The Impact of Risk Perception on the Public's Willingness to Travel Long/Short Distances: the Mediating Role of Negative Emotions

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Abstract: In order to provide theoretical support for the cultivation of market confidence and the recovery of tourism prosperity after the new coronavirus epidemic, this study uses a structural equation model to explore the mechanism of public risk perception, negative sentiment, and long/short-distance travel willingness during the epidemic. The results show: (1) Risk perception has a significant negative impact on the public's long-distance travel willingness; (2) Risk perception significantly positively affects negative sentiment; (3) Negative sentiment significantly positively affects public long-distance travel willingness; (4) Negative sexual sentiment has a partial mediating effect between the public's risk perception and long-distance travel willingness. Finally, the research provides suggestions for the further development of the tourism industry after the epidemic from three aspects: the government, tourism companies, and industry associations.

1. Introduction

The World Health Organization (WHO) named the new type of coronavirus pneumonia (hereinafter referred to as the new coronavirus pneumonia) “Severe Acute Respiratory Syndrome” on January 31, 2020, and determined that it has the influence of an international public health emergency[1], various countries have implemented stay-at-home orders, grounded aircraft or other measures to reduce the movement and gathering of people. Such “no contact, less contact” epidemic prevention and control requires that the tourism industry, which is the main part of human participation, step on the brakes. It can also be seen from the statistics of the Ministry of Culture and Tourism at the end of the year that the number of domestic tourists this year was 2.879 billion, a decrease of 3.022 billion from the same period last year, a decrease of 52.1%; domestic tourism revenue was 2.23 trillion yuan, a decrease of 3.50 from the same period last year[2]. It can be seen that the direct impact of the new coronavirus pneumonia on China's tourism industry is huge, and the challenge to the government's crisis management is also very severe.

The recovery of the tourism industry after the epidemic is closely related to the consumption tendency of tourists. The judgment of its development trend needs to pay attention to the study of tourists' travel willingness and behavior in order to find a more appropriate response strategy[3]. Cognition and emotion are the two major factors that arouse the public's willingness to consume and behavioral motivation in the context of emergencies[4]. Risk perception is the foundation that affects the public's acceptance of risks and subsequent risk response behaviors[5], occupying an important position in tourism decision-making[6]. Yang Qinjin et al., Huang Chunhui et al., Lee et al. empirically verified that the public’s willingness to travel will change with the risk perception caused by emergencies based on the Paris terrorist attacks, SARS, and H1N1[7][8][9]; After the new crown epidemic, Ming Qingzhong and Zhao Jianping scholars pointed out that tourists may travel cautiously or try short-distance travel due to safety issues, and long-distance travel will not be considered for a short time[10]. An individual's risk perception will not only affect their behavioral willingness, but also affect their emotional experience. The psychological stress theory of Lazarus and Folkman also mentions that when individuals encounter danger, they will stimulate corresponding emotions and behaviors based on their cognitive situation[11]. In the face of the sudden outbreak of the new coronavirus pneumonia epidemic, the public will inevitably feel the
fluctuations in their emotional state. When individuals believe that the potential outcome of a crisis event or the risk of an existing outcome is high, negative emotions such as anxiety and fear will appear[12][13]; Zhu Yue and others have verified based on psychological practice that the public's mental health in the context of new coronary pneumonia will be affected by non-positive emotions[14][15][16]. However, in tourism practice, the discussion on how risk perception affects their willingness to travel, especially the role of emotional factors, is extremely limited[17].

In view of this, this article takes public health emergencies as the background, builds a structural equation model from the relationship between public risk perception, negative emotions, and travel willingness, and uses large-scale national survey data during the new crown pneumonia epidemic to verify and analyze the model. Exploring the public's willingness to spend on tourism in the context of public health emergencies, and providing theoretical support for the cultivation of market confidence and the recovery of tourism economy after the epidemic.

