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A Review of Knowledge Graph-Based Research on Tourism Destination Risk Management from 2006 to 2025

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Abstract

Risk management of tourist destinations is an important research field in the discipline of tourism. With the development of tourism, more scholars are engaged in this field of research, and it is very important to make a comprehensive assessment of its current situation. This article takes the core collection of Web of Science as the data source, selects 323 literatures published between 2006 and 2025 as research samples, and systematically analyzes the publication trends in this field and other fields, aiming to reveal the evolutionary vein, knowledge structure and cutting-edge dynamics of tourist destination risk management research. The research of existing scholars in this field has extended from single risk management to multi-risk control, including natural risks, economic risks and other dimensions. The research covers the three major knowledge sections of micropsychology, risk response and governance value. In general, tourist destination risk management research is undergoing a profound transformation from "emergency response" to "advance prevention" and from "micropsychology" to "macro governance". This study systematically outlines the knowledge atlas in the field of tourist destination risk management, clarifies the classic literature genealogy and frontier dynamics for the follow-up research in this field, and provides clear guidelines for researchers to grasp the academic context and find innovative entry points.

Keywords

tourist destination, risk management, knowledge graph, bibliometrics

1. Introduction

Tourism plays an important role in promoting economic growth, driving employment and spreading culture. The Sendai Framework of the United Nations Strategy for Disaster Reduction (UNDRR) directly mentions that disaster risk management should be strengthened to mitigate the impact of disasters on tourism. At the same time, the Global Tourism Highlights report released by UNWTO also points out that tourism, as the pillar industry of the national economy, must establish an effective crisis management mechanism to protect its assets, including the safety of customers and destinations. However, the tourism industry has a high degree of environmental sensitivity and systemic vulnerability. Natural disasters, public health events, economic crises, terrorist attacks and other risk events are frequent, which poses a serious challenge to the

sustainable development of tourist destinations. For example, the Turkey-Syria earthquake in February 2023 directly destroyed the infrastructure of major tourist towns, including Istanbul, resulting in a sharp decline in the number of international tourists. In the same year, a violent volcanic eruption occurred on La Palma Island in the Great Canary Islands, resulting in a large-scale suspension of flights and the interruption of tourist routes, which had a transnational impact on the tourism industry in Spain and surrounding areas. In recent years, major risk events such as COVID-19, increasing climate change and geopolitical turmoil have occurred frequently around the world, which has promoted the explosive growth of research output in the field of tourist destination risk management, and the volume of articles and academic attention have risen significantly. At the same time, the deep embedding of intelligent technology and digital means has promoted the expansion of research content from traditional risk response to emerging topics such as social media risk communication and big data-driven risk warning (Shi et al., 2021), and the research boundaries continue to extend. At this turning point, systematically tracing the evolutionary vein and knowledge structure of this field can not only provide clear guidelines for subsequent research to clarify the genealogy of classic literature and identify cutting-edge dynamics, but also lay an academic foundation for building a more resilient and adaptable tourist destination governance system.

In the relevant research field of tourist destination risk management, the existing review mostly focuses on the overall or specific risk type of tourism management discipline. Ritchie and Jiang (2019) have systematically reviewed the research on tourism risk, crisis and disaster management, Williams and Baláž (2015) have made a theoretical reflection on tourism risk and uncertainty, and Michael Hall (2010) has made pioneering contributions to the typology of tourism crisis events. Toker and Emir (2023) analyzed the research structure in the field of tourism safety and security through literature measurement mapping. Tourism safety research has shifted from a simple “risk perception” to a more comprehensive “crisis resilience” model. In terms of research methods, compared with the early review paradigm based on manual collation and content analysis (Faulkner, 2001), this article comprehensively uses literature measurement tools such as CiteSpace and VOSviewer to realize multi-dimensional and systematic structural analysis of this field through the visualization of knowledge atlas, which provides a useful attempt for the methodological innovation of tourism risk research.

This article takes 323 tourist destination risk management literature in the core collection of Web of Science from 2006 to 2025 as the research object. Using CiteSpace and VOSviewer visualization software, it deeply analyzes the evolutionary vein and knowledge structure of the field in terms of publication trends, geographical distribution, journals, authors, highly cited literature, etc., and accurately grasps the frontier dynamics. The core contribution of this article is: first, it combines literature measurement with traditional content analysis methods to realize multi-dimensional and visual analysis of risk management research in tourist destinations; second, based on the quantitative data of 323 literatures, it clearly outlines the publication trend, core research forces and key journals in this field; third, through keyword clustering and emergence analysis, three major knowledge domains are identified, including the micropsychological mechanism module, the risk type and coping strategy module, the governance paradigm and value destination module, predicting that the research in this field will shift from passive response to adaptive transformation in the future, providing guidance for follow-up research.

The structure of this article is arranged as follows: the second part introduces the data source and research methods; the third part presents the analysis results from the five dimensions of publication trend, national distribution, journal distribution, core authors, and highly cited literature; the fourth part focuses on keyword co-occurrence, clustering and sudden analysis, reveals the research hotspots and evolution trajectory, and conducts forward-looking research and judgment on future trends; the fifth part summarizes the research conclusions and puts forward research prospects.

2. Data Sources and Research Methods

2.1 Data Sources

This article takes the core collection of Web of Science as the data retrieval platform, and retrieves the topics of “tourism destination” and “risk management”. The literature type is limited to “Article” and “Review”. The time span is set from January 1, 2006 to December 31, 2025, and a total of 347 original

documents have been obtained. In order to ensure the research matching and data validity of the literature, through manual reading of titles, abstracts and keywords, invalid data such as literature, book reviews, conference abstracts, etc., which are weakly relevant to the risk management topic of tourist destinations, are eliminated, and finally 323 valid literatures are obtained. Export the full records of 323 documents and the cited reference information in plain text format as the data basis for subsequent visual analysis.

