ARTIGO DE PESQUISA

The evolving landscape of health disinformation: insights from recent literature

O panorama em transformação da desinformação em saúde: *insights da literatura recente*

El panorama cambiante de la desinformación en salud: *perspectivas de la literatura reciente*

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ABSTRACT

This study addresses Health Disinformation (HD) as a growing societal issue, fuelled by declining public trust, the widespread use of digital media, and public health crises such as the COVID-19 pandemic. It aims to review literature published between 2020 and 2024, identifying research methods and disciplinary fields, understanding the motivations behind HD creation and dissemination, assessing its negative impacts, and examining proposed responses. A comprehensive literature review was conducted. Strategies to combat HD were categorised into prevention and correction. Among prevention efforts, machine learning algorithms for automated detection show promise, while the effectiveness of media literacy initiatives remains inconsistent. Corrective strategies, both direct and indirect, have produced mixed results, depending on factors such as format, source, credibility, and context. Trust in professional health institutions (e.g., the CDC and WHO) emerged as crucial for successful interventions. The findings underscore the central role of trust and health literacy in the HD cycle, both of which are shaped by structural inequalities that increase the vulnerability of historically marginalised communities. The study concludes that addressing HD requires a structural and multidisciplinary approach, prioritising trust-building and informational empowerment, particularly in Global South contexts. HD poses an ethical and political challenge demanding critical, transdisciplinary engagement.

Keywords: Health disinformation. Public trust. Health literacy. Digital media. Misinformation.

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RESUMO

Este estudo aborda a Desinformação em Saúde (DS) como um problema social crescente, alimentado pelo declínio da confiança pública, o uso generalizado de mídia digital e crises de saúde pública, como a pandemia de COVID-19. O objetivo é revisar a literatura publicada entre 2020 e 2024, identificando métodos de pesquisa e campos disciplinares, entendendo as motivações por trás da criação e disseminação da DS, avaliando seus impactos negativos e examinando as respostas propostas. Uma revisão abrangente da literatura foi conduzida. As estratégias para combater a DS foram categorizadas em prevenção e correção. Entre os esforços de prevenção, algoritmos de aprendizado de máquina para detecção automatizada mostram-se promissores, enquanto a eficácia das iniciativas de alfabetização midiática permanece inconsistente. Estratégias de correção, tanto diretas (rotulando explicitamente as informações como falsas) quanto indiretas (desafiando a lógica por trás da DS), produziram resultados mistos, dependendo de fatores como formato, fonte e credibilidade. A confiança em instituições profissionais de saúde (por exemplo, o CDC e a OMS) emergiu como crucial para intervenções bem-sucedidas. Os resultados ressaltam o papel central da confiança e da alfabetização em saúde no ciclo do DS, ambos moldados por desigualdades estruturais que aumentam a vulnerabilidade de comunidades historicamente marginalizadas. O estudo conclui que o enfrentamento do DS requer uma abordagem estrutural e multidisciplinar, priorizando a construção de confiança e o empoderamento informacional, particularmente em contextos do Sul Global. O DS representa um desafio ético e político que exige engajamento crítico e transdisciplinar.

Palavras-chave: Desinformação em saúde. Confiança pública. Alfabetização em saúde. Mídia digital. Desinformação.

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RESUMEN

Este estudio aborda la Desinformación Sanitaria (DS) como un problema social creciente, alimentado por la disminución de la confianza pública, el uso generalizado de los medios digitales y crisis de salud pública como la pandemia de COVID-19. Su objetivo es revisar la literatura publicada entre 2020 y 2024, identificar métodos de investigación y campos disciplinarios, comprender las motivaciones detrás de la creación y difusión de la DS, evaluar sus impactos negativos y examinar las respuestas propuestas. Se realizó una revisión bibliográfica exhaustiva. Las estrategias para combatir la DS se clasificaron en prevención y corrección. Entre los esfuerzos de prevención, los algoritmos de aprendizaje automático para la detección automatizada muestran resultados prometedores, mientras que la efectividad de las iniciativas de alfabetización mediática sigue siendo inconsistente. Las estrategias de corrección, tanto directas (etiquetar explícitamente la información como falsa) como indirectas (cuestionar la lógica detrás de la DS), produjeron resultados mixtos, dependiendo de factores como el formato, la fuente y la credibilidad. La confianza en las instituciones sanitarias profesionales (por ejemplo, los CDC y la OMS) emergió como crucial para las intervenciones exitosas. Los hallazgos subrayan el papel central de la confianza y la alfabetización en salud en el ciclo de la DS, ambos condicionados por desigualdades estructurales que aumentan la vulnerabilidad de las comunidades históricamente marginadas. El estudio concluye que abordar la DS requiere un enfoque estructural y multidisciplinario, priorizando el fomento de la confianza y el empoderamiento informativo, especialmente en contextos del Sur Global. La DS plantea un desafío ético y político que exige un compromiso crítico y transdisciplinario.

