EVOLUTION AND FRONTIERS OF CYBERCHONDRIA RESEARCH: A BIBLIOMETRIC REVIEW BASED ON CITESPACE

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Abstract. This study employs CiteSpace to map the evolutionary trajectory and intellectual structure of cyberchondria research from 2016 to 2026. A bibliometric analysis was conducted on 348 core documents retrieved from the Web of Science Core Collection, focusing on publication trends, collaboration networks, and citation bursts. Findings delineate a three-stage evolution: early conceptualization within clinical psychology, a COVID-19-driven surge, and current reconceptualization as a digital behavioral addiction. A critical "eHealth Literacy Paradox" is identified, wherein higher digital literacy may paradoxically exacerbate anxiety due to interactions with commercial recommendation algorithms. Structurally, the field remains highly fragmented, separating early clinical psychiatry cohorts from recent information systems and algorithmic research clusters. The results suggest that cyberchondria is a product of both individual cognitive bias and platform algorithmic alienation. To address current structural fragmentation, future research must dismantle disciplinary barriers and foster interdisciplinary collaboration between psychiatrists and algorithm engineers. Transitioning from individual-centric interventions to the ethical optimization of digital health architectures is essential for constructing a resilient and inclusive health information ecosystem.
Keywords: *cyberchondria, bibliometric analysis, CiteSpace, behavioral addiction*

Introduction

With the rapid development of digital technologies and the widespread use of smartphones, the Internet has become a major channel through which people obtain health-related information. Online health resources provide convenient access to medical knowledge and enable individuals to search for information about symptoms, treatments, and diseases. However, the large volume of online health information that has not undergone rigorous filtering, may also lead to unintended psychological consequences. Emerging within this context is cyberchondria, clinically characterized by excessive health-related anxiety triggered or exacerbated by repetitive online health information seeking (Starcevic and Berle, 2013). Initially, the academic discourse conceptualized cyberchondria primarily as a digital manifestation of traditional health anxiety or obsessive-compulsive disorder (OCD). During this early phase, "intolerance of uncertainty" was widely identified as the core psychological driver of this repetitive searching behavior (Fergus, 2013).

However, the outbreak of the COVID-19 pandemic fundamentally altered this landscape. The combination of widespread fear regarding an unknown virus and strict social isolation measures led to a significant surge in online health inquiries. This period was heavily impacted by "infodemic", an overabundance of information, including unverified and anxiety-inducing content. Consequently, cyberchondria shifted from a localized cognitive bias affecting a minority to a pervasive, transdiagnostic psychological vulnerability (Jungmann and Witthöft, 2020). More recently, the

integration of digital health platforms and intelligent recommendation algorithms has further complicated the etiology of cyberchondria. Phenomena such as algorithmic curation and "echo chambers" reinforce individuals' exposure to distressing health content. This algorithmic environment traps users in a cycle of repetitive checking, causing cyberchondria to increasingly exhibit features akin to generalized digital behavioral addiction (Starcevic et al., 2020). Given these rapid conceptual shifts, Cyberchondria has gradually evolved from a relatively niche psychological concept into a broader research topic spanning multiple disciplines, including psychology, public health, information systems, and digital media studies. Understanding how this field has developed over time is therefore important for identifying its theoretical foundations and emerging research directions. A systematic mapping of how cyberchondria research has evolved over the past decade is necessary to inform current public health interventions and optimize digital health environments.

In response to the growing clinical relevance of cyberchondria, a substantial body of empirical research has emerged. Previous systematic reviews and meta-analyses have contributed significantly to conceptualizing the construct and validating measurement tools, most notably the Cyberchondria Severity Scale (CSS) (McElroy and Shevlin, 2014). However, the existing literature reviews present several methodological and scope-related limitations. First, prior reviews have predominantly focused on static psychological correlates, often lacking a macro-level, longitudinal perspective on how the field's knowledge base has evolved. Second, the past decade (2016–2026) encompasses a critical developmental phase for cyberchondria research, marked by a transition from initial exploration to rapid expansion and interdisciplinary diversification. Despite this progression, a wealth of recent literature, particularly studies examining complex mechanisms like algorithmic influence and emerging populations such as "digital natives" remains unsynthesized. Finally, there is a distinct lack of quantitative bibliometric research visually mapping the global collaboration networks among core authors and institutions (Chen, 2006). The absence of these macroscopic knowledge domains obscures structural issues within the current academic landscape, such as disciplinary fragmentation and regional siloing. Consequently, this gap hinders researchers from accurately identifying the theoretical foundations and anticipating future trajectories of cyberchondria research. Addressing this gap through robust visual and quantitative analysis of core academic databases, such as the Web of Science, is therefore essential. To address these identified gaps, the current study utilizes the CiteSpace visualization software to conduct a systematic and objective bibliometric analysis of the core cyberchondria literature published over the past decade (2016–2026). Moving beyond static descriptive statistics of publication outputs, this research investigates the underlying knowledge base, evolutionary trajectories, and emerging frontiers within the field. Specifically, this paper seeks to answer the following three core research questions:

RQ1. Who are the most influential authors and institutions in cyberchondria research, and how are collaboration networks structured within the field?
RQ2. What are the main knowledge bases and thematic clusters that have shaped the development of cyberchondria research?
RQ3. What emerging research trends and topics have gained increasing attention in recent years?