2. Literature Review and Research Hypothesis

Risk perception refers to people's psychological cognition of emergencies[18], and it's people's attitudes and subjective judgments about risk[19].and it is also the basis for affecting the public's acceptance of risks and subsequent risk response behaviors[5]. In the face of emergencies, people's micro-value system and macro-social environment have caused differences in the degree of risk perception, and this difference in risk perception will further affect the public's decision-making considerations. Yang Qinqin et al. Huang Chunhui et al. Lee After conducting empirical studies based on multiple cases such as the Paris terrorist attack, SARS, and H1NI, they pointed out that emergency incidents have a negative impact on travelers' safety perception and judgment, thereby reducing travelers' willingness to travel[7][8][9]; Chen Nan et al. examined and determined risk perception from the perspective of multiple unexpected tourism events (such as terrorist attacks, war disasters, and public health incidents, etc.), as well as its connection with tourism behavior preferences, confirming that risk perception is correct for tourists. Travel strategy has an important impact[20]; Yu Ying used the Jiuzhaigou earthquake as a research background to verify that there is a negative correlation between risk perception and travel willingness[21]; Moufakkir and others also indicated that serious negative events may reduce people's willingness to travel[23]. In addition, Ruan Wenqi used the earthquake event in Jiuzhaigou as a background to verify that the tourism demand of different target tourist sources decreased with the increase of distance[24]; This shows that distance is an important factor affecting the willingness to travel; Ming Qingzhong and Zhao Jianping believe that after public emergencies, tourists may travel cautiously due to safety issues. Long-distance travel will not be considered in the near future, and suburban travel may be more sought after[10], and that is, under the same level of risk perception caused by emergencies, the public's willingness for long-distance and short-distance tourism projects is different. In order to further clarify the relationship between the public's risk perception and the willingness to travel, and the difference in this relationship for travel intentions at different distances, this paper proposes the following research hypotheses:

H1: The negative risk perception significantly affects the public's willingness to travel long distances

H2: The negative risk perception significantly affects the public's willingness to travel short distances

The expectation of uncertain losses brought about by emergencies will arouse people's negative emotions[25]. In the face of this sudden new crown pneumonia virus epidemic, the public will inevitably experience negative emotions such as panic, anger, helplessness, and anxiety[16][19]. So, what are the deep-seated reasons why the public produces negative emotions? This can be seen from the empirical research conducted by Qian Mingyi, Zhang Renjie and other scholars based on the SARS and H7N9 avian influenza epidemics, and that is, in public emergencies, the higher the public's risk perception, the higher the frequency of negative emotions[14][15], and that is, the level of risk perception determines the degree of negative emotions. In earlier studies, Cho and Lee (2006) have clearly pointed out that the perception of risk may put the public in a state of negative
psychological emotions such as depression and anxiety[26]; Based on modern consumer behavior psychology and social psychology, He Xiaozhou scholars analyze that when individuals face unexpected events, they will have a certain degree of risk perception and negative emotions, and there is a positive relationship between the two[25]. In addition, some scholars have pointed out that the negative emotions induced by the public's inner heart, which is exposed to potential threats that are difficult to control due to public emergencies, may further affect their willingness to travel[27], especially when the public encounters public health emergencies during the planned travel season, they are more likely to have negative emotions, resulting in a significant decrease in the willingness to travel[28][29]. Based on the above analysis, in order to verify whether the level of risk perception will affect the public's negative emotions, and to refine the difference in the impact of negative emotions on long-distance travel intentions and short-distance travel intentions, this paper proposes research hypotheses H3-H5, and at the same time, combined with the previous H1- The relevant hypothesis of H2, adding the intermediary variable of “negative emotion”, proposes research hypotheses H6-H7 to fully explore the mechanism of action among the variables.

H3: Risk perception positively and significantly affect the public's negative emotions
H4: Negative emotions significantly affect the public's willingness to travel long distances
H5: Negative emotions positively significantly affect the public's willingness to travel short distances
H6: Risk perception can affect the public's long-distance travel willingness through the mediating effect of negative emotions
H7: Risk perception can affect the public's willingness to travel short distances through the mediating effect of negative emotions

In summary, in the context of the new crown pneumonia epidemic, this article explores the relationship between risk perception, public long/short-distance travel willingness, and negative emotions, and builds a conceptual model(Figure 1).