2.2 Research Method

This article comprehensively uses literature measurement methods and content analysis methods to conduct a multi-dimensional and systematic analysis of research literature in the field of tourist destination risk management. The literature measurement method is a visualization technology based on mathematics and statistical means to quantitatively analyze the quantitative characteristics, distribution laws and citation relationships of literature in a specific field, and then reveals the discipline structure, evolutionary trajectory and research frontier visualization technology (Pritchard, 1969). Through the combination of CiteSpace and VOSviewer, a more comprehensive and in-depth visual analysis of the risk management research field of tourist destinations has been realized.

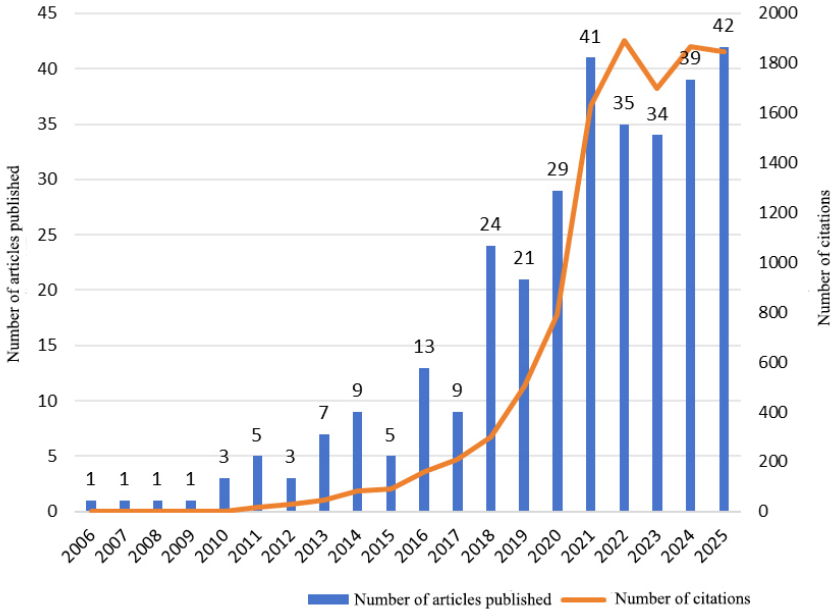
CiteSpace is a knowledge atlas visualization tool developed by Professor Chen Chaomei of Drexel University in the United States. It can reveal the knowledge structure, evolutionary vein and cutting-edge dynamics of a certain research field through synergism analysis, cluster analysis, emergence detection and other functions (Chen, 2004). This article adopts CiteSpace 6.1. R6 version. Developed by van Eck and Waltman (2010) of Leiden University in the Netherlands, VOSviewer is good at processing large-scale network data and generating intuitive visual graphs. This article adopts VOSviewer version 1.6.19 to analyze the author's cooperation network.

3. Multi-dimensional Feature Analysis of Literature

3.1 The Temporal Distribution Characteristics of the Literature

The number and length of literature published can reveal the characteristics of academic evolution in a certain field (Zou et al., 2025). This paper conducts a statistical analysis of the volume of articles published and citations in the field of tourist destination risk management from 2006 to 2025, and draws a trend chart of the annual publication volume and citation volume (Figure 1). The figure adopts a double vertical axis design. The left vertical axis represents the annual number of articles (articles), the right vertical axis represents the annual number of citations (times), the blue column chart represents the number of articles published, and the orange line represents the number of citations.

Figure 1: Statistical chart of the number of published articles and citations



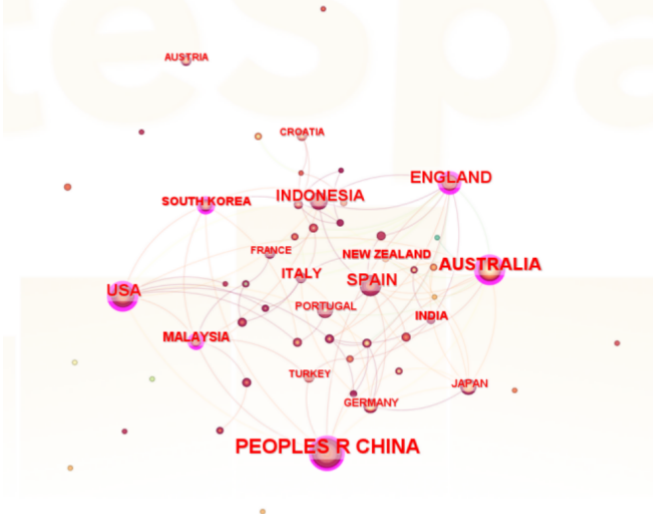
It can be seen from Figure 1 that the study of tourist destination risk management has undergone an evolutionary process from budding to rapid development. Between 2006 and 2010, the field was in its infancy, with a small average annual volume of articles, indicating that risk management of tourist destinations has not yet attracted widespread attention from the academic community. From 2011 to 2018, it entered a period of steady growth, and the volume of articles gradually increased. From 2019 to 2021, it ushered in a period of explosive growth, with a significant increase. This stage of explosive growth coincides with the outbreak of the global COVID-19 pandemic, and the urgent need for digital transformation of the tourism industry has promoted the surge in research on risk management of tourist destinations. At the same time, the number of citations has also shown a synchronous and rapid upward trend, indicating that the academic influence of this research field is increasing. The number of articles decreased from 2022 to 2023 because we were in a complex stage of coexisting the epidemic control and the recovery period. Many empirical studies needed to collect the real perception data of tourists and managers in the "post-epidemic era". Due to the obstruction of field research or the delay in data collection, some research results based on first-hand data could be delayed. This time difference was also reflected in the publication volume statistics of that year. The empirical research on the delay of the rebound in 2024-2025 due to the epidemic has been published, and new issues of tourism recovery in the post-epidemic era have emerged. It is expected that the volume of articles in the later stage will remain high and stable, and the integration of technology will drive the deepening of research. The growth rate will slow down but the influence will continue to increase.