Materials and Methods

Data for this study were retrieved from the Web of Science (WoS) Core Collection database. To capture the evolutionary trajectory of cyberchondria, from its initial conceptualization within clinical psychology to its rapid expansion during the COVID-19 pandemic and its current association with digital behavioral addiction, the search time span was defined as January 1, 2016, to March 2026. The search strategy employed "cyberchondria" and its associated synonyms as topic keywords. To maintain analytical rigor and ensure the high academic quality of the dataset, document types were strictly limited to original research articles and review papers. Documents such as meeting abstracts, letters, book reviews, and editorial materials were explicitly excluded. This restriction was implemented to guarantee that the final sample comprised literature with substantial empirical foundations or comprehensive theoretical value. Upon completing the retrieval process, the results were exported as plain text files containing the "Full Record and Cited References." The initial dataset underwent a rigorous data cleaning and deduplication process to eliminate duplicate records and irrelevant literature. Ultimately, a final dataset consisting of 348 highly relevant, valid documents was established, serving as the foundational corpus for the subsequent longitudinal bibliometric analysis. This study employs CiteSpace (version 6.2.R6), a widely used bibliometric visualization tool, to analyze the intellectual structure and research trends of cyberchondria literature. CiteSpace is designed to detect emerging patterns and critical developments in scientific research through network visualization and citation analysis (Chen, 2006). The software has been widely applied in bibliometric studies to examine collaboration networks, knowledge bases, and thematic evolution within specific research fields.

Results and Discussion

Annual publication trend

The annual variation in publication volume serves as a key indicator of a specific research field's developmental pace and the level of academic attention it commands. Based on the retrieved data, the annual number of publications on cyberchondria from 2016 to 2026 exhibits distinct, stage-based growth characteristics (*Table 1*). As illustrated, the research trajectory of cyberchondria can be delineated into three distinct evolutionary phases: (1) Initial Exploration (2016–2018). During this period, the annual publication volume remained in the single digits, peaking at six articles. This indicates that cyberchondria was primarily a niche area explored by a limited number of psychology and psychiatry specialists, yet to garner widespread interdisciplinary attention. (2) Steady Growth (2019–2021). In 2019, the number of publications exceeded double digits for the first time (n = 16), maintaining a steady upward trajectory through 2020 (n = 28) and 2021 (n = 29). This phase aligns with the broader integration of digital healthcare, prompting researchers to systematically investigate the negative psychological consequences associated with routine online health information seeking (Khazaal et al., 2020). (3) Pandemic-Catalyzed Surge and Sustained Output (2022–Present). The year 2022 marked a pivotal turning point, with publications surging to 69, an approximate 138% increase from the previous year. Considering the typical 12- to 18-month publication lag, encompassing empirical data collection, peer review, and final publication, this 2022 peak likely reflects the academic community's

delayed response to phenomena observed during the early stages of the COVID-19 pandemic. During that time, widespread health anxiety, compounded by the "infodemic" of mixed-quality online medical data, created an environment highly conducive to the onset of cyberchondria (Laato et al., 2020).

Table 1. *Annual publication volume of cyberchondria research (2016–2026).*

Year	Number of Publications (n)	Percentage of Total (%)
2016	6	1.7
2017	4	1.1
2018	6	1.7
2019	16	4.6
2020	28	8.0
2021	29	8.3
2022	69	19.8
2023	49	14.1
2024	54	15.5
2025	68	19.5
2026	19	5.5

Following this peak, despite a slight retraction in 2023 (n = 49), the publication volume rebounded in 2024 (n = 54) and climbed to a near-record high in 2025 (n = 68). This sustained high output suggests that in the post-pandemic era, as public habits of seeking online health information have become deeply entrenched, cyberchondria has transitioned from a temporary stress response into a sustained, deepening focal point of research (Starcevic et al., 2021).

Author productivity and collaborative network evolution

Analyzing author productivity and co-occurrence networks provides critical insights into the core research forces driving the cyberchondria field and the structural evolution of their collaborations. *Figure 1* illustrated in the author collaboration network generated by CiteSpace, the network comprises 273 nodes and 396 links, with a network density of 0.0107. Overall, the research landscape in this domain exhibits a team-oriented structure that is "locally concentrated but globally fragmented," accompanied by a clear chronological progression. The publication statistics reveal the leading contributors who have shaped the discourse in this field. Vladan Starcevic ranks first with 14 publications; his highly influential work, which began gaining traction around 2017, established a foundational role in defining the clinical parameters of cyberchondria. Following closely are David Berle (7 publications), whose collaborative work also gained prominence in 2017, and Matteo Vismara (6 publications), who entered the discourse around 2019. Furthermore, the data highlights a cohort of highly productive scholars who have rapidly emerged in the post-pandemic era. For instance, Han Zheng (5 publications, first appearing in 2021) and Richard Huan Xu (5 publications, first appearing in 2024) have demonstrated substantial academic output within a compressed timeframe. This indicates that the field continues to attract a vibrant, new generation of researchers.

