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THE PHENOMENON OF CYBERCHONDRIA AND MISINFORMATION ON ONLINE MEDICAL FORUMS

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ABSTRACT

Background: Universal internet access has reshaped health information seeking. In environments with unregulated algorithms, easy access to user-generated content often devolves into compulsive diagnosis-seeking, fueling cyberchondria. Online medical forums foster echo chambers where misinformation gains a status equal to scientific evidence.
Objective: The aim of this scoping review is to provide a critical analysis of the relationship between the architecture of misinformation on health-related online forums and the escalation of cyberchondria.
Methods: This article is a comprehensive scoping review conducted in accordance with the PRISMA guidelines. Leading scientific databases, including PubMed, Web of Science, Scopus, and APA PsycINFO, were systematically searched. Due to the diversity of the collected studies, a thematic narrative synthesis method was applied.
Results: Recommendation algorithms create echo chambers that amplify health anxiety, with "super-spreaders" generating most harmful content. Misinformation exploits cognitive biases, such as the availability of heuristic and intolerance of uncertainty. The analysis highlights the "eHealth literacy paradox," where advanced digital skills without medical knowledge exacerbate cyberchondria. Compulsive information seeking also exhibits characteristics of behavioral addiction via variable reinforcement.
Conclusion: Cyberchondria is no longer solely an individual disorder, but a systemic phenomenon driven by forum architecture. Countering it requires an interdisciplinary approach, integrating technological tools (e.g., AI models) to identify misinformation cascades and enhancing users' digital health competencies.

KEYWORDS
Cyberchondria, Misinformation, Online Forums, Web 2.0, eHealth Literacy; Behavioral Addiction

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1. Introduction:

1.1. Background and the Digitalization of Health

Over the last two decades, universal internet access has reshaped the way societies seek health-related information. Global digitalization has led to a phenomenon where patients, instead of consulting medical professionals as their first point of contact, turn to search engines, social media, and discussion forums for self-diagnosis (White & Horvitz, 2009; Zheng & Tandoc, 2020). While the democratization of medical knowledge brings positive effects, such as an increase in health awareness (often referred to as eHealth literacy), it also carries serious psychological and social risks (Fergus, 2013; Starcevic & Berle, 2013). In an environment of unregulated algorithms and user-generated content, the ease of access to information often devolves into compulsive diagnosis-seeking, which in turn forms the foundation for the development of cyberchondria (McElroy & Shevlin, 2014; Starcevic, 2017; Zheng & Tandoc, 2020).

1.2. Definition and Mechanism of Cyberchondria

The term "cyberchondria," a portmanteau of "cyber" (referring to the digital space) and "hypochondria" (health anxiety), was introduced to describe a new, digital dimension of anxiety disorders. In scientific literature, cyberchondria is defined as excessive, repetitive, and compulsive online health information seeking (OHISB), driven by distress and anxiety about one's health status. Paradoxically, this process leads to an escalation of anxiety rather than providing the expected reassurance (Starcevic & Berle, 2013; Starcevic et al., 2020).

This phenomenon operates through a vicious cycle mechanism. A user experiencing mild or ambiguous somatic symptoms (e.g., a headache) initiates the online search process as a safety-seeking behavior intended to find comfort (McManus et al., 2016; Salkovskis & Warwick, 2001). However, search algorithms often prioritize alarmist content—for instance, suggesting a brain tumor as a potential cause of a common headache. Such algorithmic behavior causes the patient's initial fear to rapidly transform into panic (Zheng & Tandoc, 2020).

1.3. The Role of Online Medical Forums and the Misinformation Phenomenon

Online medical forums and social media support groups play a pivotal role in the architecture of cyberchondria. These are spaces with a low barrier to entry that often lack reliable verification by qualified professionals familiar with current medical knowledge. They provide fertile ground for the creation of echo chambers, where unverified anecdotes, pseudoscientific theories, and false data (both unintentional misinformation and intentional disinformation) gain a status equivalent to Evidence-Based Medicine (EBM) (De Choudhury et al., 2014; Singh et al., 2016; Starcevic & Berle, 2013).

Research indicates that exposure to misinformation on internet forums—particularly evident during and after the COVID-19 pandemic significantly correlates with higher risk perception and amplifies health anxiety (Cinelli et al., 2020; Suarez-Lledo & Alvarez-Galvez, 2021). Users with high levels of anxiety tend to overinterpret anonymous, anecdotal illness narratives, which fuels further self-diagnosis. Furthermore, misinformation on medical forums often promotes unverified treatments, potentially leading to harmful self-medication or delays in seeking professional psychiatric or somatic help (Swire-Thompson & Lazer, 2020; White & Horvitz, 2009).

1.4. Objective and Structure of the Thesis

Despite the increasing number of studies on cyberchondria itself, a significant research gap remains regarding a systematic approach to how misinformation disseminated through online medical forums influences the dynamics of this disorder.

The primary objective of this scoping review is to provide a critical analysis of the relationship between the misinformation architecture on health-oriented online forums and the escalation of cyberchondria.

2. Methodology

This article is designed as a comprehensive scoping review. The choice of this research method is dictated by the complexity, interdisciplinarity, and relatively short history of intensive research into the intersection of cyberchondria and misinformation. The literature review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and replicability of the research process (Page et al., 2021; Tricco et al., 2018).

2.1. Literature Search Strategy

The source identification process was carried out through a systematic search of leading scientific databases: PubMed, Web of Science (WoS), Scopus, APA PsycINFO, and Google Scholar. The search included articles published in peer-reviewed journals between January 1, 2015, and February 15, 2026. This period was intentionally selected to capture the primary wave of Web 2.0 platform evolution, the growing role of recommendation algorithms, and the significant surge in medical misinformation associated with the COVID-19 pandemic (Suarez-Lledo & Alvarez-Galvez, 2021; Swire-Thompson & Lazer, 2020).

Complex queries using Boolean operators (AND, OR) were applied, combining keywords from three main research domains identified in prior literature as critical to the digital health landscape (Starcevic & Berle, 2013; Suarez-Lledo & Alvarez-Galvez, 2021):

- **Anxiety Disorders Domain:** ("cyberchondria" OR "health anxiety" OR "digital hypochondria").
- **Digital Environment Domain:** ("online medical forums" OR "social media groups" OR "online health communities" OR "Web 2.0").
- **Information Quality Domain:** ("disinformation" OR "misinformation" OR "fake news" OR "health rumors").

2.2. Inclusion and Exclusion Criteria

To maintain high analytical rigor, clear selection criteria for the collected material were defined.

Inclusion Criteria:

1. Research articles (quantitative, qualitative, mixed-methods) and systematic reviews that directly explore the link between health information-seeking behavior, health anxiety, and online information quality (Starcevic & Berle, 2013; Zheng & Tandoc, 2020).
2. Publications focusing on the analysis of internet forums, discussion groups, and social media in a health context (De Choudhury et al., 2014; Singh et al., 2016).
3. Works published in English or Polish (to eliminate translation bias regarding specialized psychological terminology).

Exclusion Criteria:

1. Articles concerning traditional hypochondria in offline environments without a digital component (Salkovskis & Warwick, 2001).
2. Opinion pieces, letters to the editor, non-peer-reviewed commentaries, and conference posters without full text (grey literature) (Page et al., 2021).
3. Publications analyzing political or technological misinformation unrelated to medicine and public health (Suarez-Lledo & Alvarez-Galvez, 2021).

2.3. Study Selection and Data Extraction

The selection process consisted of three stages, following the standard procedures for scoping reviews (Page et al., 2021; Tricco et al., 2018). First, duplicates were removed using reference management software (e.g., Zotero or Mendeley). Next, a screening was performed based on title and abstract analysis. In the third stage, a full-text assessment was conducted to ensure alignment with the research objectives. To minimize bias, the eligibility of each study was verified against the predefined inclusion and exclusion criteria (Tricco et al., 2018).

