How does the disclosure of investigations affect the public's fear on the epidemic?

Shengbai Cui[1,a,†], Keyi Gao[2,b,*,†], Yujing Li[3,c,†], Chengwei Yang[4,d,†]

[1]School of Media, Harbin Normal University, Harbin, 150025, China
[2]School of Music and Recording, Communication University of China, Beijing, 100024, China
[3]School of Information Management, Wuhan University, Hubei, 430072, China
[4]The College of Chinese Language and Literature, Hunan University, Changsha, 410006, China
a. cuishengbai1118@qq.com
b. gaokeyi@cuc.edu.cn
c. liyujingmmm@163.com
d. cwyang12@hnu.edu.cn
*Corresponding author
†These authors contributed equally.

Abstract: With the outbreak of COVID-19 and the adoption of the epidemiological investigation, the disclosure of epidemiological investigation has also aroused public fear and even caused online violence. Therefore, it is essential to explore the root causes of mass panic to reduce public fear fundamentally. Based on the extended parallel process model, this paper systematically studies the effectiveness of epidemiological investigation disclosure on the public fear of the epidemic and puts forward reasonable suggestions for maintaining public opinion health and reducing public opinion violence. This paper collected 126 questionnaires what investigated samples from four dimensions, Susceptibility, severity, self-efficacy, and response efficacy, to explore the relationship between these four variables and public fear. Through correlation analysis and regression analysis of questionnaire data, the higher the perceived threat and perceived efficacy are, the higher the public fear degree is, and the more willing people are to accept the prevention and control suggestions. In the evaluation process, Susceptibility and self-efficacy are positively associated with the level of public fear, while severity and response efficacy had no significant effect on it. The results showed that relevant science popularization should be strengthened, perceived threat and perceived efficacy should be improved, and the balance between the precision of the epidemiological investigation and public privacy should be maintained.

Keywords: extended parallel process model, epidemiological investigation, public fear, perceived threat, perceived efficacy.

1. Introduction

COVID-19, a respiratory disease caused by the Novel Coronavirus, has become a global health emergency since its outbreak in December 2019 [1]. Under the control of the Chinese government,

the number of confirmed cases in various regions of the country declined sharply, but there were still a few cases. Under such circumstances, a word has also emerged that is widely used: Epidemiological investigation [2].

By clarifying the source and transmission route of infection through clues, epidemiological investigation can significantly reduce the spread of the epidemic and help us figure out the origin and time of infection to calculate the virus's incubation period accurately. However, in the epidemiological investigation, the risk of privacy disclosure is caused because it is based on interview surveys and personal investigations. It is believed that such privacy disclosure will lead to the naked public.

As technology continues to mature, there has been controversy over the legitimacy of disclosing the movements of COVID-19 patients, revealing that the movements of those diagnosed and close contacts have led to psychological problems such as panic-related illness, stress, and anxiety in public [3]. Panic is a consequence of the pandemic and its mental health [4]. Like the toilet paper supermarkets that ran out and the rapid rise in the price of salt in Chinese supermarkets, these are signs of panic. This effect increases the panic of others and devastates the market economy. Fear is characterized by an increase in arousal, behavioral tendencies (such as flight), and negative worries (such as worry) [6]. In situations of high fear, individuals may not be able to think clearly and rationally when responding to COVID-19 [1].

With the development of new media and social media, online public opinion generated by social media has made the field of public opinion more complicated. Netizens satirized the victims on various platforms due to their fear, leading to severe cases of suicide and depression.

1.1. EPPM Theory and Epidemics

A total of 155 pieces of literature related to EPPM were obtained by searching the CNKI China Journal network database and Web of Science research database platform. EPPM theory has a wide range of applications, covering many fields such as Behavioral Sciences, Psychology, Health Care Sciences Services, Communication, Public Environmental Occupational Health, Infectious Diseases, Film Radio Television, Engineering, and Sociology. By summarizing and classifying literature that uses EPPM as a theoretical model, it is concluded that the research direction is mainly focused on infectious diseases.

