



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i5/16846> DOI:10.6007/IJARBSS/v13-i5/16846

Received: 08 March 2023, Revised: 13 April 2023, Accepted: 26 April 2023

Published Online: 10 May 2023

In-Text Citation: (Liu et al., 2023)

To Cite this Article: Liu, J., Hashim, N. B., Zainudin, S. S. B. S., & Razi, S. A. B. H. M. (2023). The Influencing Factors of Public Communication Behavior for Public Health Emergencies. *International Journal of Academic Research in Business and Social Sciences*, 13(5), 1020 – 1032.

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Vol. 13, No. 5, 2023, Pg. 1020 – 1032

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www.hrmars.com

ISSN: 2222-6990

The Influencing Factors of Public Communication Behavior for Public Health Emergencies

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Abstract

This study aims to provide a comprehensive understanding of public communication behavior and to analyse the influence factors of communication behavior on public health emergencies. The study reviews the previous literature on public communication behavior and the influence factors of communication behavior during health emergencies and proposes a conceptual model of public communication behavior in health emergencies. The findings of this study demonstrate that the factors influencing public communication behavior during health emergencies can be broadly classified into four categories, risk perception, emotion, public recognition, and motivation. The proposed conceptual model of public communication behavior provides a theoretical integrated overview to understand the relationships between these factors and public communication behavior in health emergencies. Furthermore, this study analyses public communication behavior from the public's internal communication perspective, which has not been adequately explored in previous research. The literature review adds to the body of knowledge by introducing four main groups of factors affecting communication behavior during health emergencies and highlights the importance of understanding the factors that influence communication behavior to improve communication effectiveness. This study is significant for understanding public health information communication behavior in health emergencies and providing government and organisations with high-quality guidance.

Keywords: Public Health Emergencies, Health Information, Public Recognition, Motivation, Public Communication Behavior

Introduction

Public health emergencies are large health emergencies that occur suddenly, pose a severe public health risk, are socially transmitted and require urgent attention (Li, 2012). Since 2009, there have been seven public health emergencies: the 2009 H1N1 (or swine flu) pandemic, the 2014 polio declaration, the 2013-2016 outbreak of Ebola in Western Africa, the 2015-2016 Zika virus epidemic, the 2018-2020 Kivu Ebola epidemic, the 2019 COVID-19 pandemic, and the 2022–2023 monkeypox outbreak. The COVID-19 outbreak in 2019 constitutes the most typical public health emergency worldwide. COVID-19 has attracted widespread public

attention due to its highly contagious nature, its serious health risks to the public and its socio-economic impact. In the public health emergencies of COVID-19, modern information and communication technologies (ICTs) play an important role in the control of COVID-19. At the same time, modern (ICTs) enable the instant transmission, sharing and exchange of information, and meet the diversity, timeliness and interactivity of information dissemination. In particular, in health information communication, modern ICTs allow the public to quickly and accurately access information about health emergencies, such as real-time data on COVID-19 infections, preventive measures and treatment options towards the situation of COVID-19, to achieve recognition and communication of health information. COVID-19 is now effectively controlled globally. However, since the third edition of the international health regulations (2005) was revised by the World Health Organization (WHO), there have been six major Public Health Emergencies of International Concern. We must acknowledge that the frequency of public health emergencies and the threat to humanity is increasing. Therefore, by reflecting on the critical role of modern information and communication technologies in controlling COVID-19, it is essential to explore the factors influencing public communication behaviour in public health emergencies, which will be significant for similar events.

From the previous studies, the factors influencing public information communication behaviour in public health emergencies are still unclear. Previous studies have mainly focused on information communication by sources, such as the government and the media, on the release of health information and analysed the effect of the public receiving information from the perspective of external communication. Thanh et al (2022) analysed the impact of the government on the public through information communication during COVID-19. From the perspective of information transmission by the media in response to public health emergencies, Fissi et al (2022); Thanh (2021) explored the improvement of public communication behaviour by risk communication in the media from the perspective of social media and mass media, offering creative ideas for the dissemination and management of health information.