Palabras clave: Desinformación en salud. Confianza pública. Alfabetización en salud. Medios digitales. Desinformación.

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1 INTRODUCTION

Health disinformation (HD) has emerged as a major societal concern in recent years, driven by declining public trust, the widespread use of digital media platforms, and the intensification of public health crises. Since the COVID-19 pandemic, HD has attracted increasing attention because of its significant impact on individuals, communities, health institutions, and society as a whole. A clearer understanding of the current literature on HD is therefore essential for identifying more effective responses to this phenomenon and its broader public health implications. The distinction between misinformation and disinformation remains widely debated. Misinformation generally refers to inaccurate or misleading information shared without a clear intention to deceive, whereas disinformation involves false or misleading content deliberately created or disseminated to manipulate public perception. In practice, however, determining whether inaccurate health information was shared intentionally or unintentionally is often difficult. For this reason, this study adopts the term health disinformation in a broad sense, referring to false, misleading, biased, decontextualised, or unverified health-related information, regardless of whether malicious intent can be established.

In this broader understanding, HD encompasses health-related falsehoods, claims lacking scientific evidence, and information that is distorted, biased, or removed from its proper context. Such information may compromise public understanding, decision-making processes, health behaviour, and trust in health institutions.

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The emergence and spread of HD are closely linked to changes in the digital information ecosystem and to uneven levels of public understanding of health and scientific information, which often blur the boundaries between factual information, misleading content, and disinformation. Over the past decade, changes in the social and technological context have reshaped the creation, dissemination, impact, and mitigation of HD. One of the most relevant changes is the erosion of public trust in governments, healthcare professionals, and health institutions. Trust plays a central role in how individuals process, evaluate, and share information. Its deterioration has been associated with a greater propensity to accept and disseminate misleading or false health-related content. Another major shift is the widespread adoption of digital media platforms, which have become central channels for the circulation of HD. In particular, video-sharing platforms and short-form videos have intensified the speed, reach, and emotional appeal of health-related disinformation.

Reviewing studies on HD is therefore imperative, as its proliferation may disorient public health behaviour, weaken evidence-based decision-making, and diminish the credibility of governments, healthcare professionals, and institutions. Previous systematic and narrative reviews have provided important contributions to the field. However, many of them have focused on specific domains, such as health disinformation on social media, dissemination patterns, correction strategies, or particular health concerns such as COVID-19. Although these reviews offer valuable insights into specific dimensions of the phenomenon, a broader review is necessary to understand the wider ecology of HD studies, including its disciplinary profile, methodological approaches, underlying causes, impacts, and proposed solutions.

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This broader perspective is particularly relevant because HD is not only a public health problem, but also an informational phenomenon. Its creation and circulation are shaped by social, technological, institutional, and epistemic factors. In recent years, the field has also been affected by the increasing use of computational methods, including machine learning and natural language processing techniques, which have expanded the possibilities for detecting, analysing, and responding to misleading health information. These developments indicate the need for a more holistic understanding of current HD research and of the ways in which the field has evolved since the beginning of the COVID-19 pandemic.

Within Information Science, health disinformation can be understood as a phenomenon involving the production, circulation, mediation, validation, organisation, and appropriation of information in digital environments. From this perspective, the issue is directly related to core concerns of the field, such as information quality, credibility assessment, information behaviour, media and information literacy, platform mediation, and the social conditions that shape access to reliable knowledge. Analysing health disinformation therefore contributes to Information Science by clarifying how informational disorders are structured, how trust is negotiated in networked environments, and how individuals and communities engage with competing regimes of truth in everyday life.

