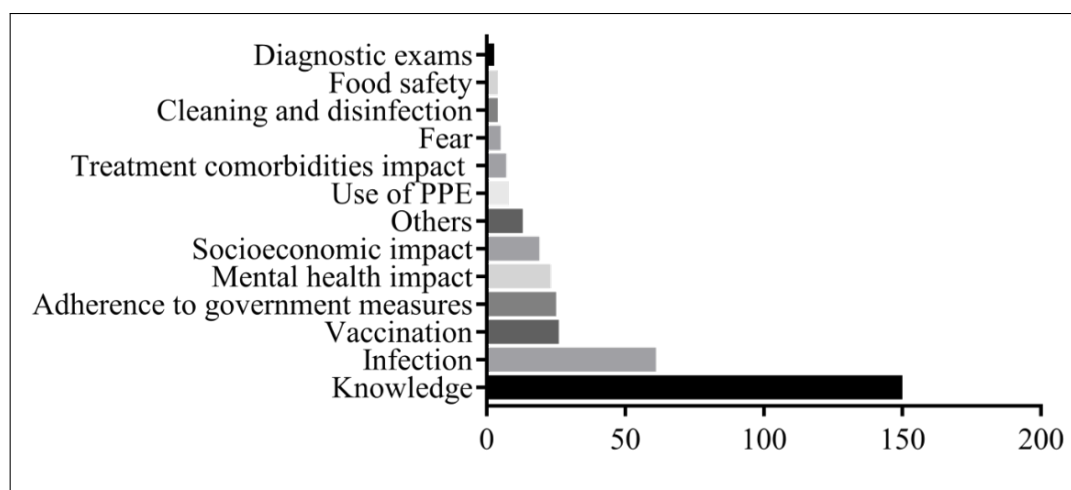


Figure 2. Central themes found in the 335 articles evaluated in numbers. PPE= Personal protective equipment

Table 1 shows the ranking of the ten most prolific countries in KAP and COVID-19 publications. Together these publications account for 161 articles that represent 48% of the total. The analysis of 335 articles revealed 69 countries which these papers came from. These articles belonged to countries of four continents: America, Europe, Asia and Africa (Figure 2). From the American continent, five countries are represented: Brazil (2), Canada (1), Mexico (2), Peru (1), and Trinidad & Tobago (1). From the European continent, nine countries: Bosnia-Herzegovina (1), Finland (1), Greece (3), Netherlands (1), Ireland (1), Italy (3), the United Kingdom (2), Spain (1) and Romania (1). From the Asian continent, there were twelve countries: Bahrain (1), Bangladesh (18; Table 1), China (39; Table 1), Indonesia (9; Table 1), Malaysia (9 articles; Table 1), Nepal (7 articles), The Philippines (1 article), South Korea (1), Singapore (6), Sri Lanka (2), Thailand (6), Taiwan (1) and Vietnam (6). The other publications originate from the African continent and comprise the highest number of published articles (63.77%) compared to other continents (Figure 3). However, China was the individual country with the most publications.

KAP is widely employed to gather information that can help in the planning of public health programs across many countries (Kaliyaperumal, 2004; Launiala, 2009). The poorest countries, and those with marked inequalities related to health promotion and access to medical services throughout their territories, were the ones that most frequently used the KAP strategy (Kazaura & Kamazima, 2021; Lau et al., 2020). Recently, KAP was applied to the COVID-19 scenario, but it is considered a well-established methodology utilized in the investigation of health behaviors and has been largely utilized in research for decades (Kaliyaperumal, 2004). KAP is a useful tool in the design of context-specific health strategies targeting different socioeconomic groups (Rabbani et al., 2021; Senachai, Julsrigival, & Sann, 2022).



Figure 3. Countries from where the publications originated.

The number of studies conducted in Latin America, particularly in Brazil, was small. Increasing the training of Brazilian researchers in the design and evaluation of studies is important for the dissemination of knowledge in the Brazilian public health system (Andrade & Pereira, 2020). Our research group is one of the pioneers in Brazil for the application of KAP for this purpose (Hartmann, Rego, Khoury, Bernuci, & Yamaguchi, 2023).

