An analysis of the interaction mechanism between the social history of medicine research and health communication from the perspective of mass communication

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Author contributions
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Kun-Lan Zuo: Investigation, information collection, writing, and reviewing. Huan Liu: Supervision, reviewing, and editing.
All authors contributed to the article and approved the submitted version.

Competing interests
The authors declare no conflicts of interest.

Acknowledgments
University of Science and Technology of China Quality Project History of Medicine [2023YCZX02], Digital Museum Construction Project of Chinese Centre for Disease Control and Prevention (BB2110240080), The National Key R&D project granted by the Ministry of Science and Technology (2018YFA0902400).

Peer review information
History and Philosophy of Medicine thanks all anonymous reviewers for their contribution to the peer review of this paper.

Citation

Abstract
The mass communication model and interactive ritual chain theory, which serve as communication paradigms in the new media era, facilitate and enhance the synergy between the fields of social history of medicine and health communication. This study employs a comprehensive framework based on the five elements of the mass communication model: information source, communication subject, communication object, message content, and post-communication feedback. Additionally, it incorporates the interactive ritual chain theory to examine the evolving dynamics and developmental trajectory of research in the social history of medicine during the new media era. Conclusively, this paper acknowledges the existing interaction gaps in the interaction between health communication and the social history of medicine research while outlining the challenges for fostering collaboration and proposing strategic optimizations for effective integration.

Keywords: history of medicine; health communication; mass communication; interaction mechanisms; interaction ritual chain theory
**Introduction**

Health communication, representing the dissemination of medical research outcomes, is not only a pivotal element in national economic and social development but also a crucial concern for public well-being. In the era of new media, the public has gained increased avenues and inclination to express opinions on health matters, accompanied by both communication risks and opportunities.

Given the absence of rigorous content auditing and personnel access systems on major online and self-media platforms, there exists a potential for the spread of pseudoscience and counterintuitive information in both original and re-transmitted content related to medical and health communication. As a vital component in the knowledge-generation process of mass communication, the examination of the social history of medicine assumes a crucial role in ensuring the scientific validity, consistency, and accuracy of knowledge. The interaction mechanism between the social history of medicine and health communication warrants further analysis.

**Mass communication model and interaction framework in the new media era**

The mass communication model, introduced by Wilbur Schramm, provides a theoretical framework for understanding the real-life dissemination of information in the public sphere. This model focuses primarily on the communication and feedback processes between the information transmitter and receiver. Comprising five key elements: information source, communication subject, communication object, communication message content, and post-communication feedback, the mass communication model represents a departure from earlier theories by transforming the unidirectional and linear communication path into an interactive closed loop [1]. Notably, the mass communication model acknowledges that the interactive process between information source and receiver is influenced by both macro and micro-level factors. The macro context, encompassing politics, economy, science and technology, and social policy, shapes the scale of mass communication. Meanwhile, the micro level, involving individual literacy, information reception capabilities, cognitive processing, and feedback, can impact the effectiveness and depth of communication.

This alteration introduces the potential for interactivity in the study of the social history of medicine and the field of health communication, facilitating the flow and renewal of knowledge within society. In this process, the dynamics of interaction are specifically manifested in the changing roles of the social history of medicine and communication media. Medical scientists or research institutes are responsible for scientific exploration in the interactive phase, playing the role of information sources. Furthermore, the study of the social history of medicine will generate the required content for the health communication subject based on the information source, and the individual researcher or organization it is associated with becomes the focal point of the communication process. Ultimately, the public, as the final link in the interactive chain, will provide corresponding feedback upon receiving health communication content, thus promoting the quality of information content production. Given the similarities in elements, structures, and influences between mass communication models and the contexts relevant to the social history of medicine and health communication, mass communication serves as a bridge and medium for interaction between these two domains.

In the rapidly evolving landscape of the new media era, the public's capacity to articulate their will and opinions has significantly expanded, accompanied by a diversification of the media platforms they rely on. Correspondingly, there has been a growing demand for health science popularization among the public. The advancement of information technology in recent years has positively influenced the study of the social history of medicine and health communication. Knowledge disseminated on self-media platforms such as TikTok, Weibo, and WeChat can establish deeper emotional connections between communication subjects and objects compared to the traditional paper media era, thereby enhancing the scale and depth of mass communication simultaneously [2].