Focusing on the potential impact of AIDS songs on HIV prevention, Bekalu, MA and Eggermont, S (2015) used EPPM to identify the health-relevant constructs and reveal their potential to facilitate or inhibit positive changes. Their result showed that although all the EPPM variables have been found in almost every song, there were significantly more efficacy messages than threat messages [17]. In the context that the quality of public services influenced epidemic management, Gottberg, C and Krumm, S (2016) investigated how the readiness of municipal employees to report to work during an influenza pandemic is affected by individual attitudes and environmental conditions, which EPPM was applied to. The proposed measures are to improve the willingness of municipal workers to report to work during epidemics [18]. Based on an experiment with an experimental study of a vaccination intervention against Ebola, Ort, A, and Fahr, A (2018) studied key components of the EPPM and concluded that there is a significant association between threat and coping appraisals facilitating behavior change [19]. Guidry, JPD; Carlyle, KE; Perrin, PB; LaRose, JG; Ryan, M; Messner, M (2019) used EPPM to examine the predictive effects of psychosocial constructs on self-reported intent to get a future Zika vaccine among women of reproductive age [20]. Guided by EPPM, Serpas, DG, and Ignacio, DA (2021) investigated COVID-19 perceived risk and fear as predictors of preventive behaviors among young adult undergraduates. Moreover, asymptotic moderated mediation indicated that COVID-19 fearfully mediated the association between perceived risk and preventive behaviors [21]. Zarghami, F; Allahverdipour, H and

Jafarabadi, MA (2021) apply EPPM to evaluate lung Cancer risk perception among older smokers. They found the importance of perceived threat and perceived efficacy for smokers, which can help promote lung cancer awareness and design smoking cessation programs [22].

The current practice of statistical survey research based on EPPM is more abundant, and the application scheme of the theoretical model in medical and epidemiological-related fields is becoming clear. In many studies, the actual research and comparison of the model indicators are often used to understand the public psychology and response strategies. At the same time, the specificity of specific scenarios such as information sources and audience reactions in concrete practice should be adjusted for the refinement of indicator settings and research questions. It is feasible to use the EPPM model to explore the public's fear response to the epidemiological investigation.

1.2. The Extended Parallel Process Model

To predict individual responses to fear appeals, Witte proposed the extended parallel process model in 1992 and 1994, which is the most modern fear-based persuasion model [11,12]. This model is composed of two parts: perceived threat and perceived efficacy [11,12]. At the same time, the perceived threat is made up of two components, severity and Susceptibility [13]. Severity refers to how much a person perceives a threat, and Susceptibility refers to how likely a person is to be affected by a threat. Moreover, perceived efficacy also has two aspects: self-efficacy and response efficacy [13]. Self-efficacy is a person's belief in his or her own ability to carry out advice. Response efficacy is whether a person has effective beliefs to avoid threats. When the information leading to fear comes, EPPM believes that fear appeals will activate two parallel psychological processes: when the perceived threat is high. However, if the perceived efficacy is low, the fear control process will dominate. People exhibit antisocial behavior and try to avoid information about the threat. On the other hand, when both perceived threat and perceived efficacy are high, the threat control process is activated. The message receiver will make relevant response actions to avoid the threat.

According to Rogers, EPPM is based on the expected value theory [14]. The Protection Motivation Theory, including the information integration process, cognitive assessment, and behavior mode selection, and the Parallel Process Model proposed to make up for the shortcomings of PMT are integrated [15,16]. Later, Witte found that the existing EPPM ignored the fear control process, or how people deal with their fears by denying or defensively avoiding threats [16]. So in 1994, Witte revised the theory again.

Since EPPM is applicable to educational programs and interventions of various health and related risk issues, the article makes the following assumptions based on the EPPM. Firstly, as susceptibility refers to the possibility that the target encounters danger, hypothesis 1 is proposed: Susceptibility is positively associated with the level of public fear. Secondly, since severity means the degree of threat to the epidemiological survey, hypothesis 2 is: Severity is positively associated with the level of public fear. Thirdly, make hypothesis 3 based on whether people can implement recommendations, which is: Self-efficacy is positively associated with the level of public fear. Fourthly, according to the effectiveness of suggestions or countermeasures, it proposes hypothesis 4: Response is positively associated with the level of public fear.