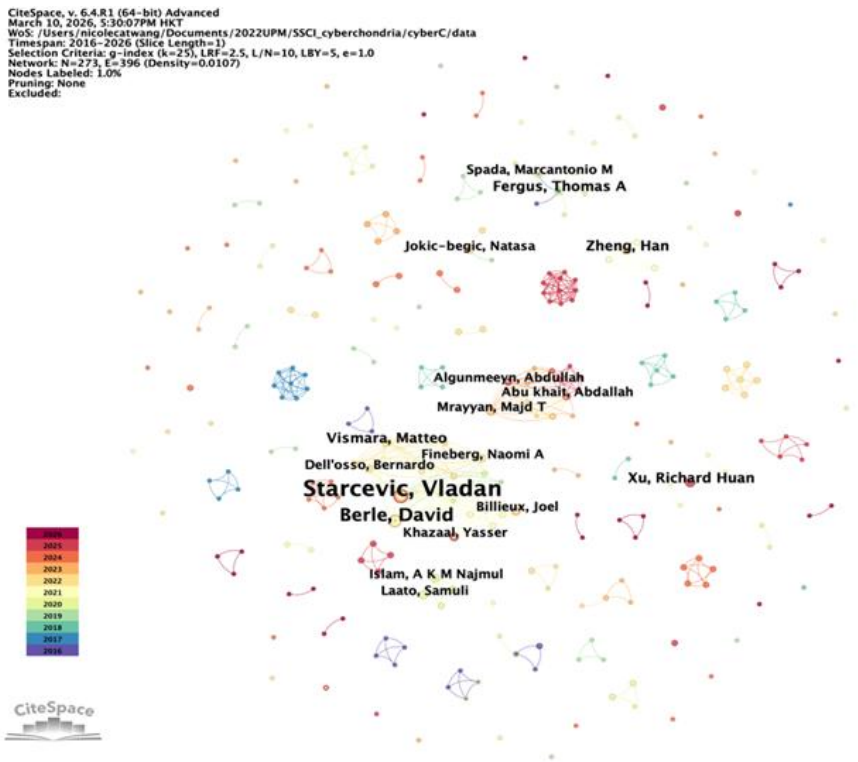

Figure 1. *Author collaboration network map (2016–2026).*

Based on network connectivity and temporal milestones shows in *Figure 1*, the authors can be categorized into several distinct thematic clusters: (1) Cluster 1: Conceptual Pioneers and Metacognitive Foundations. Represented by scholars such as Marcantonio M. Spada and Thomas A. Fergus, this cluster functioned as the vanguard of the field. Corresponding to the darkest nodes in the graph (indicating early-stage research), their collaborations successfully integrated deep psychological mechanisms, specifically "intolerance of uncertainty" and "metacognitive beliefs" into the pathological framework of cyberchondria (Fergus and Spada, 2017). This provided the theoretical bedrock for subsequent scale development. (2) Cluster 2: Clinical Psychiatry and Mechanistic Elaboration. Building upon the pioneers' work, a rapidly expanding cluster centered around Vladan Starcevic, David Berle, Matteo Vismara, and Bernardo Dell'osso emerged as the largest core network on the left side of the map. Their intensive pre-pandemic collaborations solidified the clinical characterization of cyberchondria, advanced cross-cultural scale validation, and explored its boundaries with obsessive-compulsive symptoms (Starcevic et al., 2019).

(3) Cluster 3: Middle Eastern Public Health and Nursing Response. Located in the lower section of the map, this tight-knit network features Abdallah Abu khait, Majd T. Mrayyan, and Abdullah Algunmeeyn. Emerging primarily during the mid-to-late stages of the pandemic, this cluster focused on evaluating digital health literacy and health anxiety among specific occupational groups (e.g., frontline healthcare workers and university students) during major public health emergencies. (4) Cluster 4: European/Nordic Information Systems Exploration. Situated independently in the upper region, this cluster comprises scholars like A.K.M. Najmul Islam, Samuli Laato, and Ali Farooq. Operating at the onset of the pandemic, they moved beyond a strictly medical perspective, offering rapid, interdisciplinary responses to online health information

seeking from the vantage points of information systems (IS) and user behavior science (Laato et al., 2020).