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Although previous reviews have examined relevant dimensions of health misinformation and disinformation, it remains less clear how this body of literature, taken more broadly, has characterised the disciplinary profile of the field, the methods mobilised by researchers, the factors associated with the creation and dissemination of HD, its impacts, and the solutions proposed to address it. This gap is especially significant for Information Science, since the field is increasingly challenged to explain how digital information ecosystems, trust relations, literacy practices, and computational approaches interact in contexts marked by informational abundance, algorithmic mediation, and structural inequality.

Accordingly, this study aims to review the literature on health disinformation published between January 2020 and December 2024, in order to identify the main disciplinary areas and research methods employed, analyse the factors associated with the creation and dissemination of health disinformation and its negative impacts, and examine the responses proposed in the literature to address this phenomenon. To achieve this, a literature review was conducted in PubMed, followed by the thematic analysis of the selected studies.

The study is guided by the following research questions: (1) What disciplinary areas and research methods characterise the reviewed literature on health disinformation? (2) What factors motivate the creation and dissemination of health disinformation, and what impacts are associated with it? (3) What solutions have been proposed to confront health disinformation, particularly regarding trust, literacy, and computational approaches?

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2 METHODOLOGICAL PROCEDURES

This study is based on a literature review aimed at mapping and analysing recent scholarly production on health disinformation. The review focused on articles indexed in PubMed and published between 2020 and 2024. This time frame was selected to capture recent developments in digital communication environments, platformization, and the growing visibility of health disinformation as a public and academic concern. The search strategy combined terms related to disinformation and health. The search string used in PubMed was as follows: ("misinformation"[MeSH Terms] OR "disinformation"[MeSH Terms] OR "fake news"[All Fields] OR "health misinformation"[All Fields]) AND ("health"[MeSH Terms] OR "public health"[MeSH Terms] OR "medicine"[MeSH Terms]) AND ("2020": "2024"). The inclusion criteria were: (a) articles published between 2020 and 2024; (b) peer-reviewed studies; (c) studies addressing health disinformation, health misinformation, or closely related informational phenomena in the health domain; and (d) full texts available in English. The exclusion criteria were: (a) duplicate records; (b) studies not focused on health; (c) texts that mentioned misinformation only tangentially; (d) editorials, letters, commentaries, or other non-analytical document types; and (e) studies whose full text was unavailable, when applicable. Screening was conducted in three stages: title, abstract, and full-text review. In total, 145 records were initially retrieved. After duplicate removal, 50 records remained. Following title and abstract screening, 35 articles were selected for full-text review. The final corpus consisted of 23 articles. The selected studies were analyzed according to the following dimensions: disciplinary area, research method, factors associated with

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the creation and dissemination of health disinformation, negative impacts, and proposed responses or interventions.

3 SOLUTIONS TO COMBAT HEALTH DISINFORMATION

Strategies to address health disinformation (HD) have received considerable scholarly attention. Most of the reviewed articles discuss practical implications or propose responses based on their findings. Preventive approaches, implemented before individuals are exposed to or come to endorse health disinformation, generally focus on two dimensions: computational detection of HD and initiatives aimed at improving media literacy.

Early studies on health misinformation detection were relatively limited and relied primarily on social network analysis and traditional machine learning approaches. From 2021 onwards, however, there has been a significant increase in research employing deep learning methods, including recurrent neural networks (RNNs), long short-term memory networks (LSTMs), and transformer-based models such as BERT, which have shown promising results in large-scale text analysis and misinformation detection.

For example, Zhao, Da and Yan (2021) developed an HD detection model using linguistic, topical, and sentiment features of information, achieving an accuracy of 0.833. Similarly, Karnyoto *et al*. (2022) constructed a hybrid machine learning model to detect COVID-19-related disinformation, achieving an accuracy of 0.9196.

In contrast to the promising results in HD detection, findings on the effectiveness of media literacy have been inconsistent. Some studies showed that media literacy did not consistently prevent individuals from

accepting HD or improve the effectiveness of corrective interventions, and that it would only be useful when a personalized HD campaign was conducted. Meanwhile, other studies concluded that information literacy significantly decreased the likelihood of accepting HD.

Studies on the correction of health disinformation (HD) have focused on two approaches: direct correction and indirect correction, based on whether the corrective information directly targets the HD itself or its audience. Direct correction refers to correcting HD by explicitly informing individuals that the HD they were exposed to is false and providing the correct information. Results on direct correction have been mixed, with some finding it effective and others claiming it to be ineffective, often with adverse effects.