However, the public's communication behaviour towards health information is influenced by external communication factors and the public's situation. Little research has been done into the public's perspective on health information communication. Individuals with an autonomous consciousness have different cognitive abilities, judgments and information participation abilities, resulting in different individual cognition abilities and information communication abilities. Some studies have shown that problem recognition (Li et al., 2018), engagement recognition (Li et al., 2017), and efficacy recognition (Deng & Liu, 2017) are the key factors that influence public communication behaviour. Therefore, this study aims to analyse the internal influencing factors of public communication behaviour in public health emergencies. Simply considering the external factors influencing public communication behaviour cannot thoroughly analyse the process of public communication behaviour. Internal and external communication processes should be considered to better exploit the positive effects of modern information communication on public health emergencies.

The Concept of Public Communication Behavior

Public communication behaviour is a way of behaviour in which the public shares important information. In previous studies, McQuail (1983) focuses on the processing of information dissemination, and Richard E. Petty (2012) focuses on communication paths. Grunig (2011) explores communication behaviour based on public classification. James. E. Grunig argues

that the communication behaviour of positive and negative publics differs. Active publics are more proactive, planned and purposeful in their communication behaviour. Negative publics tend to be passive and purposeless. According to the theory of information dissemination paths, the information dissemination behaviour of both active and passive publics includes information selection, information transmission and information acquisition. Therefore, this study uses the active and passive public as respondents. Information selection, information transmission and information acquisition are used as subfactors of communication behaviour to analyse the influencing factors of public communication behaviour.

Public Communication Behavior in public health emergencies

Most research on public communication behaviour in public health emergencies has been industry and economic. Among them, studies have primarily focused on the tourism industry (Bremser, 2021) and the restaurant industry (Jeong, 2022; Chou, 2022). These studies contribute to specific areas. However, safeguarding one's physical and mental health is the primary goal of the public in public health emergencies. Research on public communication behaviour should focus on health information communication and not solely on its contribution to the industry or economy. Research on antecedent factors of public communication behaviour shows that risk perception (Lingyi, 2021; Lin, 2020), institutional perception (Biao, 2020), government norms (Liangwen, 2021), and public satisfaction (Tang, 2020) are important conditions for influencing public communication behaviour. Public satisfaction and government norms are the public's judgments of external information conditions. Risk perception and institutional perception explore the public's communication behaviour from the perspective of the public's individual objective cognition and subjective perception. In other words, not only does the external path of information diffusion lead to the effective communication of health information, but the internal diffusion path, from their own perspective, also plays a vital role in health information communication. However, current research is lacking in studying communication behaviour pathways from the public's perspective. In view of this, focusing on public health emergencies, this paper examines public health information communication behaviour and analyses its influence factors.

The Influencing Factors of Public Communication Behavior

Risk Perception

Risk perception is an important topic in psychology, finance and political science. Risk perception focuses on the individual's perception towards the real risks in the outside world. Bults (2011) argues that risk perception is a subjective feeling about the infection severity and infection potential for contracting a disease. Bae and Chang (2020) also suggest that risk perception is a subjective concern, and in health emergencies, risk perception is a concern about infection potential of contracting a disease. Godovykh et al (2021) argue that the public's health risks perception cannot be separated from subjective feelings based on situation and personal knowledge. According to Shangren Qinet et al (2021), risk perception can be assessed in four dimensions: perceived health threat, perceived severity, perceived controllability, and perceived infection possibility. When an individual perceives the presence of a real risk, he or she is often caught up in negative emotions such as fear and dread. These negative emotions arise from the individual's assessment of the perceived threat, uncontrollability, and severity. In response to this phenomenon, protection motivation theory suggests that individuals in high-risk perception situations actively seek information and solutions. This suggests that risk perception can be crucial in public decision-making about

social issues. In a related study of health emergencies, Fatemeh Khozaei (2020) examined the relationship between the public's risk perceptions and park activities in health emergencies. The behavioural motivation hypothesis theory suggests that risk perceptions can cause changes in health behaviour. Therefore, risk perception can be an influential factor in the public's communication behaviour in health emergencies.