1.3. The Current Study

There are many previous studies, such as Xie qingfeng's exploration of whether risk perception, media, interpersonal communication, and mainstream media clients impact public panic [7]. Alternatively, correlation due to differences between regions, by using FCV-19S (COVID-19 Fear

Scale) [8]. Nevertheless, its questionnaire failed to capture many factors, such as fear of scarcity and xenophobia, or fear that private information would be widely disseminated [4]. Epidemiological investigations have also been used in previous domestic public health emergencies (H5N6 and HINI) but have rapidly gained popularity during the COVID-19 outbreak. Given the contingency and scale of novel coronavirus outbreaks, epidemiological investigations are the first line of defense against the virus.

Panic psychology is caused by the public's lack of sense of security [9]. Previous studies have shown that newly discovered infectious diseases tend to cause a certain amount of psychological panic, although panic is an unhelpful psychological response [10]. This study hopes to further study the mechanism behind the panic caused by COVID-19 and focuses on the disclosure of epidemiological investigation. Previous studies on the impact of major public health events on people's panic primarily focused on information and psychological aspects and the epidemiological investigation was were also known as the term after the emergence of COVID-19. The research hopes to make up for the lack of epidemiological investigation in past studies, reduce the negative comments due to the disclosure of epidemiological investigation track, eliminate public panic, and hope that the government can adjust the decision-making way to serve the public better.

In fact, after COVID-19 happened, the government had many methods for public opinion control, but whether it really enhanced the public's sense of security and reduced panic was not always well resolved.

One of the strategies to calm the public in the wake of COVID-19 is to use public information to calm public sentiment. COVID-19 is not only a global life crisis but also an infodemic. As a part of the refinement of epidemic prevention and control, the disclosure of epidemiological investigation leads to the lack of public sense of security, which has been a significant obstacle to implementing high-intensity and efficient protective measures against COVID-19 in China. Based on this, the research question of this study is proposed:

RQ: How does the disclosure of epidemiological investigations affect the public's fear of the epidemic?

In terms of the modeling principles underlying the EPPM and its practice related to epidemiological studies, the EPPM is highly applicable for demonstrating the level of public panic about situations such as infectious diseases. Its assessment and prediction have good reliability and validity, with a wealth of comparable studies. As a strategic tool to influence communication effectiveness, nowadays, whether fear appeals are persuasive or not is no longer a question, but when fear appeals are an effective persuasive strategy is the most central question for fear appeals nowadays. Current research shows that fear appeals induce fear in individuals by presenting threatening negative information that motivates them to accept the communicated persuasive message. Classical fear appeals usually contain two components: information describing the danger; and advising to avoid the danger.

Fear appeals are effective in promoting individual health behaviors and help attract the attention of social media users to further read and evaluate health information. Therefore, the use of fear appeals in health communication activities, both online and offline, is valuable for improving the effectiveness of health messages and achieving health promotion. Scholars have confirmed through empirical studies that some of the core message elements that influence the effectiveness of fear appeal persuasion communication are severity, Susceptibility, self-efficacy, and response efficacy. These core message elements greatly influence the persuasive effect of fear appeals communication strategies.

Given that a significant number of empirical evidence supports the usefulness of EPPM in explaining the level of public panic about situations such as infectious diseases, four hypotheses regarding the relationships between EPPM variables and the level of public fear are proposed:

H1: Susceptibility is positively associated with the level of public fear.
H2: Severity is positively associated with the level of public fear.
H3: Self-efficacy is positively associated with the level of public fear.
H4: Response is positively associated with the level of public fear.

In this study, the Likertand EPPM theory was used to design and recycle questionnaires on fear and epidemiological related survey-related issues. Through the existing data and scenario analysis combined with the actual situation, EPPM is applied to the field of epidemiological investigation. It also focuses on the epidemiological survey information exposed to social media by the public caused by fear.

