Research on the Influence Mechanism of Healthy Communication in Social Media on Social Identity in the New Media Era

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Abstract: With the continuous progress of the society, health issues have been paid more and more attention, and health communication has thus become a very important issue in the current environment. In the field of health communication, people collect and accept all kinds of confusing information transmitted by the media, which is also affected in this process, and even cater to the standards set by the media to solidify their behavior. Based on this situation, from the perspective of the new media era, this paper studies the mechanism of the influence of healthy communication on social identity in social media. It is found that different actors of media power have formed a set of habits corresponding to their health authority capital when producing and disseminating health information, and the habits of different actors in the field also have obvious influence on their health information dissemination power. The health information in social media affects the audience's health behavior, and the audience constructs the audience's social identity based on these intermediary information and the health behavior established by it. In the follow-up, it is necessary to standardize the dissemination of health information by new media, construct the responsibility of health communication of new media, and advocate the voice of professionals in the health field.

1. Introduction

With the continuous progress and development of industry and science and technology, food safety incidents, health safety incidents and other incidents have entered a high incidence stage. At the same time, residents' material living standards are also constantly improving, and people's attention to health information has increased accordingly [1]. The so-called health information refers to the health and medical information related to the public, patients and their families. Health information involves all aspects of people's physical and mental health, and has various types of information [2]. In recent years, with the development of Internet and new media technology, online community has become the main place for people to interact and exchange and acquire knowledge [3]. With the public's increasing concern for personal health, a large number of online health communities have sprung up. At present, social media has become an important platform for the dissemination of public health information, and the dissemination of health information in social media has certain influence on people's social identity [4]. With the continuous development of health communication research, "health communication in social media" has become a focus of academic circles because of its important influence [5]. Therefore, it is of great significance to explore the influence mechanism of healthy communication in social media on social identity in the new media era to promote the spread of public health knowledge and the sustainable and healthy development of online healthy communities [6].

Media is closely intertwined with our life, and the popularity of smart phones has brought about the rapid development of mobile media. Now it is difficult to distinguish offline life from online life. With the continuous development of Internet technology in recent years, the new media

platform has gradually replaced the traditional media and become one of the main ways for users to spread healthily [7]. However, social media has the characteristics of efficient communication and flexible interaction, which makes it an important carrier of healthy communication. The reality and the media blend with each other, which makes us truly enter the media society [8]. The media society has built a perfect "mimicry environment" for people. People pay attention to specific topics provided by the media, receive all kinds of information transmitted by the media, and take actions according to the preset or guided direction of the media [9]. In the field of public health, social media are often used to monitor the outbreak, disseminate health information, mobilize community action and promote behavior improvement [10]. In addition, social media is also a platform for individual experience writing, communication between different groups and organizations, and meaningful production. It has played a role in public health events, such as emotional relief and disaster relief [11]. The media is the most active in the field of health communication, with the strongest correlation with other forces, the weakest correlation between economic forces and other forces, and political and academic forces between them. Based on this, from the perspective of the new media era, this paper studies the mechanism of the influence of healthy communication on social identity in social media.

2. Health Communication Based on Social Media Platform

2.1 The Presentation of Infectious Diseases by Social Media

At present, with the increasing penetration of new media into all aspects of people's lives, more and more social media platforms have opened health and wellness programs, many medical-related institutions have opened Weibo and WeChat WeChat official account, and many medical professionals have used Weibo WeChat to spread health knowledge. However, compared with traditional media, social media platforms have low barriers to entry, complex information sources, uneven user literacy and backward information review mechanism, which leads to the proliferation of pseudo-scientific information and false information on social media platforms. Then, as an important way of health communication, social media, how it constructs health issues and how it spreads health information, all have a very important impact on the effect of receiving information by the audience. How to effectively present diseases and give early warning and guidance to the public is an important content of health communication. The information received by individuals shapes their health cognition and behavior, and social media has become one of the main sources of online health information. Therefore, to some extent, the appearance and spread of infectious diseases by social media shaped people's risk perception, and finally greatly influenced people's decision-making process and risk management behavior.