Sociologist Randall Collins encapsulates this shift in interaction patterns in the age of self-media through the "interaction ritual chain theory." According to this theory, the public can derive emotional energy from interaction rituals, typically anchored in a specific group symbol and fortified through continuous interaction [3]. This transformation in mass communication is observable in the dissemination of knowledge produced by researchers in the social history of medicine and the public's quest for health-related information on self-media platforms. On prominent new media platforms, the public can engage in commentary and interactions on the social accounts of knowledge producers, fostering a deeper emotional connection and thereby amplifying the dissemination of health knowledge.

**Development of the social history of medicine research history and orientation trends**

As an interdisciplinary field bridging medicine and historiography, the history of medicine is dedicated to exploring the evolution of medical practices over time. In addition to scrutinizing the intrinsic development of medicine, this discipline intertwines the examination of medical research with broader considerations of political, economic, scientific, social, and cultural factors. These factors are typically categorized into comprehensive and specialized history [4]. While the study of the history of medicine encompasses and integrates knowledge and backgrounds beyond its discipline, it traditionally leaned towards investigating the development and laws of medicine itself, resembling a field within the realm of medical-related practitioners [5].

Over time, as disciplines intersected and societal paradigms evolved, the history of medicine gradually amalgamated with history and sociology, giving rise to the social history of medicine. The inception of the social history of medicine, dating back to the first half of the 20th century, included significant elements of cultural history, delving into topics like the relationship between disease and witchcraft [6]. The subsequent period from the 1960s to the 1980s marked a flourishing phase for the social history of medicine research, reaching a stage of maturity in the early 1990s [7]. The institutionalization of this field was solidified with the establishment of the Society for the Social History of Medicine in the UK in 1970 [8]. By this juncture, the research focus of the social history of medicine had shifted towards the development of public health, with notable attention to issues such as heart disease and various forms of medical treatment. Chronic diseases, particularly the emergence of HIV, played a significant role in shaping the research agenda of the social history of medicine [9]. Retracing the evolution of the field, the social history of medicine, in comparison to the narrower history of medicine, exhibits a more profound integration with the research perspectives, ideas, methods, and frameworks of the humanities and social sciences. The findings are distinctly centered on the health, well-being, and humanistic care of the public.

With the evolving landscape of democratic consciousness and influence, the public's explicit demand for health communication has intensified. Correspondingly, the changing times have prompted the social history of medicine to explore novel perspectives and avenues for fostering interaction with the public. This is notably evident in the increasing interdisciplinary collaboration in the study of the social history of medicine and the popularization of research topics. For instance, there is a heightened emphasis on social issues such as race, gender, and class within healthcare activities. Additionally, there is a democratization of research objects and inquiries. Zhang Daqing has identified two key shifts in the social history of medicine: the "body turn" and the "material culture turn." These shifts have led to a greater focus on history public health technologies, the material culture of modern medicine, and the historical evolution of doctor-patient relationships [10]. In the 1970s, the Foundation for American Higher Education autonomously explored the convergence of medical science,
the history of medicine, and the history of sociology. During this period, there emerged a new trend of disciplinary intersection, with a notable focus on the transformation of the human body and the peripheral environment [11].

Furthermore, the social history of medicine has begun delving into the dissemination of professional scientific knowledge to a broader audience, adopting new ideologies and methodologies for historiography and popular science. Concurrently, research objects in the field have undergone a gradual transition from comprehensive topics to a more concentrated exploration of human-centered or disease-centered themes. With the advancement of medical sociology and the sociology of health, there has been a resurgence in studying medicine and health communication from the perspective of comprehensive and systematic human understanding. Works like Volynsky’s “The Sociology of Health” and Macneill’s “The Plague and the Man” exemplify this transformative trend [12-13]. In contrast, the current domestic trend in the study of the history of medicine emphasizes refining the object of medical research and adopting more interdisciplinary and diversified approaches within the medical-social field. Notably, recent popular science work such as “Stomining of Virus & Human” [14] departs from traditional strong scientific narratives and display methods, focusing on the history of viruses in the study of the history of medicine. It explores the intrinsic connection and interaction between the development of human society and the process of virus resistance.

In summary, whether viewed from the historical development or future trends, it is evident that the public's demand for and desire to participate in health communication is gradually rising. Against the backdrop of the self-media era, the entry barriers to social platforms are gradually decreasing, and knowledge production and dissemination are becoming increasingly unrestricted. Therefore, in the health communication process, the public now has higher expectations for the quality of knowledge content output, the stability of communication media, and the accuracy and scientific nature of the content. All these factors pose numerous challenges to the further interactive relationship between medical social history and health communication.

