Users' Perception and Utility of Health Information Based on WeChat

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Abstract

Objective: To explore the ability of users to identify the health information spread on WeChat platform, and then to discuss the utility of such information on them.

Methods: Questionnaire survey and descriptive statistical methods were used to collect and analyze the data. The process of "get health related information, judge true or false, production related behavior" was used to design the survey problem, finally, the paper and network surveys were investigated in users.

Results: The proportion of accurate recognition, ambiguous recognition, none recognition and none classification were 21.55%, 63.26%, 4.41%, 10.78% respectively. The average frequency of identification, transmission, guidance and none behavior of originally true health information were 52.00, 78.40, 45.20, 31.80 respectively, and originally false health information were 21.30, 27.70, 14.10, 5.50 respectively.

Conclusions: Most WeChat users surveyed lack the ability to accurately identify the authenticity of health information, and improvement of citizens' health literacy has long way to go. WeChat is an effective platform for the dissemination of health information, but also provides a fertile soil for the spread of false health information. Additionally, users are not aware of the problem of their ability to identify information, even if produced a false judgment of false health information, most of the active users will also lead this kind of information still widely spread.

Key words: Health information; Information perception; Information utility; WeChat

INTRODUCTION

Internet medical development rapidly since 2014 the first year of it, the number of internet health information and the speed of generation are showing explosive growth. In the social network environment, we are exposed to a lot of health information actively or passively, and it is hard for us to judge the truth and falsity of them. "Wei Zexi" incident aroused widespread concern in China on April 12, 2016. This is an example of serious consequences due to misbelieving of false health information, warning us to correctly judge the health information of social network is particularly important.

New research shows that more than half (51%) of Chinese urban residents have become social media users, a substantial increase of 17 percentage points over last year, 61% of users believe that social media has a positive impact on their lives (Kantar, 2016). Other research also shows that in March 2016, WeChat's monthly active users have reached 6.5 billion (Penguin Intelligence, 2016). Seen enough, WeChat has characteristics of strong influence and a large number of users as a social media. Therefore, in this paper, WeChat was taken as a research platform to study users' ability to identify health information, as well as the effectiveness of users' perception.

1. DEFINITION OF CONCEPT

1.1 Health Related Information

The World Health Organization defined health is not only for the elimination of disease or weak, and the physical, mental and social health state (WHO, 1948).Therefore, in this paper, all information related to disease, physical, mental and social life, and information associated with these information, can be called health related information. Common health related information is mental health information, health care information, food safety information and so on.

1.2 True Health Information and False Health Information

True health information is conceptualized as health related information which was shown to be true or real after scientific tests. This information is recognized by health institutions or organizations with great credibility and authority, such as the National Health Department and World Health Organization etc.. False health information is opposite to true health information. There are two characteristics, first is uncertainty, the information itself is unfounded and we can not find evidence to prove it is true. Second is falsity, the information can be proved to be false by evidence.

## 1.3 Information Perception and Information Utility

Information perception refers to the general name of the user's sensation and perception of the information (Ma & Lu, 2016). Information utility refers to the psychological effect of individual on the external information, then the information and individual psychological produce reaction and influence human behavior (Dai & Liu, 2007). In this paper, Information perception is defined as user's subjective judgment of the true and false of the health related information, and the information utility is defined as the reaction of the users to the subjective judgment for true health related information.

2. RESEARCH METHODS AND DATA COLLECTION

2.1 Research Methods

We used a questionnaire survey to test the perception and utility of health information. The whole questionnaire design is based on "knowledge, Attitude, Belief, Practice" pattern which follows the law of dissemination of information, then awareness of information, trust of information, and last establishment of behavior (Anonymous, 2008). Combined with our research purposes, we adopt the process of "gets health related information, judge true or false, production related behavior" to design survey problem layer upon layer. The significance of the performance is different according to user's behavior of health related information. After user has read and believed a health related message, praise and collection performance user's identification of it, transmit to some people and transmit to circle of friends represent users' dissemination of it, changes of behaviors and ideas represents it's guidance of users, no behavior indicates that the information has no effect on user. The specific design process is shown in Figure 1.
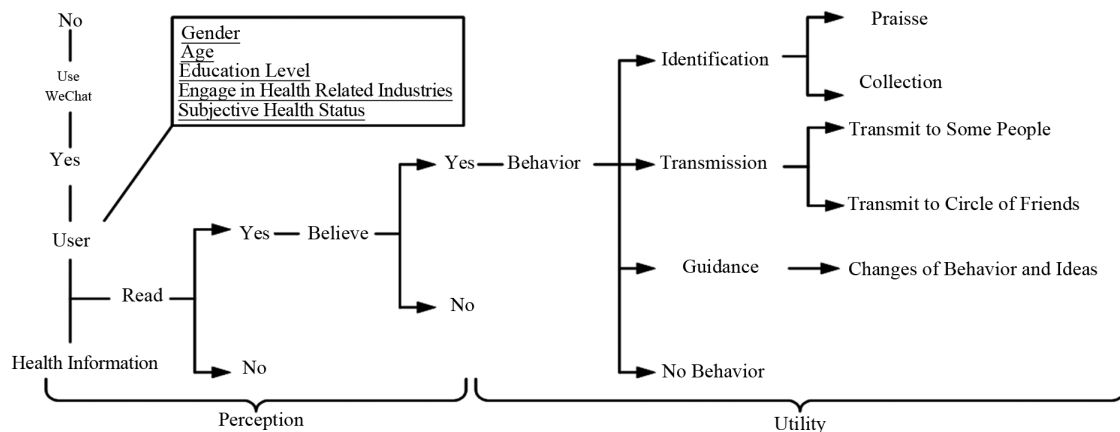
Figure 1
Flow Chart of Questionnaire Design

