The COVID-19 pandemic and the fake news: a literature review

A pandemia de covid-19 e as fake news: uma revisão da literatura

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Abstract

This article presents the results of the narrative review on fake news that occurred during the most critical period of the COVID-19 pandemic. A word search was carried out in the BVSMS, BVSalud, and Scielo databases, using the expression fake news AND COVID-19, notícia falsa AND COVID-19, and desinformación AND COVID-19, since these expressions addressed the two languages selected for the review: Portuguese and Spanish. The inclusion criterion favored articles that used the web as a source of research, published between 2020 and 2022. A total of 24 articles were analyzed, 14 written in Portuguese and 10 in Spanish. The year 2022 concentrated the largest number of publications (n=11), and we concluded that social networks are the vehicles for the greatest dissemination of this type of information. The spread of fake news during the second year of the COVID-19 pandemic was as worrying as the disease itself, but the literature has not explored sufficiently the phenomenon that still follows the pandemic still underway. Most of the analyzed texts advised to the use of the news dissemination strategy to disseminate useful information about health, concluding that the analyzed studies demonstrated that the false news were incomplete or misleading, but most were unintentional.

Keywords: Pandemic; Disinformation; COVID-19; Health Communication.

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Resumo

Este artigo apresenta os resultados da revisão narrativa sobre as fake news ocorridas durante o período mais crítico da pandemia de covid-19. Foi realizada uma busca por palavras nas bases de dados da BVSMS, BVSalud e Scielo, utilizando-se a expressão fake news AND covid-19, notícia falsa AND covid-19 e desinformación AND Covid-19, por ser expressões que atendiam aos dois idiomas selecionados para a revisão: português e espanhol. O critério de inclusão privilegiou os artigos que utilizaram a web como fonte das pesquisas, publicados entre 2020 e 2022. Foram analisados 24 artigos, sendo 14 escritos em língua portuguesa e 10 em espanhol. O ano de 2022 concentrou o maior número de publicações (n=11), e concluiu-se que as redes sociais são os veículos de maior disseminação desse tipo de desinformação. A disseminação das fake news durante o segundo ano da pandemia de covid-19 foi tão preocupante quanto a própria doença, mas a literatura ainda não explorou suficiente o fenômeno que ainda acompanha a pandemia ainda não finalizada. A maioria dos textos analisados aconselham a utilização da estratégia disseminadora de notícias para divulgar informações úteis sobre saúde, concluindo-se que os estudos analisados demonstraram que as notícias falsas estavam incompletas ou enganosas, mas a maioria foi não intencional.

Palavras-chave: Pandemia; Desinformação; Covid-19; Informação e Comunicação em Saúde.

Introduction

On January 30, 2020, the World Health Organization (WHO) declared that the coronavirus outbreak was a Public Health Emergency of International Concern (PHEIC), considered by the International Health Regulations (IHR) to be the highest level of alert. On March 11, 2020, the WHO recognized the spread of COVID-19 as a pandemic (WHO, 2020; WHO, 2023a). In the same period, and due to the high circulation of journalistic and non-journalistic information on the internet, the term "infodemic" was coined to refer to "an overabundance of information—some accurate and some not—that makes it hard for people to find trustworthy sources and reliable guidance when they need it" (WHO, 2023b).

Infodemic differs from so-called fake news in that, in the former, the information comes from various sources, reliable or not, while fake news are characterized as news articles that are intentionally and verifiably false, and could mislead readers (Ross et al., 2021).

Far from being a novelty, the inaccuracy of information during the uncontrollable spread of a disease-causing virus is part of any pandemic scenario. The Spanish flu, for example, emerged during World War I and, due to the conflict scenario during the spread of the disease, the affected countries hid their health statistics from the international community, leading to the incorrect circulation of information, favoring the spread of the disease (Goulart, 2005). In Brazil, the reaction to the Spanish flu was accompanied by misinformation and ignorance on the part of society, especially fueled by the press, increasing the population's fear: the press alarmed the people even more, informing that the Spanish flu nurtured a much bigger danger and that the virus was an invention of the Germans, as a war tactic (Goulart, 2005).