**Status of health communication in mass communication mode and interaction gap**

As an integral component in the progression of human civilization, public health communication has played a pivotal role across diverse historical periods. In recent years, China has consistently adhered to the public health principle of "health first," prioritizing prevention and focusing on major diseases, health risk factors, and the well-being of key populations. Currently, the primary domains of medical health communication in China encompass hospital medical communication practices, community medical communication practices, campus medical communication practices, and family medical communication practices [15]. The current research landscape in China primarily centers on the detailed examination of the principles and requisites of health science information dissemination. Continuous efforts are made to augment the connotations of these principles, with a focus on applicability, accessibility, and positivity [16].

Beyond the overall transformation in medical and health communication practices, both academic and popular science-oriented medical and health communication have undergone changes concomitant with the evolution of the mass communication model. Embraced within the parameters of the mass communication paradigm, communication channels and media for academic and popular science endeavors encompass academic papers, books, popular science articles, and books. The communication modes, external environments, and key elements involved in these channels and media align with the processes and factors of mass communication. This includes communicators represented by the editors and publishers of traditional paper media, information sources represented by research outcomes in the social history of medicine and history of medicine, and messages conveyed through platforms and media for the popularization of science and technology. However, medical and health communication disseminated through traditional paper media is often constrained by factors such as distribution channels, geographical limitations, and time constraints, necessitating urgent support from new technologies.

In the era of new media, the convergence of the Internet, mobile communications, and computer algorithms has ushered in multiple updated popular scientific and medical health communication channels and media. Presently, information sources for medical and health communication not only facilitate independent generation and recreation of knowledge but also offer diversified and efficient platforms for audience interaction and feedback. Despite the accelerated pace of medical and health communication attributed to technological innovation in the new media era, there are discernible shortcomings within the mass communication mode of health communication.

Firstly, the quality of medical and health knowledge disseminated through new media channels is often compromised, particularly after multiple processing or secondary creation, leading to distorted and erroneous information. In previous research on knowledge dissemination, the phenomenon of a transformation in the accuracy, completeness, and scientific nature of disseminated content is referred to as information distortion. This outcome is primarily influenced by factors such as individual interests, value judgments, scientific comprehension ability, and ethical considerations of the retransmission subjects, contributing to considerable uncertainty. Secondly, the utilization of new media platforms remains suboptimal, marked by relatively homogeneous content and column design, thereby struggling to cater to the diverse needs of the modern public. As analyzed in the preceding sections, scientists, and medical institutions, who should ideally serve as the primary agents of health communication, have consistently failed to fully leverage self-media platforms due to differences in their inherent mechanisms and functions. Simultaneously, the achievements of researchers in the social history of medicine continue to be concentrated in academically rigorous journals and platforms, remaining far removed from the health needs and issues of the public. The number and influence of researchers engaged in self-media health communication, however, have consistently struggled to meet the extensive demands of the public. Finally, new media tools operating within the mass communication model may foster irregularities in interactive behavior, lacking adequate legal regulation. Consequently, the failure to establish an effective two-way closed loop and interaction between communicators and audiences poses a challenge [17]. This issue of information distortion in the communication process is closely linked to the rapid development of emerging self-media networks. Despite recent regulatory measures in China, such as real-name registration and IP tracing, there remains an overall lack of supervision and enforcement on communication persists. Crucially, the level of interaction between the audience and the platform channel falls short of generating sufficient emotional dependence and connection, significantly diminishing the sustainability of health communication.

**Nested interaction between the social history of medicine and health communication and optimisation strategies**

With the advent of the new media era, interactive communication elements between the social history of medicine and health communication have engendered both conflicting challenges and opportunities. The fundamental principle underpinning the advancement of medical health communication is to ensure the scientific integrity of intellectual research in the social history of medicine, preventing distortion during dissemination. Ultimately, the goal is to convey information in a manner comprehensible and applicable to the public. It constitutes an overarching closed-loop framework that solidifies the two-way interaction of mass communication while enriching the emotional attachment and interaction between knowledge and the public, aligning with the theory of the ritual chain of interaction.
As a crucial prerequisite within the mass communication model, the information source serves as the foundation for the effectiveness of health communication. In the new media era, the public exhibits greater initiative in selecting and accepting knowledge. However, the current era still lacks sufficiently rigorous and comprehensive laws and regulations for scrutinizing and screening the creation and dissemination of knowledge, making it challenging to fully ensure the quality of information sources. 