Communication subject, also called information source, is the initiator of communication system behavior. Compared with traditional media, the communication subjects of social media are more diversified. Social media has the characteristics of "users producing content, two-way communication, instant communication, easy news sharing and publishing, mutual connection and community belonging, like-minded personal space, selective exposure and motivation handling". New media social platforms such as health discussion community have become the main channels for people to get health information on a daily basis. In order to gain wider audience support, disseminators of health disputes also regard social media platforms as the main channels for publishing information. Successful infectious disease risk communication has seven goals: understanding, audience satisfaction, arousing or alleviating concern, informed decision-making, behavior change, social change, and laying the foundation for cooperation. From a professional point of view, a healthy life requires the synergy of all aspects of the body, and it is also influenced by the environment. It is neither rigorous nor scientific to tell users exactly how to live in order to be healthy. What are the characteristics of health communication under the current social platform, and how to further improve the health communication on the social media platform are worthy of in-depth study. The realization of the successful goal of infectious disease risk communication depends on a series of complicated mechanisms: what information should social media convey to

the public, and how can these information arouse the attention of the outside world; How social media affects people's cognitive factors; How to link all levels of society with the media to trigger collective action.

2.2 Social Public Opinion Monitoring Model

Before the members of the innovation community share knowledge and make use of knowledge to innovate, there are motivations that drive this behavior, including the willingness to innovate and the degree of individual recognition. In the process of innovation, knowledge owners take the initiative to share relevant knowledge with other members, so that knowledge can be changed from individual level to network innovation community level, thus promoting the development of innovation activities. Therefore, innovation willingness is an important factor to stimulate users to participate in community knowledge sharing activities. Members with a high sense of community identity will regard themselves and the community as intertwined communities, and show a more active attitude and behavior in the community. Therefore, the recognition degree of individuals in the network innovation community is an important factor affecting users' knowledge sharing behavior. Before the health information public opinion monitoring system analyzes the data, it is necessary to clarify the content of public opinion information. With the rapid increase of network data, the classification performance of these methods will decline when dealing with large-scale data. In order to overcome this shortcoming, an emotion recognition scheme of public opinion text of health information based on deep learning is proposed. The evolution process of public opinion based on deep learning technology is shown in Figure 1.
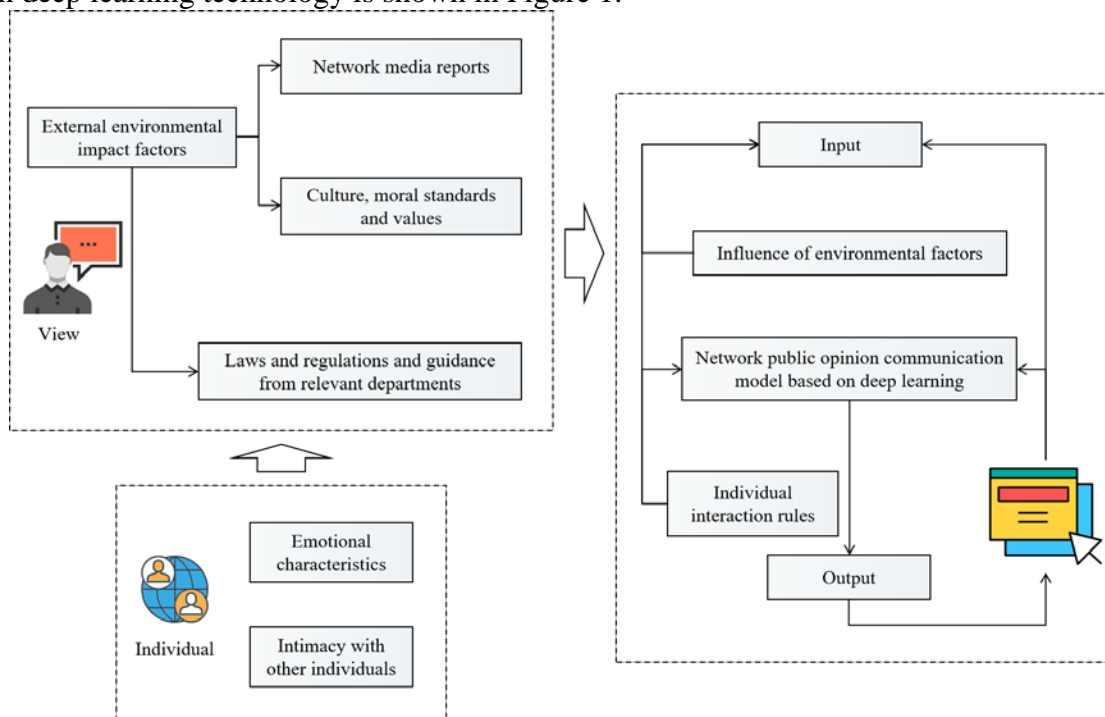

Fig.1 Evolution Process of Public Opinion Based on Deep Learning

Social media reshaped the practice of public relations. Social media should be conceptualized as a network social environment, which makes people participate in the processing of various relationship attributes. User participation has become an important part of social media movement. The personal characteristics that affect individual knowledge sharing in the network community include innovation cognition gap, willingness to acquire innovative knowledge and willingness to provide innovative knowledge. In the process of knowledge sharing, the users of the network innovation community have different cultures, backgrounds and knowledge experiences, and their cognition of various innovation problems is bound to have a gap objectively, which is an objective factor that affects the efficiency of knowledge sharing.