Quandt et al. (2019) systematized fake news (Figure 1), clarifying that a basic differentiation considered: (1) the core content of the information (including textual information, images, audio elements, etc.); (2) meta-information (headlines, author information, tags, and keywords); and (3)

contextual aspects (positioning, references to other articles, framing). All these elements can be subject to levels of falsehood, with discrepancies in factuality ranging from (1) misleading (but factually correct) information; (2) addition or exclusion of information (enrichment of facts by misleading or erroneous information or change of meaning by omission or exclusion of relevant information); to (3) complete fabrications without any factual basis.

The systematization by Quandt et al. (2019) is also associated with the concept that these phenomena can originate from the negligence of the issuer of the news, intentionally or by accident.

However, the problem becomes even more complex because the dissemination of fake news protects the sender with a cloak of invisibility and unknowingness and preserves the identity of the replicators, hindering its control and correction.

Figure 1 – Systematization of fake news
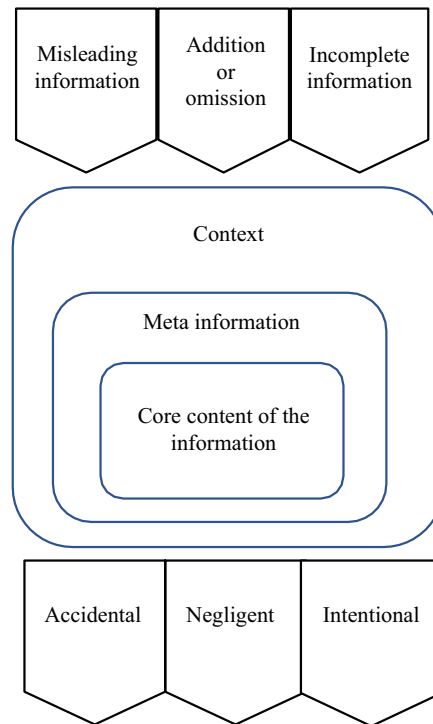
Source: Quandt et al. (2019)

The frequent use of the term as a label to discredit news and challenge the discourse of the mainstream media or independent journalists, especially any displeasing news, becomes an additional complication. The indiscriminate use of the term can serve as a rhetorical means to cast doubt on a particular story, report, or news item or to undermine the trust in the entire communication system (Jack, 2017).

Marwick and Lewis (2018) criticize the inflammatory use of the term "fake news" and point

that the allegation of fake news is mainly aimed at casting doubt on unfavorable information.

Mata, Grigoleto, and Lousada (2020) state that in critical periods, such as pandemics, due to the large amount and rapid flow of information, the problem becomes more complex, since the information is not always accurate and access to reliable sources is difficult. Moreover, in the 21st century, fake news have an apparatus in their favor, with enormous power of dissemination, transmitting information at planetary speed and reach: the internet.

The World Wide Web enables the horizontality of voices that has democratized the emission of opinions, while also stimulating the impregnation of common sense, often creating fertile ground for adventurers and "lay experts" in fields that they do not formally master, almost all of whom are online (Mata; Grigoleto; Lousada; 2020). Finding "Google doctors," "political scientists," and experts who are exclusively informed by the mainstream media is effortless, making academic credentials superfluous to talk about any specific area in the information environment of the web, contributing to the spread of fake news. In fact, the so-called experts linked to the large media conglomerates are now being questioned by new sources of information, often by experts who are not preferred by the large media companies, even though they have the credentials to do so.

Moretzsohn (2017) warns of the immediate duality of the leveling of knowledge behind the idea of horizontality on the web, which may suggest an obvious communication—a space where everyone has a voice—but which makes voices that do not hold a certain knowledge become a threat:

> Apparently democratic and inclusive, the defense of this leveling of knowledge ends up resulting in the praise of ignorance, with the perverse result of disqualifying, as authoritarian, the voice of those who have developed the ability to argue. This disqualification leads to the loss of references that could contribute to public enlightenment. Politically, the result is usually disastrous. (Moretzsohn, 2017, p. 302, our translation)

The concern about fake news in all areas of life in society is so great that Brazil created the National Network to Combat Disinformation (*Rede Nacional de Combate à Desinformação* – RNCD), a virtual space created and maintained by the Federal University of Rio de Janeiro (UFRJ) and other universities, agencies, communication networks, research groups, etc., which gathers information about disinformation on the web, denouncing and combating fake news.

Therefore, this study conducted a narrative review to understand the state of the art of fake news in relation to the COVID-19 pandemic, aiming to identify what has been researched and published on the topic.

