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Infodemic and Infobesity: understanding information overload in times of health crisis

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Abstract:
Health crises, such as the COVID-19 pandemic, have amplified the phenomenon of information overload, leading to confusion between verified information, rumors, and misinformation. Two key concepts emerge: infodemic, which refers to the rapid spread of information, whether true or false, and infobesity, which refers to an excess of information that makes it difficult to assimilate essential messages. This paper aims to explore these concepts by analyzing their origins, impacts, and implications for health communication. We will examine the factors that contribute to information overload, including the role of traditional media and social networks. We will, also, discuss ways to better combat information overload in a crisis context, such as information regulation and public health education.
Keywords: *disinformation- infobesity – Infodemic - information overload -health crisis – information regulation.*

Résumé:
Les crises sanitaires, comme la pandémie de COVID-19, ont amplifié le phénomène de surcharge informationnelle, engendrant une confusion entre informations vérifiées, rumeurs et désinformation. Deux concepts clés émergent : l'infodémie, qui désigne la propagation rapide d'informations, vraies ou fausses, et l'infobésité, qui fait référence à l'excès d'informations rendant difficile l'assimilation des messages essentiels. Cette communication vise à explorer ces notions en analysant leurs origines, leurs impacts et leurs implications pour la communication en santé. Nous examinerons les facteurs favorisant la surcharge informationnelle, notamment le rôle des médias traditionnels et des réseaux sociaux. Ensuite, nous discuterons des pistes pour lutter contre la surcharge informationnelle en contexte de crise, telle que la régulation de l'information et à l'éducation sanitaire du public.
Mots clés : *désinformation- infobésité- infodémie- surcharge informationnelle- crise sanitaire- régulation de l'information*

I. INTRODUCTION

Infodemic and infobesity are two closely related phenomena that illustrate current challenges related to information management in specific contexts. Infodemic, a term popularized by the WHO, refers to the overabundance of information, whether accurate or false, that circulates rapidly during times of health crises. This phenomenon leads to confusion among the general public and complicates decision-making. Meanwhile, infobesity is an older concept that refers to the excess of information and the difficulty individuals experience in processing and assimilating it properly.

Health crises, such as the COVID-19 pandemic, amplify the production and dissemination of information. Media outlets, institutions, experts, citizens, and social media contribute to this massive dissemination of information, which is often marked by contradictions. In this context, it becomes difficult for the population to distinguish facts from misinformation, which can increase anxiety and negatively influence public health behaviors.

Information overload, considered a direct consequence of information obesity, leads to increasing difficulty sorting and understanding relevant information. Faced with a continuous flow of data, individuals can experience a feeling of cognitive exhaustion, making them more vulnerable to misinformation or fake news. This information saturation can result either in inaction due to fear of making a mistake, or, conversely, in the adoption of impulsive behaviors generated by incomplete information.

With this in mind, this text aims to answer the following questions: **how do the infodemic and infobesity affect the perception and assimilation of information? What are the consequences for individuals' decisions? How can we combat information overload in a health crisis situation?**

This work is based on a literature review analyzing existing research on infodemics and infobesity. It seeks to describe the different mechanisms that promote the mass spread of information, to examine their effects on individual and collective behaviors, and to discuss avenues for information verification and education that can limit their negative consequences.

First, we will analyze how the infodemic and infobesity manifest themselves, explaining their origins, their propagation factors, and their consequences for society. Next, we will examine COVID-19 as a concrete example of information overload, showing how this health crisis has exacerbated the massive and rapid dissemination of information and influenced public behavior. Finally, we will present some avenues for combating these phenomena, emphasizing fact checking and media and information literacy approaches as a means of strengthening citizens' critical thinking.

1. The infodemic, several propagation mechanisms for an overabundance of information:

The concept of infodemic was introduced by the World Health Organization (WHO) in 2020, in the midst of the COVID-19 pandemic. It refers to the overabundance of information, whether accurate or incorrect, circulating rapidly, particularly via new communication technologies (Zarocostas, 2020).