(5) Cluster 5: Asian Emerging Information Behavior and Algorithmic Frontiers. Occupying the right side of the map with recent warm-toned (red/orange) links, this represents the most active contemporary frontier. Spearheaded by Chinese and other Asian scholars such as Han Zheng, Zhiwei Cao, and Jun Wang, this cluster has significantly broadened the traditional psychological focus. Their research pivots toward the intersection of human-computer interaction (HCI), online platform complexity, and algorithmically induced anxiety on social media. (6) Clusters 6: Highly Focused Regional Micro-Networks. Peripheral to the five main camps is isolated, localized academic networks (e.g., regional circles of specific European or Middle Eastern scholars). These independent clusters primarily concentrate on localized scale translation, cross-cultural validity testing, or regional empirical surveys targeting specific, niche psychological variables. In summary, while the collaborative network in cyberchondria research is currently robust and has transitioned from early "metacognition and clinical psychology" to recent "information systems and algorithmic interaction," it remains hampered by a distinct lack of cross-boundary collaboration. Dismantling these academic silos to foster deep, interdisciplinary, and cross-regional joint research will be a crucial breakthrough point for the future evolution of this field

Distribution and evolution of research institutions

An analysis of the institutional collaboration network and publication volumes reveals that the global distribution of research forces in cyberchondria exhibits three distinct spatial-temporal characteristics: core leadership, regional agglomeration, and temporal succession. Regarding *Figure 2*. and total publication volume, the University of Sydney leads significantly with 16 publications, establishing itself as the most prominent and influential academic hub in this domain. Following closely, Nepean Hospital (n = 9) and the University of Technology Sydney (n = 9) demonstrate substantial research productivity. Furthermore, Wuhan University (n = 8) and the University of New South Wales (UNSW) Sydney (n = 8) also rank within the top tier of highly productive global institutions.

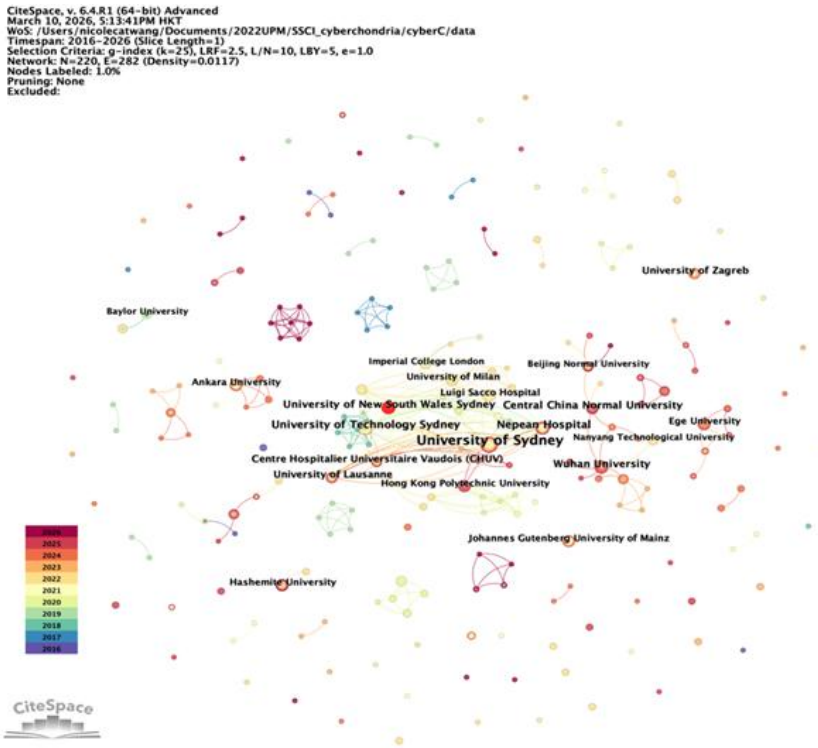

Figure 2. *Institutional collaboration network map (2016–2026).*

Keyword co-occurrence, clustering, and evolutionary trends

Keywords serve as critical indicators of a research field's core themes and focal points. By analyzing keyword co-occurrence frequencies, conceptual clusters, and burstness, we can systematically map the foundational knowledge structure and evolutionary trajectories of cyberchondria research. *Figure 3* reveals that, alongside the primary search term "cyberchondria" (frequency = 86), "health anxiety" ranks highest with a remarkable frequency of 177. Notably, the initial co-occurrence of these two core concepts in the network dates back to 2016. This early linkage indicates that from its conceptual inception, academia has fundamentally contextualized cyberchondria as a digital extension and manifestation of traditional health anxiety (Starcevic and Berle, 2013). Ranking second is "validation" (frequency = 131), followed by "information" (frequency = 76), "anxiety" (frequency = 61), and "internet" (frequency = 59).

