The Influence of Individual Characteristics on Risk Perception

Yaming Zhang[1a] , Ping Dong[2b] , Pingting Fu[3c*]

[a]zhyming2008@163.com, [b]601025618@qq.com, [c]250693708@qq.com

[1,2,3,]Beijing Institute of Technology,Zhu Hai, Zhu Hai, Guangdong,China
Corresponding Author:Pingting Fu[3]

Abstract: In recent years, after the aggression of SARS and COVID-19, people have become more sensitive to the risks of emergencies. The purpose of this paper is to test the relationship between the dependent variable (individual characteristics) and the independent variable (risk perception). The research method of this paper is a quantitative method, using an online questionnaire and SPSS software, and 500 questionnaires were collected for testing. The significance of this paper is to derive recommendations for guiding risk in emergencies by examining the role that individual characteristics play in risk perception. The paper concluded that: 1. Demographic factors (occupation, education level, age) have an impact on risk perception. 2. Risk experience, risk knowledge, individual trust, and information accessibility are positively related to risk perception. 3. Among information preferences, those who prefer mainstream media are the most risk sensitivity was the lowest.

Keywords: Individual characteristics; risk perception; information preference; risk experience

1 Introduction

The 21st century is an era of latent fans, from the SARS virus that shocked China in 2003 to the New Coronavirus that has claimed the lives of thousands of Chinese people. There is uncertainty about risk, and the risk is almost unknown, which exacerbates the fear of risk. In addition, risk itself is objective, but people's perception of risk is subjective. Individuals with different colour profiles perceive the same risk in a wide variety of ways, and many factors such as age and risk experience influence individual risk perception. However, not much research has been done on the intensity of risk perception and risk perception recommendations for different groups. Moreover, as China is in a critical period of reform, and according to Beck (1998), the fundamental goal of state governance is to deal with the internal relations of society, there is an urgent need to guide people to have the right risk perception and to enhance risk communication between the public and the government.[1]

Risk perception is the tendency of the public to take precautionary measures in the face of uncertainty and risk. Scholars generally agree that the public tends to use their personal experience to assess the level of risk in an emergency scenario, and that the level of risk perception influences their behaviour (Menghan Jing & Chen Zhao, 2021).[2]

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At the theoretical level, although there are many studies on risk perception today, especially on major security and health events (SARS, HIN1), few studies have examined the relationship between individual characteristics and risk perception, and even fewer studies have been conducted on major public security and health events (Menghan Jing & Cheng Zhao, 2021).[2] In terms of practical implications, by studying the role of individual characteristics in risk perception, this paper provides advice to the government on the correct risk perception of individuals, which is conducive to controlling or even curbing the occurrence of public safety and health events in a timely manner. By studying the factors that influence risk perception, the research findings can be used to guide the public's behaviour in dealing with risk, improve the public's knowledge of risk perception and develop appropriate guidance strategies based on the public's information channel preferences.

In this article, an online survey was conducted using an online questionnaire to obtain information on the influence of relevant individual characteristics on risk perception, and the data were analysed using SPSS 26.0 software for reliability, descriptive statistics, factor analysis, etc.

In this article, we take novel coronavirus pneumonia as an example and further explore the impact of individual characteristics of the public on risk perception and the magnitude of intensity based on previous studies. At the same time, risk perception is categorised into multiple dimensions, and the impact of individual characteristics on different dimensions is explored. Finally, the paper proposes specific recommendations for different groups, so as to reduce the harm caused by risks and improve the risk perception ability and knowledge of the whole population.

2 Literature review

The definition of risk perception can be approached from both an individual and a group perspective. For individuals, in 1987, Slovic (1987) suggested that people mostly rely on instinctive intuition to determine whether the thing is hazardous for them personally.[3] Similarly, Sitkin and Weingart (1995) argue that risk perceptions are people's predictions of uncertainty and controllability and their confidence in these predictions.[4] And from a group perspective, Wildavsky and Dake (1990) argue that risk perceptions not only reflect individuals but also represent, to some extent, social values and cultural constructs.[5]

In the 1980s, Kasperson (1988) found that risk is often associated with individual behavioural habits, social values and social culture, which have an impact on risk perception.[6] These effects can be far more damaging than the event itself. Whether an event becomes a crisis or not is influenced by the nature of the event itself, and by various amplifying signals from society, such as the attitude of the government and media coverage.