The society is a network composed of the relationship between individuals. Assuming that the

network has m_0 nodes and e_0 edges at the beginning, e_1 new edges are added with probability p_0. One end of the newly added edge randomly selects nodes to connect, and the other end adopts priority connection. The priority connection probability of nodes is:

$$\Pi(k_i) = \frac{k_i + \alpha}{\sum_j (k_j + \alpha)} \tag{1}$$

Where: k_i represents the degree of node i, and H represents the degree of mutual trust between individuals. h_{ij} indicates the trust degree of individual i to j, which is determined according to the relative size of node degree:

$$h_{ij} = \frac{1}{2} \frac{k_j - k_i}{\max(k_i, k_j)} + \frac{1}{2} \tag{2}$$

If the distance limit threshold of opinion exchange is set to d', the average number of individual neighbors who can exchange opinions with them accounts for:

$$p_d = \frac{4 - (2 - d')^2}{4} = \frac{4d' - d'^2}{4} \tag{3}$$

In the process of system evolution, $0 \le p$ and $p_2 < 1$ should be guaranteed. At the same time, there are $p_0 + p_1 + p_2 = 1$, $p_2 \ge 0$ and $e_3 < e_2$ to ensure the growth of the network.

Let the evolution time of the system be t. When $t \to \infty$:

$$p(k) = \frac{1}{B} \left[\frac{A}{B} + \alpha + e_2 \right]^{\frac{1}{B}} \left[\frac{A}{B} + \alpha + k \right]^{-\gamma} \tag{4}$$

At this point, the scale is:

$$\gamma = \frac{1}{B} + 1 \tag{5}$$

Among them:

$$A = \frac{p_0 e_1 - 2 p_2 e_3}{p_1} \tag{6}$$

$$B = \frac{p_0 e_1 + p_1 e_2}{2 p_0 e_1 + 2 p_1 e_2 - 2 p_2 e_3 + \alpha p_1} \tag{7}$$

When interest decay and initial attraction are not considered, $B \Box \Box 2$, and then $\gamma \Box 3$. Therefore, the values of p_2 and e_3 will directly affect the power exponent.

Citizens' values are their relatively stable and firm core beliefs about health, and they are also their temporary core attitudes towards practical problems. For the purpose of self-innovation, community members will acquire and summarize the knowledge of other members, so as to update their own knowledge system and gain new inspiration. Information can be linked and transmitted between different platforms, which provides a variety of fast transmission channels for the collection and aggregation of opinions. As a result, a topic can go beyond the publisher's initial range of communication, quickly spread among different forms of communication, arouse a wide range of response and feedback, and quickly form a wave of public opinion in the network.

3. The Influence Mechanism of Health Communication on Social Identity in Social Media

3.1 Health Media and Solidification of Information Communication

Public health communication is the use of communication technology and means to exert

positive influence on individuals, groups and organizations, so as to promote the situation beneficial to human and environmental health. Public health communication based on social media should be multi-interactive and active. Various organizations, including public health organizations, conduct extensive dialogues and exchanges with different audiences through social media. The knowledge sharing behavior of users in the network innovation community is not a single behavior, but a group behavior. In the process of interaction between individuals and other members of the community, if the knowledge provided by other users is recognized, it will enhance their willingness to communicate with other users and promote the community to develop in a better direction. Therefore, knowledge recognition will not only further stimulate individual knowledge sharing willingness, but also help the community to form a good knowledge sharing atmosphere. The communication process of controversial topics in health communication is shown in Figure 2.
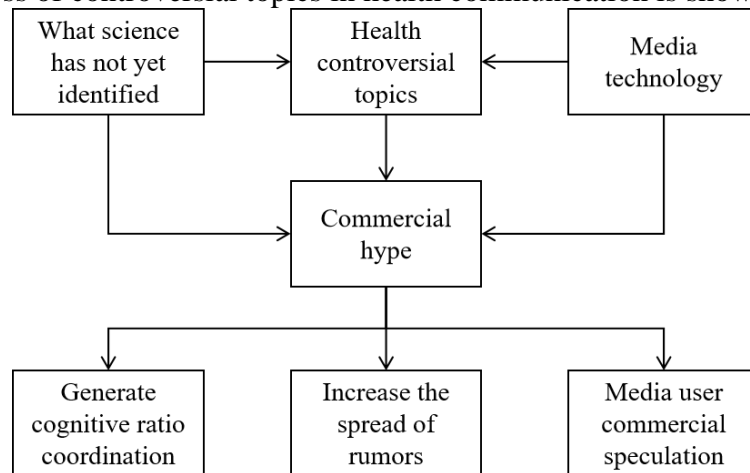