3.2 Analysis of National Distribution Characteristics

Based on the Citespace country/regional co-occurrence map, the spatial distribution of global tourist destination risk management research presents a significant core - edge structure and multi-level knowledge production pattern, as shown in Figure 2.Among them, China ranked first with 66 publications, followed by Australia with 34 and the United States with 31.The size of the nodes in the graph represents the research intensity of different countries: China, the United States, and Australia, as core nodes, occupy a high ecological niche in research due to their long-term accumulation in areas such as crisis management theory and the impact of natural disasters on tourism systems. Traditional European tourism powers such as Italy (15), Spain (30), and the United Kingdom (28) focus more on risk control in cultural heritage protection, tourism capacity overload, and crisis communication mechanisms in mature markets, reflecting the differentiated attention to regional tourism development stages. Small island developing states (Maldives, Fiji, Palau, etc.) have received continuous attention as "natural laboratories" in extremely vulnerable regions, forming a multipolar and cross-level knowledge production pattern. Overall, this graph indicates that the research on tourism destination risk management covers a multi-polar and cross-level research network of

emerging economies in the Asia-Pacific region, mature markets in Europe and the United States, and small island developing countries. With the further deepening of cooperation among different countries, future international cooperation will focus more on cross-regional risk comparison, North-South knowledge transfer, and the construction of global risk response plans based on local wisdom.

Figure 2: National co-occurrence map



3.3 Analysis of Journal Distribution Characteristics

This section systematically analyzes the distribution characteristics of journals in the field of tourism destination risk management based on the search results of the Web of Science database, in order to reveal the publication channels and academic influence of research results in this field. The top 10 journals by publication volume were selected for statistical analysis, covering information such as journal name, founding year, research topic, 2024 Journal Impact Factor (JIF), JCR (Journal Citation Reports) quartile, and JCI (Joint Commission International) quartile. Specific statistical results are shown in Table 1.

Table 1: The top ten journals in terms of the number of published articles

Rank	Title	Founding Year	Research Theme	JIF (2024)	JCR Category	JCI (2024)	JCI Category
1	Sustainability	2009	The journal focuses on interdisciplinary research that advances the understanding and practical implementation of environmental, social, and economic sustainability across all sectors of society.	3.3	Environmental Sciences (Q2); Environmental Studies (Q2); Green & Sustainable Science & Technology (Q3); Green & Sustainable Science & Technology (Q3)	0.67	Environmental Sciences (Q2); Environmental Studies (Q3); Green &Sustainable Science & Technology (Q3); Green & Sustainable Science & Technology (Q3)
2	Tourism Management	1980	The journal focuses on the policy, planning, and management aspects of travel and tourism, targeting	12.4	Environmental Studies (Q1); Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)	2.95	Environmental Studies (Q1); Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)

Rank	Title	Founding Year	Research Theme	JIF (2024)	JCR Category	JCI (2024)	JCI Category
			academics and practitioners worldwide.				
3	Current Issues in Tourism	1998	The journal focuses on interdisciplinary research addressing contemporary social, economic, and environmental challenges, policies, and sustainable practices within the tourism sector.	4.6	Hospitality, Leisure, Sport & Tourism (Q1)	1.34	Hospitality, Leisure, Sport & Tourism (Q1)
4	Journal of Destination Marketing & Management	2012	The journal is dedicated to interdisciplinary research on destination marketing, management, and branding, with a particular emphasis on the role of Destination Management Organizations in tourism development	7.4	Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)	2.13	Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)
5	Tourism Review	1946	The journal publishes peer-reviewed research that examines the development, management, and impacts of tourism and hospitality, with a focus on policy, planning, and practical applications across global contexts	7.9	Hospitality, Leisure, Sport & Tourism (Q1)	2.08	Hospitality, Leisure, Sport & Tourism (Q1)
6	Tourism Management Perspective	2005	The journal focuses on interdisciplinary research concerning the planning, management,	6.9	Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)	1.87	Hospitality, Leisure, Sport & Tourism (Q1); Management (Q1)

Rank	Title	Founding Year	Research Theme	JIF (2024)	JCR Category	JCI (2024)	JCI Category
			and experiences of travel and tourism, as well as the impacts of these experiences on communities, economies, and environments.				
7	Journal of Sustainable Tourism	1993	The journal is dedicated exclusively to research on sustainable tourism, covering the intersection of tourism development and sustainability, including environmental, socio-economic, policy, and management aspects.	7.8	Green & Sustainable Science & Technology (Q1); Hospitality, Leisure, Sport & Tourism (Q1)	1.53	Green & Sustainable Science & Technology (Q1); Hospitality, Leisure, Sport & Tourism (Q1)
8	Journal of Travel Research	1968	The journal focuses on travel and tourism behavior, management, and development, providing up-to-date, high-quality research for scholars, educators, and practitioners.	7	Hospitality, Leisure, Sport & Tourism (Q1)	1.99	Hospitality, Leisure, Sport & Tourism (Q1)
9	Annals of Travel Research	1973	The journal is dedicated to advancing tourism social science by developing theoretical constructs and fostering interdisciplinary dialogue on the academic perspectives of tourism.	7.8	Hospitality, Leisure, Sport & Tourism (Q1); Sociology (Q1)	2.99	Hospitality, Leisure, Sport & Tourism (Q1); Sociology (Q1)
10	Journal of Hospitality and Tourism	1982	This journal focuses on expanding	7.8	Hospitality, Leisure, Sport & Tourism (Q1); Management	1.98	Hospitality, Leisure, Sport & Tourism (Q1); Management

Rank	Title	Founding Year	Research Theme	JIF (2024)	JCR Category	JCI (2024)	JCI Category
	Management		knowledge and enhancing theoretical debates relevant to the management of tourism, travel, leisure, recreation, and events, emphasizing innovative methodologies and interdisciplinary perspectives.		(Q1)		(Q1)

From the perspective of the journals' basic attributes, these 10 journals span from 1946 to 2012, including classic journals like *Tourism Review* (founded in 1946) and emerging professional journals like *Journal of Destination Marketing & Management* (founded in 2012). This reflects that research on tourism destination risk management is rooted in a deep academic tradition while continuously absorbing new academic growth points. This diversified journal portfolio indicates that tourism destination risk management, as a comprehensive research field, has been deeply integrated into the mainstream discourse of tourism studies and has formed close academic interactions with related disciplines such as sustainable development science, environmental science, and management.