Carey *et al*. (2020) even proposed that corrective information about Zika health disinformation did not reduce individuals' misconceptions as intended and unexpectedly made participants less likely to revise their beliefs about the disease. The efficacy of HD correction by direct correction is not absolute, but rather modulated by various factors, including the format and the credibility of the source of the corrective information, which in turn influence individuals' trust in the corrective information.

Studies have found that corrective information is more likely to be perceived as trustworthy when it is evidence-based and concise, without overemphasizing the refuted disinformation. In terms of the source of corrective information, it is generally agreed that corrective information from recognised institutional and professional sources, such as the Centers for Disease Control and Prevention, the World Health Organization, health professionals, and journalists, is more likely to be effective due to their higher perceived trustworthiness. On the other hand,

corrective information from the general public tends to be less effective in combating HD. Despite this, some studies still found that disinformation can be addressed through peer-to-peer communication due to interpersonal trust among users, and researchers proposed that social media users should be mobilized to correct their peers' HD.

Xiao and Su (2022) and Featherstone and Zhang (2020) suggest that, among individuals with lower levels of prior misconception, corrective strategies may be more effective when they present both the accurate information and the misleading claim, while also challenging the plausibility of the claim and exposing flaws in its underlying logic. In addition to logic-based approaches, emotion-based approaches were also evaluated. Liu *et al*. (2020) and Cheng and Luo (2021) proposed that corrective information that evokes emotional responses (i.e., worry, anger, and hope) is effective in HD correction.

Similarly, based on the third-person effect, individuals' perception of the severity of HD's influence on others may make them feel endangered, which, in turn, might strengthen their intention to accept corrective information. Additionally, public trust in the government is positively associated with the effectiveness of HD refutation. Therefore, some studies proposed that innovative digital governance tools and memes tailored for social media platforms should be used to build trust in the government. Furthermore, combating HD goes beyond individual psychological and informational attributes. The communities in which individuals live play a significant role, as support networks within communities can strengthen individuals' self-efficacy in combating HD.

The ability to deal with online disinformation is a critical component for an effective 21st-century public health response. The speed and scale of disinformation dissemination, especially via social media, are alarming,

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and declining trust in institutions makes evidence-based responses to disinformation more difficult (Zucker, 2020). Once inaccurate information begins to circulate, it is extremely difficult to contain or mitigate its effects (Zucker, 2020). Cooperative efforts among policymakers, health professionals, and communication specialists are essential for the development of effective interventions (Kisa; Kisa, 2024). This includes improving health knowledge, making use of digital technology, promoting clear and authoritative communication, and implementing fact-checking mechanisms (Kisa; Kisa, 2024). Furthermore, community engagement and targeted health campaigns play a crucial role in combating disinformation (Kisa; Kisa, 2024).

3.1 The Role of Trust and Health Literacy

Trust plays a crucial role in the health disinformation cycle, facilitating its creation and dissemination, exacerbating its negative impacts, and increasing the difficulty in addressing it. For example, individuals are more likely to share information they consider trustworthy, often from sources they trust, such as friends or family, rather than from formal institutions. During health crises, when official information may be limited or delayed, a lack of trust can drive the search for information from alternative sources, which frequently become vehicles for disinformation.

Health literacy, defined as an individual's ability to obtain, process, and understand basic health information to make appropriate decisions, is also fundamental. Bizzotto, de Bruijn and Schulz (2023) found that, in online mental health communities, a high level of knowledge about depression can reduce the impact of disinformation exposure, especially

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in peer-led groups. For example, individuals with better health literacy tend to be more critical in evaluating information sources and less susceptible to unfounded claims.

Media literacy is an increasingly important factor, especially as much of health disinformation circulates online. Skills in navigating digital technologies can affect a person's ability to process and evaluate information encountered online, including identifying non-credible sources or signs of disinformation. The relationship between health literacy and digital literacy appears interconnected, with individuals possessing fewer health literacy skills frequently also exhibiting fewer digital skills. Furthermore, media literacy, specifically "scientific media literacy" has been associated with the acceptance of COVID-19 disinformation, with people of colour and those with lower scientific media literacy being more likely to accept such information (Austin; Borah; Domgaard, 2021).

