

# A Review of Tourists' Dynamic Risk Perception Recognition: A Case Study of Eco-Environmental Health Factors

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## ABSTRACT

**Background:** This paper proposes a dynamic risk perception identification framework for tourists, focusing on dynamic research on risk perception related to environmental health factors, which overcomes the shortcomings of traditional data collection methods such as questionnaires and interviews, such as high cost, small sample size and large sample deviation. In this review, we aim to : (1) identify studies on dynamic risk perception of tourists using environmental health factors as examples; (2) Identify potential threats to the validity of the survey results; (3) Make suggestions for future planning, design and implementation. **Methods:** A range of censorship was conducted by searching CNKI and Web of Science with the keyword "tourist risk" to find tourist risk studies published before December 31, 2022. Potential research content is updated through January 2023 through other sources. A narrative statement of the results is combined with a descriptive summary of the characteristics of the study. **Results:** On China National Knowledge Network. We found 128 visitor risk studies, and on the Web of Science, there were 4,426 articles, 4,554 in total. The scope of the study is very wide and complex. **Conclusions:** We found that the research direction of tourists' risk perception pays more attention to environmental health factors, but at the same time, the related research results of tourism risk are mainly concentrated in five aspects: tourism risk connotation, tourist risk, destination risk, stakeholder risk and tourism risk under the macro background. Tourists pay more attention to environmental problems and their impacts when choosing destinations. In recent years, tourists have paid more attention to environmental health factors, and it is necessary to better plan, implement and report mediation analysis.

## KEYWORDS

Risk perception; Travel; Ecological environment health.

## 1. INTRODUCTION

With the comprehensive completion of building a moderately prosperous society, domestic residents' disposable income has been increasing gradually, urbanization has intensified, and transportation tools have advanced rapidly [1], tourism has become an important part of daily leisure life for urban and rural residents, and the tourism industry has also become an important source of foreign exchange income for our country and other countries [2]. With the rapid development of urbanization and the urban residents' yearning for nature, more and more tourists are attracted by the natural scenery of rural areas. Therefore, in their leisure time, urban residents, accompanied by their relatives and friends, choose to go to rural areas or countryside resorts where they can connect with nature, and the destination of choice is gradually expanding outwards from the city.

However, due to the rapid development of China's tourism industry, the number of domestic tourists

has increased dramatically, and there was even a phenomenon of tourist attractions being overcrowded and tourism spending surging [3]. Tourism has become a focus of public concern. The explosive development of mass tourism has also brought many safety problems, and China's research on tourism safety and risk perception has gradually been put on the agenda.

## **2. THE DETERMINATION OF RESEARCH PERSPECTIVES IN TOURISM SAFETY STUDIES**

Two different research perspectives have emerged in tourism safety studies: a broad perspective, which studies the safety of the entire tourism industry, with the main goal of studying the impact of various crises and unsafe factors on the development of the tourism industry and how to ensure that the industry is protected or minimally affected by these crises and unsafe factors, thus achieving sustainable and healthy development. The other research perspective is a narrow one, focusing on the safety of tourists, with the main goal of ensuring the physical, property, and psychological safety of tourists throughout the tourism process. In fact, many of the crises and unsafe factors that affect the development of the tourism industry operate by affecting tourists' confidence in the safety of their destination (including physical, property, and psychological safety). The loss of tourists' safety confidence leads to a reduction in tourist numbers, and a large reduction in tourist numbers can have a significant impact on the entire tourism industry. Therefore, it is of great importance to strengthen the protection and safety research for tourists and enhance tourists' confidence in the safety of their destination to ensure the sustainable and healthy development of the tourism industry. In this paper, the safety of tourists is taken as the research perspective (using ecological environment health factors as an example) to review the research conducted by Chinese and foreign scholars in this area. In the following text, tourism safety also specifically refers to the safety of tourists.

Therefore, an increasing number of tourists will refer to other tourists' online evaluations when choosing their destination, thereby selecting their preferred destination based on the sharing of travel plans and post-travel experiences by some tourists on the internet. Unvisited tourists can thus evaluate the various risks they may encounter when traveling by referring to these evaluations, and respond to these dynamic risks accordingly.

If the risk in a certain situation were to transform into a crisis, it would not only result in the deaths and destruction of infrastructure of residents and tourists, but also threaten the tourism image of the destination and cause a prolonged decline in the tourism industry of that destination. In the face of sudden crisis events, the transformation from passive to active risk management and the construction of systems for resisting, absorbing, and adapt[4-6].

