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Health Misinformation: Behavioral Drivers and Effective Counter-Strategies

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ABSTRACT

Health misinformation has emerged as a major global public health challenge, particularly in the context of the COVID-19 pandemic and the broader digital information ecosystem. This paper examines the behavioral drivers that underpin the creation, consumption, and dissemination of health misinformation, alongside effective counter-strategies for mitigation. It conceptualizes health misinformation as false or misleading health-related content that spreads rapidly across social media platforms, communication apps, and online forums, often amplified by algorithmic systems and social networks. The study identifies key behavioral mechanisms influencing misinformation engagement, including emotional responses, cognitive heuristics, social motivations, trust in sources, and perceived credibility. It further explores how information ecosystems shape dissemination pathways and how these structures interact with individual-level drivers to sustain misinformation flows. In response, the paper reviews evidence-based counter-strategies such as media literacy education, risk communication, platform-level interventions, community engagement, and the use of trusted messengers. It also highlights challenges in evaluating intervention effectiveness, including measurement limitations, contextual variability, and unintended consequences. The paper concludes that addressing health misinformation requires an integrated, multi-level approach that combines behavioral insights with systemic reforms in communication and platform governance.

Keywords: Health Misinformation, Behavioral Drivers, Information Ecosystems, Media Literacy and Risk Communication

INTRODUCTION

Health misinformation defined as "verifiably false or misleading health information that is created, promoted, or disseminated with the primary intent to deceive" [1] is a long-standing problem but has taken on new urgency amid the COVID-19 pandemic. An estimated 56% of individuals share health misinformation online, mainly on social media platforms [2]. This concern is compounded by the rise of the infodemic, a particularly widespread and rapidly diffused outbreak of information-disease that amplifies the perceived threat of an emerging ailment and leads to the proactive dissemination of unverified health content [3]. To design effective interventions, it is important to first identify the behavioral drivers that stimulate and sustain health misinformation propagation. Such behavioral drivers are distinct from cognitive or motivational determinants. Understanding the dissemination pathways of health misinformation is equally critical to effective mitigation [4]. Information ecosystems encompass the heterogeneous assemblages of digitally networked and algorithmically mediated actors, platforms, and nodes through which this content is created, received, and circulated. COVID-19 health misinformation has exploited diverse information ecosystems, including social media platforms (e.g., Facebook, Twitter, Youtube, TikTok), communication apps (e.g., WhatsApp, Telegram), websites and forums (e.g., Reddit, Quora), and hybrid formats that combine social media platforms with mobile communication apps (e.g., Facebook and Telegram, Instagram and WhatsApp)[1].

Conceptual Framework

Outbreaks of misinformation on social media and the web are commonplace, and they often have harmful effects [5]. In response, platforms are improving their defenses against misinformation while researchers are proposing strategies to fight misinformation [6]. Health misinformation is a potent threat due to its capacity to produce dangerous behaviors that endanger users and their families [7]. Therefore, it is crucial to discover behavioral drivers and build counter-strategies. Science does not have the answers yet, but researchers are concentrating on three themes for insight into health misinformation [8]. First of all, what is health misinformation? The transmission of plausible contents can generate concern that health measures will be neglected, when the factual contents reduce such concern. Furthermore, health misinformation is focused on publicly accessible locations, such as social media or the internet, and it will be concerned with research questions that capture how it is disseminated and the mechanisms that influence sharing [9]. Second, behavioral drivers are at work when health misinformation emerges; certain incentives improve the chance that health misinformation will spread in tandem with the dissemination of other contents [7]. Finally, information ecosystems explain an environment in which health misinformation is communicated. Health misinformation, types of information disseminated, share formats, destinations, and specific locations are all situated within a broader information ecosystem [1].