Methodology

This is a qualitative study of a narrative literature review, suitable for discussing the state of the art of a given topic. It consists of an analysis of the literature without a rigorous and replicable methodology in terms of data reproduction and quantitative answers to specific questions, in line with Vosgerau and Romanowski (2014). This type of study is essential for updating human knowledge on a specific topic, highlighting new ideas, methods, and sub-themes that have received greater or lesser emphasis in the selected literature (Elias et al., 2012).

Since this is a literature review on fake news and the COVID-19 pandemic, original articles in Portuguese and Spanish were retrieved, indexed in the databases of the Virtual Health Library of the Ministry of Health (BVSMS), the Virtual Health Library (BVSalud), and the Scientific Electronic Library Online (Scielo). The articles were selected from September to December 2022, using the first three years of the pandemic as a reference period.

The following Health Sciences Descriptors (DeCs) were used: "*notícias falsas*" AND "COVID-19"; "*desinformación*" AND "COVID-19"; and "fake news" AND "COVID-19," as these expressions met the languages considered in this review. The terms were used in isolation and in combination, delimiting the established time interval.

The criteria used to include the publications were that the search terms were explicit in the abstract and that the methodology used any web channel to obtain data. Reviews, essays, communications, and documents other than the type chosen for this study were not considered. The articles were selected first by their abstracts and then by reading the entire content, excluding publications outside the scope of the review.

Figure 2 – Flow of the selection process for articles on fake news and COVID-19 from 2020 to 2022
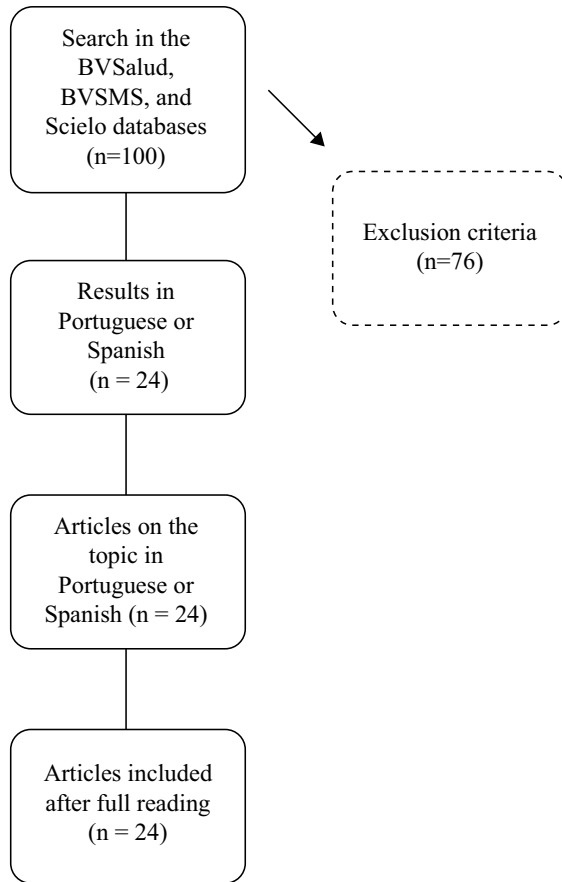
Source: Elaborated by the authors.

Results

Among the selected publications, articles in Portuguese prevailed, with 16 articles and only eight in Spanish. In 2022, more articles were published than in previous years. Chart 1 shows the particularities of the studies on fake news and COVID-19 selected in the databases chosen for the review.

Chart 1 – Particularities of the studies on fake news and COVID-19 selected in the databases

TITLE	AUTHORSHIP	JOURNAL	MONTH/YEAR	TYPE OF STUDY	STUDY LOCAL
Comunicação em saúde sobre covid-19 e diabetes mellitus em mídias sociais: verdadeiro e falso.	Ribeiro et al.	Revista da Escola Anna Nery	January/2022	Documentary research on the web	Social networks on the internet (Twitter)

Chart 1 – Continuation.