Fig.1 Conceptual Model Diagram

3. Research Method

3.1 Research Method

Using a random sampling method, a combination of online and offline, a total of 262 questionnaires were distributed, and 248 valid questionnaires were issued, with an effective rate of 94.66%. Among them, 73 were males (29.4%) and 175 were females (70.6%); they were 20 years old. Below 99 (39.9%), 144 (58.1%) 21-30 years old, 1 31-40 years old (0.4%), 4 41 years old and above (1.6%); 11 married (4.4%) , Unmarried 237 (95.6%); 1 junior high school or below (0.4%), 9 high school or technical secondary school (3.6%), 232 junior college or undergraduate (93.5%), 6 masters and above (2.4%); students 230 (92.7%), 11 corporate employees (4.4%), 3 freelancers (1.2%), 1 self-employed business (0.4%), 2 retirees (0.8%), 1 public institution or civil servant (0.4%); 168 people (67.7%) of 1500 yuan and below, 63 people of 1501-3500 yuan (25.4%), 5 people of 3501-4500 yuan (2.0%), 8 people of 4501-7500 yuan (3.2%), 4 people of 7501 yuan and
above(1.6%).

3.2 Research Tool

3.2.1 Risk Perception Measurement

Using the single-dimensional New Coronary Pneumonia Epidemic Risk Perception Scale (PRCPS) compiled by Xi Juzhe and others, a total of 9 questions [30]. The higher the score of the participant, the higher the perceived risk. In this study, the Cronbach a coefficient of the scale is 0.807. The revised x²/df=2.393, CFI=0.948, GFI=0.947, NFI= 0.915, IFI=0.949, RMSEA=0.075, and the fitting index is all consistent with Conventional standard[31].

3.2.2 Negative Emotion Measurement

Based on the negative emotional adjectives in PANAS, combined with multiple survey reports on social mentality under the new coronary pneumonia epidemic, six emotional adjectives of anxiety, fear, sadness, depression, anger, and helplessness are selected[16]. In this study, the reliability coefficient Cronbach a coefficient of the scale is 0.888. The corrected x²/df = 0.93, CFI = 1.00, GFI = 1.00, NFI = 1.00, IFI = 1.00, RMSEA = 0.00, fitting index All meet the conventional standards [31].

3.2.3 Measurement of Willingness to Travel

Combine the aforementioned research hypotheses and refer to relevant research literature [17], setting up two question items “In the past one year, I will choose to travel for long distances” and “In the past year, I will choose to travel around for short distances” to measure the public’s “Long distance travel willingness” and “Short distance travel willingness” respectively.

4. Result Analysis

4.1 Common Method Deviation Test

The Harman single factor test method is used for principal component factor analysis, and a total of 4 factors with characteristic roots greater than 1 are generated, and the first factor explains 26.97% of the variance variation, which is less than 40% of the critical standard[17]; Therefore, there is no serious common method bias in this study.

4.2 Correlation Analysis of Risk Perception, Negative Emotion and Long/Short Distance Travel Intention

Pearson's correlation analysis is carried out on several variables of risk perception, negative emotion and long/short-distance travel willingness, and the results are shown in Table 1. There is basically a significant correlation between risk perception, negative emotion, and long/short-distance travel willingness, which can be followed up The research hypothesis test.