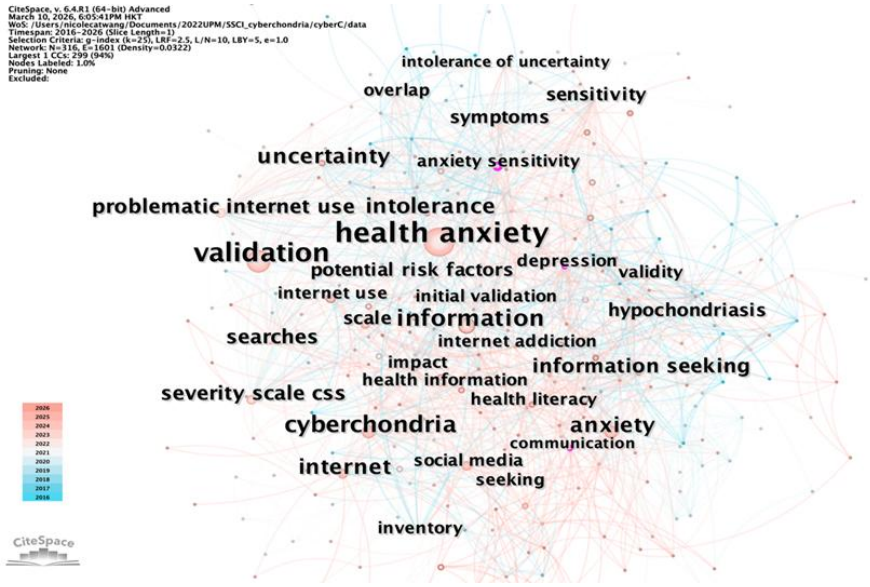

Figure 3. *Keyword co-occurrence network map.*

Furthermore, a crucial finding is that the terms "uncertainty" (frequency = 54) and "intolerance" (frequency = 51) not only rank among the top ten high-frequency keywords, but their initial appearance in the dataset also occurred in 2016. This aligns seamlessly with the research trajectories of the pioneering author clusters identified in the earlier author co-occurrence analysis, forming a robust methodological corroboration. This consistency highlights two enduring, core research dimensions that have permeated the field since its early stages: (1) Mechanistic exploration: Investigating how deep-seated cognitive mechanisms, specifically the "intolerance of uncertainty," drive the excessive searching of online health information (Carleton, 2016). (2) Psychometric quantification: Quantifying this psychological bias through the continuous development and cross-cultural validation of assessment tools, most notably the Cyberchondria Severity Scale (CSS) (McElroy and Shevlin, 2014). Utilizing the Log-Likelihood Ratio (LLR) algorithm, a keyword clustering analysis was conducted to uncover the intrinsic knowledge domains within cyberchondria research from 2016 to 2026 (*Figure 4*). This computational process yielded eight primary, valid clusters (Clusters #0 through #7).

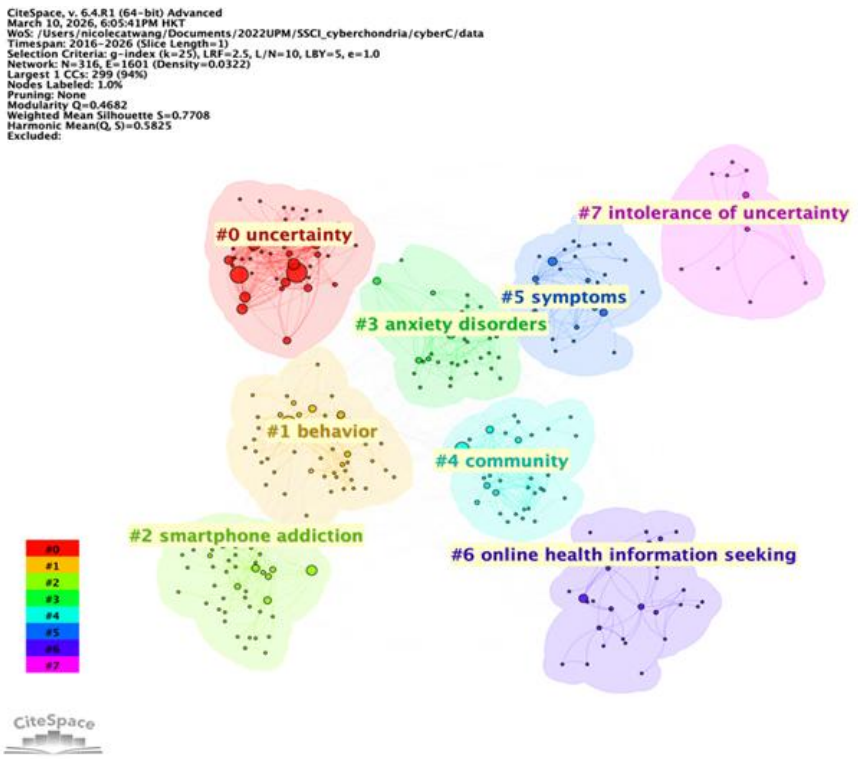

Figure 4. *Keyword clustering network map.*

In terms of cluster validity, the average Silhouette (S) score across the clusters is approximately 0.78, with specific clusters (e.g., #3, #4, and #7) exceeding 0.80. In bibliometric methodology, an S-score greater than 0.7 indicates that the clustering configuration is highly reliable with well-defined thematic boundaries (Chen, 2006). By analyzing the core LLR labels and temporal attributes of these eight clusters, they can be synthesized into three interconnected core research modules: (1) Module 1: Foundational Cognitive Mechanisms and Psychopathology (Clusters #0, #5, and #7). Core terms within this module include "uncertainty," "metacognitive beliefs," "obsessive-compulsive disorder," and "intolerance of uncertainty." This further corroborates the theoretical groundwork laid by the early pioneering cohorts (2016–2019). It primarily investigates how deep-seated metacognitive biases, most notably the intolerance of uncertainty, function as underlying drivers that precipitate or exacerbate the pathological symptoms of cyberchondria (Fergus and Spada, 2017). (2) Module 2: Behavioral Addiction and Information Coping (Clusters #1, #2, and #3). This module focuses on individuals' behavioral variations within digital environments. Key labels encompass "health information avoidance," "smartphone addiction," "health literacy," and "chain mediation." This indicates a recent methodological shift wherein researchers employ complex mediation models to evaluate differential coping strategies in the face of digital health anxiety. These responses range from proactive resilience (facilitated by health literacy) to passive withdrawal (health information avoidance), or a potential regression into broader device addiction (Ahorsu et al., 2022). (3) Module 3: Major Environmental Stress and Social Panic (Clusters #4 and #6). Bearing the profound imprint of its specific historical context, this module is defined by terms such as "pandemic fear," "death anxiety," "unusual purchasing," "panic buying," and "toilet paper." These keywords starkly demonstrate how the online "infodemic" during the