Country	Number of Publications
China	39
Saudi Arabia	24
Pakistan	23
Bangladesh	18
Ethiopia	14
Indonesia	9
Jordan	9
Malasya	9
USA	9
Egypt	7

Table 1. The top 10 countries in terms of publications.

The target populations of the publications analyzed are presented in Figure 4. They can be divided, in general, into two groups. One, as expected, consists of vulnerable individuals, such as pregnant women, children, cancer patients and individuals with chronic health conditions. This group represents the populations with the worst prognoses for COVID-19: individuals who could suffer its most devastating effects (Shadmi et al., 2020). The other group includes health professionals and university students and represents those individuals whose expertise could minimize the harm to the vulnerable population. However, health professionals who were in close contact with infected patients also represent individuals at higher risk of contagion (Naveed et al., 2021).

KAP investigations, regardless of their specific subject, are presented in a questionnaire form, also called an instrument. As expected, considering the context of the COVID-19 pandemic, the format mostly found for applying the questionnaire was the online format. The online approach was the interview strategy found in 216 articles. Some of the already known advantages of the online strategy (such as access to the interviewee, low cost and speed) for obtaining information became imperative during the pandemic period with the then-current social isolation.

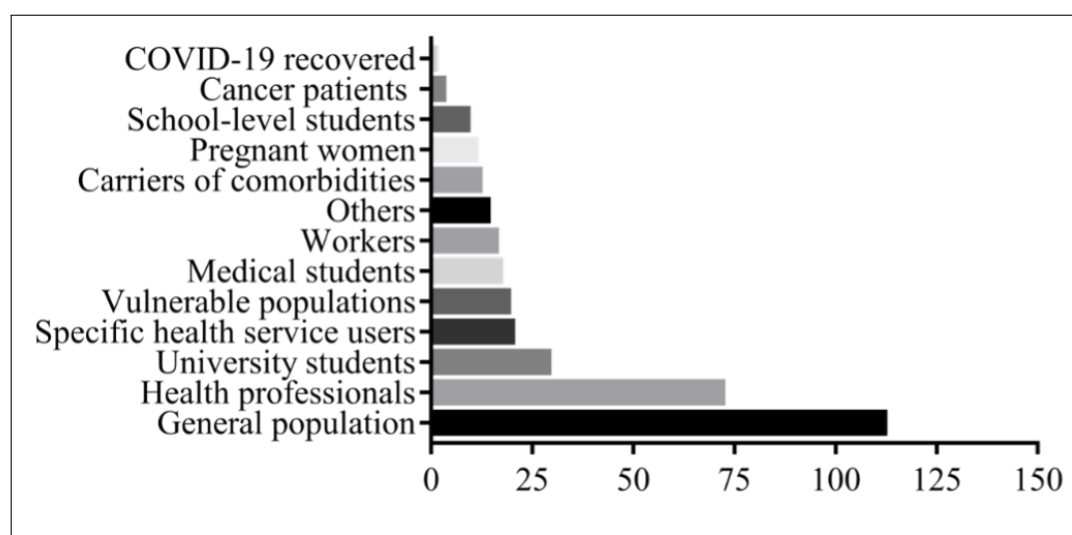


Figure 4. Target population found in the 335 articles evaluated in numbers.

The COVID-19 pandemic resulted in a sudden increase in KAP studies. Research on public health events also became more extensive and profound. We analyzed publications concerning KAP and COVID-19 during an interval from 2020 to 2022. KAP and COVID-19 publications peaked in the year 2021 (Figure 5), when managers needed to understand the COVID-19 scenario, and public policies were then organized, very probably with the contribution of the KAP studies. Therefore, it is plausible to attribute the increased volume of production to the great number of people affected by the COVID-19 pandemic in various ways, and to the fact that KAP investigations are very practical, requiring little time for their elaboration and the gathering of information.