It is important to note that although health literacy and trust can act as protective factors, differences in these aspects frequently reflect systemic inequalities. Table 1 highlights vulnerable populations and their susceptibility to disinformation, listing groups such as older people, people with disabilities, ethnic minorities, and those with lower socioeconomic status.

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Table 1: Vulnerable Populations and Disinformation Susceptibility

Vulnerable Group	Contributing Factors / Impacts of Disinformation	Relevant Source(s)
Older people	Disproportionately affected by low health literacy; potentially greater vulnerability to disinformation due to limited access to educational/health resources and historical discrimination that erodes trust in institutions.	Schillinger (2020)
People with disabilities	Disproportionately affected by low health literacy; potentially greater vulnerability to disinformation due to limited access to educational/health resources and historical discrimination that erodes trust in institutions.	Schillinger (2020)
Ethnic minorities	Disproportionately affected by low health literacy; more vulnerable due to historical discrimination, limited access to educational/health resources, and eroded trust in institutions. Higher disproportionate impact on anxiety from disinformation (in the US context).	Schillinger (2020), Verma *et al*. (2022)
Lower socioeconomic status	Disproportionately affected by low health literacy; more vulnerable due to limited access to educational/health resources and historical discrimination that erodes trust in institutions. Higher disproportionate impact on anxiety from disinformation (in the US context).	Schillinger (2020), Verma *et al*. (2022)
Women	Disproportionately greater impact on anxiety due to disinformation (in the US context).	Verma *et al*. (2022)
Individuals with lower educational attainment	Disproportionately greater impact on anxiety due to disinformation (in the US context).	Verma *et al*. (2022)

Source: Author, 2025.

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This aligns with Schillinger's (2020) perspective, which highlights the intersection between social determinants of health, health literacy, and health disparities, arguing that low health literacy disproportionately affects vulnerable populations, such as older people, people with disabilities, ethnic minorities, and those with lower socioeconomic status.

Therefore, effective solutions must focus not only on improving individual knowledge, but also on rebuilding trust and addressing the root causes of social inequalities that make vulnerable groups more exposed to disinformation.

The proliferation of online disinformation represents a cognitive overload and a barrier to informed decision-making (Lotto *et al.*, 2023). The repetition of disinformation can promote its retention in memory (Southwell *et al*., 2023). The impact on anxiety is disproportionately greater in women, racial minorities, and individuals with lower educational attainment in the United States (Verma *et al.*, 2022). Regulation of the social media industry is a debated method to strengthen public trust, as current policies, such as Twitter's paid verification services, may, in fact, drive disinformation dissemination by increasing the visibility of malicious accounts and reducing that of public health experts).

4 RESULTS AND DISCUSSION

The literature review conducted in the PubMed database, focusing on publications between 2020 and 2024, identified a significant body of studies addressing the phenomenon of Health Disinformation (HD). Table 2 summarizes the key findings on health disinformation (2020-2024),

categorizing them into facilitating factors, negative impacts, and proposed solutions.

Table 2: Summary of Key Findings on Health Disinformation (2020-2024)

Category of Findings	Key Aspects and Examples	Supporting References
Facilitating Factors for Creation and Dissemination	Financial or Political Interests: Campaigns during COVID-19 for economic manipulation or state agendas.	Lv *et al*. (2022)
	Erosion of Public Trust: Loss of credibility in official health institutions, driving individuals to informal sources.	Lv *et al*. (2022)
	Popularization of Digital Platforms: Twitter, YouTube, Instagram as key vehicles using brief, shareable formats (e.g., short videos).	
	Motives for Sharing: Altruism, socialization, personal validation, interpersonal trust (friends/family).	Fernández-Torres; Almansa-Martínez; Chamizo-Sánchez (2021); Chen *et al*. (2021)
Negative Impacts of Health Disinformation (HD)	Reduced Perception of Disease Risk & Adherence: Decreased compliance with official recommendations due to repeated exposure.	Verma *et al*. (2022); Amazeen, Krishna and Eschmann (2022)
	Increased Self-Medication & Pseudoscience: Higher propensity for unverified practices.	
	Individual Vulnerabilities: Conspiratorial beliefs, cognitive overload, intensive social media use.	
	Mental Health Impacts: Anxiety and distress, disproportionately affecting women, racial minorities, and those with lower educational attainment.	Verma *et al*. (2022); Vasconcellos-Silva (2023)

Proposed Solutions for Confronting HD	Prevention: Automatic HD detection using machine learning algorithms (advances noted, practical applicability challenges remain). Mixed results for media literacy effectiveness, but useful in personalized campaigns.	Zhao; Da; Yan (2021); Karnyoto *et al*. (2022); Bizzotto; de Bruijn; Schulz (2023)
	Correction (Direct & Indirect): Inconsistent results, effectiveness depends on message tone, source, and context.	Carey *et al*. (2020); Featherstone; Zhang (2020); Liu *et al*. (2020)

Source: Author, 2025.