## **3. STUDIES ON DYNAMIC RISK PERCEPTION OF TOURISTS AT HOME AND ABROAD**

According to articles on tourism risk research, the research on risk perception knowledge categorization has generally gone through four stages: the germination period (2001-2006), with fewer than 12 articles published each year on average, with a relatively small total number and a fast growth rate; the accumulation period (2007-2012), during which the number of articles published steadily increased and tourism risk research gradually gained attention from various sectors; the development period (2013-2018), during which the number of articles published each year was around 25, with a slower growth rate, and the research showed a trend towards refinement; the temporary pause period (2019-2022), due to the outbreak of the global pandemic, the tourism industry development was temporarily suspended during this period; the recovery period (2023-to the present), due to the adjustment of national policies and the opening of epidemic prevention and control work, people who had not traveled extensively for three years began to go out, and the economy slowly began to recover to its original prosperity. And due to the impact of the epidemic, people's choice of

tourist destinations has changed, and they are more willing to go to natural areas to experience nature, away from densely populated urban areas, to regions with rich and beautiful natural scenery.

## **4. MATERIALS AND METHODS**

Instead of conducting a systematic review, I believe that a scoping review is more suitable for our research objectives (Peters et al, 2015). This literature is highly heterogeneous, and my research objectives include a broadly defined research question. The scope review features a broader scope than systematic reviews, as their purpose is not to generate answers to a narrowly defined problem. Instead, the scope review aims to map an under-researched discipline's knowledge base and identify gaps in research. I followed the guidelines for conducting a systematic scoping review outlined by Peters et al. (2015) and Arksey and O'Malley (2005) to a large extent. Due to the rapidly increasing literature on the subject, I did not register my protocol before conducting the review, slightly deviating from this guideline (see Vo et al., 2020)[7].

### **4.1. Eligible Methods**

We used comprehensive inclusion criteria to review as many relevant studies as possible. Papers were retrieved from the China National Knowledge Infrastructure (CNKI) and Web of Science, and their findings were explained, allowing us to assess the appropriateness of the analytical methods used to test the mediator. We did not include studies that did not make a special effort to assess the mediating effect (i.e., studies in which the potential mediating effect was adjusted for as a confounding factor, or studies that may have provided indirect evidence of mediating effect, such as those that may have been found in a matrix of bivariate correlations between exposure, outcome, and possible mediator variables).

Any study that designed an original research on the relationship between dynamic tourism risk perception and environmental health and tried to study the interconnected mediating mechanism was eligible, as long as the results of these inclusive criteria were met. The outcome variables could be objectively measured.

### **4.2. Information Sources and Search Strategies**

A comprehensive literature search of peer-reviewed studies without time constraints was conducted in two major databases (CNKI and Web of Science). These searches retrieve articles that were published or published before December 31, 2022. The keyword is "tourist risk" to find studies on tourist risk published before December 31, 2022. We also handsearched the reference lists of included studies and retrieved studies from our personal records.

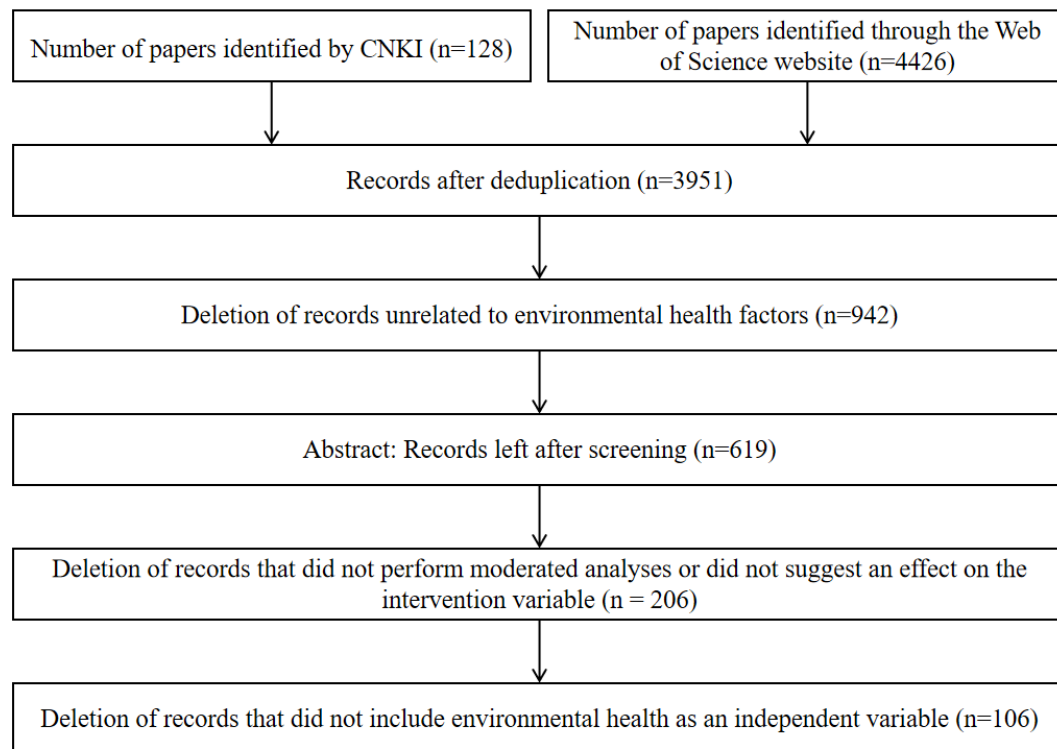
Research selection is an iterative process of refining a search strategy. I did an initial screening and verified the records. Our list of potential studies is constantly updated until submission (February 2023) as new studies become available.