TITLE	AUTHORSHIP	JOURNAL	MONTH/YEAR	TYPE OF STUDY	STUDY LOCAL
Avaliação da qualidade da informação de sites sobre covid-19: uma alternativa de combate às fake news.	Pereira Neto et al.	Revista Saúde em Debate	March/2022	Quality assessment of official websites	Mato Grosso State Health Department websites
O primeiro Curso Aberto, On-line e Massivo (Mooc) sobre covid-19 e iniquidades no Brasil: potências da saúde coletiva no enfrentamento da infodemia e das fake news.	Oliveira; Gerhardt.	Saúde em Debate	April/2022	Descriptive study on a teaching tool	Web tools (Rio Grande do Sul)
Fake news e hesitação vacinal no contexto da pandemia da covid-19 no Brasil.	Galhardi et al.	Ciência e Saúde Coletiva	May/2022	Quantitative empirical study	Eu Fiscalizo app (web)
Uso de Python para detecção de fake news sobre a covid-19: desafios e possibilidades.	Ferreira et al.	Revista Eletrônica de Comunicação, Informação & Inovação em Saúde	June/2022	Documentary research on the web	Agência Lupa fact-checking database
Influenciadores da desinformação nas pandemias de gripe espanhola e covid-19: um estudo documental	Figueiredo et al.	Revista Brasileira de Educação Médica	July/2022	Qualitative documentary research	Farsas.com and Boatos.org
Desinformación anticientífica sobre la covid-19 difundida en Twitter en Hispanoamérica.	García-Marín; Merino-Ortego.	Cuadernos Info	March/2022	Documentary researchl	#CoronaVirusFacts (Twitter)
Asustar para desestabilizar: Desinformación sobre la covid-19 en Argentina y España.	Tarullo; Gamir-Ríos.	Cuadernos Info	March/2022	Documentary research	Chequeado (Argentina) and Newtral (Spain) platforms

continues…

Chart 1 – Continuation.

TITLE	AUTHORSHIP	JOURNAL	MONTH/YEAR	TYPE OF STUDY	STUDY LOCAL
Análisis de los bulos sobre covid-19 desmentidos por Maldita y Colombia check: efectos de la infodemia sobre el comportamiento de la sociedad.	Herrero-Diz; Pérez-Escolar.	Palabra-clave	March/2022	Analytical documentary study	Maldita.es and Colombiacheck.co platforms
Tipología de los contenidos virales de desinformación durante los primeros meses de emergencia sanitaria por la covid-19 en el Perú.	Vegas.	Revista de Comunicación	September/2022	Descriptive exploratory study	La República, Convoca, Ojo Público, and Salud con Lupa fact-checking platforms
Infodemia en la Argentina preventivamente aislada. Un análisis de las fake news sobre la pandemia de la covid-19 desmentidas por Confiar.	Silva et al.	Revista Mexicana de Opinión Pública	July/2022	Content analysis	Confiar.es platform
Fake news e infodemia em tempos de covid-19 no Brasil: indicadores do ministério da saúde.	Ross et al.	Revista Mineira de Enfermagem	September/2021	Descriptive exploratory study	Saúde Sem Fake News communication channel (Brazilian Ministry of Health)
Infodemia: noticias falsas y tendencias de mortalidad por covid-19 en seis países de América Latina.	Nieves-Cuervo et al.	Revista Panamericana de Saúde Pública	June/2021	Descriptive ecological study	Facebook
Análise de fake news veiculadas durante a pandemia de covid-19 no Brasil.	Barcelos et al.	Revista Panamericana de Saúde Pública	June/2021	Descriptive documentary study	G1 e Ministério da Saúde e Google Trends
Categorias das fake news sobre covid-19 disseminadas no primeiro ano da pandemia no Brasil.	Moreira et al.	Revista Mundo Saúde	March/2021	Descriptive exploratory study	Coronaverificado.news platform

Chart 1 – Continuation.