Most sources for medical and health communication derive from academic journals and popular science materials. Yet, due to the historical materials' low online conversion rate, the updating or synchronization of medical and health knowledge in the new media era lags. Consequently, the public can independently become "knowledge reproducers" on new media platforms, leading to the secondary or multiple processing of information sources and an increased risk of distorting scientific knowledge. To guarantee that the information sources within the mass communication model are sufficiently scientific and consistent, it becomes imperative to establish a corresponding auditing mechanism for the generation and dissemination of knowledge on platforms. This involves ensuring that communicators have the authority and qualifications to speak on specific issues. Moreover, as the knowledge foundation for health communication, the study of the social history of medicine should actively participate in the entire process of mass communication to uphold the authority of knowledge. For instance, experts and scholars in the history of medicine or the social history of medicine could be invited to engage on new media platforms as unbiased 'online reviewers.' Furthermore, self-media platforms should conduct professional and relevant qualification assessments or re-education for individuals and organizations exerting significant influence in health communication. Of course, self-media platforms can also establish entry assessments, standards, and certifications specifically tailored to discussions within the core sectors or topics of health communication. This approach ensures the professionalism and scientific rigor of information dissemination.

As a pivotal component within the mass media model, communicators bear the responsibility of ensuring the authenticity and coherence of knowledge production from information sources and the dissemination of messages. Currently, there is a deficiency in the professionalization of practitioners and standardization of the personnel training system in China's development and establishment of health communication. From the perspective of knowledge production and medical and health communication process, there is a pressing need for medical communication to evolve into a specialized discipline, systematically cultivating professional talents in the field.

In practice, most medical communication practitioners in China lack specialization in any field, resulting in a deficit of comprehensive knowledge and competence in communication. Communicators must assume responsibility for ensuring the authenticity of the interaction between knowledge and the public. Their understanding and translation of scientific knowledge should align with academic norms and principles of popular science. Given that academic medical and health communication may present direct barriers to public acceptance of popular science, achieving the widespread effect of health communication necessitates communicators to maintain accuracy and interest in their understanding and translation. Considering this, it is imperative to establish a set of standards for reading and writing texts within the framework of academic texts and popular science content specifications. This initiative aims to ultimately formulate an industry norm conducive to the enhancement of professional practices in health communication. Researchers in the social history of medicine, scientists, and research institutions, while undertaking the responsibility of producing health information content, should also appropriately expand and diversify the avenues of health communication. They should employ a variety of media forms to disseminate health information. In addition to traditional academic papers from journals to self-media platforms, innovative approaches such as webinars, visual and textual content, or exhibitions can be utilized to promote the popularization of health knowledge.

Interactive feedback serves as both the terminal link of mass communication and the inception of recirculation. In the new media era, the public's reception of information extends beyond the confines of a single self-media platform, adopting a multidirectional and dynamic trajectory. During this process, the public not only consumes messages but also harbors a desire to articulate their opinions, express wishes, or engage in interactions within the community of fellow audiences. This interactive process not only functions as a relay in information transmission but also indirectly "reinterprets" and 'reprocesses' the information sources within medical and health communication [18]. At this level, the information flow within the mass communication model transcends a mere one-way or multi-way exchange, evolving into an all-encompassing, high-frequency interaction within communication media. Given this distinctive communication characteristic, scholars, and experts in the field of social history of medicine should actively partake in the interactive feedback process. This involvement aims to enrich the emotional interaction between communicators and receivers, thereby augmenting the breadth and depth of medical and health communication. It is worth noting that, in addition to legal supervision over the process of information production and dissemination, legal regulation and punishment are also crucial for interactive feedback. Many current self-media platforms operate with an anonymized registration and login system. Therefore, in cases of online violations and illegal activities, it is challenging to trace and hold individuals accountable, making legal responsibilities, rights protection, and punishment difficult. To ensure a constructive interactive relationship between communicators and the public, there is a need for certain qualifications and IP binding for both network subjects and objects. This measure helps prevent the proliferation of malicious comments and low-quality retransmission events in the context of anonymity.

**Conclusion**

Within the developmental lineage of the social history of medicine, its fundamental value orientation and objectives consistently align with the aims of health communication. The mass communication model, serving as an analytical framework for the flow and regeneration of information in today's new media era, accurately captures the interaction mechanism between the study of the social history of medicine and medical health communication. A thorough analysis of the current state and interaction gaps of health communication within the mass communication model reveals potential risks of the key communication elements: information sources, disseminators, receivers, message quality, and feedback mechanisms falling behind the contemporaneous characteristics.

Guided by the mass communication model and the theory of the chain of interaction rituals, future information dissemination could benefit from a reviewer system, practitioner specialization, disciplined talent training, and enhanced emotional interaction. These measures, to varying extents, have the potential to bridge the interaction gap between knowledge and the public in the process of mass communication, ultimately facilitating the realization of the disciplinary mission of studying the social history of medicine and health communication.

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