Definitions and Scope of Health Misinformation

Health misinformation refers to false or misleading claims regarding health and healthcare. More specifically, a claim is considered false if it contradicts the best available scientific evidence, and it is misleading if it conveys a distortion or oversimplification of scientific evidence [2]. The term content is employed to refer to health misinformation in textual form (e.g., posts, articles), while attributions encompass claims of a public health nature that typically underpin or accompany core content and that, while not strictly misinformation on their own, shape user perceptions of the content (the article, post, or documentary)[3]. Lastly, the concept of information denotes health-related information in any format be it scientific, anecdotal, or personal, that is not restricted to content published by mainstream media but may also include user-generated statements, testimonials, or individual opinions[3]. Health information may thus be defined as any claim influencing attitudes toward a particular health issue, regardless of its truthfulness or accuracy [4]. The scope of health misinformation is confined to claims regarding the interaction of persons with one or more health-related entities; it encompasses claims of various natures and transmission channels that nevertheless exert influence upon public health [5]. Examples of claims falling beyond the scope of investigation include the promulgation of militant ideologies and anti-government stances [3], extremist views regarding migration and integration, and statements concerning allegations of government malfeasance. The analysis is further delimited to claims exclusively relevant on the territory of France [2]. Lastly, only erroneous claims whether construed as falsehoods or misleading assertions are investigated [3].

Behavioral Drivers and Cognitive Mechanisms

Misinformation spreading via social media and other platforms reduces compliance with health measures, leading to the adoption of counterproductive practices [9]. Self-reported health anxiety and perceived health reduced individuals' willingness to comply [2]. Cyberchondria (anxiety over information-seeking) grows stronger with the spread of misinformation, motivating further searches that maintain or amplify anxiety [4].

Information Ecosystems and Dissemination Pathways

Health misinformation disseminates across diverse information ecosystems composed of actors, platforms, and media types that actively amplify misperceptions [5]. Ecosystems include multiple cross-cutting and overlapping systems, each representing a cluster of health-related information in societal discourse. Given the array of social, psychological, and structural motivations for sharing and consuming misinformation, it flows through distinct pathways involving various configurations of enabling actors, amplifiers, and target audiences [6]. Although social media are viewed as the primary drivers of misinformation proliferation, the design and organization of health-related ecosystems exert a considerable influence on the speed and extent of dissemination [7]. Health information transmission often occurs along a one-to-many, many-to-many, or many-to-one continuum, from official channels to the general public [8]. Each type of dissemination brings different sets of motivations and perpetuates specific misperceptions. Misinformation circulates through at least six major channels: platforms, institutions, providers, contexts, messages, and formats [9].

Empirical Evidence on Behavioral Drivers

Publishers, news organizations, and governmental actors exert considerable influence on the perceived credibility of health information [9]. Evidence indicates that authoritative and popular endorsements increase the likelihood of engaging with misinformation 2 and enhance its acceptance. However, source assignment is an evaluative process that also hinges on the nature of the health claim itself [7]. Actors, sources, and platforms offering conflicting, contradictory, or radical information can trigger skepticism that inhibits misinformation uptake [6]. People are more likely to accept conspiracy theories framed as alternative viewpoints originating from alternative sources, unless the counter-claim is perceived to rest on widely accepted information [5]. Misinformation aligned

with existing beliefs displays greater saliency and is therefore more readily accepted [3]. Framing and content design are thus pivotal determinants of engagement, far transcending the impact of source alone [2].

Motivations for Sharing and Consuming Misinformation

People engage with (mis)information for diverse reasons. Four typologies drive sharing and consumption: information utility, evaluation, and enjoyment; social utility, value, and approval; expression of technology discontent; and reliance on an appealing messenger [6]. Content-driven typologies align with the uses-and-gratifications framework whereas communication-based typologies extend the social-shaping approach [5]. Health information plays an increasingly vital role in individuals' daily lives. The Covid-19 pandemic and other health issues have questioned personal health management, thus driving higher consumption of health information [13]. The Internet has been an easy-going access for knowledge and came into people's daily life which is a mainstream inflow to health information but led to a great challenge concerning medical (mis)information consequently [11]. Medical misinformation consumption shows four patterns: information with high uncertainty associated with poor medical knowledge, habitual experience-sharing activities in friend circles, repeated exposure to unchallenged information with personal relevance, and implicit search for "alternative" health information using deceased individuals' cases from social media [9].