Fig.2 Communication Process of Controversial Topics in Health Communication

As a social person, human beings' behavior will also be influenced by the social environment. In the healthy community, the influencing factors of social relations can be divided into two aspects: social trust and social identity according to the social capital theory. The openness, transparency, clarity and full expression of information is also an important enlightenment brought by severe acute respiratory syndrome to public health communication. The wide access and connectivity of social media communication provide more possibilities for the maximum dissemination of information, and the customized production of information also opens channels for differentiated communication. The model of influencing factors of knowledge sharing among users in healthy community is shown in Figure 3.
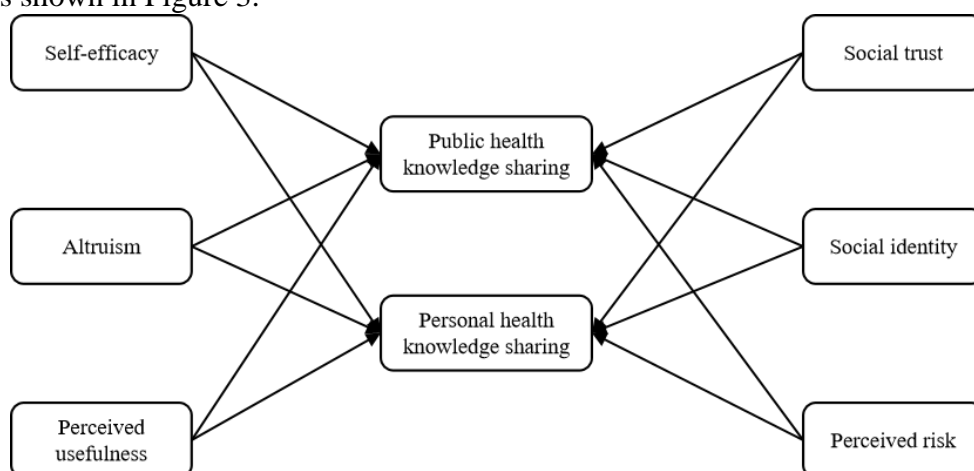

Fig.3 Model of Influencing Factors of Knowledge Sharing among Users in Network Health Community

The knowledge provider must have the corresponding knowledge providing ability to transfer knowledge to the knowledge receiver in an appropriate form and way, so innovative knowledge

providing ability is one of the key factors affecting the smooth progress of knowledge sharing. At the same time, the stronger the individual's ability to acquire innovative knowledge, the easier it is for individuals to understand, absorb, transform and apply knowledge, and the higher the efficiency of individual knowledge sharing. Therefore, the individual's ability to acquire innovative knowledge is the guarantee of effective knowledge sharing. The survey of users' perception of social media health information is shown in Table 1.

Table 1 Survey of Social Media Health Information User Perception

	Frequency	Proportion	Effective proportion
Very inconsistent	25	6.0	6.0
Relatively inconformity	69	16.4	16.4
Commonly	88	21.0	21.0
Relatively consistent	125	29.8	29.8
Very consistent	113	26.9	26.9
Total	420	100	100

3.2 The Positive and Negative Aspects of Social Identity

High-quality innovative knowledge providers in the network community often have virtual wealth and virtual status, which also means that they have more privileges, such as great autonomy in sharing knowledge. The higher the trust of healthy community members to the community and other members, the stronger their willingness to share knowledge. Social identity belongs to Maslow's demand for respect, which refers to an individual's willingness to gain recognition from others and a sense of belonging in the organization. The reading and likes of social media health articles are shown in Table 2.