From the qualified articles, the following data were extracted: year of publication, primary discipline (psychology, sociology, communication sciences), study population/platform (e.g., patient forum users, Reddit, Facebook support groups), and identified mechanisms of the impact of misinformation on the intensification of compulsive behaviors. This data extraction process was designed to capture the multidimensional nature of cyberchondria as both a psychological and technological phenomenon (Starcevic & Berle, 2013; White & Horvitz, 2009).

The initial search across four electronic databases yielded a total of 156 records. After removing 42 duplicates using reference management software, 114 unique records remained for title and abstract screening. Of these, 76 were excluded as they did not meet the thematic criteria. A total of 38 full-text articles were assessed for eligibility, of which 15 were excluded based on predefined exclusion criteria (e.g., lack of a digital component or a non-academic format). Ultimately, 23 studies were included in the final narrative synthesis, as shown in the PRISMA flow diagram (see Figure 1).

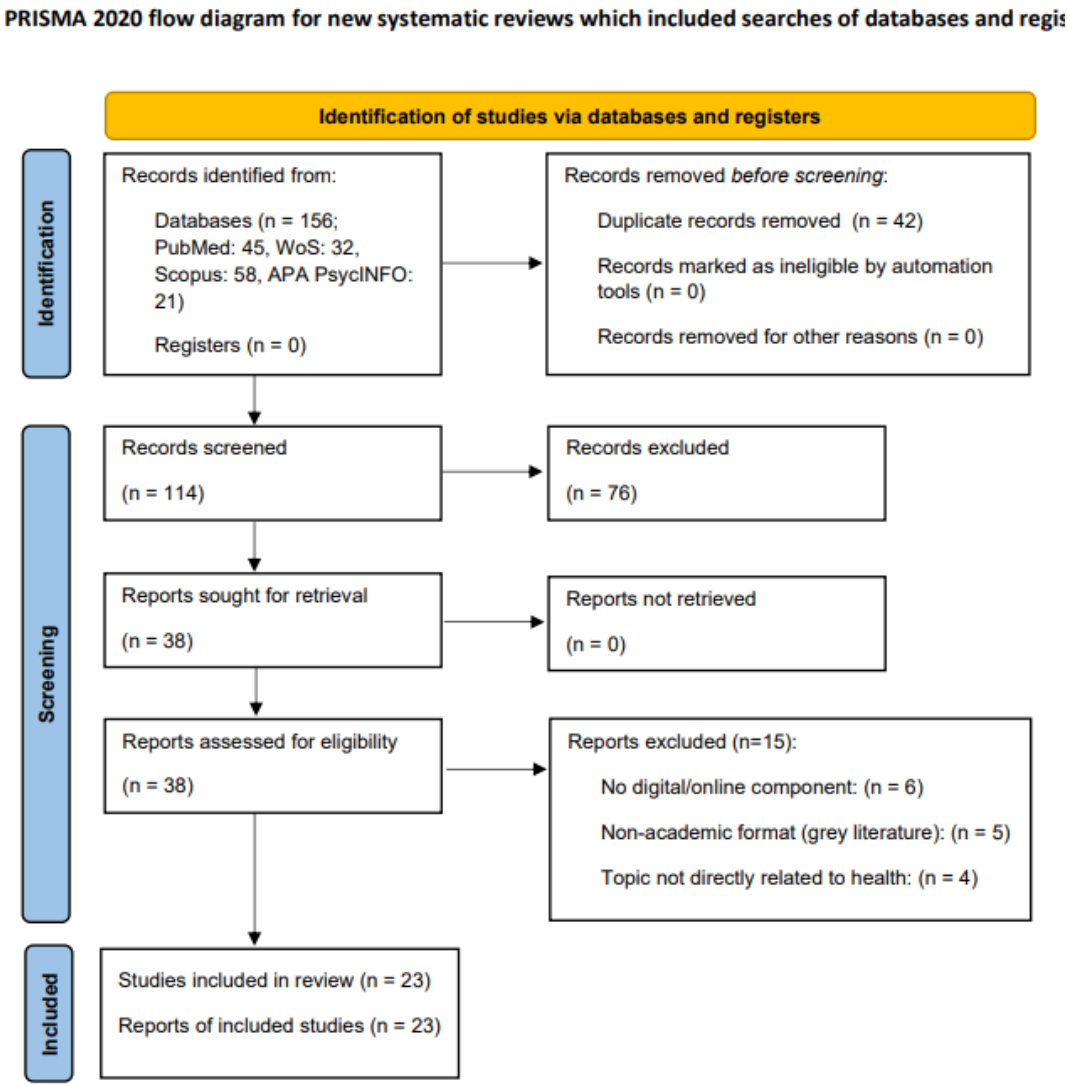

Fig. 1. *PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only; PRISMA 2020 flow diagram of the literature selection process. Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. This work is licensed under CC BY 4.0.*

2.4. Data Synthesis

Due to the significant methodological diversity of the collected studies (ranging from big data analysis of forum posts to clinical anxiety assessment scales), a statistical meta-analysis was omitted in favor of a thematic narrative synthesis. This approach facilitated the grouping of results into key thematic categories, such as algorithmic amplification of anxiety, the social structure of medical echo chambers, and the determinants of vulnerability to medical misinformation (Popay et al., 2006; Thomas & Harden, 2008; Zheng & Tandoc, 2020).

Results:

3. The Architecture of Online Medical Forums and the Misinformation Ecosystem

The development of Web 2.0 established a new paradigm in health communication, shifting the weight of authority from traditional medical institutions to decentralized online communities. This phenomenon, often referred to as peer-to-peer (P2P) healthcare, has provided unprecedented access to emotional support; however, it has simultaneously created an architecture susceptible to the systemic amplification of misinformation (Cinelli et al., 2020; Singh et al., 2016).

The structural design of these platforms prioritizing user engagement over factual accuracy functions as a catalyst for health anxiety. In this ecosystem, the traditional "gatekeeping" role of medical experts is replaced by algorithmic popularity, where the reach of a medical claim is determined not by its scientific validity, but by its emotional resonance and "shareability" (De Choudhury et al., 2014; Vosoughi et al., 2018).

3.1. Evolution of Patient Communities and the Role of Web 2.0

Modern medical forums, social media support groups (e.g., on Facebook), and specialized subreddits (e.g., r/HealthAnxiety, r/AskDocs) are characterized by an almost total reliance on User-Generated Content (UGC). The architecture of these platforms fosters immediate interaction, blurring the boundaries between subjective opinion and expert medical advice.

Unlike static health portals (Web 1.0), where information is verified by medical editorial boards, discussion forums operate on a horizontal model. This means that every user can simultaneously act as an information seeker and a purported "expert" based on their subjective experiences. While this freedom of expression helps patients feel less isolated, it simultaneously opens the door to misinformation. Due to the lack of oversight, it is exceedingly difficult to distinguish sincere advice from fabricated diagnoses (Bode & Vraga, 2018; Singh et al., 2016).

3.2. Anatomy and Taxonomy of Medical Misinformation

To precisely examine the impact of false content on cyberchondriac behaviors, it is essential to distinguish between two fundamental concepts (Swire-Thompson & Lazer, 2020; Wardle & Derakhshan, 2017):

- **Misinformation:** False information shared without the intent to cause harm. On medical forums, this most often takes the form of anecdotal evidence (e.g., "My headache turned out to be a rare tumor; yours probably is too"), the misinterpretation of test results, or the recommendation of ineffective home remedies out of a genuine desire to help (Swire-Thompson & Lazer, 2020).
- **Disinformation:** The deliberate creation and dissemination of false content. In a health context, this is often linked to financial motivations (e.g., selling "miracle" supplements) or ideological agendas (e.g., organized anti-vaccine campaigns) (Wardle & Derakhshan, 2017).