Table 1

Risk perception affects communication behaviour

Content	Finding	Author
Risk perception	Risk perception is specified as a combination of perceived severity and perceived vulnerability.	Bults et al., 2011
	Risk perception can be measured by cognitive and affective. Risk perception is a subjective concern of the public.	Bae et al., 2020
	Public health risk perceptions are related to an individual's subjective perceptions, classified into cognitive, affective, individual and situation.	Maksim Godovykh et al., 2021
	Risk perception was divided into four dimensions: perceived health threat, perceived severity, perceived controllability, and perceived infection possibility.	Shangren Qin et al., 2021
	The more cognition of COVID-19, the more risk perception and the less outdoor park behavior.	Fatemeh Khozaei et al., 2020
	The behavior motivation hypothesis theory believes that risk perception can cause changes in healthy behavior. If individuals believe that the risk of illness is enormous, they will adjust their behavior accordingly.	Brewer et al., 2004
	Public acts on their perceptions, whereas motivation, is enacted by the perceptions.	Jeong Nam Kim & James E. Grunig, 2011
	Low levels of risk perceptions predict greater behavioural intentions.	Cahyanto et al., 2016

Emotion

Emotions are the personal feelings expressed by the public. Emotions are formed based on individual experiences, literacy and specific situations. Emotions vary according to individual differences. When confronted with an achievement, the public is most excited and happy. When individuals perceive risk, emotional states such as worry and fear are expressed first. Positive or negative emotions can influence general cognition, judgement, attitudes and behaviour. Research by Block and Keller (1995) showed that public emotions influence public perceptions. Godovykh (2021), in his analysis of antecedent factors of risk perception, demonstrated that emotions are an influential factor. Further, emotions affect risk perception and thus influence communication behaviour. However, Qiong (2021) argues that emotion is a mediating variable influenced by risk perception and thus influences communication behaviour. Given this, emotions are closely related to risk perception and communication behaviour. In the situation of health emergencies, Praveen S.V. and Rajesh Ittamalla (2021)

used sentimental analysis and topic modelling to analyse the public's concerns about health emergencies. Şengel et al (2022) argued that anxiety influences behaviour through intention. When the public enters an emotional state of anxiety, they seek ways to alleviate their worries. Therefore, the public's emotional state during a health emergency should be fully considered when analysing the factors influencing the public's communication behaviour, which facilitates the public's search for suitable solutions through their communication behaviour amid negative emotions.

Table 2

Emotion affects communication behaviour

Content	Finding	Author
Emotion	Public emotion affects public cognition	Block & Keller, 1995
	Emotions influence risk perception and then influence communication behaviour.	Maksim Godovykh, 2021
	Emotion is a mediating variable, which is influenced by risk perception and then influences communication behaviour.	Wangqiong, 2021
	Concerns about health emergencies can influence public communication behaviour.	Praveen S.V. & Rajesh Ittamalla, 2021
	Anxiety is an influence on behaviour through intention.	Ümit Şengel et al.,2022

Problem Recognition

Problems, which do not exist objectively, are subjective public perceptions. Public perceptions of problems are formed based on reflection. The study by Grunig (2011) divides problem recognition into subjective problem perception and objective rational cognition. Subjective problem perception emphasises the public's perceived differences, while rational problem cognition seeks solutions to problems based on thoughtfulness and judgement. Health emergencies are emergencies faced by the public, and because of the severity and contagiousness, the public is eager to seek solutions to protect itself. Grunig (2011) defines the public's problem recognition as a situation in which the public finds itself and begins to think about what it should do to change the situation. In health emergencies, the public who perceive risk will analyse the current situation and seek information dissemination behaviours to get themselves out. The health belief model explains this phenomenon. The model analyses the relationship between recognition, intentions and behaviour and suggests that public recognition will influence communication behaviour through intentions. This finding corroborates the study of Khozaei et al (2021) that the public forms problem recognition from an objective analytical perspective and engages in individual communication behaviours to solve their problems. In view of this, it is essential to consider the public's recognition of health emergencies as an important factor when studying the factors influencing public communication behaviour.