In terms of academic influence indicators, Tourism Management leads with an impact factor of 12.4, highlighting its important position in the field of tourism management. Journals such as Tourism Review (7.9), Journal of Sustainable Tourism (7.8), Annals of Tourism Research (7.8), and Journal of Hospitality and Tourism Management (7.8) form a high-impact tier with an impact factor of 7.0 or higher. Journal of Destination Marketing & Management (7.4) and Journal of Travel Research (7.0) follow closely behind, indicating that journals in this field have high academic influence. Regarding JCR rankings, the vast majority of journals are in the Q1 quartile within their respective disciplines. This highly concentrated ranking pattern indicates that high-quality research in tourism destination risk management mainly flows to core journals in the tourism discipline, forming a relatively stable and high-quality academic dissemination channel. It is particularly noteworthy that Annals of Tourism Research is also in the Q1 quartile in the field of sociology, reflecting the journal's interdisciplinary academic influence in promoting the construction of tourism social science theory.

Overall, the distribution of journals in the field of tourism destination risk management exhibits the following characteristics: First, a core group of journals dominated by “Tourism Management” and featuring multiple Q1 zone journals has been formed, providing a high-quality platform for the publication of research results. Second, the disciplinary affiliations of the journals cover tourism management, environmental science, sustainable development, management, sociology, and other fields, fully demonstrating the multi-disciplinary cross-innovation nature of tourism destination risk management research. Third, from the correlation between the founding time of the journals and their research topics, traditional classic journals focus on the construction of basic theories and methodologies in tourism management, while emerging journals pay more attention to application issues such as destination marketing and sustainable development. This generational division of labor enriches the hierarchy and inclusiveness of research in this field. The above distribution characteristics provide clear guidance for researchers in this field on where to submit their papers, and also lay the foundation for subsequent in-depth literature analysis based on specific journals.

3.4 Author Analysis

Based on the author co-occurrence density map generated by VOSviewer (Figure 3), a systematic analysis of the core author groups, cooperative network structure and academic community characteristics in the field

of tourism destination risk management can be conducted. The brightness of the nodes in the graph represents the number of published papers. The closer the color is to bright yellow, the more published papers there are.

Judging from the author's common atlas, this field has formed a multi-center cooperation pattern with Ritchie Brent W., Becken Susanne and Scott Daniel as the core. As an authority on tourism crisis management, Jiang et al. (2019) has an extensive cooperation network; Becken and Hay (2012) focuses on cross-research on climate change and disaster risk; Scott et al. (2012) focuses on climate impact and destination sustainability. In general, the overall atlas presents the characteristics of a multi-center and multi-level academic community.

Judging from the overall characteristics of the cooperative network, the map presents a “multi-center, networked” structure: the main team cooperates closely within, and the cooperation between Ritchie and Becken, Scott and Becken shows that climate change, natural disasters and other issues are promoting the integration of different research directions. However, some isolated nodes still exist, indicating that some scholars have not yet integrated into the mainstream cooperation network. In terms of geographical distribution, the core authors are concentrated in European and American countries and China, Italy, Spain and other places, which coincides with the above-mentioned national analysis and conclusions - European and American traditional powerful countries and emerging economies in the Asia-Pacific region jointly form the core force of knowledge production. In summary, this field has formed a multi-center research pattern with Ritchie, Becken and Scott as the core, and the academic influence of the core authors is significant. The international cooperation network has begun to take shape, but there is still room for improvement in cross-clustering coordination. In the future, we should promote cross-clustering academic exchanges and resource integration to promote research in a more comprehensive and coordinated direction.

Figure 3: Author co-occurrence density map

3.5 Highly Cited Literature Analysis

The frequency of citation of literature is one of the important indicators for measuring the influence of academic achievements. In order to further explore the citation of the results in the field of risk management research of tourist destinations, the top 15 articles in this field are selected, as shown in Table 2.

Table 2: List of highly cited literature

Rank	Name	Author	Time	Journal	Citation	References
1	Risk, uncertainty and the theory of planned behavior: A tourism example (Quintal et al., 2010)	Quintal, Vanessa Ann; Lee, Julie Anne; Soutar, Geoffrey N.	2010	Tourism Management	601	97
2	Destination image as a mediator between perceived risks and revisit intention: A case of post-disaster Japan (Chew & Jahari, 2014)	Chew, Elaine Yin Teng; Jahari, Siti Aqilah	2014	Tourism Management	543	102
3	A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management (Ritchie & Jiang, 2019)	Ritchie, Brent W.; Jiang, Yawei	2019	Annals of Tourism Research	528	122
4	Sustainable tourism development and competitiveness: The systematic literature review (Streimikiene et al., 2021)	Streimikiene, Dalia; Svagzdiene, Biruta; Jasinskas, Edmundas; Simanavicius, Arturas	2021	Sustainable Development	413	96
5	Crisis events in tourism: subjects of crisis in tourism (Michael Hall, 2010)	Hall, C. Michael	2010	Current Issues in Tourism	381	174
6	Destination image and tourist behavioural intentions: A meta-analysis (Afshardoost & Eshaghi, 2020)	Afshardoost, Mona; Eshaghi, Mohammad Sadegh;	2020	Tourism Management	365	150
7	The effects of natural disasters on international tourism: A global analysis (Rosselló et al., 2020)	Rossello, Jaume; Becken, Susanne; Santana-Gallego, Maria	2020	Tourism Management	279	68
8	Tourists intention to visit a country: The impact of cultural distance (Ng et al., 2007)	Ng, Siew Imm; Lee, Julie Anne; Soutar, Geoffrey N.	2007	Tourism Management	265	71
9	Tourism Risk and Uncertainty: Theoretical Reflections (Williams & Baláž, 2015)	Williams, Allan M.; Balaz, Vladimir	2015	Journal of Travel Research	248	114
10	Risk and Uncertainty in Travel Decision-Making: Tourist and Destination Perspective (Karl, 2018)	Karl, Marion	2018	Journal of Travel Research	229	66
11	Crisis management research (1985-2020) in the hospitality and tourism industry: A review and research agenda (Wut et al., 2021)	Wut, Tai Ming; Xu, Jing (Bill); Wong, Shun-mun	2021	Tourism Management	211	554
12	From vulnerability to transformation: a framework for assessing the vulnerability and resilience of tourism destinations (Calgaro et al., 2014)	Calgaro, Emma; Lloyd, Kate; Dominey-Howes, Dale	2014	Journal of Sustainable Tourism	210	85
13	Heterogeneity in risk and safety	Seabra, Claudia;	2013	Tourism	196	89