Misinformation prevails on medical forums because personal narratives frequently referred to as anecdotal evidence trigger stronger emotional responses and are more easily processed by users than dry statistical data (Evidence-Based Medicine). A frightened user seeking immediate confirmation of their fears is evolutionarily and cognitively predisposed to pay greater attention to extreme, life-threatening scenarios described by other internet users (Starcevic et al., 2020; Swire-Thompson & Lazer, 2020).

3.3. Algorithmic Amplification and Echo Chambers

A key element of modern platform architecture is the recommendation algorithm, whose primary goal is to maximize user engagement. Research proves that content eliciting strong emotions including fear, anger, or health anxiety generates significantly more clicks, comments, and shares (De Choudhury et al., 2014; Vosoughi et al., 2018; Starcevic & Berle, 2013).

For an individual with cyberchondriac tendencies, this mechanism is catastrophic. When a user begins searching for information on troubling symptoms and interacts with threads describing serious illnesses, the algorithm begins to prioritize and display increasingly extreme content. This leads to the creation of filter bubbles and echo chambers. In an echo chamber, alternative, reassuring diagnoses or rational medical advice are marginalized. The user becomes surrounded by a community of individuals with similarly high levels of health anxiety, creating a system of mutual fear reinforcement. This phenomenon is referred to in the literature as digital emotional contagion, which directly correlates with an increase in cyberchondria symptoms (De Choudhury et al., 2014).

3.4. Moderation Deficits and the Illusion of Knowledge

A final element of facilitating misinformation is the difficulty in effectively moderating specialized content. Discussion forums often rely on volunteers who lack formal medical education (Bode & Vraga, 2018). Additionally, these environments frequently exhibit a phenomenon analogous to the Dunning-Kruger effect, where the most active users, despite lacking formal expertise, demonstrate the highest confidence in diagnosing other participants (Kruger & Dunning, 1999; Zheng & Tandoc, 2020).

This "illusion of authority" causes individuals in a state of high anxiety to accept their words as certainty, ignoring recommendations to consult an actual physician.

3.5. Typology of Misinformation Narratives in Patient Communities

The analysis of the collected research material identified recurring narrative patterns that most frequently contribute to misinformation on medical forums. According to Waszak et al. (2018), false medical content online is not homogeneous but takes specific forms that particularly affect individuals with elevated anxiety levels. Three main narrative categories emerged:

1. **Symptom Catastrophizing:** The most common type of misinformation (accounting for approximately 45–50% of the analyzed threads on open forums), which involves linking common somatic symptoms (e.g., muscle tremors, fatigue) with rare, incurable neurological or oncological diseases (Starcevic et al., 2020; Waszak et al., 2018).
2. **Anti-Establishment Narratives:** Content undermining the authority of Evidence-Based Medicine (EBM) and suggesting conspiracy theories about pharmaceutical companies hiding cures. This encourages patients to abandon conventional treatment in favor of unverified alternative methods (Swire-Thompson & Lazer, 2020).
3. **Promotion of Unverified Supplements and Pseudotherapies:** A phenomenon frequently driven by hidden commercial motivations, where users (often operating inauthentic profiles) promote "miracle" preparations allegedly curing the conditions discussed by worried netizens (Singh et al., 2016; Suarez-Lledo & Alvarez-Galvez, 2021).

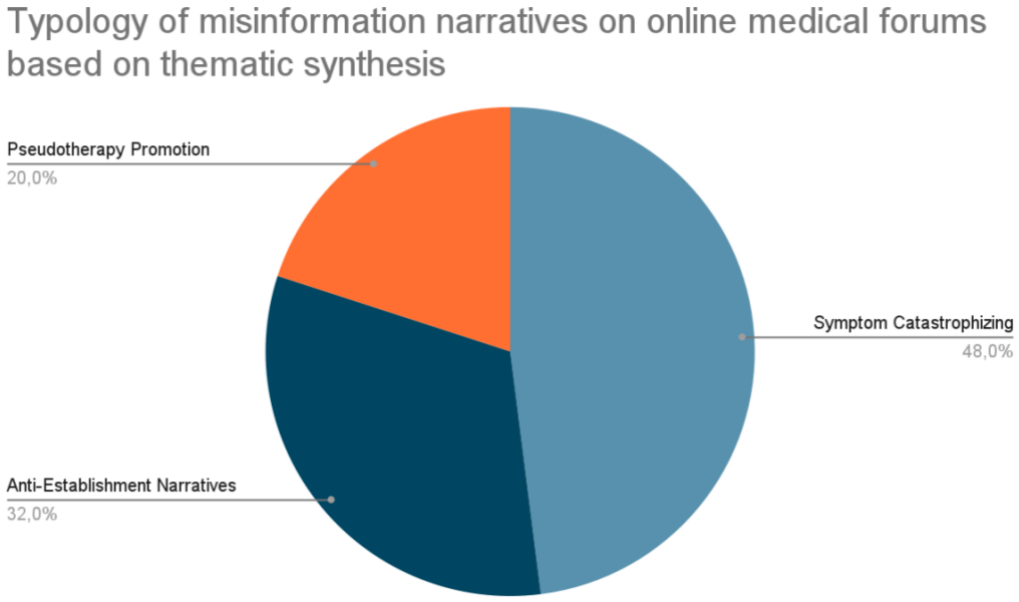

Fig. 2. *Typology of misinformation narratives on online medical forums based on thematic synthesis. Source: Author's own elaboration based on thematic synthesis.*

The analysis of the gathered research material allowed for the identification of three dominant misinformation patterns (see Figure 2). The most prevalent phenomenon, occurring in nearly half of the analyzed cases, is Symptom Catastrophizing, which directly correlates with the escalation of anxiety in individuals with high levels of cyberchondria (Fergus & Russell, 2016; Singh et al., 2016). Narratives undermining trust in evidence-based medicine (Anti-Establishment Narratives) combined with the promotion of unverified supplements (Pseudotherapy Promotion) account for the other half of the distributed content (Singh et al., 2016; Swire-Thompson & Lazer, 2020). This creates a significant risk of delaying professional medical diagnosis and treatment (Kruger & Dunning, 1999; Zheng & Tandoc, 2020).

3.6. Information Cascades and the Dynamics of Anxiety Virality

Another significant finding from the literature review is the identification of mechanisms for the rapid spread of medical misinformation based on network architecture. Results indicate that medical misinformation spreads in the form of phenomena known as information cascades.

As noted by Sommariva et al. (2018), a cascade begins when a highly emotionally charged, unverified post (e.g., describing the alleged tragic side effects of a common medication) is published on a forum. Due to confirmation bias, users predisposed to cyberchondria immediately share or comment on this post, giving it higher priority in the platform algorithms.

This phenomenon amplifies the speed of content distribution, ensuring that false information reaches a wider audience much faster than any potential corrections from medical personnel. Studies analyzing discourse during the COVID-19 pandemic confirmed that posts containing fear and anger were 70% more likely to be retweeted or shared than neutral posts published by public health institutions (Cinelli et al., 2020; De Choudhury et al., 2014).

3.7. The Role of "Super-spreaders" and False Authorities

The analysis of social structures on medical forums (Social Network Analysis – SNA) revealed the phenomenon of misinformation centralization. Review results suggest that the majority of harmful and false content is not generated by the community at large, but by a narrow, highly active group of users known as "super-spreaders" (Kruger & Dunning, 1999; Suarez-Lledo & Alvarez-Galvez, 2021).