The reviewed studies indicate that HD primarily originates from financial or political interests, as evidenced by campaigns during the COVID-19 pandemic used for economic manipulation or state agendas. Additionally, structural changes in public trust were identified, especially the loss of credibility in official health institutions, which has prompted individuals to seek information from informal sources, more susceptible to disinformation (Lv *et al*., 2022).

The popularization of digital platforms, such as Twitter, YouTube, and Instagram, also solidified as a key vehicle in the spread of HD, leveraging brief and highly shareable formats, such as short videos. Motives for sharing HD range from altruism (Chen *et al*., 2021; Fernández-Torres; Almansa-Martínez; Chamizo-Sánchez, 2021) to socialization and the search for personal validation. Interpersonal trust, for example, in friends or family, was highlighted as an important mediator in the dissemination of unverified information.

The effects of HD extend beyond the individual, generating social and systemic consequences. Studies by Verma *et al*. (2022) and Amazeen, Krishna and Eschmann (2022) indicated that repeated exposure to HD reduces the perception of disease risk and decreases

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adherence to official recommendations. Furthermore, an increased propensity for self-medication and the use of pseudoscientific practices was observed. Individual characteristics such as conspiratorial beliefs, cognitive overload, and intensive social media use were associated with greater vulnerability to HD. Disinformation also impacts mental health, with women, racial minorities, and those with lower educational attainment being particularly affected by anxiety and distress. Table 3 lists the groups particularly affected by health disinformation, detailing specific impacts for each. (Vasconcellos-Silva, 2023; Verma *et al.*, 2022).

Table 3: Groups particularly affected by health disinformation

Group	Specific Impacts	Source
Women	Particularly affected by anxiety and distress due to disinformation.	Verma *et al*. (2022); Vasconcellos-Silva (2023)
Racial Minorities	Particularly affected by anxiety and distress due to disinformation.	Verma *et al*. (2022); Vasconcellos-Silva (2023)
Individuals with Lower Educational Attainment	Particularly affected by anxiety and distress due to disinformation.	Verma *et al*. (2022); Vasconcellos-Silva (2023)
Individuals with Conspiratorial Beliefs	Associated with greater vulnerability to health disinformation.	(Verma *et al*., 2022; Amazeen, Krishna and Eschmann 2022)
Individuals Experiencing Cognitive Overload	Associated with greater vulnerability to health disinformation.	(Verma *et al.*, 2022; Amazeen, Krishna and Eschmann 2022)
Intensive Social Media Users	Associated with greater vulnerability to health disinformation.	(Verma *et al*., 2022; Amazeen, Krishna and Eschmann 2022)

Source: Author, 2025.

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The identified strategies to combat HD are grouped into two approaches: prevention and correction. In prevention, advances in automatic HD detection using machine learning algorithms (Karnyoto *et al*., 2022; Zhao; Da; Yan, 2021) stand out, although their practical applicability still faces challenges. Regarding literacy, the results were mixed. While some studies showed limited effectiveness, others demonstrated its utility when personalized campaigns are implemented (Bizzotto; de Bruijn; Schulz, 2023). Corrective strategies, both direct and indirect, showed inconsistent results and depend on factors such as the tone, source, and context of the message (Carey *et al*., 2020; Featherstone; Zhang, 2020; Liu *et al*., 2021).

The literature review demonstrates that health disinformation is not an isolated phenomenon, but rather the result of a complex interaction among social, technological, cognitive, and structural factors. Table 4 presents the core axes for interpreting health disinformation, focusing on the erosion of trust, cognitive and informational vulnerability, and the limited effectiveness of current correction strategies.