This makes access to reliable information more difficult and leads to widespread confusion, thus negatively affecting individual and collective decision-making.

1.1. Definitions of infodemic according to different authors:

Several definitions have been attributed to the infodemic. Below are the most common:

- **WHO definition**: The World Health Organization (WHO) defines an infodemic as "an overabundance of information, some accurate and some not, that makes it difficult for people to find reliable sources and reliable guidance when they need it. (Zarocostas, 2020)" We understand from this definition that the World Health Organization highlights the difficulty of accessing quality information in a constant flow of news and data.

- **Definition from Cinelli et al. (2020):** According to Cinelli and his colleagues, the infodemic is a phenomenon of information imbalance, where the excessive spread of information – whether true or false – exceeds the ability of individuals to analyze it correctly (Cinelli, 2020); in this definition, it was a question of highlighting the role played by social networks in the acceleration and amplification of this phenomenon.

- **Definition by Wardle and Derakhshan:** These authors place the infodemic within a broader dynamic of information pollution. They distinguish three main forms of problematic information (Wardle, 2017):
  - Disinformation, which refers to false information intentionally spread to deceive.
  - Misinformation, which is false information shared without any intention of causing harm.
  - Misinformation, where true information is used in a deceptive way to manipulate opinion.

Based on the above definitions, it appears that the infodemic is a more complex phenomenon. It is not only about the massive dissemination of false information, but also includes distortions of information and malicious intent in its propagation.

1.2. Factors of propagation: social networks, media and disinformation

The infodemic is the result of multiple distribution channels, each playing a specific role in amplifying the phenomenon. Social media, traditional media, and disinformation actors are the main drivers of the increased spread of information.

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- **Social networks**: According to Chou et al. (2020), platforms like Facebook, Twitter, and TikTok facilitate the rapid spread of information, but are also major vectors of fake news (Chou, 2020). These platforms favor viral content, often emotional or controversial, to the detriment of objective and credible information.

- **Traditional media**: Although they are subject to journalistic standards, traditional media can unwittingly fuel the infodemic by relaying incomplete or unverified information under pressure of time and audience. This race for instant information can sometimes amplify confusion instead of providing observable insights.

- **The actors of disinformation**: Individuals or organized groups exploit health crises to spread rumors and conspiracy theories, often for ideological, political or economic purposes (Starbird, 2020). These manipulation strategies, based on the massive dissemination of false content, contribute to the weakening of trust in institutions and scientific experts.

1.3. Consequences of the infodemic on risk perception and decision-making

The infodemic has direct effects on how individuals perceive risk and make decisions, particularly in crisis and emergency situations. The following are the main consequences of information overload:

- **Cognitive overload and confusion:** According to Bawden and Robinson, information overload leads to cognitive saturation, where excess data hinders the ability to analyze and take a step back (Bawden, 2009). Indeed, faced with this situation of cognitive saturation where the individual is unable to distinguish information and has difficulty assimilating it, the latter can develop two paradoxical reactions: either make hasty and unmeasured decisions or, on the contrary, become blocked and paralyze decision-making.

- **Confirmation bias and blind adherence:** Lewandowsky et al. point out that the infodemic fuels confirmation bias, a psychological phenomenon that causes individuals

to favor information that matches their pre-existing beliefs (Lewandowsky, 2012). This can lead to blind adherence, where some people uncritically accept information, even if it is erroneous or manipulated.

- **Widespread mistrust and rejection of information:** Faced with constant contradictions, some individuals develop a generalized distrust of all sources of information, including official institutions (Vraga, 2020). This distrust can lead to a rejection of health recommendations and less adherence to the preventive measures introduced by the institutions concerned.

- **Decision paralysis:** Too much conflicting information can cause chronic indecision, making decision-making difficult or even impossible. Eppler and Mengis explain that this cognitive saturation can lead to decision paralysis (Eppler, 2004). where the individual prefers not to act for fear of making a bad choice.

In the context of a health crisis, this can have serious consequences, such as delays in adopting necessary and essential preventive behaviors or care.