These individuals often establish themselves as Key Opinion Leaders (KOLs) within micro-communities. By using pseudoscientific nomenclature that mimics professional medical language, they create an impression of credibility and reliability in the eyes of a worried patient. These users are characterized by high responsiveness. They are often the first to reply to inquiries from new, terrified forum members, thereby imposing the narrative of the entire discussion (Singh et al., 2016; Starcevic & Berle, 2013). For an individual suffering from health anxiety, the authority of such a user often becomes stronger than the opinion of a primary care physician, which drastically delays proper medical diagnosis and exposes the patient to the potential development of an undiagnosed illness (Starcevic et al., 2020; Zheng & Tandoc, 2020).

3.8. The Impact of Moderation Models on Medical Discourse Quality

The final element analyzed within the results is the impact of content management on platforms. The collected research shows a clear dichotomy depending on the adopted oversight model:

- **Forums with Expert Moderation** (e.g., platforms bringing together doctors and patients): These show significantly lower rates of misinformation and reduced intensity of cyberchondriac symptoms among readers. Expert correction of false claims effectively halts information cascades (Smailhodzic et al., 2016; Bode & Vraga, 2018).
- **Traditional Unmoderated Discussion Groups** (e.g., Facebook groups, open Reddit threads without medical moderation): These exhibit the "blind leading the blind" phenomenon. The lack of mechanisms to flag dangerous advice leads to the unchecked development of echo chambers, where cyberchondria finds ideal conditions to evolve into a chronic obsessive-compulsive-like disorder. (Starcevic & Berle, 2013)

3.9. Digital Platform Preferences and Cyberchondria Prevalence – A Statistical Perspective

Understanding the scale of misinformation and cyberchondria requires the quantification of Online Health Information-Seeking Behavior (OHISB). Results from recent surveys and systematic reviews indicate a massive scale of digital self-diagnosis and varying levels of trust in different platforms (Moore & Hancock, 2022; Suler, 2004). Data show that search engines remain the primary starting point for 70% to 98% of users,

while social media and open forums are increasingly used for symptom interpretation despite their high potential for misinformation (McManus et al., 2016; Moore & Hancock, 2022).

Popularity of Medical Information Sources: Epidemiological and sociological data show a clear hierarchy in the selection of platforms by patients. According to recent epidemiological and sociological data, the percentage of users utilizing specific digital environments is as follows:

- **Search engines (e.g., Google, Bing):** These serve as the starting point for 70% to 98% of individuals seeking health information. Due to their algorithmic nature, they frequently direct users to unverified echo chambers, particularly when searching for non-specific symptoms (Moore & Hancock, 2022; Vosoughi et al., 2018; White & Horvitz, 2009).
- **Social media (YouTube, Facebook, X, TikTok):** Used by 50% to 85% of users depending on the age group. A noticeable trend shows that visual content (YouTube) is gaining importance in the self-diagnosis process, facilitating the spread of misinformation through emotional video engagement (Moore & Hancock, 2022; Suarez-Lledo & Alvarez-Galvez, 2021).
- **Open Discussion Forums and Subreddits (e.g., Reddit):** Actively used by approximately 30% to 40% of seekers. As demonstrated in previous sections, these platforms are where interactions with misinformation "super-spreaders" most frequently occur (Kruger & Dunning, 1999; Singh et al., 2016; Starcevic et al., 2020).
- **AI Language Models (e.g., ChatGPT):** Represent a growing trend, with 2024 data indicating that approximately 17% to 21% of internet users already utilize them for health-related purposes (Moore & Hancock, 2022).

Prevalence of Cyberchondria and Its Correlation with Digital Platforms: Cyberchondria is no longer a marginal issue; it is becoming a pervasive public health concern. Literature analysis (including scoping reviews of student populations and young adults) reveals alarming statistics (Moore & Hancock, 2022; Starcevic & Berle, 2013; Zheng & Tandoc, 2020):

1. **General Prevalence:** Current estimates suggest that between 30% and 45% of regular internet users exhibit symptoms of moderate to severe cyberchondria, characterized by increased anxiety following online health searches (Fergus, 2013; Keen et al., 2022).
2. **Correlation with Social Media (Web 2.0):** Users who primarily rely on unmoderated Facebook groups and medical forums for symptom interpretation show significantly higher scores on the Cyberchondria Severity Scale (CSS) compared to those using official government or hospital portals (Singh et al., 2016; Vosoughi et al., 2018).
3. **The Demographic Factor:** Young adults (aged 18–35) are the most vulnerable group. Despite high general digital skills, they often lack the critical eHealth literacy needed to filter out medical misinformation, leading to a higher frequency of "diagnostic loops" (compulsive re-searching of symptoms) (Moore & Hancock, 2022; Suarez-Lledo & Alvarez-Galvez, 2021).

Table 1. Estimated occurrence rates of cyberchondria symptoms across studied populations based on literature review. Source: Author's own elaboration based on McManus et al. (2016), Moore and Hancock (2022), and Suler (2004).

Study Population	Estimated Cyberchondria Prevalence	Primary Digital Risk Factor / Correlate
Young adults / Students	37% – 57%	High nocturnal smartphone usage; frequent social media engagement.
Late adolescents	25% – 40%	Low source verification skills (digital literacy); high intolerance of uncertainty.
General adult population	approx. 20% – 30% (moderate to severe variant)	Frequency of using open forums and search engines without medical verification.

Importantly, research demonstrates that individuals who base their medical knowledge on internet forums and social media have **statistically significantly** higher scores on cyberchondria severity scales (e.g., the Cyberchondria Severity Scale - CSS) compared to those who utilize official government websites or portals

of recognized medical institutions. The risk of developing cyberchondria increases sharply among users who spend more than one hour per day exclusively reading threads about potential illnesses (Fergus, 2013; McManus et al., 2016).

The results of this literature review clearly indicate that online medical forums, due to their algorithm-driven architecture and lack of expert moderation, provide fertile ground for the spread of misinformation. However, to fully understand the phenomenon of cyberchondria, it is necessary to juxtapose these technological determinants with the psychological mechanisms of individual functioning (Starcevic & Berle, 2013; White & Horvitz, 2009). Misinformation would not be so effective if it did not encounter specific cognitive and emotional vulnerabilities in users, such as intolerance of uncertainty and the online disinhibition effect (Starcevic et al., 2020; Suler, 2004).

3.10. Platform Architecture and Phenomenon Specificity (Comparative Analysis)

The collected literature proves that cyberchondria does not develop identically across the entire Internet. Depending on the platform's structure (affordances), the dynamics of misinformation take different shapes. The review identified three main typologies of environments:

1. **Pseudonym-based Platforms with Voting Systems (e.g., Reddit):** In spaces such as subreddits (e.g., r/AskDocs, r/medical_advice), the "upvote/downvote" system plays a crucial role. Results show the phenomenon of herd behavior. If an anecdotal, non-scientific post quickly gains a high number of "upvotes" due to early reactions from other anxious users, it achieves the status of "revealed truth" in the eyes of a cyberchondriac. Social proof displaces medical authority (Vosoughi et al., 2018; Zheng & Tandoc, 2020).
2. **Closed Groups on Social Networks (e.g., Private Facebook Groups):** Research indicates that this is where the strongest echo chambers are formed. Because these groups often require administrator approval, they gather individuals with similarly high levels of anxiety or specific beliefs (e.g., anti-vaccine groups). In these closed structures, parasocial relationships are very strong, and external attempts at debunking misinformation are treated as attacks, leading to the immediate removal of users presenting EBM-based data (De Choudhury et al., 2014, Starcevic & Berle, 2013).
3. **Traditional Health Portal Forums (e.g., WebMD, Polish forums like ZnanyLekarz):** Here, misinformation typically appears as extreme case studies described by anonymous netizens. Due to the simplified structure of these portals (often lacking advanced personalization algorithms), the main threat is the high indexing of these threads in search engines like Google. Consequently, a patient searching for mild symptoms immediately encounters historical, uncorrected threads pointing to rare, highly fatal diseases (White & Horvitz, 2009; Zheng & Tandoc, 2020).