The impact of the COVID-19 pandemic on human health, economic activity and social engagement have been extensively investigated (Smith & Lim, 2020). Academic publication is usually regarded as an index to measure

the level of development of the discipline (Liu, Wang, Zhang, Wei, & Zhou, 2022). Analyzing the literature published in a certain field from the perspective of time can reflect the overall trend of its research in this period to a certain extent and can reflect the change in scientific knowledge (Chen & Li, 2018; Liu et al., 2022).

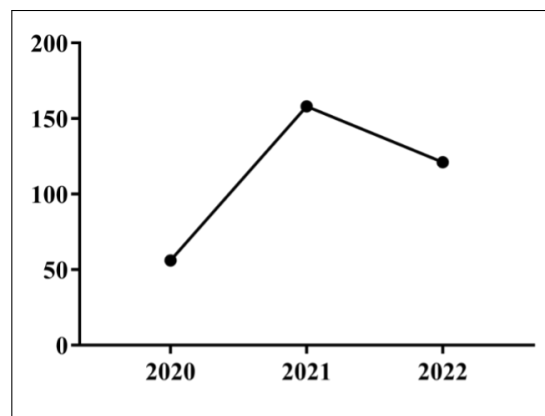


Figure 5. Literature volume about KAP and COVID-19 from 2020 to 2022.

During the COVID-19 pandemic, the KAP instrument was applied as an emergency measure. This alarming and global occurrence demanded urgency in the KAP strategy, application and collection, and in the processing and potential practical use of its data. This urgency was characterized by the conditions in the different socioeconomic and cultural realities experienced in the countries that used it. However, the scientific community responsible for this investigative process was also the target of the broad and devastating consequences of that period. Therefore, the pressure to find socially useful results and solutions, and the general insecurity of the time, could have caused biases in scientific production during this critical period.

In general, scientometric studies provide a tool for better understanding the historical exploration of a specific issue. These studies offer the possibility of complementary investigations and scientific group associations. The scientometric analysis of KAP in health applications promises to provide valuable information for health policymakers.

CONCLUSION

A scientometric analysis was carried out to study the production of KAP and COVID-19 research during the period between 2020 and 2022. Elevating health knowledge, attitudes and practices among the public can be critical for controlling global health emergencies, as revealed throughout the COVID-19 pandemic. It was found that the KAP strategy demonstrated itself to be a useful tool in the health policy arsenal. KAP can be a beneficial guide to health education and a platform for the creation of appropriate public health policies in accordance with new demands in global health contexts.

