

Synthetic infodemic and health misinformation: Challenges for communication in the era of generative AI.

Infodemia sintética y desinformación en salud: Retos de la comunicación en la era de la IA generativa.

Just a few years ago, the term infodemic was created to show the large amount of health misinformation and to highlight the need to deal with it as a major public health challenge (Saeidnia et al. 2026). During the most critical stages of the COVID-19 pandemic, the Director-General of the World Health Organization warned that misinformation could cause more deaths than the virus itself. However, in only five years, this scenario has changed very quickly because of technological progress and the growth of new digital environments. As a result, a new concept has appeared: synthetic infodemic.

Synthetic infodemic refers to a new and advanced stage of information disorder in which vast volumes of health-related content, both accurate and misleading, are created, amplified, and spread automatically by Artificial Intelligence (AI). The concept describes an information ecosystem characterized by the massive circulation of health content that is partially or entirely created by generative AI and designed to appear scientifically supported. It is an evolution of the traditional infodemic, which described an overload of information during health crises, now synthetic infodemic highlights that much of this content is no longer generated by people, but by machines. This phenomenon is shown as a “double-edged sword” because synthetic infodemic has two conflicting impacts on the digital ecosystem:

- The negative side: AI tools, specifically Large Language Models (LLMs), facilitate an “industrialization of falsehoods” by producing professional-looking texts at an incredible speed and low cost. These “synthetic illusions” can mimic the tone and authority of authentic scientific reports, making it increasingly difficult for the public to distinguish truth from fabrication.
- The positive side: Conversely, AI serves as a powerful partner in health fact-checking. Researchers and journalists use AI to scan millions of posts rapidly, allowing them to identify and stop false health claims before they cause widespread public harm.

This new paradigm represents a new step in the evolution of health misinformation. The rise of generative AI is not simply a new source of health misinformation, it represents a major change in the information ecosystem, where the large-scale production of synthetic content makes it necessary to rethink health communication, media literacy, and the ethical responsibilities of researchers, healthcare professionals, health journalists, institutions, and scientific journals.

The main challenge is no longer just detecting false information, but dealing with a new situation where it is very difficult to tell what is real and what is not (Joseph et al., 2025). In the past, the goal was to distinguish between true and false content. Today, however, new types of information are appearing that make this task much harder. For example, there is content that is completely invented, information that is partly true but created by AI, claims that sound scientific but have no real sources, messages designed to manipulate emotions, and personalized content generated by algorithms. Today, generative AI tools can produce texts that look fluent and authoritative, creating a “generative illusion” that makes false information appear trustworthy. This means the problem is no

longer only about falsehood, but about indistinguishability: people are not just asking if something is true, but whether it “looks scientific.” AI is extremely good at creating this appearance of scientific authenticity. As a result, traditional ways of checking information are no longer enough, and we need new approaches to media literacy, critical thinking, and ethical responsibility for researchers, healthcare professionals, health journalists, and citizens.

How does this influence Health Communication?

The emergence of the synthetic infodemic is forcing a radical change in health communication. As AI models can now produce an industrial scale of false narratives, health organizations must move beyond traditional methods. It is no longer enough to simply share useful facts, communication must now be completely verifiable to maintain public trust (Bandeira et al., 2025).

To achieve this, the field must incorporate several new competencies. Digital literacy is no longer enough. In the past, we focused on digital literacy, media literacy, and scientific/health literacy. However, by 2026, we may need to add a new concept: generative AI literacy. Citizens should learn to ask key questions when they see online content: Who produced this? How was it generated? What evidence supports it? Are there verifiable references? Could it have been manipulated? It is not enough to know how to use tools like ChatGPT. People also need to learn how to critically evaluate what these tools produce. This new form of literacy is essential for making informed decisions in a world where AI-generated content is increasingly common and harder to distinguish from human-created information.

In addition, health organizations and institutions must ensure full transparency regarding AI usage to rebuild credibility. Implementing “veracity technologies” is essential to combat the industrialization of false information. This includes using digital watermarking and blockchain for information traceability to document the origin of every publication. Such mechanisms allow the public to verify the authenticity of messages, offering protection against synthetic illusions. By establishing a verifiable infrastructure, health organizations can restore trust and safeguard the integrity of the digital information ecosystem.

Another important point to highlight is that AI does not only help spread misinformation, but it also assists in the battle through AI-assisted fact-checking and the automatic monitoring of disinformation. Using a “human-in-the-loop” approach allows experts to use algorithms to find harmful health trends on platforms like Telegram while keeping human judgment at the center of the process. This hybrid model enables the system to counter the “industrialization of falsehoods” by scanning massive amounts of data for linguistic patterns and pixel-level anomalies that are often invisible to the human eye. By integrating expert supervision into these automated workflows, health institutions can preserve their authority and ensure that final verdicts remain grounded in contextual reasoning and ethical responsibility.

Finally, health communicators must focus on the design of messages resistant to manipulation. This involves understanding identity load and cognitive vulnerabilities to build resilience against polarized narratives. Specifically, by strengthening people’s sense of identity and cognitive stability, communicators can lower the emotional reactions (such as fear, anger, or anxiety) that often make individuals more vulnerable to misinformation. When people feel emotionally overwhelmed or threatened, they are more likely to accept such content without questioning it. By reducing these

The rise of generative AI is not simply a new source of health misinformation, it represents a major change in the information ecosystem, where the large-scale production of synthetic content makes it necessary to rethink health communication, media literacy, and the ethical responsibilities of researchers, healthcare professionals, health journalists, institutions, and scientific journals



emotional reactions, communicators can help audiences think more clearly and critically, making them less likely to be influenced by disinformation that surrounds them online (Catalan-Matamoros & Elías, 2026).

Definitely, this moment calls for a new alliance between researchers, healthcare professionals, health journalists, health institutions, and citizens, which must be grounded in shared responsibility, critical thinking, and ethical use of technology. By understanding generative AI, committing to verifiable communication, and ensuring that humans remain in charge, we can turn this challenge into a real opportunity. We can build greater public trust, protect the integrity of science, and make sure that health information continues to play a positive role, even in an increasingly complicated digital world.

References

Bandeira, A., Gonçalves, L. H., Holl, F., Shaibu, J. U., Gonçalves, M. L., Payinda, R., Paudel, S., Berionni, A., Young WFPFA, Purnat, T. D., & Mackey, T. (2025). Viewpoint on the intersection among health information, misinformation, and generative AI technologies. *JMIR Infodemiology*, 5, e69474. <https://doi.org/10.2196/69474>

Catalán Matamoros, D., & Elías, C. (2026). The end of reality as we knew it: Disinformation, artificial intelligence and the new era of fact-checking. *Dykinson*.

Joseph, J., Jose, B., & Jose, J. (2025). The generative illusion: how ChatGPT-like AI tools could reinforce misinformation and mistrust in public health communication. *Frontiers in public health*, 13, 1683498. <https://doi.org/10.3389/fpubh.2025.1683498>

Saeidnia, H. R., Jahani, S., Ghiasi, N., & Keshavarz, H. (2026). Generative AI and health misinformation: production, propagation, and mitigation-a systematic review. *BMC public health*, 26(1), 693. <https://doi.org/10.1186/s12889-025-26148-9>

Daniel Catalan-Matamoros

Editor-in-Chief of RECS



dacatala@hum.uc3m.es