In terms of the influence of individual factors on risk perception, Sjoberg (2018) and many others have found that the higher the public's knowledge base about risk, the lower the degree of perception of risk.[7] As to whether risk experience has an effect on risk perception, Gierlach (2020), in his study of unexpected public events, concluded that the more individuals are closely connected to public events, the higher the degree of risk perception of individuals.[8]

Risk perception is an individual's judgment of whether an event is potentially threatening and likely to occur, as well as a subjective emotional response (Paiming Zhang, Yanhua Wang, Mingming Liang, Ke Zhao, and Xiaolan Fu, 2023).[9] Jinyi Li, a Chinese scholar, believes that risk perception includes various aspects: risk knowledge, risk attitude, and risk behaviour (Jinyi Li, 2005).[10] In terms of the influence of individual factors on risk perception, Jiehong Zhou(2018) found that individuals' gender, age, occupation, and education level, among others, all have an impact on risk perception.[10] In the study of SARS, Kan Shi and Hongxia Fan (2003) divided information into positive and negative information, and found that positive information would reduce the public's risk perception, and conversely, people's risk perception would be increased by negative information.[11] Similarly, in their study of the effects of earthquakes, Huaqiang Li and Chunmei Fan et al. found that people's risk perceptions decreased when they were more exposed to earthquake preparedness and relief information, but increased when they heard more about the serious consequences of earthquakes (Huaqiang Li, Chunmei Fan et al., 2009).[12] Regarding the influence of the media on risk perception, Zhiying Wang et al. suggested that the media is an important influence in risk perception, and that the media helps people form their perceptions of events without being able to experience them first-hand, and that the media plays a significant role in people's risk perception (Wang, 2020).[12] Yan Quan suggested in 2013 that the public's distrust of social institutions and government experts is extremely likely to amplify risk (Quan, 2013).[12] In studies on trust in people around and friends and family, Wang found that these did not have much impact on risk perception (Wang, 2015).[12]

In previous studies, risk perception has been focused on management, psychology, communication, etc. Although important research results have been achieved, not many studies have been conducted on major public safety and health events. Secondly, many scholars have conducted research on how individual characteristics affect risk perception, but few have studied how strongly individual characteristics are affected by individual categories (e.g., gender, age, etc.) Therefore, this paper focuses on this point in the data analysis to complement relevant theory.

3 Research design

This article is further investigated using a questionnaire, which consists of three parts, the first of which is individual characteristics, the second is risk perception and the third is coping rationality. Individual characteristics include demographic factors (gender, age, residence, education, occupation), individual risk experience, individual risk knowledge, individual information preference, individual information accessibility and individual trust. Risk perception is divided into three dimensions based on a 5-point Likert scale: severity, controllability, and likelihood. The following figure 1 shows the research idea.

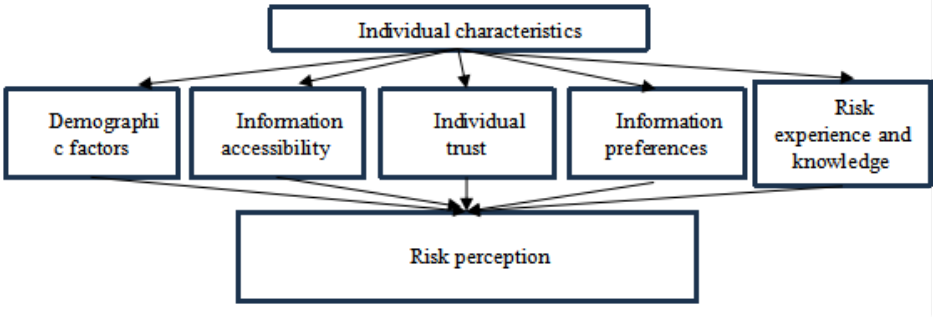

Fig. 1. research idea

4 Result

As shown in the table below, the results indicate significant differences in education level, information accessibility, individual trust, risk knowledge and risk perception. Education level was negatively correlated with risk perception (-0.202<0), while information accessibility, individual trust, and risk knowledge were positively correlated with risk perception (0.412>0, 0.359>0, and 0.301>0). The table 1 shows the result.

Table 1 variable regression analysis

Variable regression analysis					
	Non-standardized coefficient		Normalized coefficient	t	significance
	B	Standard error	Beta		
(constant)	1.052	0.169		6.211	0.000
Information accessibility	0.412	0.039	0.436	10.647	0.000
Individual trust	0.359	0.049	0.299	7.349	0.000
Education level	-0.202	0.035	-0.197	-5.73	0.000
Risk knowledge	0.301	0.048	0.271	6.287	0.000
A Dependent variable: risk perception					

5 Findings

5.1 Demographic factors (occupation, education level, age) have an impact on risk perception

In the analysis of age, the results confirm that younger people (under 29 years) are more likely to perceive risk compared to older people (over 50 years). In the regression analysis of

literacy, literacy was negatively correlated with risk perception, with lower literacy levels associated with higher perceived risk. In the regression analysis of occupation, schooling was less sensitive to risk than that of corporate employees.