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REFERENCES

- Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A. M. N., Helmy, H. Z., Abudawood, Y., ... Alsharqi, O. (2020). Knowledge, attitude and practice toward covid-19 among the public in the kingdom of Saudi Arabia: a cross-sectional study. *Frontiers in Public Health*, 8, 217. doi: 10.3389/fpubh.2020.00217
- Andrade, K. R. C., & Pereira, M. G. (2020). Tradução do conhecimento na realidade da saúde pública brasileira. *Revista de Saúde Pública*, 54(72). doi: 10.11606/s1518-8787.2020054002073
- Ardito, L., Coccia, M., & Messeni Petruzzelli, A. (2021). Technological exaptation and crisis management: Evidence from covid-19 outbreaks. *R&D Management*, 51(4), 381–392. doi: 10.1111/radm.12455
- Atlasi, R., Chakoli, A. N., Kalhori, S. R. N., Moradi, S., & Naemi, R. (2021). Design and validation of the conceptual model of scientometric system in research centers. *Journal of Scientometric Research*, 10(2), 175–183. doi: 10.5530/jscires.10.2.32
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395(10227), 912–920. doi: 10.1016/S0140-6736(20)30460-8
- Chen, C. M., & Li, J. (2018). *Practice of mapping scientific frontiers*. Beijing, China: Higher Education Press.
- Coccia, M. (2021). Evolution and structure of research fields driven by crises and environmental threats: the covid-19 research. *Scientometrics*, 126(12), 9405–9429. doi: 10.1007/s11192-021-04172-x
- Gur-Arie, R., Katz, M. A., Hirsch, A., Greenberg, D., Malosh, R., Newes-Adeyi, G., ... Rosenthal, A. (2021). "you have to die not to come to work": a mixed methods study of attitudes and behaviors regarding presenteeism, absenteeism and influenza vaccination among healthcare personnel with respiratory illness in Israel, 2016-2019. *Vaccine*, 39(17), 2366–2374. doi: 10.1016/j.vaccine.2021.03.057
- Hartmann, J. B., Rego, A. T., Khoury, J. V., Bernuci, M. P., & Yamaguchi, M. U. (2023). E-questionnaire on health knowledge, attitudes and practices (kap-health) for Brazilian students in distance learning. *Global Health Action*, 16(1), 2153441. doi: 10.1080/16549716.2022.2153441
- Kaliyaperumal, K. (2004). Guideline for conducting a knowledge, attitude and practice (kap) study. *AECIS Illumination*, 4, 7–9.
- Kazaura, M., & Kamazima, S. R. (2021). Knowledge, attitudes and practices on tuberculosis infection prevention and associated factors among rural and urban adults in northeast Tanzania: A cross-sectional study. *PLOS Global Public Health*, 1(12), e0000104. doi: 10.1371/journal.pgph.0000104
- Kola, L., Kohrt, B. A., Hanlon, C., Naslund, J. A., Sikander, S., Balaji, M., ... Patel, V. (2021). Covid-19 mental health impact and responses in low-income and middle-income countries: reimagining global mental health. *The Lancet Psychiatry*, 8(6), 535–550. doi: 10.1016/S2215-0366(21)00025-0
- Lau, L. L., Hung, N., Go, D. J., Ferma, J., Choi, M., Dodd, W., & Wei, X. (2020). Knowledge, attitudes and practices of covid-19 among income-poor households in the Philippines: a cross-sectional study. *Journal of Global Health*, 10(1), 011007. doi: 10.7189/jogh.10.011007
- Launiala, A. (2009). How much can a kap survey tell us about people's knowledge, attitudes and practices? some observations from medical anthropology research on malaria in pregnancy in Malawi. *Anthropology Matters*, 11(1), 1–13. doi: 10.22582/am.v11i1.31
- Liu, J., Wang, Y., Zhang, Q., Wei, J., & Zhou, H. (2022). Scientometric analysis of public health emergencies: 1994-2020. *International Journal of Environmental Research and Public Health*, 19(2), 640. doi: 10.3390/ijerph19020640
- Marshall, M., Baker, M., Rafi, I., & Howe, A. (2014). What can science contribute to quality improvement in general practice? *The British Journal of General Practice*, 64(622), 254–256. doi: 10.3399/bjgp14X679877
- McElroy, N. (2020). *Pleas for Australians to take up mental health services amid coronavirus lockdown*. ABC News. Retrieved from <https://www.abc.net.au/news/2020-04-29/pleas-for-australians-to-take-up-covid-19-mental-health-support/12197246> (Accessed 27 May 2020)
- Naveed, M., Naeem, M., Ur Rahman, M., Gul Hilal, M., Kakakhel, M. A., Ali, G., & Hassan, A. (2021). Review of potential risk groups for coronavirus disease 2019 (covid-19). *New Microbes and New Infections*, 41, 100849. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/33614041/>
- Park, D. I. (2021). Development and validation of a knowledge, attitudes and practices questionnaire on covid-19 (kap covid-19). *International Journal of Environmental Research and Public Health*, 18(14), 7493. doi: 10.3390/ijerph18147493
- Parra, M. R., Coutinho, R. X., & Pessano, E. F. C. (2019). A brief look for scientometrics: origin, evolution, trends and contribution for science teaching. *Revista Contexto e Educação*, 34(107), 126–141. doi: 10.21527/2179-1309.2019.107.126-141
- Price, J. H., Khubchandani, J., & Webb, F. J. (2018). Poverty and health disparities: What can public health professionals do? *Health Promotion Practice*, 19(2), 170–174. doi: 10.1177/1524839918755143
- Rabbani, M. G., Akter, O., Hasan, M. Z., Samad, N., Mahmood, S. S., & Joarder, T. (2021). Covid-19 knowledge, attitudes, and practices among people in Bangladesh: Telephone-based cross-sectional survey. *JMIR Formative Research*, 5(11), e28344. doi: 10.2196/28344
- Salman, A., Fakhraldeen, S. A., Chun, S., Jamil, K., Gasana, J., & Al-Hunayan, A. (2020). Enhancing research and development in the health sciences as a strategy to establish a knowledge-based economy in the state of Kuwait: A call for action. *Healthcare*, 8(3), 264. doi: 10.3390/healthcare8030264
- Santomauro, D. F., Mantilla Herrera, A. M., Shadid, J., Zheng, P., Ashbaugh, C., Pigott, D. M., ... Ferrari, A. J. (2021). Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the covid-19 pandemic. *The Lancet*, 398(10312), 1700–1712. doi: 10.1016/S0140-6736(21)02143-7
- Senachai, P., Julsrigival, J., & Sann, R. (2022). Social marketing strategy to promote traditional Thai medicines during covid-19: Kap and doi two-step theory application process. *International Journal of Environmental Research and Public Health*, 19(14), 8416. doi: 10.3390/ijerph19148416
- Shadmi, E., Chen, Y., Dourado, I., Faran-Perach, I., Furler, J., Hangoma, P., ... Willems, S. (2020). Health equity and covid-19: global perspectives. *International Journal*