In short, the infodemic is more than just an excess of information: it profoundly changes the way individuals process and react to available data. Therefore, better understanding these dynamics allows us to identify strategies to mitigate its effects and strengthen critical thinking in the face of information flows.

2. Infobesity: an excess of information in the face of difficulty in processing it

In the digital age, we are constantly overwhelmed by a massive amount of information, whether from the media, social media, or official institutions. This information overload, known as infobesity, complicates the individual's ability to select, organize, and assimilate essential information, particularly during a health crisis.

2.1. Definition of infobesity and its manifestations

The term infobesity is a contraction of the words "information" and "obesity." It refers to cognitive overload resulting from an excess of information, which impairs an individual's ability to think and understand. Below are some definitions of infobesity.

- According to Lacroix (2013), infobesity is a state where the amount of information exceeds an individual's processing capacity, leading to confusion and difficulty in prioritizing what is essential (Lacroix, 2013). According to him, this phenomenon is accentuated by the incessant flow of information online.
- For Levet, infobesity is an information overload where the excess of available data makes decision-making more difficult, if not impossible (Levet, 2015). In his definition, the author highlights the role of new information and communication technologies in promoting an uncontrollable accumulation of information.
- In this sense, Morin considers that infobesity impairs our capacity for analysis

by generating a constant noise of often contradictory information, which complicates the distinction between facts and subjective interpretations of information.

Infobesity manifests itself in several forms in our daily lives, below are its main manifestations:

- **A feeling of mental exhaustion:** Faced with information overload, making it difficult to concentrate and memorize, individuals may experience a feeling of mental fatigue and exhaustion.
- **Difficulty in prioritizing information**, leading to confusion and a lack of perspective in data analysis. Individuals are unable to filter, distinguish and properly assimilate the quantities of information they receive in a given period of time.
- **Overconsumption of media**, when the individual receives multiple information on the media, he spends excessive time searching and processing information without reaching a clear understanding. Information consumption exceeds the capacity of people and tips towards overconsumption.

2.2. The effects of infobesity on understanding and decision-making

Infobesity has direct consequences on how individuals think, decide, and manage their psychological well-being. The most serious consequences of infobesity are summarized below:

a. Confusion and cognitive overload

According to Piolat, cognitive overload occurs when an individual is exposed to an excess of information, which impairs their ability to structure their ideas and make informed decisions (Piolat, 2008). This phenomenon leads to a loss of reference points, making it difficult for the individual to differentiate relevant information from that which is superfluous and false.

b. Stress and anxiety from information overload

According to Bougnoux, hyperconnection to information flows increases stress and anxiety, because the brain is constantly called upon to analyze and process data, often alarming or contradictory (Bougnoux, 2012). This information stress can also lead to a form of psychological exhaustion that makes it difficult to take a step back from current events.

c. Information Disconnection: Avoidance as a Defense Mechanism

Faced with overload, some individuals develop a mechanism of information rejection, also called information fatigue, which mainly results in (Gallezot, 2019):

- **A gradual disinterest in the news**, the individual preferring to turn away from sources of information.
- **Increased distrust of the media and experts**, sometimes pushing towards

unreliable alternative content.

- **Less participation in public debates**, due to a feeling of helplessness in the face of excess information.

3. COVID-19: an example of a health crisis marked by infodemic and infobesity

The COVID-19 pandemic has been a concrete illustration of the infodemic, where an overabundance of information has complicated the understanding and management of the health crisis. From the first months of the pandemic, a relentless flow of data invaded the media and social networks, mixing proven facts, scientific hypotheses, opinions, and rumors. The World Health Organization (WHO) warned of this "information epidemic," where the proliferation of contradictory content has sown doubt and confusion among populations. Health recommendations have evolved based on scientific discoveries—particularly on the wearing of masks, social distancing, and the effectiveness of vaccines—but these successive changes have sometimes eroded public trust in authorities.