Constraint Recognition

Constraint recognition is the public's cognition of their limited ability to solve a problem (Grunig, 2011). This concept is similar to individual efficacy. That is the public's objective

recognition of their ability to perform a task. Individual efficacy is closely related to factors such as personal ability, personality, level of education, environment, and self-confidence (Mata, 2021). The public's cognition of their efficacy is the public constraint recognition, and empirical studies have shown that public constraint recognition is an important factor influencing public behaviour (Dryhurst, 2020). The lower the public's constrain recognition, the stronger motivation to implement communication behaviours and the higher public's communication behaviours. Conversely, the higher the public's constrain recognition, the less likely the public is to engage in communication behaviour (Grunig, 2011). In health emergencies, the public is aware that the situation affects their health and lives and wants to take action to change the situation. However, by perceiving, analysing and judging their actual capabilities, the public concludes that they are not capable of solving the problem. The greater the level of constraint recognition, the more likely the public will take a negative motivation and become passive communicators. Conversely, the lower the level of constrained recognition of a health emergency, the higher the public's perceived ability to solve the problem and the stronger the motivation to engage in specific communication behaviours.

Involvement recognition

Involvement cannot be separated from the public's concern for the problem, the extent to which the public is involved in the activity, and the connection between the self and the situation. Involvement recognition is the public's recognition of the extent of their participation and is a judgement of rational thinking. Grunig (2011) argues that involvement recognition is the perception of a particular situation and perceives the extent to which one is involved in the situation. Some studies have shown that the public differs in their cognition of participation, with differences in learning patterns, cognitive states, and information communication behaviour (Chen, 2007). When members of the public find themselves connected to problem situations, they will take action to make a difference. The public with higher levels of involvement is more willing to change the status quo or adopt positive behaviours. In health events where the public perceives themselves to be close to a health emergency and there is a health and safety risk to their bodies, the public will seek ways to change their health situation and status quo. For example, when health risks surround an individual member of the public, the public is caught in a health emergency. They fear that they are infected with a virus or that the virus will endanger their lives. In order to stop the spread of the virus, the public will actively implement measures. This phenomenon has also been demonstrated in the situational theory of problem-solving, which suggests that the scope and nature of public communication behaviour are influenced by their perceived connection (involvement) with the problem situation. Therefore, the higher the public's involvement recognition of health emergencies, the more likely it is that the public will become an active public and initiate communication behaviours. Conversely, weak public involvement recognition will lead to less communicative behaviour.

Motivation

Motivation, based on cognitive ability and level, is the motivating factor that shapes individual behaviour. Previous studies considered motivation to be related to factors such as individual relevance, risk severity (Neuwirth et al., 2000), and personal cognition (Grunig, 2011). Chi (2022) argues that motivation influences cognition. Motivation stimulates the public's interest in the issue and forms rational cognition. Motivation in this hypothesis is similar to