TITLE	AUTHORSHIP	JOURNAL	MONTH/YEAR	TYPE OF STUDY	STUDY LOCAL
Notícias falsas em tempos de pandemia pelo novo coronavírus: uma análise documental.	Alencar; Lima; Gouveia; Silva.	Revista Cuidarte	August/2021	Documentary research	Saúde Sem Fake News communication channel (Brazilian Ministry of Health)
Quem é de direita toma cloroquina, quem é de esquerda toma… vacina.	Arndt et al.	Revista de Psicologia Política	May/2021	Descriptive documentary study	Agência Lupa, Aos Fatos, Fato ou Fake, and Boatos.org
Fact checking durante la covid-19: análisis comparativo de la verificación de contenidos falsos en España e Italia.	Ascacíbar, Malumbres, Zanni.	Revista de Comunicación	March/2021	Descriptive documentary study	Maldita.es and Open.it platforms
Fakenews e incremento desinformativo durante el estado de excepción 2020: caso el Mercioco, Ecuador.	Ramírez; Jumbo; Aguilar.	Revista de Ciencias Sociales y Humanidades	September/2021	Content analysis	El Mercioco fanpage (Facebook)
Covid-19: como a disseminação de fake news pode influenciar a população durante a pandemia/covid-19.	Salatino.	Revista Salusvita	October/2020	Prognostic study/Screening study	Brazilian Ministry of Health website
La divulgación de la información en la encrucijada de la crisis del covid-19 en Paraguay. Reacciones y trasmisión de datos falsos y científicos a través de las redes sociales y los medios masivos.	Moreno-Fleitas.	Revista de la Sociedad Científica del Paraguay	June/2020	Qualitative documentary study	Website of the Ministry of Information and Communication Technologies of Paraguay
Credibilidad de la información en tiempos de la covid-19.	Fachin; Araujo; Sousa.	Revista Interamericana de Bibliotecología	September/2020	Descriptive exploratory study	Aosfatos plataform

Chart 1 – Continuation.

TITLE	AUTHORSHIP	JOURNAL	MONTH/YEAR	TYPE OF STUDY	STUDY LOCAL
Fato ou Fake? Uma análise da desinformação frente à pandemia da covid-19 no Brasil.	Galhardi.	Cadernos de Saúde Coletiva	August/2020	Screening study	Eu Fiscalizo app
Caracterização de fake news sobre a pandemia covid-19 no Brasil	Dourado et al.	Revista de Enfermagem da UFPI	September/2020	Descriptive study	Efarsas and G1 fato ou fake

Nieves-Cuervo et al. (2021) found that countries with a lower rate of internet use as the sole source of information also had lower mortality rates, showing that low digital inclusion, at least in the case of the spread of fake news about COVID-19, is advantageous. The situation described by the authors denies, to a certain extent, the systematization by Quandt et al. (2019) due to the lack of provision for non-information, which is different from disinformation. The lack of information has safeguarded mortality rates by COVID-19.

Barcelos et al. (2021) identified that fake news in the pandemic period were spread mainly via WhatsApp and Facebook, with Google Trends showing a 34.3% increase in searches using the term "fake news." In the study by Moreno-Fleitas (2020), the main source of news about the COVID-19 pandemic in Paraguay, leading to false information about the disease, was Facebook, confirming the result obtained by the study by García-Marín et al. (2022).

Analyzing the phenomenon in Spain and Italy, Ascacíbar, Malumbres, and Zanni (2021) showed that in Spain, in 2021, the website evaluated included 365 cases, of which 14% were false alerts, 34% misinformation, 43% lying manipulations, and 9% others. In Italy, the authors identified 225 cases, with 9% categorized as false alarms, 37% as misinformation, 51% as lying manipulations, and 3% in the "other" category.

Social networks and their algorithms prioritize the engagement of certain people, which can facilitate the spread of fake news, since this information generates emotional reactions and shares. Quandt et al. (2019), when systematizing the level of falsehood in studies, placed the intentionality of the dissemination of misleading information as the apex of the dissemination of lies, and the 2021 study in Spain and Italy by Ascacíbar, Malumbres, and Zanni (2021) clearly showed that this peak was reached. Moreover, the lack of media literacy, with low ability to critically evaluate information and sources, causes the spread of fake news.

Ribeiro et al. (2022), based on media channels, searched for news about diabetes mellitus and its relationship with COVID-19, showing a concern about whether the news were based on scientific evidence or not. After a survey on Twitter, they found that 80% of the news broadcasts were false and without sources of consultation, with emphasis on the indication of foods that could prevent contamination by the virus, such as lemon tea with bicarbonate, recipes with coconut oil, cannabidiol oil, etc. In conclusion, they highlight the need to transpose the "language of science" to the community as a better way of communicating health.

Pereira Neto et al. (2022) argue that evidence-based online health information can reduce the use of health services with an impact on self-care practices, self-management, and adherence to treatment. However, in their research on four official Mato Grosso government websites, the information in the health area was of poor quality and essential data on COVID-19 were missing, such as the use of masks, hand washing, and the

use of alcohol gel. Thus, aware of the fight against fake news, the government websites of the studied state were deficient and did not meet the minimum quality criteria, presenting incorrect, outdated, incomplete, and illegible information on the topic of health in general and COVID-19, in particular. In the systematization by Quandt et al. (2019), disinformation disseminated unintentionally is not the most serious level of fake news, although we agree that any disinformation—in this case, omission of information—may harm patients.