Trust, Credibility, and Source Perception

The credibility of posted content plays an important role for evaluating health information on social media [7]. The source of the health information significantly impacts its acceptance judgement, and individuals tend to consume and share information according to their expected credibility of the source [6]. More credible sources often lead to a more positive evaluation and acceptance of the messages among social media users, particularly when confronting misinformation [4]. Health rumors and misinformation on social media can even be more contagious than health facts. Before they even understand or think about the contents, many people follow the attitude and behavior of their social networks [3]. Therefore, understanding the source perception will enhance the understanding of public engagement and participation towards both information sharing behaviour and misinformation acceptance [3].

Affect, Heuristics, and Risk Perception

People frequently share or engage with health misinformation, even when it contradicts their prior knowledge, facts, or a position that has previously been rejected [5]. They willingly consume incorrect or misleading information that undermines the efficacy or safety of vaccination or antiviral drugs. The information-gathering process and individuals' reliance on heuristic cues influence behavior [4]. Various motivations determine the consumption or dissemination of false information. These motivations include emotional, altruistic, and epistemic needs such asinformation seeking or curiosity [8] : searching for specific information; support for the agenda of a group, community, or open platform; the wish to help others; a strong belief that the information is important; and an intention to help others evaluate their lifestyle choices[4]. These motivations resemble the functional models of misinformation collated in prior studies (framing, transmission, anticipation, self-preservation, and validation). Altruistic and emotional motivations for sharing are recognized more broadly [3]. Altruistic motives depend on sympathy for particular individuals or communities and concern for the welfare of children, including the desire to support a movement, institution, or belief. Emotional motives include sadness and outrage [2]. The need for affective responses to a specific piece of misinformation dominates the motivation to share. The actual action of sharing remains secondary whenever the dissemination process requires additional effort [9]. Nevertheless, a significant proportion of individuals share misinformation mainly for altruistic or emotional reasons, which aligns with the earlier transmission and validation functions [6]. For example, the Zika virus in Brazil initiated a high volume of scientific and alternative information traffic through widely disseminated links, attachments, and embeds [7]. Misinformation served as a vehicle for confirmation of ostensibly compatible beliefs, the first-order mission of which is confirmation. Hence individuals in this scenario were purely receivers of false or misleading Zika information. In such painful situations, the emotional dimension exerted much more influence than the either information scientists or alternative experts [4].

Counter-Strategies: Design and Implementation

Misinformation prevention measures typically concentrate on education, such as media literacy courses and critical appraisal [10]. These counter-strategies, however, do not exclusively target vulnerability to misinformation; they can also diminish the attraction of selective exposure or the desirability of sharing falsehoods [11]. Five evidence-informed and feasible public health options are summarized. The recommendations focus on general health misinformation rather than disinformation on specific topics, such as vaccination [9]. These options are not exhaustive and may need to be adapted to suit particular contexts or jurisdictions. Media literacy to promote critical appraisal of health information encourages people to scrutinize the quality, reliability, and accuracy of health-related claims [7]. Typical goals include understanding what constitutes reliable health sources, recognizing tactics that untrustworthy sources use to increase attention, assessing information without

considering the claim, and balancing emotions and rationality when discussing information. Health communications should use neutral or positive framing rather than negative [6]. Tone attributes such as trustworthiness or concern may influence how an audience perceives messages about health actions. Instructions should recommend that audience members who want to seek further information investigate evidence and find multiple sources instead of consulting a single expert or checking hashtags [5]. Considerations regarding the involvement of community groups underscore the importance of connecting with and empowering individuals or organizations that have established trust and credibility among specific communities. Targeting messages to particular groups should account for context [4]. Either additional criteria or a smaller pool of actors may facilitate the task of identifying trusted messengers while still delivering useful advice. Collaborative models may entail health authorities directly engaging with selected community members, creating pools of precleared community actors who can independently generate campaign, or using trusted figures to oversee crowdsourced content [3]. Health messaging campaigns can encourage the adoption of desirable protective behaviours. Campaigns should provide clear and accessible directions, minimising the quantity of text required and the need for prior knowledge [4]. Risk communication aims to encourage people to feel concerned enough to want to learn more, yet not so anxious that they become paralysed or feel hopeless[5].