"interest" and is not a motivation for behaviour. Conversely, Grunig (1997) argues that the public is first confronted with a problem by generating subjective perceptions, which form objective cognitions based on subjective perceptions, and then form intentions to act based on rational analysis-motivation. In testing the relationship between motivation and behaviour, Becker and Maiman (1975) concluded that when the public's motivation to solve problems increases, the initiative to act increases. This finding was validated by Jeong (2021) in his examination of the relationship between motivation and behaviour during COVID-19. Motivation, it follows, is a motivation for behaviour. It is influenced by cognition and also influences public behaviour, and motivation can reduce the perceived discrepancy between cognition and behaviour (Kim & Grunig, 2011). Motivation is a mediating variable between cognition and behaviour. Cognition is positively related to motivation, and motivation is positively related to behaviour. In health emergencies, individuals analyse the degree of risk of the event and their relevance, forming a risk perception of the health emergency and generating a willingness to implement proactive behaviours towards the resolution of the event. Therefore, the motivation for the behaviour arises from the public's attempt to resolve the emergency. That is, the stronger the public's recognition of the event, the stronger the public's motivation, and the more likely it is that the public will take the initiative to implement communication behaviour and become an active public.

Table 3

Public recognition and motivation affect communication behaviour

Contexts	Findings/Conclusion	Author
Problem recognition	Situational motivation is enhanced when the public's problem recognition is enhanced.	Jeong Nam Kim & James E. Grunig, 2011
	The public's information cognition influences public communication behavior and motivation.	Paek and Hove, 2017
	Public cognition will influence communication behaviour through intentions.	Fatemeh Khozaei et al., 2021
Constraint recognition	Low constraint recognition is associated with higher motivation and communication behaviour.	James E. Grunig, 2011
	Individual effectiveness is closely related to factors such as personal ability, personality, level of education, environment, and self-confidence.	Fernanda Mata, 2021
	Public constraint recognition is an important factor influencing public behaviour.	Dryhurst, 2020
Involvement recognition	It is a positive relationship between involvement recognition and situational motivation.	James E. Grunig, 2011
	The public's involvement recognition varies, with differences in learning patterns, cognitive states, and information dissemination behaviour.	Chen, G. L. 2007
Motivation	Low levels of risk perceptions predict more excellent behavioural intentions.	Cahyanto et al. (2016)

	Motivation is related to personal recognition. The higher the situational motivation, the higher the communicant activeness.	Jeong Nam Kim and James E. Grunig, 2011
	There is a correlation between motivation and risk severity.	Neuwirth et al., 2000
	Motivation influences cognition.	Nguyen Thi Khanh Chi, 2022
	When the motivation of the public to solve problems increases, the initiative of their behaviour will increase.	Becker et al., 1975
	Motivation and behaviour are related.	Luz Suplico Jeong, 2021

Conceptual Model and Future Research Directions

Factors influencing public communication behaviour include risk perception, emotion, problem recognition, constraint recognition, involvement recognition and motivation. Risk perception is judged by the public's perceived health threat, perceived severity, perceived controllability, and perceived possibility of infection. Emotion is related to the public's individual experiences and specific situations. The Emotion state of the public affects the public's cognition, judgement, attitudes and behaviour. Problem recognition, constraint recognition, and involvement recognition are part of the public's recognition. Public perceptions are closely related to personal abilities, personality, education level, self-confidence and involvement. Public cognition originates from the subjective perceptions of the public when confronted with a health event, and general cognition influence the public's motivation to communicate information about health emergencies. Motivation acts as a variable that influences communication behaviour. Some research suggests that high-risk perceptions trigger stronger behavioural intentions; for example, the health risk perception model proposed by Godovykh (2020) analyses the relationship between public recognition, emotions, individuals, contextual situations, risk perceptions and intentions to act in the context of COVID-19. Meanwhile, some studies concluded that perceptions directly influence the public's communication behaviour (Kwok et al., 2020). Previous studies have lacked analysis of factors influencing public communication behaviour in the context of health emergencies. There is also no analysis of the internal communication process between public risk perception and communication behaviour. Therefore, a new conceptual framework should be developed to analyse public communication behaviour in the face of health emergencies through quantitative research.