Rank	Name	Author	Time	Journal	Citation	References
	perceptions of international tourists (Seabra et al., 2013)	Dolnicar, Sara; Abrantes, Jose Luis; Kastenholz, Elisabeth		Management		
14	Impact of health risk perception on avoidance of international travel in the wake of a pandemic (Chua et al., 2021)	Chua, Lia; Al-Ansi, Amr; Lee, Myong Jae; Han, Heesup	2021	Current Issues in Tourism	190	82
15	The vulnerability of Caribbean coastal tourism to scenarios of climate change related sea level rise (Scott et al., 2012)	Scott, Daniel; Simpson, Murray Charles; Sim, Ryan	2012	Journal of Sustainable Tourism	176	65

Among them, the most frequently cited literature is Risk, uncertainty and the theory of planned behavior: A tourism example published in Tourism Management in 2010 by Quintal and others. It has been cited as many as 601 times. Quintal et al. (2010) extends the theory of planned behavior to the decision-making situation of tourism risk, and systematically tests the mechanism of the impact of risk and uncertainty on the behavioral intention of tourists, with its solid theoretical construction and rigorous empirical design, it has become a classic model repeatedly cited by scholars in this field. The second place is Destination image as a mediator between perceived risks and revisit intention: A case of post-disaster Japan. The study found that in the post-disaster tourism situation in Japan, the destination image plays a bridge role: it is not only affected by tourists' perceived risks, but also significantly regulates the relationship between this risk perception and tourists' willingness to revisit. Chew and Jahari (2014) reveals that in the post-disaster recovery stage, simple risk management is not enough to restore the tourism industry; it is necessary to carry out active destination image reshaping work at the same time.

The analysis of the highly cited literature shown in Table 2 can be found that: First, the research topic of the highly cited literature presents the characteristics of diversified focus, covering risk perception and tourism decision-making behavior (Quintal et al., 2010; Streimikiene et al., 2021), crisis and disaster management (Michael Hall, 2010; Ritchie & Jiang, 2019), destination vulnerability and resilience assessment (Calgaro et al., 2014; Scott et al., 2012), but also involves cross-issues such as climate change impact (Rosselló et al., 2020), destination image intermediary effect (Chew & Jahari, 2014), sustainable tourism competitiveness etc. (Streimikiene et al., 2021), which fully highlights that tourist destination risk management, as an interdisciplinary discipline, has been rooted in the mainstream academic community of tourism research and has built an interdisciplinary knowledge network with deep coordination with environmental science and other fields. Second, the highly cited literature in the field of tourist destination risk management research is concentrated in the top international journals of tourism. Among them, Tourism Management contributed 8 articles (accounting for 53.3%), which has become a core position, highlighting its leading position and academic authority together with other Q1 regional journals. Fourth, among the 15 highly cited literatures, 11 were published after 2015, accounting for 73.3%. Among them, Ritchie and Jiang, Rossello, Wut, Chua and other literatures, etc. are among the most highly cited articles. This shows that tourist destination risk management research has entered an active period in recent years, and the superposition effect of new theoretical perspectives, research methods and practical issues (such as COVID-19, climate change, natural disasters) have promoted this field to become the academic focus of continuous attention of scholars.

In summary, the highly cited literature in this field presents four characteristics: in terms of journal distribution, core journals such as Tourism Management have become the main channel for knowledge production; the research theme focuses on risk perception, crisis management, destination resilience and climate change, reflecting the close combination of theory and practice; in terms of time, it focuses on the post-2015 period, highlighting the strong driving force of real challenges to academic innovation. The above findings clarify the genealogy of classical literature and provide a vein guide and an innovative entry point for subsequent research.

4. Keyword Analysis

4.1 Keyword Co-occurrence Analysis

Judging from the frequency and centrality of the keywords, "perceived risk" (frequency 42, centrality 0.35), "management" (frequency 86, centrality 0.45), "destination image" (frequency 35, centrality 0.13), "crisis management" (frequency 32, centrality 0.47), "climate change" (frequency 21, centrality 0.27) and other nodes are prominent in scale and highly centrality, forming the core knowledge base in this field. Among them, "management" has become a hub concept that runs through the whole field with the highest frequency and centrality, connecting multiple research directions such as risk perception, destination management and crisis response; "crisis management" highlights its leading position as a methodological framework with the highest centrality of 0.47, providing theoretical support for coping strategies in various risk situations; "risk perception", as the core entrance to tourist behavior research, forms a closely related network with micro-psychological concepts such as "decision making" (frequency 5), "behavioural intentions", "planned behavior" (frequency 4), reflecting the mainstream research paradigm of this field from the perspective of psychology. Tourist destination risk management takes "management" as the hub, "crisis management" as the leading framework, and "risk perception" as the micro-entrance, forming a three-dimensional knowledge system covering multiple risk types.