COVID-19 crisis transcended digital boundaries, directly precipitating irrational consumption and collective panic behaviors within the physical society (Laato et al., 2020).

Document co-citation network

As illustrated by the document co-citation network graph generated via CiteSpace (*Figure 5*), the knowledge base of cyberchondria research is constructed from a densely interwoven set of highly cited core literature. According to the co-citation frequency statistics, the current intellectual network of this field is anchored by several highly influential foundational publications: Vismara et al. (2020) ranks first with a notable co-citation frequency of 99. This systematic review represents the academic community's authoritative delineation of cyberchondria's clinical features and its transdiagnostic nature during the early stages of the pandemic. The high citation frequencies of McMullan et al. (2019) (frequency = 91) and Mathes et al. (2018) (frequency = 71) constitute the pre-pandemic empirical foundation. These studies rigorously examined the complex psychological overlap and relationship between traditional "health anxiety" and "online information seeking." Furthermore, the seminal work by Starcevic et al. (2020) (frequency = 74) consolidated the theoretical framework of cyberchondria amidst global health crises. Collectively, these highly co-cited documents function as pivotal "bridges." They seamlessly link the early metacognitive explorations of the field with the large-scale, systematic empirical studies characteristic of the post-pandemic era.

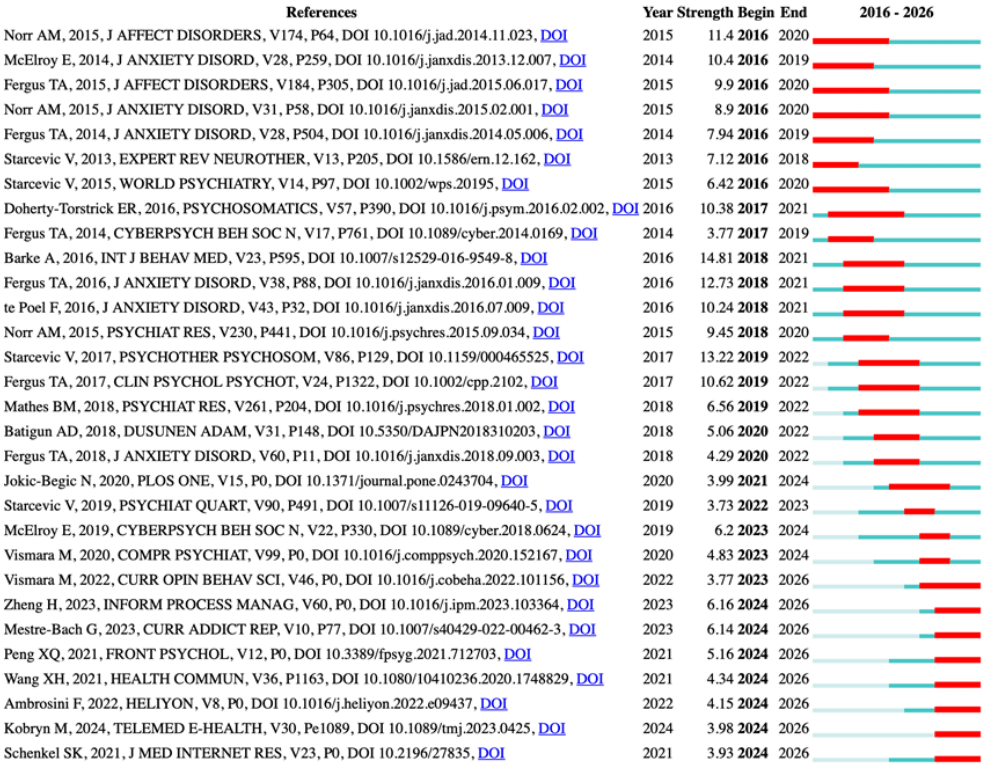

Figure 5. *Top 30 references with the strongest citation bursts.*

Citation burstness detects literature that experiences a sudden, significant surge in academic attention over a specific duration. It serves as a critical indicator for