### **4.3. Method quality evaluation**

As the aim of the scoping review was to map the available evidence based on a topic, we did not formally assess the risk of bias of the included studies (Peters et al, 2015).

### **4.4. Synthesis of research results**

The findings are presented and summarized in the form of graphs and tables.



**Fig 1.** Flow chart of the study selection process

## 5. RESULTS

**Table 1.** Indicators of perceptual importance

The risk of perceived importance increases after travel	Reduced risk of perceived importance after travel	Risk of no significant change in perceived importance before and after
0	0	0
0.2	0.2	0.05
0.4	0.4	0.1
0.6	0.6	0.15
0.8	0.8	0.2
1	1	0.25
		0.3
		0.35

Considering that risk perception is highly susceptible to subjective factors such as access to information, it is necessary to identify the dynamic process of risk identification before and after travel. This not only guides tourists to make a reasonable assessment of the destination, but also provides an important reference for the government to carry out destination risk management. Taking environmental health factors as an example, this paper discusses the dynamic risk perception of tourists and the dynamic assessment process of their destinations. The results show that there are indeed significant differences in tourists' perception of the risk of the destination before and after travel[8].

This scoping review provides a descriptive summary of 106 risk-perception studies published over the past few decades, which confirm the dramatic increase in the importance of tourists' perceived

environmental health risks after travel, which also shows the importance that people place on environmental health [9]. This ecological and environmental health factor is one of the most important factors and plays an important role. But it is not the only factor, it is intertwined with other factors, and there is a certain intermediary that plays an indirect role, so we cannot consider environmental health factors in one line, but in multiple lines. Potential intermediary pathways should not be considered orthogonal if theories suggest that they may be intertwined. Any unavoidable limitations and consequent biases associated with mediation analysis methods should be discussed. There is a clear need for longitudinal and intervention studies that mediate outcomes through multiple avenues.

In some livable cities or towns, ecological and environmental health factors such as cities and towns are usually given priority because they affect the quality of life of our residents, and the complex ecosystems in the ecological environment and human destruction lead to very multivariate influencing factors, especially when the epidemic is not completely over. These influencing factors are closely related to tourism competitiveness, which can be judged by tourists' travel demand and satisfaction, and tourists' perception and evaluation determine the choice of tourist destinations to a certain extent [10]. Because different tourists have different subjective cognitions, different tourists' perceptions of spatiotemporal environmental factors will also lead to different perceptions of the environment [11]. At present, more and more attention has been paid to the ecological environment and health benefits of health tourism [12]. Environmental comfort is also an important factor influencing tourists' perception [13].

In general, we find that the research direction of tourist risk perception pays more attention to environmental health factors, but at the same time, the relevant research results of tourism risk mainly focus on five aspects: tourism risk connotation, tourist risk, destination risk, stakeholder risk, and tourism risk in the macro context. In recent years, tourists have paid more attention to environmental health factors, and there is a need for better planning, implementation and reporting of mediation analysis.

## **6. SUGGESTIONS**

In the study of tourists' dynamic risk perception, we found a suboptimal behavior pattern and mediation analysis report. However, there have been improvements in these areas in recent years. In future studies, we suggest that the authors provide a priori conceptual model of the interrelationship between destinations, hypothetical mediators, and environmental health. Then, considering the theorized structural relationships in the conceptual model and the nature of the data, the analytical framework should be carefully chosen.

Ecological and environmental health factors are important factors affecting tourists' choice of destinations, and landscape architecture designers should consider the needs of tourists and residents when designing tourism projects, so as to design a tourist destination that can turn danger into safety when encountering risks before the current epidemic situation completely disappears.

## **CONFLICTS OF INTEREST**

The authors declare that they have no conflict of interest.

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