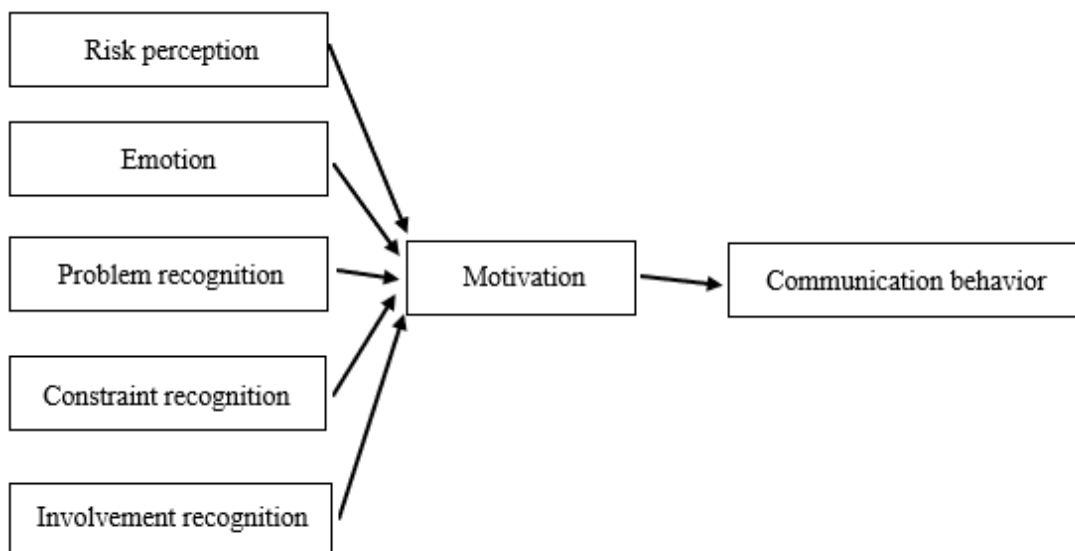


Figure 1. Conceptual model of communication behaviour in health emergencies

Conclusion

This paper aims to understand the concept of public communication behaviour, identify the factors that influence public communication behaviour and propose a conceptual framework for influencing public communication behaviour in health emergencies. The conceptual model systematically integrates the factors influencing public communication behaviour. Regarding the external communication process of information dissemination, the sources (government and media) play an essential role in influencing the public's information communication behaviour. However, the decision of the public's information communication behaviour ultimately rests with the individual public. Therefore, the internal communication process of the public cannot be ignored. From the perspective of the public's internal communication processes, risk perception, emotion, public recognition and motivation are all important factors influencing the public's information communication behaviour. However, the existing studies have not adequately explored the relevant elements. Therefore, this study explores public communication behaviour in health emergencies that not only introduces the main factors influencing public communication behaviour but also attempts to complement the original body of knowledge by developing a new conceptual framework from the perspective of the public's internal communication processes.

This paper also has substantial practical implications. There is no doubt that modern information communication has an essential role in decision-making and communication for governments in the face of health emergencies. It enables the rapid collection and dissemination of health emergencies. It is also an important medium for social prevention and public cognition, effectively reducing social panic and impeding the spread of health emergencies. However, based on previous research, it is not easy to achieve public re-dissemination of information that the government wants to disseminate or share. For example, if the public does not proactively implement control policies related to COVID-19, the public will be at significantly increased risk of contracting COVID-19; for society, this will increase the risk of the social side of COVID-19 spreading, making it challenging to control COVID-19 effectively. Therefore, this study analyses the factors influencing information communication behaviour from the public's perspective, which helps guide the government, enhances the public implementation of government policies, and promotes the power of

information communication among the public, thereby reducing the significant harm caused to humans by health emergencies.

It is suggested that the conceptual model proposed in this study can be used as a framework to explore the influence of different factors on public communication behaviour in different types of large-scale public health emergencies in different countries. Future research should analyse the extent to which these factors influence public communication behaviour toward public health emergencies. Empirical research will be conducted using questionnaires to examine the strength of the influence of each of these factors on public communication behaviour, government, media, public recognition, risk perception, emotion, and motivation.

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