for Equity in Health, 19(1), 104. doi: 10.1186/s12939-020-01218-z

Siddiquea, B. N., Shetty, A., Bhattacharya, O., Afroz, A., & Billah, B. (2021). Global epidemiology of covid-19 knowledge, attitude and practice: a systematic review and meta-analysis. *BMJ Open*, 11(9), e051447. doi: 10.1136/bmjopen-2021-051447

Smith, B. J., & Lim, M. H. (2020). How the covid-19 pandemic is focusing attention on loneliness and social isolation. *Public Health Research & Practice*, 30(2), 3022008. doi: 10.17061/phrp3022008

Sá, J. S., Garcia, L. F., Bernuci, M. P., & Yamaguchi, M. U. (2019). Scientometrics on interventions used for adherence of hypertension and diabetes therapies. *Einstein (São Paulo)*, 18, eAO4723. doi: 10.31744/einstein_journal/2020AO4723

USAID. (2011). *The kap survey model (knowledge, attitudes, & practices). caring capacity & practices; health care*. Retrieved from https://www.spring-nutrition.org/sites/default/files/publications/annotation/spring_kap_survey_model_0.pdf

Verma, M. K., Khan, D., & Yuvaraj, M. (2023). Scientometric assessment of funded scientometrics and bibliometrics research (2011-2021). *Scientometrics*, 128, 4305–4320. doi: 10.1007/s11192-023-04767-6

Yamaguchi, N. U., Bernardino, E. G., Ferreira, M. E. C., de Lima, B. P., Pascotini, M. R., & Yamaguchi, M. U. (2023). Sustainable development goals: a bibliometric analysis of literature reviews. *Environmental Science and Pollution Research*, 30(3), 5502–5515. doi: 10.1007/s11356-022-24379-6

Zhang, Y., Luo, X., & Ma, Z. F. (2021). Willingness of the general population to accept and pay for covid-19 vaccination during the early stages of covid-19 pandemic: a nationally representative survey in mainland china. *Human Vaccines & Immunotherapeutics*, 17(6), 1622–1627. doi: 10.1080/21645515.2020.1847585

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NOTAS DA OBRA E CONFORMIDADE COM A CIÊNCIA ABERTA

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Concepção do manuscrito	X			X
Escrita do manuscrito	X	X	X	X
Metodologia	X	X	X	X
Curadoria dos dados	X	X	X	X
Discussão dos resultados	X			X
Análise dos dados	X	X	X	X

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