Judging from the chronological evolution of emerging words, the research hotspots in this field show clear stage characteristics. The first stage (2008-2016) is the theoretical foundation period. The emerging words include "system" (2008-2016), "trust" (2010-2015), "risk management" (2011-2019) and "destination management" (2013-2018). The research at this stage is committed to building a basic conceptual framework and management system. The second stage (2016-2020) is the risk type expansion period. "Framework" (2016-2020), "natural disaster" (2016-2020), "recovery" (2019-2020), "preparation" (2019-2021), "resilience" (2019-2020), "adaptation" (2019-2020) and other emerging intensively, reflecting the significant increase in researchers' attention to the response mechanism of specific risk events. The third stage (2019-present) is a period of integrated innovation. "Sustainable tourism" (2019-2021), "collaboration" (2020-2021), "social media" (2021-2025), "COVID-19 pandemic" (2021-2023), "security" (2022-2025), "risk perception" (2022-2025), "image" (2022-2025), "experience" (2022-2025) and other emerging words continue to be active, indicating that the field is deepening in the direction of interdisciplinary integration, new technology application and post-epidemic reflection. It is particularly noteworthy that "social media" has become the most active research frontier at present with the longest emergence cycle in 2021-2025 (Farhangi & Alipour, 2021), revealing new issues in the dissemination of risk information and destination image construction in the digital age. The evolution of this field has gone through three stages of theoretical foundation, risk expansion to integrated innovation. At present, it focuses on interdisciplinary integration and post-epidemic reflection. In the future, with the development of science and technology, the research on risk communication and perception driven by social media will continue to deepen, and destination image construction and resilience governance under the empowerment of digital technology will become the core direction in the future.

Figure 4: Keyword co-occurrence graph

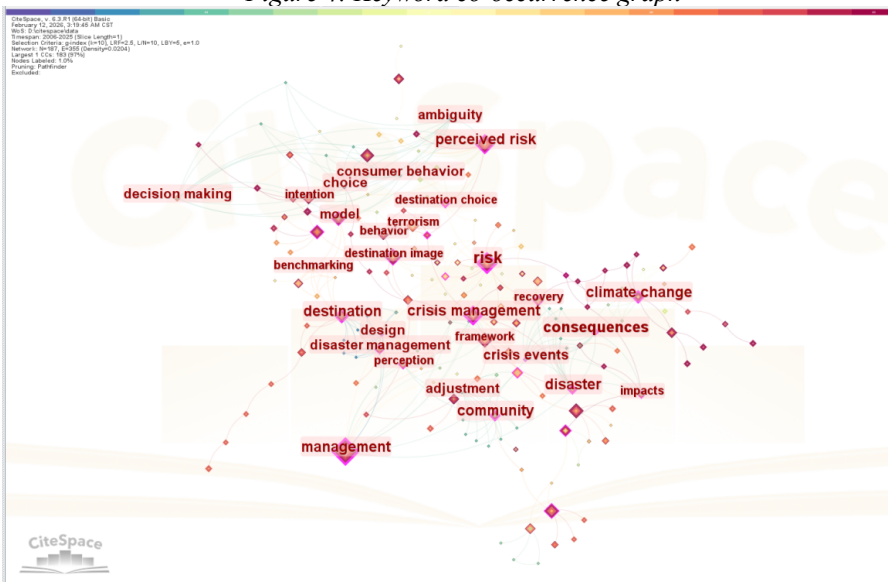


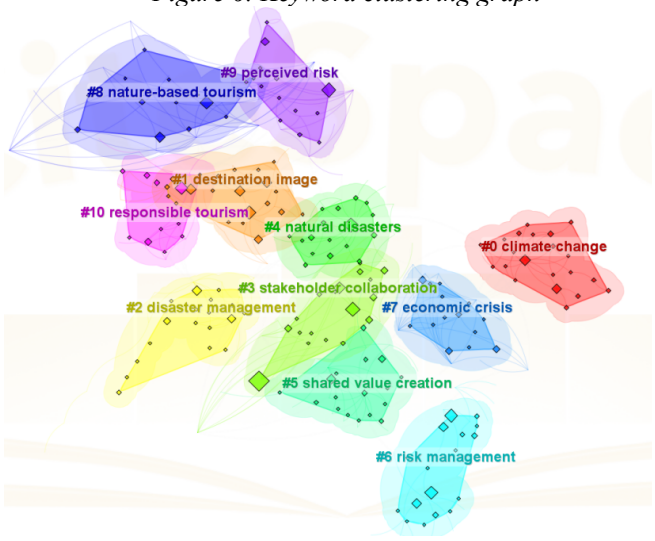
Figure 5: Keyword mutation map

Top 27 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2006 - 2025
systems	2008	1.66	2008	2016	
trust	2010	1.78	2010	2015	
risk management	2011	2.91	2011	2019	
destination management	2013	1.61	2013	2018	
framework	2011	2.43	2016	2020	
management	2008	2.12	2016	2017	
natural disasters	2016	1.88	2016	2020	
natural disaster	2017	2.99	2017	2020	
impacts	2010	1.68	2018	2019	
recovery	2010	3.67	2019	2020	
preparedness	2010	3.04	2019	2021	
resilience	2019	3.03	2019	2020	
sustainable tourism	2019	3.03	2019	2020	
knowledge	2019	2.45	2019	2020	
industry	2019	1.75	2019	2020	
adaptation	2019	1.7	2019	2020	
collaboration	2020	2.78	2020	2021	
disaster management	2008	2.08	2020	2021	
demand	2020	1.85	2020	2021	
social media	2021	2.37	2021	2025	
covid-19 pandemic	2021	2.26	2021	2023	
terrorism	2013	1.76	2021	2022	
safety	2022	2.8	2022	2025	
risk perception	2010	2.54	2022	2025	
image	2016	1.77	2022	2025	
experience	2022	1.75	2022	2025	
impact	2018	1.63	2022	2023	