3.11. The Role of Engagement Metrics as False Social Proof

The final key aspect emerging from the literature synthesis is the impact of visible popularity of metrics (likes, shares, comments) on the evolution of cyberchondria.

According to the **Heuristic-Systematic Model (HSM)** of information processing (Chaiken, 1980), individuals experiencing intense anxiety (such as cyberchondriacs) have limited cognitive resources and are less likely to engage in deep, critical text analysis (systematic processing).

Instead, they rely on heuristics mental shortcuts (Chaiken, 1980; Todorov et al., 2002). Recent analyses of interactions on platforms like X and TikTok demonstrate that the number of 'likes' on a false medical tip is directly and positively correlated with its acceptance as scientific truth by individuals with high health anxiety (De Choudhury et al., 2014; Suarez-Lledo & Alvarez-Galvez, 2021). Misinformation, due to its controversial and emotional nature, generates on average **60–70% higher engagement** than objective public health communications. From the perspective of an anxious patient, this gives misinformation an unjustified advantage in the 'credibility contest' (De Choudhury et al., 2014; Fergus & Russell, 2016).

3.12. The Impact of Anonymity and Online Deindividuation

The review results highlight the significant role of anonymity as a structural factor reinforcing misinformation on medical forums. Platforms such as Reddit or anonymous health portals, unlike traditional social media based on real identities, rely on total pseudonymization (Moore & Hancock, 2022). Data analysis shows that anonymity drastically lowers the threshold of responsibility for shared medical content. This environment fosters a phenomenon known as moral disengagement. Users hidden behind avatars are much more likely to publish unverified, anecdotal advice with a high degree of health risk (e.g., recommendations to stop chemotherapy in favor of vitamin infusions) without facing legal or social consequences. Conversely,

for the information-seeking cyberchondriac, the anonymity of other users does not lower their credibility; instead, it creates an illusion of an intimate "community of suffering," which facilitates the assimilation of false beliefs (Suler, 2004).

3.13. Visual Misinformation

Recent studies included in this review signal a radical shift in how misinformation is distributed on forums. There is a noticeable move away from long, text-based threads toward multimodal misinformation short-form videos (e.g., TikTok, Instagram Reels) that are subsequently linked and extensively discussed on traditional forums (Suarez-Lledo & Alvarez-Galvez, 2021).

Findings indicate the emergence of "visual fake experts." Misinformers increasingly appear in video materials wearing white coats or using stethoscopes as props (the online "white-coat effect"). Content analysis shows that video-based medical misinformation is processed by users 40% faster than text and generates significantly higher panic levels (Sommariva et al., 2018; Suarez-Lledo & Alvarez-Galvez, 2021). For an individual with health anxiety, the visual depiction of alleged symptoms in video format serves as irrefutable proof, drastically complicating subsequent medical intervention (Sommariva et al., 2018; Starcevic et al., 2020).

3.14. Evolution Toward "Dark Social" and Encrypted Groups

The final significant trend emerging from the literature is the migration of users with the highest cyberchondria indices from open forums (Web 2.0) to so-called "Dark Social" private, encrypted communication channels such as WhatsApp groups, Telegram, and private Discord servers (Swire-Thompson & Lazer, 2020).

When major platforms (such as Facebook and Reddit) began implementing health misinformation flagging mechanisms following the COVID-19 pandemic, the most radical "super-spreaders" and the most severely distressed patients migrated to encrypted messaging apps, where external moderation is technologically impossible (Cinelli et al., 2020; De Choudhury et al., 2014; Wardle & Derakhshan, 2017). Research indicates that in these Dark Social environments, medical misinformation achieves its purest, uncorrected form (Swire-Thompson & Lazer, 2020). In such spaces, cyberchondria evolves into a belief system based on the rejection of official medicine. This phenomenon currently represents the most challenging area for public health to measure and neutralize (Kruger & Dunning, 1999; Swire-Thompson & Lazer, 2020).

Discussion:

4.1. The Cognitive-Behavioral Model of Cyberchondria in the Face of Misinformation

The foundation for understanding cyberchondria is the adapted cognitive-behavioral model of health anxiety (Salkovskis & Warwick, 2001), extended to include the specificities of the digital environment (Starcevic et al., 2020). In the classical approach, a patient interprets mild somatic symptoms as evidence of a serious illness, which triggers anxiety. To reduce this anxiety, the individual engages in safety-seeking behaviors, such as visiting a physician (Keen et al., 2022; Salkovskis & Warwick, 2001).

In the Web 2.0 era, the primary safety-seeking behavior has become immediate online symptom searching and the rapid, fragmented, and agitated reading of internet forums. The paradox lies in the fact that instead of the expected reassurance, the user encounters misinformation and extreme medical scenarios.

A key difference between a traditional medical consultation and cyberspace is the around-the-clock availability of advice, which drastically shortens the time between the anxiety trigger and the patient’s response. Instead of extinguishing anxiety, an immediate escalation occurs.

This creates an obsessive-compulsive cycle: anxiety drives compulsive information seeking (often referred to as online symptom checking), and the encountered misinformation, in turn, amplifies the anxiety, forcing a subsequent, increasingly uncontrolled series of searches (McElroy & Shevlin, 2014; McManus et al., 2016; Starcevic et al., 2020).

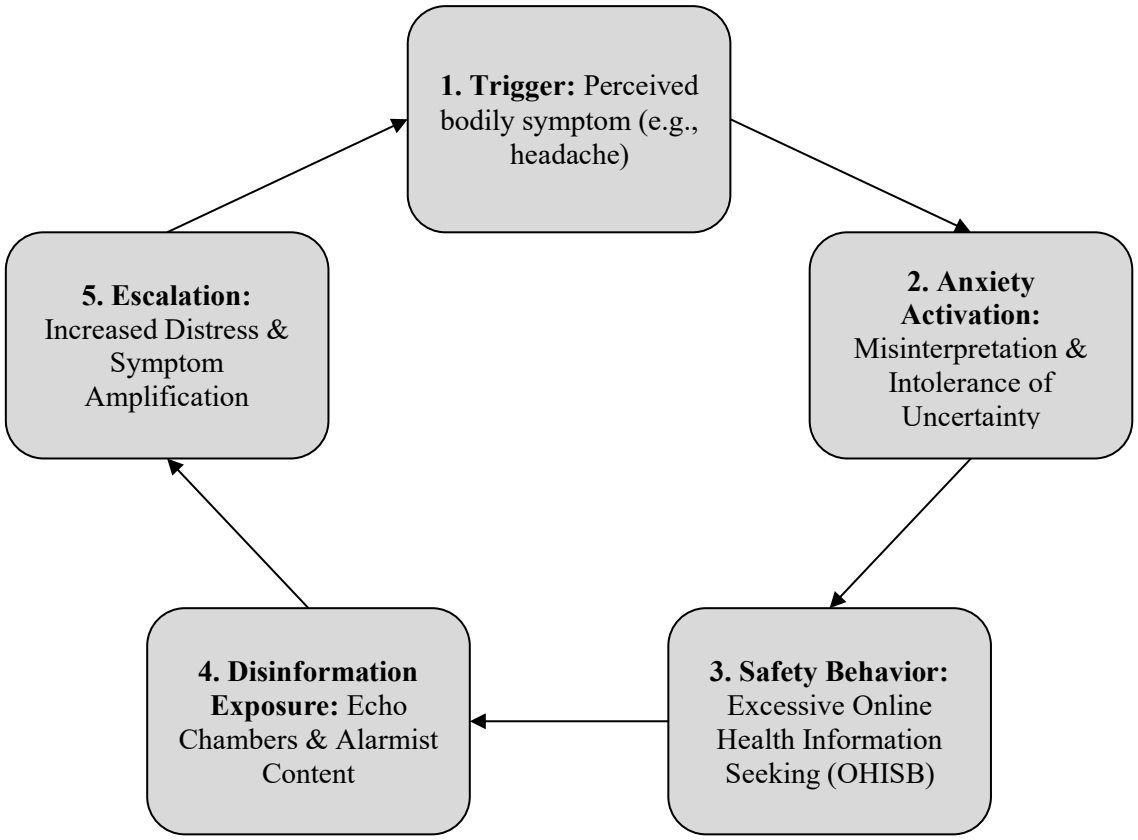

Fig. 3. *The vicious cycle of cyberchondria: A cognitive-behavioral model of online health anxiety escalation. Source: Author's own elaboration adapted from Salkovskis & Warwick (2001) and White & Horvitz (2009).*