Table 2 Reading and Liking of Social Media Health Articles

Classify	Number of articles	Total reading amount	Average reading amount	Total number of likes	Average number of likes
Food health category	45	1438665	376802.5	11359	301.5
Health care	38	1798556	443822.4	16842	482.7
Health popular science knowledge	15	668740	383301.2	4500	253.8
Other	6	101002	220138.9	228	55.6

The influence of network composition on the level and speed of public opinion communication with high social identity is shown in Figure 4. The influence of network composition on the level and speed of public opinion communication with low social identity is shown in Figure 5.
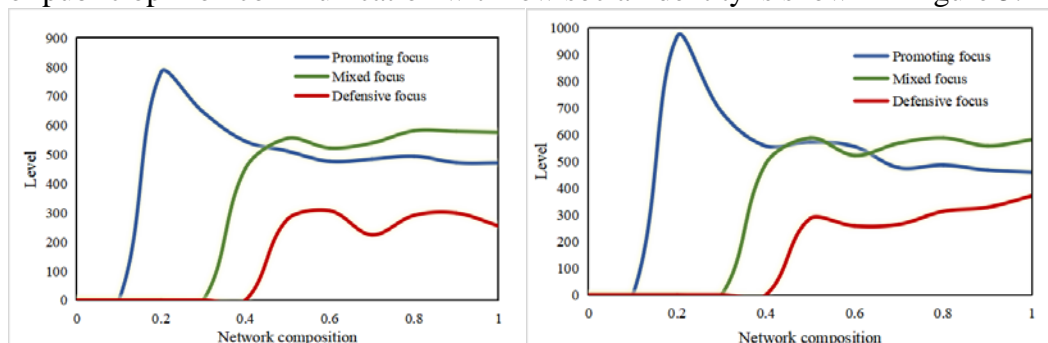

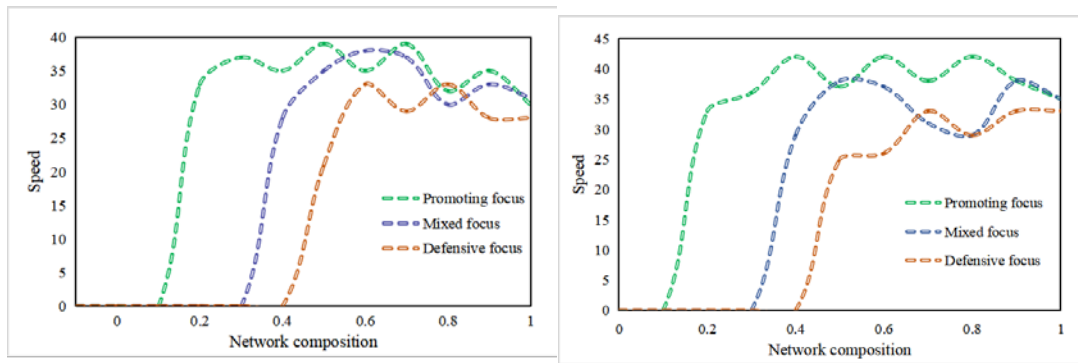Fig.4 Influence of Network Composition on the Level of Public Opinion Dissemination

Fig.5 Influence of Network Composition on the Speed of Public Opinion Transmission

In the design of health information, we should moderately emphasize the serious harm and susceptibility caused by diseases, which will affect the audience's perception of risks. At the same time, strengthen the efficiency information, through stimulating self-efficacy, so that the public can build their faith and confidence in self-protection. In information design, apart from openness, transparency and continuous dissemination, organizations should also respond to public concerns in a timely manner, so as to relieve public anxiety and uncertainty, and reasonably express emotions, such as comfort to the public, sympathy for victims, praise for outstanding performers, etc., and arouse the public's sense of substitution and identity.

4. Conclusions

Health has always been an important issue in human society, and with the growth of the Internet, a generation has higher requirements for health information. This also puts forward higher requirements for healthy communication in social media. Nowadays, social media is always the most powerful force in terms of producer attributes, information production methods and information dissemination. From the perspective of the new media era, this paper studies the mechanism of the influence of healthy communication on social identity in social media. In the media society, social media uses its great influence to spread information explosively, and the health information it spreads has obvious identity, status and value. It is found that different actors of media power have formed a set of habits corresponding to their health authority capital when producing and disseminating health information, and the habits of different actors in the field also have obvious influence on their health information dissemination power. The health information in social media affects the audience's health behavior, and the audience constructs the audience's social identity based on these intermediary information and the health behavior established by it. Generally speaking, the research on health communication needs to take care of the social reality on the one hand, and consider the rapidly changing communication environment on the other hand, especially the communication opportunities and challenges brought by new media technologies. Based on the above research, this paper holds that it is necessary to standardize the dissemination of health information by new media, construct the responsibility of health communication of new media, and advocate the voice of professionals in the health field.

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