Media Literacy and Critical Appraisal Education

The suggested framework for media literacy education consists of four learning objectives, accompanied by corresponding curricular elements and evaluation methods [8]. Learners should be equipped to recognize the prevalence of misinformation on multiple platforms, understand its potential impacts, and identify information and safety needs arising from misinformation. A secondary objective involves the capacity to evaluate information and assess platform mediation [12]. Individual levels of media and health literacy in specific population segments should inform the selection of curricula and pedagogical approaches [6]. For example, a two-part workshop focused on the nature and risks of misinformation and strategies for evaluating its credibility could facilitate greater resistance to its appeal and provide practical decision-making methods [4]. Framing health messages as curricula to improve health and wellbeing may better resonate with individuals traversing linguistic, educational, or contextual barriers. To ensure the practical applicability of knowledge acquired, engagement with the local community may solidify ties between the organisation and its audience while enabling channels for feedback [3]. While writing media, health, and risk literacies into programme guidelines promotes awareness among stakeholders, repeated requests for enhanced training in these areas indicate a still-pressing need [7]. Moreover, integrating engagement with local trusted messengers and organisations, alongside materials and pathways supporting informed decision-making concerning available resources, could prove beneficial [13].

Platform-Level Interventions and Algorithmic Transparency

The design of counter-strategies should also consider intervention implementation on social media platforms. Platforms that provide little transparency about their algorithmic content dissemination policies should regularly release information about factors influencing post visibility and how content circulation evolves over time [7]. Numerous system design options warrant analysis, for example, increasing the prominence of authoritative accounts, restricting the mass distribution of under-verified or health-related posts, decentralising posts and limiting repetition of individual messages, or indicating when a health-related post has already been forwarded [5]. Abundant trade-offs tend to accompany each intervention; enhancing one aspect may create vulnerabilities elsewhere [4]. Scrutinising the precise effect of public health guidance, security levels, incentive structures, and user behaviours on viral information flow can unmask trade-offs and stimulate the adoption of measures that optimise the overall system even as specific properties decline [3]. Algorithmic content dissemination choices exert a considerable influence over information availability on digital platforms [6]. Building on recent investments in understanding how network structure and information diffusion jointly shape system function, a comparable approach facilitating transparency about dissemination design may sharpen comprehension of the consequences and affordances assemblages engender within the evolving health misinformation landscape [14].

Health Communication and Risk Messaging

The framing, tone, and clarity of health communication and risk messaging can significantly affect the behaviour of key audiences and the adherence to recommended guidelines [6]. Messaging clear enough to be understood in one reading is more likely to modify the risky behaviours that counteract effective public health measures. If messages cannot be easily translated into a strong mental model, then they become misperceived, misrecalled, misquoted, and incorporated into misinformation [1]. To improve perceptions of, and adherence to, health measures such as mask-wearing, the science of effective health communication courses and risk-based public health messaging can be employed to influence behaviour. Simplifying complex concepts using one or other of a pandemic's epidemiological models, or other STEM-derived concepts from exposure science, second-hand smoke modelling, or building engineering modelling, can assist in conveying the risk assessment of airborne transmission[5]. In any instance where "think of the children" is evoked, the framing may influence whether a

protective measure such as mask wearing is seen as a restriction or a positive action, and travel guidance is similarly subject to the overwhelm effect, where additional information may lead to an avoidance response rather than informing positive behavior[3].