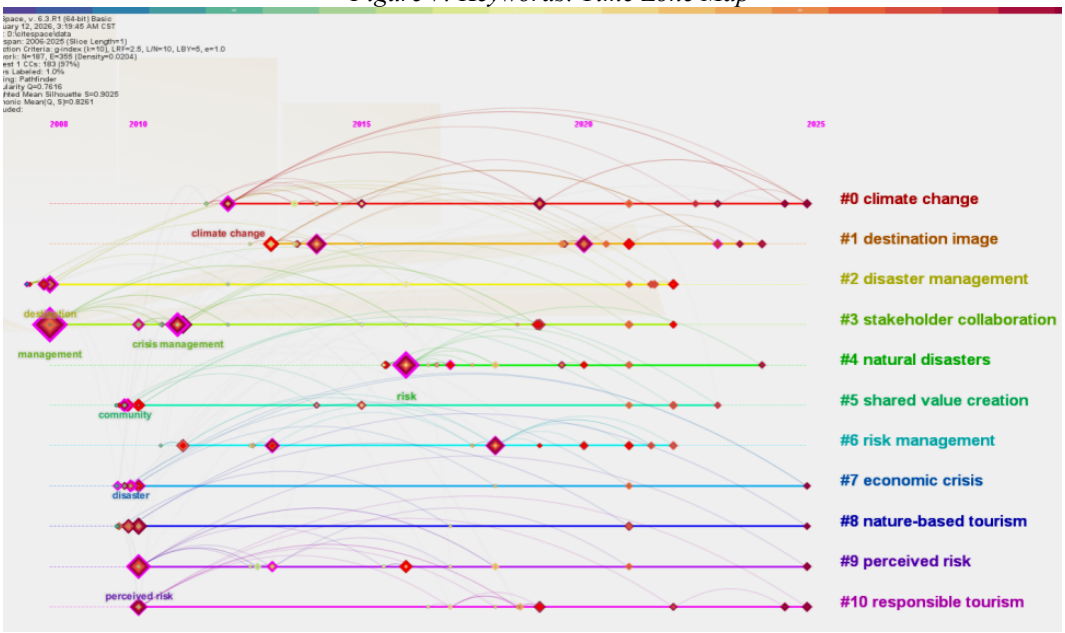
Judging from the cluster map, 11 major research clusters have been formed in this field, which can be summarized into three major modules. The first module takes the micro-psychological mechanism as the core, covering the two major clusters of “#9 risk perception” and “#1 destination image”, focusing on the chain relationship between tourists' risk cognition, destination perception and behavioral decision-making. Chew and Jahari's (2014) research on the intermediary effect of destination image is the classic representative of this direction. The second module takes risk types and coping strategies as the core, including five clusters of “#0 climate change”, “#2 disaster management”, “#4 natural disasters”, “#6 risk management” and “#7 economic crisis”. The research object turns to the risk event itself and coping strategies, which correspond to the identification, evaluation and intervention mechanisms of natural risks, man-made risks and systemic risks respectively. Ritchie and Jiang's systematic review (Ritchie & Jiang, 2019), Rossello et al.'s (2020) global analysis are all under this section. The third module takes the governance paradigm and value orientation as the core, covering the four major clusters of “#3 stakeholder collaboration”, “#5 shared value creation”, “#8 natural tourism” and “#10 responsible tourism”, rising to the governance paradigm and value orientation of the destination system, paying attention to the coordination of multiple subjects, value co-creation and sustainable development ethics, aiming to build a macro-resilience system for long-term security. This field forms a three-layer knowledge system of “micropsychology-risk response-governance paradigm”, which realizes the continuity from individual perception to macro-system. The research on the vulnerability and resilience framework of destinations such as Calgaro and the sustainable tourism competitiveness of Streimikiene and others reflect this frontier direction (Streimikiene et al., 2021).

Figure 6: Keyword clustering graph



Judging from the time zone distribution of keywords, the research topics in this field show an evolutionary trend from macro to micro, from single to comprehensive. In the early period (2008-2012), the keywords were mainly macro concepts such as "management", "destination", "crisis management", "disaster management" and "climate change", which laid the basic framework of the field. The risk response module and the governance value module began to take shape. In the middle period (2013-2018), issues with both theoretical and application value such as "destination image", "behavior", "intention", "recovery" and "impact" emerged, which promoted the in-depth development of research, and the micropsychological module began to form. Recently (2019-2025), emerging keywords such as "resilience", "vulnerability", "preparation", "sustainable tourism", "social media", "safety", "experience" and "big data" appeared intensively, reflecting the positive response and methodological innovation of the challenges of the times in this field, and the three The emergence of "big data" is particularly worthy of attention, foreshadowing the rise of the data-driven research paradigm; keywords such as "fear" and "intention" pointing to the future imply the further integration of emotional geography and behavioral economics. The evolution of the keyword time zone shows that the field has moved from a macro framework to a micro mechanism. The recent emergence of "big data" and "fear" foreshadows the rise of data-driven and emotional perspectives. In the future, we will deepen to intelligent monitoring, emotional exploration and resilience management, and realize the paradigm leap from passive response to active adaptation.

Figure 7: Keywords: Time Zone Map



The analysis of the four maps reveals the following core characteristics in keyword and cluster research within the field of tourism destination risk management: First, it forms three major modules: micro-psychology, risk response, and research value; second, in terms of research topics, it covers multiple risk types, including natural disasters, economic crises, health risks (such as the COVID-19 pandemic), and social risks (such as terrorism), reflecting a comprehensive response to real-world challenges. This systematic analysis clarifies the knowledge base and cutting-edge developments for subsequent research in this field, and also provides a clear map of guidance for newcomers to grasp the research context and find entry points for academic innovation.

4.2 Analysis of Future Trends

Overall, research on risk management in tourist destinations is undergoing a profound transformation from “emergency response” to “resilience building,” from “single risk response” to “multi-risk coupled governance,” and from “micro-psychological mechanisms” to “macro-governance paradigms.” Future research will continue to expand in three dimensions: theoretical deepening, methodological innovation, and practical application.

First, the research paradigm will shift from vulnerability assessment to resilience governance and adaptive transformation. Keyword emergence analysis shows that words such as “resilience”, “adaptation”, and “preparation” have remained active since 2019, indicating that the research focus is moving from the vulnerability paradigm of “identifying risks and assessing losses” to the governance paradigm of “enhancing system resilience and improving adaptability”. Future research will further deepen the theoretical construction of tourism destination resilience, explore multi-dimensional measurement indicators of resilience, dynamic evolution mechanisms, and their intrinsic connections with sustainable development. Especially in the context of climate change, the adaptive transformation paths of vulnerable destinations such as coastal islands and mountain heritage will become research hotspots. The vulnerability and resilience assessment framework proposed by Calgaro et al. (2014) is expected to be further expanded and empirically tested.