Table 4: Core Axes for Interpreting Health Disinformation

AXIS	DESCRIPTION	KEY IMPLICATIONS
EROSION OF TRUST	Decline in public confidence in governments, healthcare systems, and traditional media, alongside a distrust in scientific knowledge itself. Trust also functions as a cognitive shortcut, where individuals rely on familiar figures in the absence of objective criteria.	Facilitates the circulation of health disinformation (HD). Requires reconstruction of collective trust for effective public health responses. Interpersonal relationships become channels for both protection and vulnerability to HD.

COGNITIVE AND INFORMATIONAL VULNERABILITY	Health and media literacy are crucial but limited strategies, as their effectiveness is conditioned by socioeconomic factors and structural inequalities. Critical evaluation cannot be expected from those lacking the necessary resources. Individuals can experience cognitive overload and retention of disinformation through repetition.	Requires literacy policies accompanied by structural measures addressing discrimination, unequal access to education, and barriers to healthcare. Literacy should be understood not only as an individual skill, but also as an expression of the cultural and social resources available to communities. Leads to disproportionate anxiety among vulnerable groups.
LIMITED EFFECTIVENESS OF CURRENT CORRECTION STRATEGIES	Direct correction (explicit denial of HD) often yields mixed results, including "boomerang effects" that reinforce false beliefs. Indirect corrections (discrediting HD logic) are potentially more effective but limited in scalability.	Requires persuasive narratives combining evidence with emotional appeals for direct correction. The speed of HD propagation and algorithmic inertia of digital platforms hinder containment, necessitating intervention in digital information architecture beyond just content.

Source: Author, 2025.

4.1 Trust as a Structural Variable

Various authors agree that eroding trust in governments, healthcare systems, and traditional media facilitates the circulation of HD (Jamil *et al*., 2022; Lv *et al*., 2022; Warner *et al*., 2021). This finding reflects not only an institutional crisis but also an epistemic crisis, in which citizens distrust not only institutions but also the validity of scientific knowledge itself. As Zucker (2020) points out, an effective 21st-century public health response must necessarily involve a reconstruction of collective trust.

Trust, however, also acts as a cognitive shortcut: in the absence of objective criteria, people may rely on familiar or socially close figures when

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forming judgements. This is consistent with the heuristic information processing theory (Southwell *et al*., 2023), where the emotional and social environment influences the evaluation of veracity. This phenomenon turns interpersonal relationships into channels of both protection and vulnerability to HD.

4.2 Literacy and Inequality

Health literacy and media literacy appear as crucial, yet limited, strategies. Although some studies, such as those by Bizzotto, de Bruijn and Schulz (2023), show that literacy protects against HD, others indicate that its effectiveness is conditioned by socioeconomic factors. Austin, Borah and Domgaard (2021) and Schillinger (2020) highlight that literacy levels reflect structural inequalities, raising an important critique: individuals cannot be expected to critically evaluate health information without the social, educational, and material resources needed to develop such capacities.

This finding suggests that any public policy focused on literacy must be accompanied by intersectional strategies, which address barriers such as discrimination, access to education, and healthcare. Literacy is not just an individual resource, but also an indicator of communities' cultural capital, demanding culturally sensitive and collectively oriented interventions.

4.3 Limitations of Corrective Strategies

Direct correction strategies, frequently based on the explicit denial of HD, present mixed results and even adverse effects (Carey *et al*., 2020).

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In some cases, correction reinforced the erroneous belief, a phenomenon known as the "boomerang effect." Studies such as those by Featherstone and Zhang (2020) and Cheng and Luo (2021) propose addressing this limitation through persuasive narratives that combine evidence with emotional appeals.

Indirect corrections, which discredit the logic of HD rather than confronting it head-on, are also highlighted. These strategies, especially if they come from reliable sources or social peers, can be more effective. However, their large-scale implementation remains limited.

Furthermore, the speed of HD propagation and the algorithmic inertia of digital platforms hinder the containment of its spread (The Lancet Digital Health, 2023). Social media tends to amplify sensational content, while verification and debunking mechanisms operate with a delay, thus reinforcing the urgency of intervening in the architecture of digital information, not just its content.

4.4 Implications and Future Opportunities

The results indicate that combating disinformation requires a structural and multidisciplinary response. Table 5 details the challenges and solutions in combating health disinformation, covering areas such as trust and institutions, literacy and inequality, correction strategies, and research gaps. It is not enough to correct false data; it is necessary to rebuild social relationships, generate belonging, promote dialogue, and strengthen informed communities.