Community Engagement and Trusted Messengers

Community engagement and trusted messengers play essential roles in counteracting health misinformation, which can adversely affect public perception and behavior [7]. Disseminating facts rarely alters entrenched beliefs that are shaped by psychological and social pressures. During the COVID-19 pandemic, the World Health Organization underscored the need to combat an "infodemic" of false or misleading information in digital spheres. This admonition intensified interest in infodemiology and fostered the deployment of field epidemiologists to quickly address misinformation during public health emergencies [8]. Although public health agencies such as the Centers for Disease Control and Prevention and the World Health Organization post messages on social media, those communications frequently remain peripheral to online discussions concerning vaccines and infectious diseases[5]. Empirical investigations indicate that community engagement and the strategic selection of trusted messengers contribute to effective health misinformation interventions [14]. Rather than relying on a single communication channel or message, public health stakeholders should cultivate dialogue and collaboration across diverse communities, organizations, and platforms [6]. Specific activities include sponsoring co-created events, establishing partnerships with entities that have strong community ties, convening workshops to determine audiences and platforms, and publicizing outreach through widely circulated sources [5]. Complementary to community engagement, prior research suggests that the most credible and impactful messages incorporate at least one of the following criteria: alignment with audience beliefs, presentation by an institution regarded as a trustworthy arbiter, and authorship by individuals possessing scientific training [4].

Policy and Regulatory Considerations

Health-related misinformation compromises the ability of public health professionals to communicate effectively and support community well-being, heightening the need to identify and implement effective counter-strategies to the spread of health-related misinformation [5]. Qualified information in the domain of public health is vital. Defections weakening compliance with preventive measures and therapeutic regimens further complicate the response to, and the remediation of, misinformation in this sector [6]. Addressing information environments offers an opportunity to make public health communications more effective. Providing accurate public health information without reference to location, time, place, or space is insufficient, especially when competing deflections exist [7]. Counter-strategies include, but are certainly not limited to, education exalted by some 5 as the solution par excellence. Clearly such naiveté inspires treatment of information as though the deficit lay in knowledge of relevant facts: nincompoops and illiterates of every description may have diplomas hanging on their walls [8]. The latest trends and tropes proclaim concerns or warnings, addressing large populations, yet process-driven delinquents rampant in promotion constitute a serious threat [15]. Letters by or upon the fate of other nations without their imprints betray a lack of qualification to elucidate for one's own [16]. Supplementing a series of letters from many authors on matters of food and drink, an additional hint regarding the State Art Festival: not out of sheer nil or something so basic as that, a magazine with an utterly general title may concern itself over much with a life confined solely to the Art World [10]. The pursuit of Gains in Queries becomes shady territory, inviting the very undesired shift in concern from audience to self-something also avoided within Surfaces, not to say for lack of temptation [9]. The general social responsibilities established, letters circulating among educated circles hence only take on lesser aspects and entail diminishing public service. An alternative approach calls for a pivot to true democracy, publicly following the lead of all who attempt in such or similar a manner; and there may well be no better venue for it than said art meet[8].

Evaluation of Counter-Strategies

Various metrics can gauge the performance of counter-strategies, elucidating their effectiveness in ameliorating health misinformation [1]. Key evaluation considerations encompass the definition of outcome measures to capture behavioral shifts; the validation of indicators for reliability, consistency, and construct accuracy; and the comparison of metrics across interventions, designs, and populations to elucidate differential impacts and inform equity-sensitive approaches [2]. Counter-strategy uptake, adherence, and engagement constitute pivotal elements in assessing performance. Yet pre- and post-intervention measures of these indicators face challenges. Second-order exposure to misinformation may amplify initial information-sharing motivation but remains difficult to measure in relation to counter-strategies [3]. Efforts to gauge unverifiable exposure levels inevitably incur biases originating from self-reporting, time lapse, and circumstantial variance [4]. Counter-strategies addressing contact with misinformation share analogous complications. Such interactions may not diminish subsequent sharing intentions or reception likelihood but rather modulate their intrinsic quality and affective valence [5]. For instance, social distancing-related misinformation-sharing tendencies persisted post-contact with misinformation

counter-strategies, only to undergo qualitative modulation regarding valence, confirmatory bias, and alterability [2].

Metrics and Study Designs

Misinformation affects both health risks and care-seeking behaviours. Early findings and lessons from various information interventions for vaccination, chronic illness treatment, and general outbreaks like COVID-19 are reviewed; several aspects of these interventions are analysed further [7].