2. Method

2.1. Subjects

The questionnaire for this trial was randomly distributed to web users. A total of 126 valid questionnaires were collected. In this study, frequency, reliability, validity, correlation analysis, and regression analysis were performed on the samples. Among them, the age aging mode of participants (n=126) was between 18 and 29 years old. Among them, the number of participants with bachelor's degrees is the largest, up to 106 (84.1%). Of the sample, 84 (66.7%) participants were female and 42 (33.3%) were male. A total of 41 participants (32.5%) experienced an epidemiological investigation. 108 people (85.7%) had at least heard of the epidemiological survey or better understood it.

2.2. Research Materials

This study is based on Witte's cognitive assessment process [11]. Participants were asked some questions about the effectiveness of epidemiological investigation disclosure on the public's fear of the epidemic. All questions used a five-item Likert scale (" strongly disagree, "disagree," "neither agree nor disagree," "agree," "strongly agree") to indicate how much they agreed with these statements, with a minimum of 1 and a maximum of 5 for each question.

The level of public fear was measured by three problems (" when I'm around or were asked to epidemiological investigation, I fear ", "when I saw the others were detailed schedule, I feel fear", "during the outbreak, my schedule was big data upload, I feel be monitored"), the higher the score means that fear appeal information to raise the higher the degree of fear; Severity was measured by three problems (if my schedule trajectory are survey released, it makes me feel uncomfortable, but there is nothing I can do, I think the epidemiological investigation published epidemiological investigation can lead to privacy, I think will lead to the publication of network violence); Susceptibility was measured by one problem (I think the current outbreaks is still grim, Own trip may be survey and published); Self-efficacy by one problem (if I don't think the condition of my health problem, I may be in the flow adjustment to reservations and information hiding); Response efficacy by one problem (I think strictly abide by the epidemic prevention requirements, can effectively avoid the virus infection, While avoiding the publication of epidemiological findings). A higher score means a higher cognitive processing ability for fear information.

2.3. Data Analysis

This study adopted a cross-sectional online survey design and obtained the consent of participants online. The survey was conducted anonymously to ensure the confidentiality of information. This study used So jump, the largest questionnaire survey platform in China, and collected data from participants. The survey was conducted among ordinary Chinese people of all ages. After

completing the questionnaire collection, statistical tools were used for analysis. SPSS software (version 28) was used for multivariate logistics regression analysis for this sample size.

Demographic variables examined included participants' age, sex, and education. In addition, participants were also discussed whether they had ever experienced an epidemiological investigation (" yes ", "no") and how much they knew about it (" not at all ", "don't know it well", "heard of", "understand", "very well").

For the specific study, with the reliability of the questionnaire analyzed, the correlation tests and regression analyses of the four hypotheses proposed in the research questions were conducted to explore which hypotheses are valid and have a key role in alleviating public fear.

3.   Results

3.1.   Reliability and Validity Analysis

The data collected from the questionnaire were processed and analyzed. The result showed that the Cronbach's Alpha coefficient value of the scale was 0.793, more significant than 0.7, indicating that the internal consistency of the questionnaire was good. Hence, the results of this survey were reliable.

Kaiser Meyer-Olkin(KMO=0.776) measure and Bartlett's test of sphericity, $X^2 = 413.645$, $p<0.001$, indicated the suitability of the dataset for factor analysis. It also indicated that the independent variables in the questionnaire design had a particular relationship, and the validity structure of the questionnaire was good.

3.2.   Correlation Analysis

Table 1: Correlation.

The correlation			
	Perceived threat	Perceived efficacy	Fear
Perceived threat	1	.169	.545**
Perceived efficacy	.169	1	.322**
Fear	.545**	.322**	1

**: $p < .01$.

Table 1 shows the correlation coefficients between the two assessment pathways of EPPM and the fear induced by epidemiological investigation. As seen from the table, perceived threat and perceived efficacy were significantly correlated with public fear. It showed that the higher the perceived threat and efficacy level, the higher the level of public fear, and the more willing people were to cooperate with the epidemiological investigation, thus reducing online violence against confirmed cases.