5.2 Risk experience, risk knowledge, individual trust, information accessibility and risk perception are positively correlated

In the regressivity analysis risk perception without segregation experience compared to risk perception with segregation experience, the regression coefficient was 0.285, which was weakly correlated. In the regression analysis, the regression coefficient for risk knowledge and risk perception was 0.301, which was weakly correlated. In the regression analysis, the regression coefficient of individual trust and risk perception was 0.359, which was moderately positively correlated. This indicates that the higher the level of individual trust, the stronger the risk perception. In the regression analysis, the regression coefficient of information accessibility and risk perception was 0.412, with a moderate positive correlation. This indicates that the stronger the information access ability, the stronger the risk perception ability.

5.3 Among information preferences, those who prefer mainstream media are the least risk-sensitive

In multiple comparisons, the level of risk perception was relatively lower in the preferred mainstream media than in the other media. In the regression analysis, all other media had higher levels of risk perception than mainstream media.

6 Conclusions and recommendations

In this article, individual characteristics are analysed with some specificity and risk perception is divided into three dimensions. The results show that individual characteristics such as risk experience, risk knowledge, individual trust and access to information are positively correlated with risk perception. In addition, young people are more sensitive to risk than older people, corporate employees are more sensitive to risk than school students, and people who prefer mainstream media to other media are less sensitive to risk. Finally, literacy is negatively related to risk perception.

In response to the above findings, the government does a good job of communicating with the public in both directions. In the face of a major crisis event, if the public is critical and unhappy with the government because of the crisis event, the government needs to pacify the public and provide timely answers to their questions to avoid ignoring their emotions and needs. For different age groups, for example, for the middle-aged and elderly, the government can arrange for experts to go into the community and conduct science talks on risk events, with the community cooperating with the government to increase publicity; for young people and school students, the government can open new media accounts to popularise science to young people according to their preferences. In addition, the government can enrich the public's access to information, while regulating the information channels. The government should also further enhance the public's trust in mainstream media. The mainstream media can attract the public through rich content and diverse formats. At the same time, the mainstream

media should pay attention to systematic, professional and easy-to-understand reporting of risk events in order to increase the authority of the mainstream media and enhance the public's trust in the mainstream media.

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References

[1]Ulrich Beck. (1998). World risk society. Cambridge: Cambridge: Polity Press.

[2]Menghuan Jing, &Chen Zhao. (2021). Research on factors influencing public risk perception during the mitigation period of public health emergencies, (4), 27-37.

[3]Slovic P. (1987). Perception of Risk. Science, (236), 280-285.

[4]Stikin S B, &Weingart L R. (1995). Determinants of risky decision-making behavior: a test of the mediating role of risk perceptions and propensity. Academy of management, (38), 1573-1592.

[5]Wildavsky A, &Dake K. (1990). Theories of risk perception: who fears what and why. Daedalus, (119), 41-60.

[6]Kasperson, R.E. (1988). The Social Amplification of Risk: A Conceptual Framework. Risk Analysis, (8), 177-187.

[7]Ying Li. (2018). Effects of media use and media trust on risk perception of genetically modified foods. Unpublished Masters' thesis, Dongbei Normal university, Dongbei.

[8]Lei Sun, &Lan Xue. (2020). Does non-destructive earthquake experience affect risk perception and motivate preparedness. Journal of Contingencies and Crisis Management, (20).

[9]Boming Zhang, Yanhua Wang, Mingming Liang, Ke Zhao,Xiaolan Fu. (2023). The Impact of Perceived Risk of COVID-19 on Anxiety: A Moderated Mediation Model. Chinese Journal of Clinical Psychology, (31), 213-217.

[10]Jingyi Li. (2005). Evaluation of public risk perceptions: the case of students in universities. Journal of Natural Hazards, (6), 153-156.

[11]Kan Shi et al. (2003). Risk perceptions and psychological behaviors of our population regarding SARS information. Psychology Journal, (4).

[12]Huaqiang Li et al. (2009). Public Risk Perception and Emergency Management in Sudden Disasters: The Case of the 5.12 Wenchuan Earthquake. Management World, (6).