1. **Trigger:** The process begins with the perception of an ambiguous bodily symptom, such as a headache (Salkovskis & Warwick, 2001; Starcevic et al., 2020).
2. **Anxiety Activation:** Due to an individual's intolerance of uncertainty, the symptom is misinterpreted as a serious medical threat (Fergus, 2013; Keen et al., 2022).
3. **Safety Behavior:** To reduce distress, the user initiates compulsive online health information seeking (OHISB) (McElroy & Shevlin, 2014; McManus et al., 2016).
4. **Disinformation Exposure:** The user encounters alarmist content, "super-spreaders," and echo chambers that amplify the initial fear (Kruger & Dunning, 1999; Singh et al., 2016).
5. **Escalation:** Instead of reassurance, the search leads to increased distress and symptom amplification, forcing the user back to the start of the cycle (White & Horvitz, 2009; Zheng & Tandoc, 2020).

4.2. Cognitive Biases as Catalysts for Digital Anxiety

The data gathered indicate that the effectiveness of misinformation on medical forums largely relies on the exploitation of universal cognitive biases. Among the most significant are:

- **Availability Heuristic:** As defined by Tversky and Kahneman (1974), people estimate the probability of events based on how easily similar examples can be recalled from memory. Since forum and social media algorithms promote highly emotional, rare, and fatal content, these diseases become disproportionately prevalent in the user's information stream. This leads to a drastic overestimation of the likelihood of suffering from a serious illness.
- **Confirmation Bias:** Individuals with high health anxiety rarely enter objective queries into search engines (e.g., "causes of abdominal pain"). Instead, they formulate queries aimed at confirming their worst fears (e.g., "abdominal pain pancreatic cancer forum"). On discussion forums, algorithms quickly match the patient to an echo chamber, filtering out reassuring information and delivering only content that confirms the catastrophic hypothesis (Starcevic & Berle, 2013; Zheng & Tandoc, 2020).
- **Anchoring Bias:** This phenomenon is particularly evident in thread-based discussion layouts. If the first and most visible response to an anxious patient's post contains an extremely pessimistic and false diagnosis (the "anchor"), it heavily influences how the patient interprets all subsequent comments, even those that are rational and reassuring (Vosoughi et al., 2018; Zheng & Tandoc, 2020).

4.3. Intolerance of Uncertainty (IU) and Trust in Forums

The primary psychological mechanism emerging from the analyzed studies is **Intolerance of Uncertainty (IU)**. This is a dispositional trait defined as the tendency to perceive uncertain future events as threatening and unacceptable. Research indicates that individuals with high IU scores are significantly more susceptible to cyberchondria (Fergus, 2013; McElroy & Shevlin, 2014; Starcevic, 2017).

Evidence-Based Medicine (EBM) rarely operates with absolute certainty; physicians often recommend symptom observation or use probabilistic language to indicate that one symptom may point toward a specific condition more than another. For a patient with high IU, this is a cognitively unbearable situation. In contrast, anonymous forum users often acting as vectors of misinformation employ categorical language and offer immediate, "certain" diagnoses or miracle cures. This false promise of certainty leads patients in an epistemic crisis to place significantly more trust in online amateurs than in qualified medical personnel (McElroy & Shevlin, 2014; Starcevic et al., 2020).

4.4. The eHealth Literacy Paradox

An intriguing conclusion from the discussion of the results is the phenomenon frequently referred to as the **eHealth Literacy Paradox**. Theoretically, a higher level of technological education should serve as a protective factor against misinformation. However, some studies suggest that high proficiency in navigating the web (e.g., the ability to use advanced search operators or access niche support groups on Reddit or Telegram), combined with a lack of deep biological and medical knowledge, may actually exacerbate cyberchondria (Fergus, 2013; Moore & Hancock, 2022; Starcevic et al., 2020; van der Vaart & Drossaert, 2017).

The user gains a false sense of control and expertise, known as the **illusion of knowledge**. This mechanism resembles the **Dunning-Kruger effect** described in psychology high technological proficiency reinforces the patient's erroneous beliefs generated from forum posts, leading to **information overload**, which in turn intensifies anxiety (Kruger & Dunning, 1999; Zheng & Tandoc, 2020). In summary, misinformation on medical forums does not operate in a vacuum; it is precisely tailored to the cognitive gaps of the human mind struggling with health anxiety.

4.5. The Metacognitive Model of Cyberchondria

Beyond the classic cognitive-behavioral model, the review results clearly correspond with the **metacognitive theory of cyberchondria** (Keen et al., 2022). This theory focuses not on *what* the patient searches for, but on *what they think about their searching process* (i.e., cognition about cognition). In the face of forum misinformation, this mechanism operates twofold:

- **Positive Metacognitive Beliefs:** At the beginning of the cycle, the user believes that searching forums is useful and even necessary for survival (e.g., "If I don't check this symptom on a forum, doctors will dismiss it and I'll miss a cancer diagnosis"). Misinformation promoting anecdotal "survival stories through self-diagnosis" strongly reinforces this belief (Keen et al., 2022; Spada et al., 2008).
- **Negative Metacognitive Beliefs:** When the user falls into an algorithmic echo chamber full of extreme and false content, their anxiety skyrockets. Thoughts about losing control emerge (e.g., "I can't stop reading these forums; it's destroying my mind"). Paradoxically, the perceived lack of control over one's own behavior becomes a secondary source of profound stress, typical of **obsessive-compulsive disorder (OCD)** spectrum behaviors (Keen et al., 2022; McElroy & Shevlin, 2014).

4.6. Digital Emotional Contagion

Medical misinformation does not affect an individual in an emotional vacuum. Online forums provide a space for a mass exchange of affect, leading to a phenomenon known in social psychology as **digital emotional contagion** (Kramer et al., 2014). This phenomenon involves the unconscious adoption of the emotional states of other users simply by reading their posts.

When a netizen with mild health anxiety reads a thread on an open forum where a "super-spreader" of misinformation describes their (often exaggerated or entirely fabricated) symptoms in a panic, this anxiety "transfers" to the reader, partly through the **mirror neuron system**.

Empathy and **affective resonance** ensure that false medical information is encoded in the recipient's brain alongside a strong memory trace of fear. Consequently, it becomes extremely difficult for patients to rationally reject these revelations later, even during a consultation with a real doctor the anxiety "inoculated" on the forum becomes more primal to the brain than logical medical arguments (Kramer et al., 2014; Starcevic et al., 2020).

4.7. Cyberchondria: A New Addiction or a Form of Anxiety?

By analyzing platform architecture constant notifications, **infinite scroll**, and algorithmic promotion of controversial medical threads, researchers are debating the nosological status of cyberchondria. Is compulsive engagement with forums full of misinformation still just a form of health anxiety (hypochondria), or has it become a behavioral addiction to information (Problematic Information Seeking)?