Oliveira and Gerhardt (2022) conducted a descriptive study on the use of the WHO's massive open online course (MOOC), which in Brazil was offered by the Lumina platform of the Federal University of Rio Grande do Sul (UFRGS), as a powerful strategy for communication, scientific dissemination, and confronting the infodemic and fake news about COVID-19. These efforts highlight the importance of media literacy education to reduce the spread of fake news.

Galhardi et al. (2022), in their quantitative empirical study, checked a sample of 253 reports on vaccines and COVID-19, using the *Eu Fiscalizo* app. The study found that the Coronavac vaccine, produced by the Butantan Institute in partnership with the Sinovac company, was the immunizer with the most fake news about adverse effects, and at least 70% of Brazilian municipalities recorded cases of people who wanted to choose the brand of vaccines, refusing Coronavac. Cinelli et al. (2020), analyzing the role of social media, confirmed the conclusion of the study, stating that misinformation spreads faster and is more resistant to correction than information.

Ferreira et al. (2022) present important data, such as the Digital Report 2021 (Global Overview Report), which showed that 75% of the Brazilian population uses the internet, corresponding to 158 million Brazilians connected to the network in 2019, with an average connection time of nine hours per day. From the analysis of a fact-checking agency, the authors highlight that fake news about COVID-19 is not only a problem in the field of communication or public and collective health: they include aspects that involve automation, the use of algorithms, and social bots, but have as background aspects related to the growth of digital networks and hyperpoliticization. They suggest that adequate public policies are needed to confront this phenomenon and that artificial intelligence and automation—the same "weapons"—can also be used as dissemination strategies.

Figueiredo et al. (2022), after analyzing 107 occurrences, listed fake news attributed to fact-checking services, such as Fato ou Fake, Farsas.com, and Boatos.org, and on the WHO and Ministry of Health websites. They found 41 news items, all indicating unproven medications, and highlighted that disinformation influencers have been presented as an association between agents and platforms. The agents are governments, politicians, companies, journalists, YouTubers, bloggers, social bots, conservative religious groups, artists, scientists, and even health workers. The platforms that spread disinformation are Amazon, Apple, Google, Facebook, blogs, Pinterest, YouTube, WhatsApp, Twitter, Instagram, and Telegram, besides conventional media such as television, radio, and part of the press.

In line with Quandt et al. (2019), this review showed that meta-information, along with the core content of the messages observed, is disclosed in an incomplete and even misleading manner. However, we did not prove the intentionality of the spread of false news, leading to believe that the phenomenon points more to a negligent posture of news disseminators, due to the lack of mechanisms for immediate verification of published statements. In the European Union, on the other hand, Ascacíbar, Malumbres and Zanni (2021) identified in Spain and Italy the disclosure of lies and notably malicious news about COVID-19.

Final considerations

The sample used in this study is not representative of all intellectual production, since most articles are in English, a language not included in the methodology. Moreover, a review does not provide the exact dimension of a problem, especially if it is of recent occurrence. Longitudinal studies are needed to confirm the temporal and causal relationships of the phenomenon.

The topic of fake news and COVID-19 is little addressed in the academic and scientific world, although it has been explored intensively on social networks and the mainstream media. Thus, more academic studies on the topic were expected. From the conclusions of the studies selected for this review, the concern with the phenomenon that affected and is still affecting the health policy sector was unanimous; nevertheless, many studies recognize and recommend an effort to use virtual means of communication as new ways of contact between the health sector and the population. Illustrating this position, Ferreira et al. (2022) coined the expression "use the same weapons" as fake news, for the dissemination of useful and beneficial information for the health of the population.

Most of the news that circulated during the first three years of the pandemic, according to the review, were marked by unintentional disinformation, both in Brazil and in Latin American countries, unlike countries in the European Union, where deliberate lies circulated abundantly.

The pandemic ended, according to the World Health Organization, on May 5, 2023, but the corresponding disinformation is still ongoing, forcing the population, and especially health professionals, to be on permanent alert to neutralize this type of news.

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