3.3.   Regression Analysis

Table 2: Regression Statistics.

Model	Multiple R	R Square	Adjusted R Square	Standard Error
1	.632a	.399	.379	.6274112347

a. Predictive variables: (constant), response efficacy, self-efficacy, severity, and Susceptibility.

Table 3: Coefficient.

Model	Unstandardized Coefficients		Standardized Coefficients	
	B	Standard Error	Beta	t
1 (constant)	.420	.375		1.122
1 susceptibility	.438	.067	.492	6.517**
2 severity	.126	.071	.131	1.779
3 self-efficacy	.171	.058	.210	2.938*
4 response efficacy	.073	.061	.085	1.197

**: $p < .001$, *: $p < .01$.

Through regression results (see Table 2,3), perceived threat, and perceived efficacy, two assessment paths could explain and predict the degree of public fear to a certain extent.

The results showed that both the threat assessment and efficacy assessment processes have positive predictive effects on public fear, but their significance is different. Susceptibility (β=0.49, p<0.001) had a significant positive effect on public fear, so H1 was supported. Self-efficacy (β=0.21, p<0.01) positively affected public fear, which supported H3. However, severity and response efficacy have no significant predictive effect on public fear, so H2 and H4 have not been proved.

4. Discussion

With the boom in social media, the cost of speaking out is falling. The current situation of COVID-19 is still serious, and epidemiological investigation has not stopped. Therefore, this study provides support for the fear caused by epidemiological surveys and the behavioral intention of regulating network public opinion. Through the statistical analysis of the questionnaire questions, H1(susceptibility is positively correlated with the degree of public fear) and H3(self-efficacy is positively correlated with the degree of public fear) are confirmed.

Through the data analysis of the results, the main social phenomenon presented by the data in this research activity can be summarized: with the spread of the epidemic, mass media caused the public fear. Perceived threat and perceived efficacy were positively correlated with the level of public fear. Sensitivity and self-efficacy have a higher significant positive impact on public fear.

H1 indicates that the public first evaluate the susceptibility and severity of the epidemiological investigation itself and the disclosure of relevant information. The risk of accepting epidemiological investigation and the likelihood of disclosure of relevant information, namely susceptibility; After epidemiological investigation and information disclosure, how serious is the risk to physical and psychological aspects, that is, severity. Comprehensive data analysis showed that both susceptibility (3.45) and severity (3.70) were high. The public's assessment of the threat of COVID-19 is too high to ignore. This is very credible, and very likely to happen so that it can be evaluated next time. Whether public assessment can avoid epidemiological investigation and disclose travel trajectory information, i.e., self-efficacy; The response efficiency aspect is to evaluate whether the current information disclosure plan can effectively prevent their privacy from being disclosed. H3 indicates that when the public has a high sense of efficacy, they tend to control risks and have adaptive responses, so they will adopt suggestions, abide by epidemic prevention and control norms, and cooperate with epidemiological investigation plans. When efficacy is low, the public will have maladaptive reactions. They are likely to reject recommendations, boycott epidemiological surveys,

and launch public opinion attacks against the media to vent their emotions or express dissatisfaction with quarantine efforts. Comprehensive data analysis showed that the average self-efficacy was low (2.25) and the average response efficacy was high (3.87). It can be seen that the public's evaluation of effectiveness is very different, which may lead to bad public opinion behaviors such as online violence.

On the other hand, severity and response had no significant effect on the level of public panic. Based on the psychological and sociological research related to this epidemic, it is believed that although the severity of the epidemic varies from period to period, the public cannot directly generate panic because they cannot completely guarantee that they can avoid contracting the virus due to the factor that COVID-19 is highly transmissible. For another, the response is an external factor, and the public cannot directly control the occurrence and behavior of Response, which is not directly related to the severity of the epidemic and therefore has relatively little impact on public panic.

To further improve the effectiveness of epidemiological investigation and reduce the public's fear, this paper considers that the relevant procedures of epidemiological investigation should be optimized.