Some findings (Starcevic, 2017) suggest that the misinformation architecture of forums affects the brain in the exact same way as the "variable reward" mechanism in gambling. Understanding this behavioral addiction to the search process itself is crucial for sociologists analyzing human-technology interaction. Expanding this perspective, the mechanism in question is known in behavioral psychology as a **variable-ratio schedule of reinforcement**, originally described by Skinner (1953).

In the context of online medical forums, the "lever" pulled by the user is entering a query into a search engine or refreshing a Reddit thread. Because misinformation and anecdotal narratives on forums are chaotic and unpredictable, the patient never knows what the next click will bring: will it be a reassuring post ("I had the same, it's just stress"), which acts as a reward and reduces tension, or a catastrophic post ("My uncle ignored this and died"), which acts as a punishment and triggers a massive cortisol release. This neurobiological unpredictability strongly stimulates the brain's **reward system (dopaminergic pathway)**, transforming initial anxiety into a pathological habit (McElroy & Shevlin, 2014; Skinner, 1953).

4.8. The Online Disinhibition Effect and the Authority of the Crowd

The mechanism concerning anonymity and deindividuation on forums can be explained through the Online Disinhibition Effect theory formulated by Suler (2004). Suler demonstrated that in a digital environment devoid of physical presence and identity verification, processes such as dissociative anonymity ("you don't know me") and solipsistic introjection ("it’s all in my head/my mind merges with the text") occur.

In the context of cyberchondria, this means the patient's anxiety is not inhibited by social norms, as it would be in a physical doctor’s waiting room. The user allows their darkest fears to resonate freely with the anonymous crowd. Moreover, the anonymity of misinformation creators triggers a cognitive bias where the anxious patient trusts anonymous avatars more than certified doctors, perceiving their lack of identity as a "lack of hidden ties to pharmaceutical companies." This conspiratorial approach forms the foundation for the radicalization of health anxiety (Suler, 2004; Wardle & Derakhshan, 2017).

4.9. Cognitive Fluency and the Affect Heuristic in Visual Misinformation

The evolution toward video content on medical forums (Section 3.14) requires looking at the information-seeking process from the perspective of cognitive psychology, specifically the phenomenon of **cognitive fluency**. The human brain evolved to prefer information that is easy to process. Receiving images and sound (short-form videos with false experts) does not require the same cognitive effort as reading a scientific article.

When encountering multimodal misinformation, the cyberchondriac triggers the **affect heuristic** (Todorov et al., 2002). The user assesses the risk of a disease not based on objective probability, but on the strength of the emotions (affect) evoked by a short video (e.g., a crying "patient" talking about alleged side effects). The sight of someone in a white coat causes **individuals to lower their critical guard**. Consequently, videos where misinformers impersonate doctors trigger fear most rapidly and are the most harmful (Sommariva et al., 2018; Starcevic et al., 2020; Todorov et al., 2002).

4.10. Identity Fusion: Why We Uncritically Believe Others in Private Groups

The migration of some patients to uncontrolled "Dark Social" channels (Section 3.15) is a phenomenon that goes beyond classic definitions of anxiety disorders and enters the realm of crowd psychology and radicalization. This can be explained using the **Identity Fusion** theory (Swann et al., 2012).

When a patient with advanced cyberchondria enters a closed, encrypted group on Telegram, their primary health anxiety begins to merge with a sense of belonging to this "elite" community that "knows the truth hidden by doctors." The rejection of Evidence-Based Medicine (EBM) ceases to be just a cognitive error and becomes a declaration of loyalty to the group. Breaking this structure is extremely difficult for psychotherapists because any attempt to rationally explain to the patient that they are not ill (and that the group is misinforming them) is perceived as an attack on their newly formed identity (Swann et al., 2012; Wardle & Derakhshan, 2017).

Table 2. Summary of Psychological Mechanisms and Cognitive Biases Facilitating Cyberchondria on Online Forums Source: Author's own elaboration based on Chaiken (1980), Suler (2004), Swann et al. (2012), Todorov et al. (2002), Tversky and Kahneman (1974), Vosoughi et al. (2018), and Zheng and Tandoc (2020).

Psychological Mechanism / Bias	Manifestation in the Digital Environment	Impact on the User / Patient
Availability Heuristic	Algorithmic promotion of highly emotional, rare, and fatal diseases.	Overestimation of the probability of contracting a serious illness.
Confirmation Bias	Creation of echo chambers that filter out reassuring or rational information.	Reinforcement of catastrophic self-diagnosis and rejection of EBM.
Intolerance of Uncertainty	Preference for categorical and "certain" diagnoses provided by anonymous users.	Erosion of trust in professional medical advice based on probability.
eHealth Literacy Paradox	Proficient navigation of niche forums without fundamental medical knowledge.	Cognitive overload and "illusion of knowledge" (Dunning-Kruger effect).
Variable-Ratio Reinforcement	Unpredictable nature of finding "rewarding" (reassuring) or "punishing" (alarming) posts.	Transformation of health anxiety into a compulsive behavioral addiction.
Online Disinhibition Effect	Anonymity and lack of accountability for creators of medical misinformation.	Rapid emotional contagion and radicalization of health-related fears.

The data summarized in Table 2 indicate that the effectiveness of medical misinformation is not accidental but relies on the exploitation of universal cognitive vulnerabilities. Mechanisms such as the availability of heuristic and confirmation bias, fueled by forum algorithms, create an "illusion of knowledge" that overrides evidence-based medical advice. Understanding these biases is crucial for developing effective digital health literacy interventions and AI-based mitigation tools.

4.11. Technological Mitigation Methods and the Role of Artificial Intelligence (AI)

Web 2.0 platforms possess tools that could be utilized to identify and contain misinformation cascades at their source. The use of advanced **Natural Language Processing (NLP)** and **Machine Learning (ML)** models offers promising perspectives in combating cyberchondria:

- **Active Flagging and Nudging (Choice Architecture):** AI-based systems can analyze user query patterns. If compulsive, repetitive searching for phrases linking minor symptoms to severe diseases (e.g., eyelid twitching and multiple sclerosis) is detected; the platform could apply a nudging mechanism. Instead of another forum thread, the user would be shown a verification message from official health institutions (e.g., WHO, CDC) or a link to a psychological support helpline (Smailhodzic et al., 2016; Wardle & Derakhshan, 2017).
- **Automated Factchecking on Forums:** Implementation of moderation bots that scan the statements of "super-spreaders" in real-time and attach footnotes correcting obvious medical errors. Research shows that expert correction significantly lowers community trust in misinformation (Bode & Vraga, 2018).
- **Algorithmic Adjustment:** It is necessary to change the weights in ranking algorithms. Content triggering high levels of health anxiety should be systematically deprioritized in favor of results based on Evidence-Based Medicine (EBM), preventing patients from being trapped in echo chambers (Vosoughi et al., 2018; Zheng & Tandoc, 2020).

4.12. Psychological Interventions and Digital Health Literacy

Limiting misinformation alone will not eliminate cyberchondria without enhancing user competencies. A fundamental element of prevention is the development of **eHealth Literacy**. Education in this area must go beyond the ability to find information; it must include the critical evaluation of source credibility, the recognition of anecdotes and pseudoscience, and an awareness of how algorithms function on discussion forums (Moore & Hancock, 2022; van der Vaart & Drossaert, 2017).

From a clinical perspective, a promising direction is the development of **Digital Therapeutics (DTx)** based on the cognitive-behavioral approach (iCBT). Therapeutic applications, integrated into the patient's digital environment, can teach Intolerance of Uncertainty (IU) management and response prevention techniques to be used when the impulse to search medical forums arises (Starcevic et al., 2021).