The questionnaire is divided into three parts: First part is to investigate personal circumstances, including user's gender, age, education level, whether to engage in health related industries, user's subjective health status, and the screening question is whether to use WeChat. Second part is to mix up false health information and true health information together to form 15 questions and each question contains 3 finer questions, aiming to test health information perception. Third part is to investigate user's specific behavior and the change of concept.

In order to reduce the data errors that may be brought about by filling out the questionnaire,

subjectively considering true and false information are each half. Therefore we set 5 true health information and 10 false health information to constitute non equivalence of the number of true and false health information. 5 true health information were selected from "66 Health Literacy of Chinese citizens" (Anonymous, 2010) and "Health Report on Smoking Hazards of China" (Wang, 2015) issued by the Chinese Ministry of Health, they are of great authority and authenticity, and are closely related to life. 10 false health information were selected from "Top Ten Rumors of Food Safety on WeChat in 2015" (Jin, 2016) issued by media communication conference about food safety hot spot scientific understanding, organized by State Food and Drug Administration, China Association for Science and Technology, Chinese Association for Food Science and Technology. They are of great authority and representative too.

2.2 Data Collection

The survey was administered in two ways. Online surveys were distributed through an online survey website at http://www.sojump.com/, which can provide convenient and functional designing and administering questionnaires. Paper-and-pencil surveys were distributed to people occasionally nearby schools and pedestrian streets. Both investigations were begun on March 31, 2016 and ended on May 20, 2016. We explained the purpose of our study and solicited their participation throughout the process to increase the accuracy and response rate. Furthermore to be eligible, all participants had to be able to read and write Chinese, and provide consent. Finally, 400 questionnaires were sent out in a chance encounter. A total of 396 questionnaires were collected, and the recovery efficiency was 99.00%. After excluding invalid questionnaires which were not use in WeChat, 362 samples were effective, and the effective rate was 91.41%.

3. DATA ANALYSIS AND RESULTS

3.1 Demographic Analysis

Demographic profiles of respondents were shown in Table 1. A total of 215 (59.39%) of the respondents were female and 147 (40.61%) were male. Maximum two stages of age were18~25(71.82%), 36~35(20.71%), and consistent with "WeChat user statistics in 2016" (Xiao, 2016). Among the investigated respondents, education level of undergraduate (64.64%) accounted for the vast majority, and to 63.81% of respondents were not engaged in health related industries. Only 0.55% of respondents suffered from a major illness or disability and 8.29% answered not too clear, most of the rest were thought to be healthy or just had some minor problems. These demographic profiles showed great reliability and validity.

Table 1
Demographic of Respondents

Category	Item	Frequency	Percentage (%)
Gender	Male	147	40.61
	Female	215	59.39
	Under 18	2	0.55
	18-25	260	71.82
Age	26-35	75	20.71
	36-50	25	6.91
	Junior high school and below	21	5.8
	High school and technical secondary school	25	6.91
	Junior College	54	14.92
Education level	Undergraduate	234	64.64
	Graduate student and above	28	7.73
Engage in health related industries	Yes	131	36.19
	No	231	63.81
	Healthy	180	49.72
	Have some minor problems	150	41.44
Subjective health status	Suffer from a major illness or disability	2	0.55
	Not too clear	30	8.29

3.2 Recognition Capability Analysis

According to the survey results, there is an objective situation that not any one of health information has been seen by user of WeChat, therefore, the identification objects here only refer to the information that have been seen by user. If user has read and believed a certain

health related information, then we can assume that the user is subjective to judge the information for true health information, and vice versa, for false health information. After compared with subjective judgment of users and the objective true and false of information itself, we can classify their health information recognition capability according to the identification of them. Thus, we classified user's recognition capability into four categories: accurate recognition, ambiguous recognition, non recognition and non classification. The specific classification basis and results were shown in Table 2.

As shown in Table 2, only 21.55% of respondents

were able to accurately identify the authenticity of health information, among which 12.71% of the respondents have read all the information and give the right judgment of them. Most users' recognition capability was ambiguous which accounted for 63.26%, these respondents were only able to identify part of the heath information. Fortunately, only 4.44% of respondents were completely unable to identify the authenticity of health information, But 10.78% of the respondents said they had never seen such information on WeChat platform. Generally speaking, all these data warned us to improve the users' ability to identify health information was particularly important.