Furthermore, misinformation spread massively: rumors, such as the artificial origin of the virus or the existence of miraculous treatments, circulated widely, amplified by social media and certain pressure groups. This widespread confusion had direct consequences on public behavior, with some adopting ineffective measures or completely rejecting official recommendations.

Infobesity, meanwhile, manifested itself as cognitive saturation, where excess information made it difficult to assimilate facts and make informed decisions. Overwhelmed by a constant stream of figures, expert analyses, and media debates surrounding the health crisis, many individuals experienced information fatigue.

This accumulation of often anxiety-inducing data has increased stress and uncertainty, making it difficult for some people to distinguish essential information from superfluous details. For some, this overconsumption has led to an inability to prioritize information and has hampered the adoption of preventive behaviors. Thus, COVID-19 has demonstrated that too much information can be as harmful as its absence, highlighting the need for clear and structured communication to avoid confusion and restore public trust in institutions.

4. Communication strategies to combat the infodemic and infobesity

The infodemic poses a real challenge for modern societies: how can we distinguish truth from falsehood in a constant flood of information? To address this challenge, several communication strategies can be implemented to ensure access to reliable sources and prevent the spread of fake news. According to the literature, the main methods are:

a.Fact-checking:

In a world where misinformation spreads at breakneck speed, fact-checking has become an indispensable tool. It involves quickly verifying and correcting rumors, whether they concern health crises, political events, or societal debates. Many media outlets conduct this work by analysing viral content and comparing it with reliable sources. However, one problem persists: misinformation often circulates more quickly and widely than its corrections. On social media, a simple tweet or viral video can reach millions of people in a matter of hours, while official denials sometimes take time to reach the general public.

b .Advance communication: better information to avoid misinformation

Waiting for misinformation to spread before taking action is often too late. That's why early communication is essential: anticipating public doubts and providing clear answers even before rumors gain traction. During the COVID-19 pandemic, some governments set up official platforms where citizens could ask questions and get verified answers.

c.The importance of influencers and opinion leaders for better information

Today, a significant portion of the population, particularly young people, gets their information directly from social media. Figures show that many pay more attention to content creators than to official institutions. This is why it is essential to mobilize trusted figures: health experts, recognized journalists, but also influencers capable of relaying messages in an understandable and engaging manner. During the health crisis, science popularizers used YouTube, Instagram, and TikTok to explain the challenges of the pandemic in an educational way. These information relays make it possible to reach a wider audience and establish a climate of trust in the face of uncertainty.

d. Media and Information Literacy (MIL)

While communication strategies can help limit the infodemic, they are not enough to solve the problem in the long term. To better manage the mass of information surrounding them, it is essential to develop critical thinking skills. This is where media and information literacy (MIL) comes in, an approach that aims to give citizens the tools they need to verify and understand the content they are exposed to every day. This education allows them to:

➢**Learn to recognize reliable sources**

One of the first steps in EMI is learning to assess the reliability of sources to avoid falling prey to fake news. A good way to ensure that information is reliable is to cross-reference sources: if a fact is confirmed by several reputable media outlets and independent experts, there's a good chance it's accurate.

➢**Develop checking reflexes**

When faced with questionable information, it's now possible to use simple tools to verify its authenticity. Platforms allow you to trace the true origin of information and see if it has been misused. EMI also encourages people not to share content immediately, but to take a few minutes to verify its source and credibility.

Conclusion:

The infodemic and infobesity are defining phenomena of our time, amplified by the digital transformation and the proliferation of information channels. While rapid access to information is an asset, too much of it can become an obstacle, clouding understanding of the facts and influencing decision-making. As the COVID-19 crisis has illustrated, the proliferation of conflicting content has sown confusion, heightened mistrust, and sometimes hindered the adoption of appropriate behaviors.

Faced with these challenges, it is imperative to adopt effective communication strategies to counter disinformation and structure the dissemination of reliable information. Fact-checking, early communication and the involvement of opinion leaders are all levers for limiting the spread of fake news. However, the most sustainable solution lies in media and information literacy (MIL), which allows everyone to develop a critical perspective on the daily flow of information.

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