Firstly, the role of mass media in the epidemiological investigation is clarified according to the characteristics of mass media's fast transmission speed. Public threat assessment and effectiveness assessment should be coordinated and balanced. With the rapid development of information technology, the media have certain credibility and influence in the face of emergencies. to help people better protect themselves and obtain relevant information more quickly, online media outlets have also become one of the effective means of national epidemic prevention and control. In the process of information disclosure, the characteristics of different media platforms should be reasonably used. The most striking feature is that different media audiences have different degrees of understanding and acceptance. Through different mass media platforms, information is disseminated to the masses of different ages and strata. Mass media should form benign interactions with the public, maintain social stability, guide social behavior and reduce fear awakening.

In addition, attention should be paid to the combination of epidemiological investigation information disclosure and related knowledge popularization to improve self-efficacy and coping effectiveness. Major media should carry out network dissemination, publicize the importance of the epidemiological investigation, establish relevant popular science information networks, and disclose relevant information. In the process of information disclosure, information errors should be avoided to the maximum extent to realize the unification of information dissemination. The security of personal information related to epidemiological investigations should be added to the reporting of outbreaks. to effectively improve the public's acceptance of information disclosure measures, cooperate with the epidemiological investigation, do not hide their travel trajectory, and improve self-efficacy and coping efficiency.

Finally, in the process of streaming media information disclosure, media should keep objective and rational, pay attention to the details of streaming media information, and protect the public's private information. Official media should make public the tracking of cases, respect the public's right to participate and express themselves, give correct guidance to adverse public opinions and dispel rumors manner promptly. Information dissemination and public relations strategies reflect respect for individual patients. The information is about regions and places, mentions places rather than people, and omits personal information about confirmed cases. While respecting personal privacy and reducing pressure on patients and their families, the public's right to know is protected to reduce the occurrence of online violence.

5.   Conclusion

The extended parallel process model can effectively discuss the public fear emotion and behavior process after epidemiological investigation disclosure. Two parallel cognitive assessment processes, threat appraisal, and efficacy appraisal can predict the public behavior and influence the public attitude to a certain extent. By analyzing the public's mindset and the influence of social opinion, it is indicated that there is a great difference in the public's evaluation of their sense of efficacy, which may trigger unhealthy public opinion behaviors such as cyber violence. The higher the Susceptibility, i.e., the likelihood of pubic-related information leakage increases approximately with the risk of epidemiological investigation. Since the public's threat evaluation of COVID-19 is too high and the credibility of relevant policy information is high, the next step of efficacy assessment will be conducted, which will affect the increase of public fear. In contrast, when self-efficacy is high, the public may perceive themselves as less likely to avoid epidemiological surveys and more capable of disclosing travel trajectory information. The public is also more inclined to control risk and have adaptive responses, so they will adopt suggestions to comply with outbreak prevention and control norms and cooperate with epidemiological investigation programs.

It is of practical significance to the theory and practice of epidemic prevention and control to systematically study the effectiveness of epidemiological investigation disclosure on the public's fear of the epidemic. Based on the data analysis and research results, this paper proposed ways to improve disclosure procedures for epidemiological investigation. On the one hand, based on the characteristics of mass media, and combined with the positive and negative information transmitted in the stream, the perceived threat and the perceived efficacy should be at a higher level at the same time. On the other hand, attention should be paid to protecting public privacy information while ensuring the authenticity of epidemiological investigations to reduce the spread of unhealthy public opinion. In addition, exploring the path and fundamental source of fear induced by epidemiological investigation can provide a basis for the standardization of epidemiological investigation as well as relevant public opinion supervision and legislative law enforcement.

In the future, the balance between the standardization of epidemiological investigation and the public's privacy needs to be better handled. And there is still much room for the public to understand the national epidemic prevention and control policies correctly.

References

[1]   Broche-Pérez, Y., Fernández-Fleites, Z., Jiménez-Puig, E., Fernández-Castillo, E., & Rodríguez-Martin, B. C. (2020). Gender and fear of COVID-19 in a Cuban population sample. International journal of mental health and addiction, 1-9.