Table 2
Recognition Capability Classification Basis and Data Statistics

Category	Sub category	Classification basis	Number	Total	Percentage (%)	Total (%)
Accurate recognition	Fully accurate recognition	TAB, FAD	46		12.71	
	Biased accurate recognition	NAT, FAD	11	78	3.04	21.55
		NAF, TAB	21		5.80	
		TPB, FPB	42		11.60	
		TAB, FPB	62		17.13	
		TAB, FAB	72		19.89	
Ambiguous recognition	Partial recognition	TAD, FPB	5		1.38	
		FAB, TPD	13	229	3.59	63.26
		FAD, TPD	19		5.25	
		FAD, TAD	6		1.66	
	Biased partial recognition	NAT, FPB	4		1.10	
		NAF, TPD	6		1.66	
None Recognition	Fully non recognition	TAD, FAB	2		0.55	
	Biased non recognition	NAT, FAB	10	16	2.76	4.41
		NAF, TAD	4		1.10	
Non classification	Non classification	NAT, NAF	39	39	10.78	10.78
Total			362	362	100	100

Note. T-True health information, F-False health information, A-All, P-Partial, B-Believe, D-Disbelieve, N-Never seen. Example: TAB indicates true health information all believes.

3.3 Utility of Health Related Information

When users have read and chose to believe in one certain information, that's to say they have subjectively determined the information is true. But in fact, the subjective judgment of the user and the objective nature of the information have a big discrepancy as mentioned above. Especially when the information is originally false, but the users' subjective judgment is true, if the users have a further information behavior at this point, then the harm caused by false information is also spread.

In this paper, we studied the reactions of health information that users trusted in, these reactions are the effectiveness of health information on WeChat users. In particular, the user's response to the original false health information can help to further find the effect of false health information on the users. In the process

of questionnaire investigation, users' specific health information behavior were summarized as praise, collection, transmit to people, transmit to circle of friends, changes in behavior or ideas, none behavior by the research group. And the health related information was divided into originally true and originally false to analyze users' reactions of health information. Statistical results were shown in Table 3. So we drew the following points:

a) The average frequency of identification, transmission, guidance and none behavior of originally true health information were 52.00, 78.40, 45.20, 31.80 respectively, and originally false health information were 21.30, 27.70, 14.10, 5.50 respectively. Illustrating the tendency of identification, transmission, guidance and none behavior conducted by originally true health information is higher than that of originally false heath

information comparing the reactions of users to the two kinds of health related information.

b) When users have a higher frequency of identification of their trusted health related information, the frequency of information dissemination is also higher, and it is more likely to bring about the changes of behaviors and ideas.

c) WeChat has silent customer (Li, 2013) like other social platforms, even when they read health related information, they won't have any reaction, as shown in the none behavior column in Table 4. But there are more users of extraversion (Yu, Lu, & Liu, 2010) personality in social networking platform, such users are active, willing to accept new things, resulting in higher frequency of information behavior, greater possibility of information dissemination, and more likely to be affected by this kind of information.

Table 3
Behavior Frequency Statistics of Sample

Health related information	Question number	Identification		Transmission		Guidance	None behavior
		Praise	Collection	Transmit to people	Transmit to circle of friends	Changes of behaviors and ideas	
Originally true	1	30	12	21	25	23	10
	5	47	15	29	43	49	37
	8	43	14	44	49	55	55
	11	41	24	71	51	74	42
	15	23	11	34	25	25	15
Average frequency 1		36.8	15.2	39.8	38.6	45.2	31.8
Originally false	2	19	9	8	5	11	4
	3	13	5	18	14	12	3
	4	26	10	13	31	23	14
	6	17	4	9	10	9	2
	7	12	5	8	4	8	0
	9	14	6	15	13	9	5
	10	8	5	9	9	8	3
	12	10	5	9	10	9	5
	13	11	4	15	11	11	8
	14	19	11	30	36	41	11
Average frequency 2		14.9	6.4	13.4	14.3	14.1	5.5

CONCLUSION

Health information is different from other types of information, whose nature is directly related to users' health and even life safety. Nevertheless, these social platforms like WeChat give unlimited possibilities for the spread of health information, the positive or negative effects brought about will also be increased. In this research, we regret to find that most WeChat users surveyed lack the ability to accurately identify the authenticity of health information, and improvement of citizens' health literacy has long way to go. In addition, WeChat is an effective platform for the dissemination of health information, but also provides a fertile soil for the spread of false health information. More over, users are not aware of the problem of their ability to identify information, even if produced a false judgment of false health information, most of the active users will also lead this kind of information still widely spread.

Spreading rumors and false information has already into the punishment. However, according to the survey, most users may inadvertently spread a lot of false health information, although does not have the subjective intent, but must be vigilant in this phenomenon. The harmfulness of false health information is not easy to be found before it exploded, however, once it outbreak may lead to irreversible consequences. Therefore, citizens, health departments and other relevant institutions need to work together to improve the health literacy of citizens, to prevent the generation and dissemination of false health information.

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