Effectiveness across Populations and Contexts

Contemporary public health crises have amplified disparities in health knowledge and risks according to demographic, economic, and environmental factors. Health misinformation is no exception [7]. Recent reviews of COVID-19 misinformation indicate members of potentially vulnerable communities, and those most impacted by misinformation, are less likely to see counter-misinformation efforts [16]. Income level, household resources, and digital literacy further shape constraints on both exposure and acceptance of information, mitigating the potential benefits of universal access to pro-health messages [17]. Public health practitioners should therefore assess counter-strategies for their differential impact on specific community segments. Differential impacts raise both equity and ethics concerns [15]. Differential effectiveness may allow counter-communications to reach segments thought initially unreachable or less consulted. In contrast, lacking attention to differential effectiveness risks further aggravating existing inequalities and undermining fundamental democratic values [14].

Unintended Consequences and Ethical Considerations

Health misinformation compromises individual well-being and public health; countering it is therefore a priority. Yet, interventions may yield unintended consequences, and ethical concerns such as privacy, autonomy, and harm mitigation must be considered [14]. Information ecosystems are inherently interdependent system individual-level, personal and public actions influence each other [15]. Consequently, some interventions might amplify the spread of misinformation to populations with high susceptibility [11]. Ethical challenges are further heightened by the governance of platforms on which misinformation flourishes, as the oversight of public health messages by agencies already regarded as government adversaries or elite institutions can stigmatize health organizations and reduce policy compliance [12]. Trust is a key factor mediating information engagement and counter-strategies aimed at augmenting or reducing misinformation must carefully weigh benefits and drawbacks [5]. The spread of information may expand the psychological distance between individuals and counter-misinformation when the content targets a different group. Diverse interventions conducted in different domains and aimed at diverse populations still exhibit similar psychological mechanisms [2]. Public health organizations play a crucial role in establishing a more accurate, trusted, and reliable information environment, and careful coordination is necessary to avoid recommendations perceived as authoritative imposing harm while motivating others who might still engage in risky behavior to redirect effort towards more relevant topics [1].

Case Studies

Health misinformation has undermined public health efforts for decades. The COVID-19 pandemic heightened this longstanding concern, with stakes reaching unprecedented levels [15]. Vaccination is a critical public health intervention for controlling the pandemic and preventing severe illness. Characterizing vaccination misinformation exposure and engagement across diverse behavioral targets provides insights for designing and evaluating counter-strategies [16]. Conducting ethnographic analyses of online platforms and employing community-driven and innovation-focused methods yield a comprehensive and theoretically grounded understanding of health misinformation [14]. The above paragraph was presented as a shortened introduction to the section. The following text provides a detailed account of case study analyses [14]. Investigating misinformation surrounding chronic disease management illuminates risk perceptions and emotional drivers addressed in mainstream interventions. The focus on healthy lifestyle habits provides insights regarding message clarity and reinforces earlier evidence that addressing risk attitudes alone is an insufficient counter-strategy. Health misinformation exacerbates misinformation-related concerns and motivation crowding effects diminish the effectiveness of corrective interventions [13]. Additional research is needed to substantively quantify the generalizability of transferability, enabling broader application to future public health crises [12].

Vaccination Information Campaigns

Vaccination information campaigns raise specific concerns about health misinformation dissemination and counter-strategies [1]. The value of clear, reliable information on the advantages of vaccines against vaccine-preventable diseases across the life span for instance, the measles virus, the human papillomavirus (HPV), and COVID-19 decreases significantly when non-expert sources offer data of questionable verifiability as a result of hesitance to rely on information distributed via mass media sources and social networks reaching the public[12]. Strategies to counter health misinformation should examine several aspects. Common rhetoric used in expressions of doubt about vaccines risk underlining, e.g. “My body, my choice” reframing their promotion as compulsory medical treatment rather than as a credible alternative to routine hygiene and sensible risk management [13]. Messaging