[2]   Huang Rui (2020). Distributed data security thinking by the issue of personal privacy disclosure in the epidemiological investigation.

[3]   Asmundson, G. J., & Taylor, S. (2020). How health anxiety influences responses to viral outbreaks like COVID-19: What all decision-makers, health authorities, and health care professionals need to know. Journal of anxiety disorders, 71, 102211.

[4]   Mertens, G., Duijndam, S., Smeets, T., & Lodder, P. (2021). The latent and item structure of COVID-19 fear: A comparison of four COVID-19 fear questionnaires using SEM and network analyses. Journal of Anxiety Disorders, 81, 102415.

[5]   Lang, P. J. (1968). Fear reduction and fear behavior: Problems in treating a construct. In Research in psychotherapy conference, 3rd, May-Jun, 1966, Chicago, IL, US. American Psychological Association.

[6]   Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: development and initial validation. International journal of mental health and addiction, 1-9.

[7]   Xie Qingfeng (2021). The impact of media use and sense of panic on social media curation of news during the epidemic. Journal of International Communication, 43(05):43-64.

[8]   MAO Yunjie; Sun Yunfeng; Liu Hanqiang; Liu Tao; Zhang Lei; Zhang Yuhai;   Wang Zhizhong (2009).The psychological impact of the spread of influenza A (H1N1). J Fourth Mil Med Univ, (19), 2045-2047.

[9] Wang Huan (2003).The causes of group panic and its elimination -- Interpreting group psychology from SARS epidemic event. Journal of Beijing University of Posts and Telecommunications (Social Sciences Edition), (03), 1-4.

[10] Li Wenqian (2020).Research on panic emotion Propagation model based on epidemic theory. (Master thesis, Nanjing University of Aeronautics and Astronautics).

[11] Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. Communications Monographs, 59(4), 329-349.

[12] Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). Communication Monographs, 61, 113–134.

[13] Chen, L., Shi, J., Guo, Y., Wang, P., & Li, Y. (2019). Agenda-setting on traditional vs social media: An analysis of haze-related content grounded in the extended parallel process model. Internet Research.

[14] Leventhal, H. (1971). Fear appeals and persuasion: the differentiation of a motivational construct. American Journal of Public Health, 61(6), 1208-1224.

[15] Maddux, J. E., & Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. Social Psychophysiology: A Source Book, 19, 469-573.

[16] Zhang Ke; Du Xiufang; Tao Xiaorun; Zhang Yuanyuan;Kang Dianmin (2015).Review and prospect of the development of fear appeal in AIDS behavioral intervention. Chinese Journal of Preventive Medicine, (08), 752-756.

[17] Bekalu, MA and Eggermont, S. (2015). Aligning HIV/AIDS Communication With the Oral Tradition of Africans: A Theory-Based Content Analysis of Songs' Potential in Prevention Efforts. HEALTH COMMUNICATION, 30 (5), 441-450.

[18] Krumm, S; Porzsolt, F; Kilian, R (2016). The analysis of factors affecting municipal employees' willingness to report to work during an influenza pandemic using the extended parallel process model (EPPM). BMC PUBLIC HEALTH, 16.

[19] Fahr, A. (2018). Using efficacy cues in persuasive health communication is more effective than employing threats - An experimental study of a vaccination intervention against Ebola. BRITISH JOURNAL OF HEALTH PSYCHOLOGY, 23 (3), 665-684.

[20] Guidry, JPD; Carlyle, KE; Perrin, PB; LaRose, JG; Ryan, M; Messner, M (2019). A path model of psychosocial constructs predicting future Zika vaccine uptake intent. VACCINE, 37 (36), 5233-5241.

[21] Serpas, DG and Ignacio, DA (2021). COVID-19 fear mediates the relationship between perceived risk and preventive behaviors: the moderating role of perceived effectiveness. PSYCHOLOGY & HEALTH.

[22] Zarghami, F; Allahverdipour, H and Jafarabadi, MA (2021). Extended parallel process model (EPPM) in evaluating lung Cancer risk perception among older smokers. BMC PUBLIC HEALTH.