Second, the research topics will shift from single risk types to multi-risk coupling and compound risk governance. The coexistence of multiple risk types such as “natural disasters”, “economic crises”, “terrorism” and “COVID-19” in the map indicates that various risks in the real world often overlap and resonate, forming a compound impact on tourist destinations. Future research needs to break through the single risk perspective, construct an analytical framework for multi-risk coupling, and explore the interaction mechanism between different types of risks and their cascading effects on the destination system. In particular, the linkage between climate change and public health crises, and between geological disasters and economic recessions will become the focus of interdisciplinary research. The integrated crisis management framework advocated by Ritchie and Jiang (2019) will be further tested and improved in multi-risk scenarios.

Third, the research perspective will expand from the psychological behavior of tourists to the collaborative governance of multiple stakeholders. The formation of keyword clusters such as “stakeholder collaboration” and “shared value creation”, as well as the sudden emergence of “collaboration” in 2020-2021, reflect that this field is shifting from a micro perspective focusing on tourists' risk perception to a meso and macro governance research covering multiple subjects including governments, communities, enterprises, and tourists. Future research will delve deeply into the role positioning and interaction mechanisms of multiple subjects in risk identification, crisis response, and recovery and reconstruction, and explore effective models of public-private partnerships, community participation, and cross-border collaboration. Especially the mechanism of the role of social media in risk communication in the digital age will open up new fields for the research on crisis communication and stakeholder collaboration.

Fourth, the research method will shift from traditional measurement and case study to big data-driven and multi-method integration. “Social media” appeared for the first time in 2021 in the keyword emergence chart, indicating the rise of the data-intensive research paradigm. Future research will use more social media data, mobile positioning data, search engine data and other emerging data sources, combined with machine learning, natural language processing and other artificial intelligence technologies to realize high-precision portrayal and real-time monitoring of tourism risk perception, crisis diffusion path, and destination recovery trajectory. At the same time, quantitative methods such as quasi-natural experiments, meta-analysis,

structural equation models, etc. will be deeply integrated with qualitative methods such as grounded theory and ethnology to form a mixed research method system to cope with the complexity and situational dependence of tourism risk problems.

Fifth, the research context will shift from a globally universal framework to a localized construction and a focus on regional characteristics. Country analysis shows that emerging markets and vulnerable regions such as China, India, Southeast Asia, and Pacific island nations are becoming important forces in knowledge production. Future research will place greater emphasis on theoretical innovation and practical adaptation within local contexts. Risk research by Chinese scholars in the policy context of rural revitalization, cultural and tourism integration, and the national park system is expected to contribute theoretical discourse and practical wisdom with Chinese characteristics to global tourism risk management. In particular, research on ecologically sensitive destinations represented by clusters such as "responsible tourism" and "nature tourism" will be deeply integrated with China's ecological civilization construction strategy, forming a research branch with regional characteristics.

Sixth, the research value orientation will shift from risk aversion to value co-creation and sustainable development. The emergence of "shared value creation" clustering marks that tourism risk management research is transcending the traditional logic of loss minimization and exploring how to achieve a win-win situation for economic benefits, social well-being and environmental protection in the process of risk response. Future research will pay more attention to issues such as community empowerment, inclusive recovery, and green transformation in risk scenarios, promoting the deep integration of risk management and sustainable development goals. In the post-pandemic era, "sustainable tourism" as an emerging term from 2019 to 2021 will continue to lead research directions. Especially against the backdrop of the coordinated advancement of low-carbon transformation and climate adaptation in the tourism industry, risk management will become an important support for sustainable tourism research.

In summary, the future trends of tourism destination risk management research can be summarized into six directions: "resilience-oriented, multi-risk coupling, multi-party collaboration, data-driven, local construction, and value co-creation". This evolutionary trajectory not only responds to contemporary challenges such as global climate change, public health crises, and geopolitical unrest, but also reflects the inherent need for the tourism discipline to move from applied countermeasure research to fundamental theoretical innovation. Future research should build on the existing knowledge framework, strengthen cross-regional comparative studies, integrate interdisciplinary theories, and translate research results into management practices, in order to provide academic support for the construction of a more resilient and sustainable global tourism destination system.

5. Conclusion and Prospect

This study systematically reviewed 323 articles in the field of tourism destination risk management from 2006 to 2025, revealing its evolution and knowledge structure. The field has gone through three stages: its initial development, steady growth, and explosive growth driven by the pandemic. China, the United States, and Australia constitute the core research forces, with a significant increase in the participation of Chinese scholars. Q1 journals such as *Tourism Management* form a high-quality academic communication network. Ritchie, Becken, and others, as core authors, have made significant contributions to this research field. Highly cited literature focuses on themes such as risk perception, crisis management, and destination resilience. Keyword analysis reveals a micro-psychological module centered on risk perception and destination image, a risk response module focusing on climate change and disaster management, and a governance paradigm module oriented towards stakeholder collaboration and shared value creation, collectively forming a complete knowledge structure from individual cognition to systemic governance. Among these, "management" and "crisis management" serve as pivotal concepts, permeating and guiding the entire research field.

At present, the tourism industry is at the juncture of the deep integration of digital transformation and the concept of sustainable development. The explosive application of artificial intelligence, digital twins, VR and other technologies, as well as the global popularization of the ESG concept, have injected new momentum into the risk management research of tourist destinations. Future research needs to actively respond to technological change and the challenges of the times on the basis of the existing knowledge atlas,

and promote the profound transformation of the research paradigm from “emergency response” to “smart governance”.

Through the double verification of CiteSpace and VOSviewer, this article systematically outlines the knowledge atlas in the field of risk management of tourist destinations, and clarifies the classic literature genealogy and cutting-edge dynamics for subsequent research. Standing at the intersection of digital transformation and sustainable development, future research can rely on artificial intelligence, digital twins and VR technology to build a data-driven risk intelligence perception and dynamic early warning system to achieve a leap from passive response to active governance. At the same time, immersive technology can also innovate risk communication and image repair paths, and reshape the safety awareness of tourists. In addition, a critical reflection on the risks of artificial intelligence ethics and algorithms will ensure that the application of technology conforms to the principle of responsible tourism.

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