identifying evolutionary nodes and forecasting future research trajectories within a field. By expanding the analysis threshold to the top 30 documents with the strongest citation bursts, the 2016–2026 timeframe reveals a distinct and fascinating generational succession of knowledge: (1) Phase 1: Origins and Foundational Bedrock (2016–2020) The top two documents with the highest burst strengths are Norr et al. (2015) (strength = 11.40) and McElroy and Shevlin (2014) (strength = 10.40). This phenomenon indicates that during its emergence as an independent topic, cyberchondria research heavily absorbed theoretical nourishment from traditional clinical psychology, specifically concerning "health anxiety disorders" and "obsessive-compulsive disorder" (OCD). Subsequently, several early papers by Fergus (published between 2014 and 2015, consistently showing burst strengths > 7.9) experienced concentrated bursts during this phase, establishing the underlying theoretical framework of "intolerance of uncertainty" (Fergus, 2015). (2) Phase 2: Pandemic Catalyst and Scale Standardization (2020–2023) Citation bursts during this stage exhibit a distinct, concentrated response pattern. Literature acting as "sleeping beauties", such as Starcevic and Berle (2013) (strength = 11.72) and Barke et al. (2016) (strength = 11.70); were extensively "awakened" and generated intense bursts between 2020 and 2022. This signifies that against the backdrop of the COVID-19 "infodemic," the academic community began adopting standardized assessment tools, predominantly the Cyberchondria Severity Scale (CSS), on a massive scale to clinically evaluate digital health anxiety.

(3) Phase 3: Algorithmic Interaction, Behavioral Addiction, and Emerging Frontiers (2024–2026) Observing the expanded dataset for documents with ongoing bursts up to the present (2024–2026) allows for the precise identification of two current, core research frontiers: Information Systems Mechanisms and Digital Interventions: A study by Zheng et al. (2023), published in Information Processing & Management, generated a robust burst (strength = 6.16) in the past two years. Concurrently, a recent paper by Kobryn and Duplaga (2024) in the field of telemedicine produced an immediate citation burst upon publication (strength = 3.98). This suggests a paradigm shift: the research focus is transitioning from pure psychological diagnosis to investigating the complex interactions among information retrieval platforms, recommendation algorithms, and users' cognitive processing. Generalization toward Behavioral Addiction: A paper by Mestre-Bach and Potenza (2023) in Current Addiction Reports generated a high-intensity burst (strength = 6.14) recently, ranking among the top active bursting documents. Additionally, the academic traction of literature by Peng et al. (2021) (strength = 5.16) and Wang et al. (2021) (strength = 4.34) continues to surge. This trend profoundly indicates that cyberchondria is gradually breaking beyond the traditional boundaries of "anxiety disorders." It is increasingly being incorporated by scholars into the interdisciplinary landscape of "behavioral addiction" within the digital age (Mestre-Bach and Potenza, 2023).

By extending the longitudinal bibliometric analysis across the 2016–2026 timeframe, this study systematically reconstructs the comprehensive evolutionary trajectory of cyberchondria, from its conceptual inception to its interdisciplinary proliferation. Drawing upon the in-depth excavation of publication trends, collaborative clusters, keyword dynamics, and high-intensity citation bursts, this section distills four core theoretical perspectives to inform and inspire future research in this domain.

Tracing origins and disciplinary transgression: from an OCD specifier to generalized "behavioral addiction"

Reflecting on the earliest citation bursts captured in this study (e.g., Norr et al., 2015; McElroy and Shevlin, 2014), a clear theoretical "root-tracing" trajectory emerges. During the initial exploratory phase (2016–2018), pioneering cohorts represented by scholars like Spada and Fergus deeply anchored cyberchondria within the traditional psychiatric framework. It was primarily conceptualized as a digital extension of health anxiety disorders and obsessive-compulsive disorder (OCD), with "intolerance of uncertainty" identified as its underlying psychological driver (Fergus, 2015). However, recent citation and keyword burst trends (2023–2026) indicate a profound disciplinary transgression. The emergence of highly cited frontier literature, exemplified by Mestre-Bach and Potenza (2023), alongside the sudden prominence of keywords like "smartphone addiction," signals that cyberchondria is no longer strictly confined to traditional anxiety disorders. Instead, it is being reconceptualized as a transdiagnostic "Behavioral Addiction." When confronting health threats, individuals' coping strategies are gradually mutating from simple "information seeking" into compulsive dependence on digital devices and subsequent information avoidance.

Ecological projection catalyzed by the pandemic: from individual bias to collective "infodemic"

The temporal distribution of publications exhibited an anomalous 138% surge in 2022 (accounting for the publication lag, this reflects a concentrated response to the 2020 pandemic outbreak). This surge is structurally corroborated by the institutional collaboration network: European academic consortia, spearheaded by the University of Milan, the University of Lausanne, and their affiliated hospitals, rapidly established clinical response networks during the pandemic's onset. This phenomenon suggests an ecological shift: during major public health crises, cyberchondria transcended the micro-level of individual cognitive biases, evolving into a highly contagious social syndrome. Keyword clusters highlighting "unusual purchasing" and "toilet paper" vividly bridge the virtual "infodemic" with physical, collective panic behaviors (Laato et al., 2020). This observation not only enriches the sociological dimensions of cyberchondria but also provides critical historical insights for public opinion intervention and psychological counseling during future public health emergencies.