Table 5: Challenges and Solutions in Combating Health Disinformation

Area of Focus	Challenges in Combating Health Disinformation	Proposed Solutions / Future Opportunities	Key Reference(s)
Trust & Institutions	Deteriorated trust in governments, healthcare systems, and traditional media; epistemic crisis (distrust in scientific knowledge); reliance on familiar figures as cognitive shortcuts.	Reconstruct collective trust (Zucker, 2020); focus on rebuilding social relationships and generating belonging; promote dialogue and strengthen informed communities (Kisa; Kisa, 2024).	Zucker (2020), Kisa; Kisa (2024)
Literacy & Inequality	Literacy effectiveness conditioned by socioeconomic factors; critical evaluation cannot be demanded from those lacking resources; disproportionate impact on vulnerable populations (older people, people with disabilities, ethnic minorities, lower socioeconomic status, women, lower educational attainment).	Implement intersectional strategies addressing discrimination, access to education, and healthcare; develop culturally sensitive and collectively oriented interventions; public policies must move beyond individual knowledge.	Austin; Borah; Domgaard (2021), Schillinger (2020), Verma *et al*. (2022)
Correction Strategies	Direct correction can lead to "boomerang effects"; indirect correction has limited massive applicability; speed of HD propagation and algorithmic inertia hinder containment; digital platforms amplify sensational content.	Employ persuasive narratives combining evidence with emotional appeals (Cheng; Luo, 2021; Featherstone; Zhang, 2020;); intervene in the architecture of digital information, not just its content; requires a structural and multidisciplinary response.	Carey *et al*. (2020), Featherstone; Zhang (2020), Cheng; Luo (2021), The Lancet Digital Health (2023), Kisa; Kisa (2024)
Research Gaps	Lack of qualitative studies on subjective experiences/community resistance; insufficient attention to contexts in the Global South.	Explore subjective experiences and community resistance; focus on contexts in the Global South where impacts can be disproportionate.	

Source: Author, 2025.

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Gaps in research are also identified, such as the lack of qualitative studies exploring subjective experiences with HD or community resistance strategies. Additionally, greater attention is needed for contexts in the Global South, where HD can have disproportionate impacts due to a lack of health and education infrastructure.

In summary, the challenge of HD is not only communicational but also ethical and political. It demands thinking of public health as a field traversed by symbolic disputes, historical inequalities, and power relations. Only through a critical and transdisciplinary approach will it be possible to build fairer, more transparent, and healthier digital environments.

5 CONCLUDING REMARKS

Health disinformation (HD) is a multifaceted challenge in which factual information, misleading claims, and falsehoods often circulate together within digital ecosystems. This challenge is intensified by declining public trust in governmental and health institutions, as well as by the growing role of digital media as a primary channel for the dissemination of health-related content. In this context, a comprehensive understanding of the literature on HD is essential. This article focused on recent studies on HD, with particular attention to the role of trust in its production, dissemination, impact, and correction. The findings suggest that trust plays a central, although often latent, role throughout the HD cycle.

Addressing HD therefore requires systematic efforts to rebuild public trust and strengthen the relationship between health institutions and communities. Existing studies on trust remain limited, indicating the need for further research on how trust can be integrated into preventive and

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corrective strategies. Despite significant progress, automatic detection and classification tools remain unable to fully replace the accuracy, contextual sensitivity, and interpretive nuance of human analysis, especially in complex and rapidly changing information environments. The speed and scale of online disinformation require the continuous improvement of detection and correction tools, including artificial intelligence and machine learning. However, these tools are often constrained by the need for large training datasets and by their limited ability to capture the subtleties of human language, context, and social meaning.

In summary, combating health disinformation requires a multifaceted approach that goes beyond factual correction. It must also invest in trust-building, informational empowerment, health literacy, and the reduction of structural inequalities that shape exposure and vulnerability to disinformation. Future research and interventions should therefore focus not only on correcting false claims, but also on understanding the social conditions that make individuals and communities more vulnerable to them. By situating health disinformation within broader debates on information production, circulation, evaluation, and use, this article contributes to Information Science and highlights the need for more methodologically explicit and socially grounded studies, particularly in Global South contexts.

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