should also avoid initial urgency, supplying first the rationale for the need for timely delivery of content and offering justifications in response to apparent doubts [18]. Such campaigning adheres to the identified need for content to be accompanied by context to justify its consideration and has been shown during the COVID-19 pandemic to prove particularly effective in persuading even vaccine-hesitant individuals that printed deposits of rubbish in one's garden entail a heightened risk of vector proliferation, making attention to such messaging socially responsible[17]. Promoting vaccination remains fundamentally a risk-communication challenge [16]. Vaccines might be considered comparable to insurance policies; consequently, communicating acknowledged and mustered risks along with comprehensive benefits clarified by uncontentious examples, such as risk acceptability when driving or exposing children to leakage from unregulated oil-extraction practices may mitigate publicity connected with vaccine-encouraging initiatives [19].

Chronic Disease Management Misinformation

Recent research addresses the chronic disease–health misinformation narrative, where misleading content complicates managing diabetes, hypertension, obesity, depression, or anxiety [13]. Patients distrust authority and seek shortcuts for quick fixes contrary to professionals' guidance [12]. Misinformation persuades them to abandon long-term efforts and choose hazardous, inexpensive alternatives, underscoring the need for effective, science-based communication 20. Strategies include signalling falsehoods, repeating corrections, and presenting trustworthy options. Building a patient–clinician partnership requires investment in a collaborative, community-oriented approach that heightens the impact of clarifying advice and countering misleading alternatives [14]. Chronic disease management represents an important health misinformation context. Misinformation regarding chronic conditions continues to proliferate despite patient education efforts and extensive professional guidance. Patients frequently distrust recommendations from healthcare providers trained to prevent or mitigate chronic diseases [15]. Driven by the widespread internet and social media usage, the availability of alternative explanations fosters information-seeking behaviour and the desire to share findings [16].

COVID-19 Era Lessons and Beyond

The COVID-19 pandemic underscored the urgent need to address health misinformation, which proliferates rapidly in the digital age [13]. The Affordable Care Act's Health Insurance Marketplace emphasized the crucial role that information quality plays in public health decision-making. The Crisis and Emergency Risk Communication Guidelines for Emergency Risk Communication reiterate that the integrity of health information is foundational to both health and safety valid messaging during outbreaks [14]. These insights laid the groundwork for subsequent analysis of Health Insurance Marketplace misinformation among the insured and uninsured but the examples cited remain relevant for future public health crises [15]. The pandemic accelerated the use of virtual platforms to disseminate misinformation about COVID-19 as well as about unrelated topics. The platform ecosystem has evolved in response to ongoing tensions between safeguarding freedom of expression and ensuring accurate information [15]. Considerable resources have been directed toward countering false narratives promoted by various actors and influencers and toward social media literacy training that advocates caution, balancing skepticism toward the message with vigilance against legitimate content [11]. Misinformation has circulated about the virus itself, reporting, and preventive measures [12].

Gaps in Knowledge and Future Directions

The initial account of behavioral drivers initiating the generation and dissemination of health misinformation provides an incomplete overview [13]. In parallel to the aforementioned analyses, further multi-faceted exploration is required to clarify the circumstances prompting individuals to engage with readily available misinformation in social media or other information platforms [12]. Such engagement resonates with the concept of "consuming" misinformation in the wider academic literature. Empirical research has identified distinct typologies classified via cognitive and affective profiles associated with the engagement of differing types of misinformation widely available on social media platforms [15]. Even without active participation, further research is warranted to understand the circumstances leading individuals to engage in the consumption of misinformation. The above account clarifies the elements associated with a behavioral framework to examine health-related misinformation and complementary areas of scholarship [16]. Furthermore, steps must be taken to extend this analysis beyond the sharing of misinformation towards its broader consumption. Accordingly, a concise overview of the engagement of misinformation elaborates the range of scholarly knowledge on health-related misinformation [17]. In similar fashion to the aforementioned drivers, the investigation of health-related misinformation must encompass drivers directing individuals to engage with publicly available or undisclosed misinformation across diverse social media and platforms [18].