Algorithmic environments and the "eHealth literacy paradox"

Enhancing public health literacy has traditionally been viewed as an effective protective shield against cyberchondria. However, the latest keyword burst data (2024–2026) reveals those terms like "health literacy" and "eHealth literacy" are currently experiencing their highest historical burst intensities. Contextualized within recent information systems research (e.g., Zheng et al., 2023), academia is uncovering a counterintuitive "eHealth Literacy Paradox." When navigating highly complex online platforms and recommendation algorithms, individuals with higher eHealth literacy (such as university students) often exhibit overconfidence, prompting them to conduct deeper, long-tail information retrieval. Consequently, commercial recommendation systems and the "echo chamber" effect paradoxically trap these highly capable searchers in more severe cycles of digital anxiety. This structural shift indicates that the etiology of cyberchondria has partially migrated from "individual metacognitive dysfunction" to "platform algorithmic alienation." Future interventions must, therefore, extend beyond

pure psychological therapy to include the ethical design and technological regulation of digital platform information architectures.

Structural fragmentation and the call for interdisciplinary integration

The author and institutional co-occurrence networks reveal a critical structural bottleneck that cannot be ignored: high academic fragmentation. Throughout its decade-long evolution, the field has cultivated distinct epistemic communities, from the early clinical psychiatry foundational teams (e.g., Starcevic's network) to the mid-term nursing and public health cohorts in the Middle East, and the recent Asian frontiers in information systems and human-computer interaction. Yet, these core clusters are separated by rigid "academic silos." There is a severe scarcity of "bridge" nodes spanning across these clusters and continents in the network map. Consequently, early psychological scale development and recent platform algorithm research often operate in isolation. As a complex issue positioned at the intersection of medicine, psychology, communication, and computer science, cyberchondria urgently requires the dismantling of these geographical and disciplinary islands. Future empirical research must not only promote global, multi-center collaborations but also facilitate interdisciplinary dialogues between psychiatrists and algorithm engineers to construct more inclusive and precise "AI-Psychology joint intervention" models.

Conclusion

Utilizing the CiteSpace bibliometric tool, this study conducted a longitudinal visual analysis of core literature concerning cyberchondria from 2016 to 2026, systematically mapping the field's knowledge domains, evolutionary trajectories, and emerging frontiers. The findings reveal that over the past decade, cyberchondria research has transitioned through three distinct phases: initial conceptualization, rapid pandemic-driven expansion, and interdisciplinary deepening. Epistemologically, early pioneers embedded the construct deeply within traditional clinical psychology frameworks, focusing on metacognitive biases such as the "intolerance of uncertainty." Subsequently, the outbreak of the COVID-19 pandemic and the accompanying "infodemic" significantly catalyzed the field, transforming cyberchondria from a localized psychological phenomenon into a social syndrome with collective implications. In current frontier trends, driven by the surge of high-intensity keywords like "health literacy" and "smartphone addiction," the topic is transcending traditional anxiety disorder boundaries and being reconceptualized as a complex "digital behavioral addiction."

Notably, this study exposes existing structural dilemmas and theoretical paradoxes within the current academic network. Structurally, global author and institutional collaboration networks exhibit high fragmentation and geographical siloing, lacking effective interdisciplinary bridges between early clinical psychiatry cohorts and recent information systems research clusters. Theoretically, the emergence of the "eHealth Literacy Paradox" suggests that in the face of increasingly complex commercial recommendation algorithms, relying solely on enhancing individual digital literacy is insufficient to buffer against the onset of cyberchondria. In conclusion, cyberchondria is not merely the product of individual cognitive dissonance; rather, it is the outcome of a resonance between algorithmic alienation on digital platforms and the broader socio-technological environment. Future research urgently needs to dismantle the disciplinary

silos separating medicine, psychology, and computer science. Through global, multi-center, and interdisciplinary collaborations, the field must shift its paradigm from "investigating psychological pathogenic mechanisms" toward "optimizing digital health environmental architectures." Doing so will be crucial in constructing a more inclusive and resilient health information ecology for the public navigating the digital flood.

While this study provides a comprehensive bibliometric mapping of cyberchondria research, several limitations must be acknowledged. First, data collection was restricted to the Web of Science (WoS) Core Collection to ensure the highest academic quality. Consequently, relevant literature published in other databases (e.g., Scopus, PubMed) or in languages other than English may have been omitted. Second, while CiteSpace offers robust quantitative visualization of knowledge structures, it cannot entirely replace the nuanced qualitative synthesis of full texts. Future research should address these limitations by incorporating multi-database retrieval and combining bibliometric analysis with qualitative systematic reviews. Furthermore, drawing upon the findings of this study, future empirical investigations should prioritize testing the "eHealth Literacy Paradox" across diverse demographic groups. Most importantly, establishing cross-continental research consortia that unite clinical psychiatrists and algorithm engineers will be vital for developing next-generation, AI-assisted psychological interventions.

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Conflict of interest

The authors confirm that there is no conflict of interest involved with any parties in this research study.

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