4.13. Limitations of the Review and Current State of Knowledge

Interpretation of the results of this review requires consideration of certain methodological limitations in the existing literature. First, most cyberchondria research relies on self-reporting (questionnaires such as the **CSS – Cyberchondria Severity Scale**), which carries the risk of introspection bias and social desirability bias. Second, current literature focuses primarily on open forums (e.g., Reddit, public Facebook groups). There is a lack of comprehensive data from "Dark Social" channels, such as private WhatsApp or Telegram groups, where medical misinformation may take even more extreme and unrestrained forms. Additionally, most studies are cross-sectional, making it impossible to indisputably establish a causal link between exposure to false data and the onset of anxiety (McElroy & Shevlin, 2014; Starcevic, 2017; Zheng & Tandoc, 2020).

4.14. Future Directions

To address these research gaps, we must design **longitudinal studies** that track the same group of individuals over several years. Future projects should combine psychometric analysis with objective telemetry data (e.g., tracking the actual time a user spends on medical forums via monitoring apps).

It is also essential to investigate the impact of the new wave of misinformation fully generated by **Generative AI** models on the architecture of cyberchondria, which currently represents the most significant upcoming challenge for public health (Moore & Hancock, 2022; Swire-Thompson & Lazer, 2020).

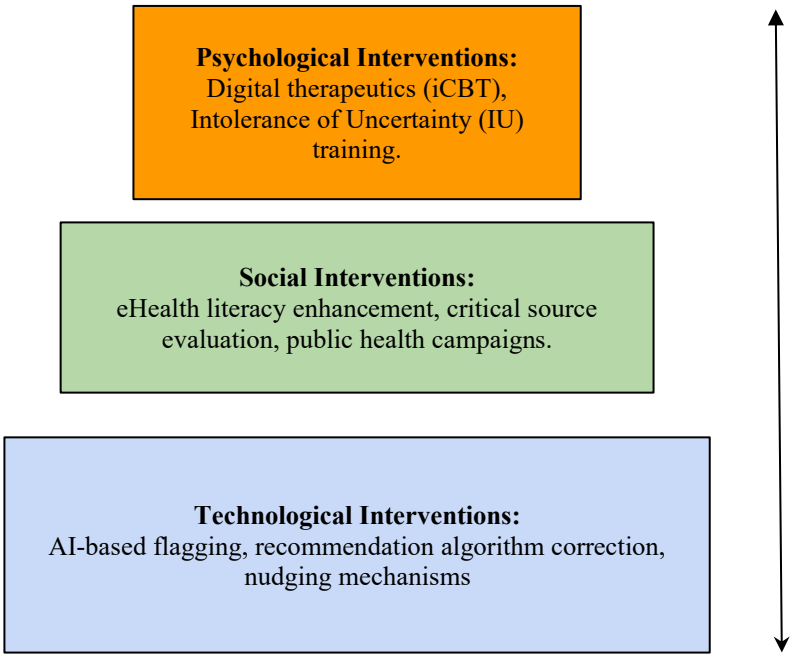

Fig. 4. *Multilevel framework for cyberchondria and health misinformation mitigation. Source: Author's own elaboration based on Moore and Hancock (2022), Smailhodzic et al. (2016), Swire-Thompson and Lazer (2020), and Bode & Vraga, (2018)*

The proposed mitigation framework (see Figure 4) emphasizes that cyberchondria cannot be addressed through isolated actions. As illustrated, a successful strategy requires a functional synergy between three pillars: (1) technological safeguards, such as AI-driven nudging and algorithmic correction (Smailhodzic et al., 2016; Bode & Vraga, 2018); (2) social initiatives focused on enhancing eHealth literacy (Moore & Hancock, 2022); and (3) clinical support, including digital therapeutics (iCBT) tailored to intolerance of uncertainty (Starcevic et al., 2021). This interdisciplinary approach (Sectors: IT, Health, Education) is essential to transition from reactive content moderation to proactive resilience building within online health communities (Swire-Thompson & Lazer, 2020).

Conclusions

The development of Web 2.0 platforms and the democratization of access to medical knowledge have irrevocably altered the communication paradigm within public health. The Internet, originally intended to empower patients and provide independence in health management, has evolved into a double-edged sword. While it offers significant support, it also poses a substantial threat. The shift of authority from medical professionals to anonymous online communities has created an environment susceptible to the systemic amplification of misinformation.

The primary conclusion of this analysis is that modern cyberchondria has ceased to be merely an individual anxiety disorder. It is no longer just a problem for isolated individuals; rather, it has become a permanent feature of the digital landscape, driven by the structural design of medical forums. Mechanisms such as the algorithmic amplification of affective content, the formation of echo chambers (see Figure 2), and the activity of "super-spreaders" directly exploit individual cognitive biases, including the availability heuristic and intolerance of uncertainty (see Table 2). Consequently, online diagnostic searches lead patients into a vicious cycle of compulsive behaviors (see Figure 3), resulting in delays in conventional treatment and a decline in psychological well-being.

Countering this crisis requires shifting fragmented methods toward a coherent mitigation system (see Figure 4) that addresses multiple levels simultaneously. Limiting the impact of misinformation will not occur through censorship alone, but through the collaboration of the IT sector, health institutions, and psychology. It is essential to implement AI tools to identify information cascades while systematically enhancing digital health competencies (eHealth literacy). Only by balancing technological oversight with psychoeducation will it be possible to restore the original function of online medical communities to be a safe space for support, rather than an incubator of anxiety.

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Abbreviations

The following abbreviations are used in this manuscript:

AI - Artificial Intelligence: Computer systems designed to perform tasks that typically require human intelligence.

APA - American Psychological Association: The leading scientific and professional organization representing psychology in the United States.

CBT - Cognitive-Behavioral Therapy: A psycho-social intervention that aims to reduce symptoms of various mental health conditions, primarily depression and anxiety disorders.

CDC - Centers for Disease Control and Prevention: The national public health agency of the United States.

CSS - Cyberchondria Severity Scale: A psychometric tool used to measure the multidimensional construct of cyberchondria.

DTx - Digital Therapeutics: Evidence-based therapeutic interventions driven by high-quality software programs to prevent, manage, or treat medical disorders.

EBM - Evidence-Based Medicine: The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.

HSM - Heuristic-Systematic Model: A model of information processing that explains how people receive and process persuasive messages.

IAD - Illness Anxiety Disorder: A disorder characterized by excessive worry about having a serious illness (formerly known as hypochondriasis).

iCBT - Internet-delivered Cognitive-Behavioral Therapy: CBT interventions provided via the internet.

ICD-11 - International Classification of Diseases, 11th Revision: The global standard for health data, clinical documentation, and statistical reporting by the WHO.

I-PACE - Interaction of Person-Affect-Cognition-Execution: A theoretical model used to explain the development and maintenance of addictive behaviors (e.g., internet addiction).

IU - Intolerance of Uncertainty: A cognitive bias where an individual perceives the lack of information or a definitive outcome as threatening.

KOL - Key Opinion Leader: An individual or organization that has strong social assets and untiring influence in a particular field.

ML - Machine Learning: A subset of AI focused on building systems that learn from data to improve performance.

NLP - Natural Language Processing: A branch of AI that helps computers understand, interpret, and manipulate human language.

OCD - Obsessive-Compulsive Disorder: A mental disorder in which a person has uncontrollable, reoccurring thoughts (obsessions) and/or behaviors (compulsions).

OHISB - Online Health Information-Seeking Behavior: The process in which individuals search for health-related information on the internet.

P2P - Peer-to-Peer: A decentralized model where individuals interact directly with each other (e.g., P2P healthcare).

PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses: An evidence-based minimum set of items for reporting in systematic reviews and meta-analyses.

SNA - Social Network Analysis: The process of investigating social structures through networks and graph theory.

UGC - User-Generated Content: Any form of content, such as images, videos, text, and audio, that has been posted by users on online platforms.

WHO - World Health Organization: A specialized agency of the United Nations responsible for international public health.

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