Research Agenda and Methodological Needs

Health-related misinformation has been the subject of increasing academic interest. Several literature reviews provide an overview of its emergence and spread through social media and other digital platforms [12]. The

rapid dissemination of erroneous information regarding the Zika virus and other health topics, highlighting the ineffectiveness of traditional health communication strategies against horizontal conspiracy propagation [13]. Eighty percent of the 80 studies reviewed focus on content analysis and user consumption patterns, while few explore experimental manipulations of social media functions to evaluate corrective interventions [10]. The scope to user-centered interventions that exert direct influence on individuals rather than relying solely on algorithmic measures.

Practical Implications for Public Health Practice

Society's increasing reliance on digital media to access health information amplifies individual and collective exposure to both accurate and inaccurate content [18]. In parallel, the COVID-19 pandemic placed unprecedented stress on public health systems and procedures worldwide, particularly on the ability to respond to and counter health misinformation that proliferated on a global scale [19]. Against this backdrop, the objective of this multi-method and interdisciplinary research program is to furnish evidence-based insights actionable by public health practitioners and policymakers seeking to comprehend and mitigate health misinformation as a societal challenge beyond the pandemic [17]. Public health practitioners and researchers looking to tackle health misinformation whether linked to COVID-19 or extending to health topics more broadly face important practical implications [16]. Adopting an inclusive definition that covers statements that are verifiably false, misleading, or incomplete, health misinformation was shared by nearly half of the study respondents during the COVID-19 pandemic, with a similar proportion explicitly concerned about exposure to it [20]. Respondents reported sharing health misinformation because they believed it to be true, wished to entertain or provoke reactions among peers, and were unaware that the content was false. Direct motivations to share health misinformation were largely mirrored for other health topics, although COVID-19 specificities extended to broader concerns about the public's misconceptions around vaccines and treatment options [22]. Unlike only a handful of respondents who claimed to share COVID-19 health misinformation in order to enhance their authority or reputation, higher and lower motivations to share general health statements extended to information-sharing regarding COVID-19, demonstrating the interconnected nature of the two topics [1].

Cross-cultural Considerations

Individuals' engagement with health information is shaped by various social, economic, contextual, and cultural factors, including geographic, national, ethnic, socioeconomic, religious, and cultural circumstances. Acknowledging this diversity is essential for properly designing communication strategies targeting health misinformation, as similar measures may have disparate effects in different contexts [5]. The reasons for sharing or consuming misinformation and the information actors involved differ across regions and cultures; thus, any proposed strategies must be carefully adapted to local contexts in order to maximize their potential impact [21-23]. Diversity also manifests in access to health services, information and communication technologies (ICTs), and information literacy; hence, communication strategies must be adapted to the contexts in which they are implemented, taking into account the channels, formats, types of information, and communication markers through which messages are disseminated. Such adaptivity extends to the selection and involvement of partners, messengers, and amplifiers; addressing information at the community or societal level is a common approach [24-26].

CONCLUSION

Health misinformation is a complex, adaptive phenomenon driven by the interaction of behavioral, social, and technological factors. This review demonstrates that misinformation spread is not merely a result of information deficits but is deeply rooted in psychological motivations, social reinforcement, emotional triggers, and trust dynamics. The structure of modern information ecosystems further amplifies these effects, enabling rapid and widespread dissemination across diverse digital platforms. While a range of counter-strategies exists including media literacy programs, communication redesign, algorithmic transparency, and community-based interventions, no single approach is sufficient to address the problem in isolation. The effectiveness of these strategies depends on context, audience characteristics, and the credibility of messengers, as well as careful attention to unintended consequences such as polarization or distrust in public institutions. Future efforts should prioritize integrated, multi-level interventions that combine individual behavior change strategies with systemic platform reforms and culturally sensitive communication practices. Strengthening collaboration between public health authorities, technology platforms, and local communities is essential to building resilient information environments. Ultimately, reducing the harmful impact of health misinformation requires sustained, coordinated action that aligns scientific evidence, behavioral science, and digital governance.

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