

Current Situation and Trend of Resident Flood Risk Perception

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Abstract: As the disaster carrier of all kinds of natural disasters, residents' risk perception level ability will affect the disaster prevention and response effect. Under the current situation of climate change and urbanization development, flood disasters occur frequently in urban areas and attract wide attention. Article take the research of the literature research method, from the connotation of risk perception, research methods, influencing factors analysis in recent years at home and abroad in the residents of flood risk perception research progress, and on the basis of the future research can expand and deepen the direction, in order to provide knowledge and ideas for social disaster prevention and mitigation ability building and reference.

Keywords: Flood Risk Perception; Research Paradigm; Influencing Factors

Introduction

Urban flooding has become a common concern of the Chinese government and the public. In recent years, flood disasters have become more and more frequent, and the losses have become more and more serious. As the implementer of various disaster reduction policies, the residents' level of risk perception affects their psychology and coping behavior, thus affecting the effect of disaster prevention and mitigation. According to the existing research results, most of the studies focus on the flood occurrence mechanism, formation law and post-disaster assessment, while less attention is paid to "people", the affected body.

1. Connotation of flood risk perception

1.1 Individual cognition of risky things

Risk perception belongs to the field of cognitive psychology, which refers to the individual's subjective experience feeling and experience perception of the external risk factors that may act on the individual, emphasizing the individual experience, feeling and influence on the behavioral results of the individual in this process. Individual perception of risk often starts from personal experience and intuition, and belongs to the category of subjective research, but it is also widely influenced by individual psychological, social, institutional and other factors, and the results of risk perception are uncertain^[1]. Some scholars believe that risk perception is a composite concept composed of two words: risk and perception. Risk refers to the possibility of bearing the loss due to action or decision-making, and perception refers to the individual's judgment on the possibility of the loss occurring^[2].

1.2 Subjective judgment of risk severity

Risk perception is a subjective judgment made by the perceptual subject on the occurrence probability and consequence severity of a specific risk based on experience and other factors, and it is an important evaluation index to judge the degree of public psychological panic. This scope of definition more emphasizes the subjective initiative of individuals. Because the judgment process will be disturbed by subjective personal factors and external environmental factors, the judgment results are often quite different from the real situation^[3]. Risk perception is also considered as a measurement process from the analysis of things to making decisions. The public judges the probability of the happening of dangerous things according to their own subjective feelings about the possibility of risk occurrence, so as to make relevant decisions and adaptive behaviors^[4].

2. Research method of resident flood risk perception

2.1 Psychometric paradigm

The psychometric paradigm, proposed and gradually improved by Slovic et al., is the most widely used and influential in the risk cognition research. It evaluates and grades the risk based on the psychological perspective, so as to further carry out the risk

perception research [5]. One of the major preconditions of psychometric application in the field of risk perception research is that risk perception is an individual's subjective judgment and evaluation of objective risk [6]. Scholars divide the risk perception research of the psychometric paradigm into three stages, advocating the description of risk characteristics through the means of expressive preference, and revealing the various differences in risk perception.

2.2 Cultural theory paradigm

One of the characteristics of cultural measurement paradigm compared with psychometric paradigm is that it broadens the research field of risk perception, puts research in the context of the context of society and culture, and advocates the development of research theoretical framework design from the perspective of sociology and disaster science. The public's risk perception will be deeply affected by the social environment and their own cultural background, and their social status, education level and institutional trust are all important influencing factors. The research and application direction of cultural paradigm mainly includes the relevant media reports [7], the public understanding of risk severity, and the preference prediction of decision-making procedures [8].

3. Factors influencing residents' flood risk perception

3.1 Individual characteristic factors

Due to a certain degree of differences in individual characteristics, including age, gender, income and education level, different individuals may show different risk perception characteristics and behavior selection trends. In terms of education level research, the research results showed inconsistent results, and the mechanism needs to be further explored. One type of studies suggests that less educated people tend to have higher flood risk awareness [9]; this is because highly educated people tend to have more flood knowledge, are more calm about disasters and are less likely to panic. While another type of studies believe that there is no significant relationship between education level and flood risk cognition [10]. In terms of gender impact research, scholars, who examined the effects of flood risk perception caused by flood experience, sociodemographic, and socioeconomic factors, often show higher risk awareness than men. In further studies, it was found that the perceived level of flood risk showed different occupations.

3.2 Natural and geographical environment

The study on the impact of natural geographical environment on residents' flood risk perception has been gradually increasing in recent years, which can provide guidance for residents to carry out prevention and preparation work for floods. There is a connection between the occurrence of floods and the geographical environment, which will affect the public's risk perception ability. When the number of disasters occurring in the residence is more or there is a large probability of occurrence rate, the corresponding residents have a strong flood risk perception ability [11]. In general, residents living closer to flood risk sources with higher levels of risk awareness are more likely to adopt an active response to flood disasters [12]. However, there are also inconsistent conclusions. Some scholars have found that the residents living in the seaside have a lower degree of flood risk awareness.

4. Application research on flood risk perception of residents

4.1 Evaluation of residents' flood risk perception ability

At present, researchers have selected three characteristics of flood risk cognitive measurement indicators, with different research priorities. One is a quantitative research with the psychometric paradigm as the analytical framework [13]; this standard takes residents' personal psychological status as an important indicator of measurement, magnifying the role of residents' psychological status, such as panic, conformity, worry, etc. The second is to describe the inherent characteristics of the flood [14]; The standard focuses on the flood itself, considering the serious consequences of the flood level, frequency, probability, and namely the process of risk characteristics monitoring. The third is to synthesize the above two indicators of the selection of characteristics [15].

4.2 Differentiation analysis of resident flood risk perception

After the flood, the public's risk awareness level may be quickly improved in the short term, because the residents will realize the serious consequences of the disaster, and will take positive measures to prevent and respond to the flood. However, it is still necessary to further explore whether the change is only a temporary stress phenomenon, or there is a special connection mechanism, which is of great significance to the promotion of public awareness of disaster prevention and mitigation [16]. Regional

differentiation research focused on the differences in flood risk perception among residents in different regional locations^[17]. In general, the perceived levels of flood risk among residents in different flooding areas may vary. The differentiation evaluation research aims to clarify the problems existing in the flood risk perception in a certain area and the population, and then put forward targeted countermeasures and suggestions.

4.3 Relations of resident flood risk perception and behavior

The purpose of the relationship between flood risk perception and behavior is to explore the formation of flood emergency management mechanism through the path of "perception-management". Residents' coping behaviors can be explained through psychological models, and then, to analyze the impact links of flood risk perception, including risk communication^[18]. The public's perception of the occurrence conditions of flooding affects its perception of sensitivity, thus affecting the severity perception and response assessment, and ultimately indirectly affects the public's willingness to protect their behavior^[19]. The application of the relationship between risk perception and behavior is mainly in disaster warning. In the process of perception, people will repeatedly confirm the authenticity and reliability of flood information, and the inconsistency of information confirmation results will affect residents' judgment, resulting in evaluation deviation, and then affect the coping behavior^[20].

5. Research prospect

5.1 Enrich of theoretical paradigm and innovation of research methods

Although the questionnaire survey, interview and other methods are simple and easy to use, which can reflect the risk perception characteristics of the respondents to some extent, it is difficult to reflect the role relationship between perception and ability. Therefore, it is necessary for future research to closely link the current situation of risk perception research in China, and put forward and improve the theoretical research paradigm.

5.2 Expansion of research field and multidisciplinary integration

Few studies exist on the action mechanism between flood risk perception and coping behavior, and in the study on the influencing factors of flood risk perception, the research results are biased due to the differences in the selected regions and the cultural attributes of the population. Future research should tend to carry out comprehensive research from the perspectives of social environment, personal structure, cultural background, and economic differences, and integrate various research methods to promote multidisciplinary integration.

5.3 Refining of the research objects and giving practice guidance

Flood risk perception is mostly regarded as an overall process, and it lacks targeted research at different stages of flood risk development. Future research should further refine the research subjects and analyze the differences in flood risk perception of different groups and their causes. In this study, the life cycle theory of emergency management can be considered to highlight the pertinence and guiding significance of disaster prevention and mitigation policy suggestions on the basis of stage division.

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