<table>
<thead>
<tr>
<th>TABLE 1 THE MEAN, STANDARD DEVIATION AND CORRELATION MATRIX OF EACH VARIABLE</th>
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<td>1 gender</td>
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<td>4 Education</td>
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<td>5 income</td>
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<td>6 Risk perception</td>
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<tr>
<td>7 Negative emotions</td>
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<tr>
<td>8 Long-distance travel willingness</td>
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<tr>
<td>9 Willingness to travel short distances</td>
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<td>1 M</td>
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<td>2 SD</td>
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</tbody>
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Note: N=363; gender and marriage are dummy variables, boy=1, girl=2; married=1,
4.3 Research Hypothesis Testing

First, take long/short-term travel willingness as the outcome variable, and risk perception as the predictor variable to establish a model of the total effect of risk perception on the public's long-term/short-term tourism willingness. In this model, the path coefficient of risk perception to the public's long-distance tourism willingness is significant ($\beta_{\text{Long-distance travel willingness}} = -0.22$, $p<0.01$), based on the mediation effect; the path coefficient of the public short-distance travel willingness is not significant ($p>0.05$), based on the cover effect. At this time, $\chi^2/df=2.36$, GFI = 0.93, NFI = 0.87, RFI = 0.84, IFI = 0.92, TLI = 0.90, CFI = 0.92, RMSEA = 0.07, and the model fit index is good. Then, construct negative emotions between risk perception and long/short distance travel willingness. The results show that the path coefficient of risk perception to public negative emotions is not significant ($p>0.05$), and the path coefficient of negative emotions to public long-distance travel willingness is significant ($\beta=0.28$, $p<0.001$). However, the path coefficient of the public's willingness to travel for a short distance is not significant ($p>0.05$); after adding negative emotion as an intermediary variable to the model, the path coefficient of risk perception to the public's willingness to travel for a long distance is significant (($\beta=-0.25$, $p<0.001$), While the path coefficient for the public's short-distance travel willingness is not significant ($p>0.05$). At this time, $\chi^2/df=1.82$, GFI = 0.92, NFI = 0.89, RFI = 0.87, IFI = 0.962, TLI = 0.94, CFI = 0.95, RMSEA = 0.07, the model fitting index is good [32].

The Bootstrap method [33] was further used to test the influence of negative emotions on the public's long-distance travel willingness and short-distance travel willingness respectively. In the original data (N=248), 5000 samples were selected by repeated random sampling. An approximate sampling distribution. The results show that the point estimates of the indirect and direct effects of negative emotions between risk perception and long-distance travel willingness are 0.06 and -0.31, respectively, and their confidence intervals are [0.02,0.12] and [-0.46, -0.15], which shows that negative emotions play a part of the mediating role in risk perception and public long-distance travel willingness, and the mediating effect accounts for 24.73% of the total effect; negative emotions are indirect between risk perception and short-distance travel willingness. The point estimates of the effect and the direct effect are -0.01 and 0.12, respectively, and their confidence intervals are [-0.05, 0.02] and [-0.05, 0.28], respectively, indicating that the introduction effect of negative emotions in risk perception and public short-distance travel willingness is not Significant.

### Table 2 Mediation Effect Test Results

<table>
<thead>
<tr>
<th>variable</th>
<th>effect</th>
<th>BootSE</th>
<th>BootLLCI</th>
<th>BootULCI</th>
<th>Effect ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness to travel long distances</td>
<td>Indirect effect</td>
<td>-0.06</td>
<td>0.03</td>
<td>0.02</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>Direct effect</td>
<td>-0.31</td>
<td>0.08</td>
<td>-0.46</td>
<td>-0.15</td>
</tr>
<tr>
<td></td>
<td>Total effect</td>
<td>-0.25</td>
<td>0.08</td>
<td>-0.41</td>
<td>-0.09</td>
</tr>
<tr>
<td>Willingness to travel short distances</td>
<td>Indirect effect</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.05</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Direct effect</td>
<td>0.12</td>
<td>0.09</td>
<td>-0.05</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>Total effect</td>
<td>0.10</td>
<td>0.09</td>
<td>-0.07</td>
<td>0.27</td>
</tr>
</tbody>
</table>

5. Conclusion and Discussion

5.1 Analysis Conclusion

Conclusion 1: Risk perception has a significant negative impact on the public's willingness to travel long distances. In other words, the public's willingness to travel long distances will become weaker in the face of increased risk perception. This conclusion is consistent with the current scholars' conclusion that the willingness to travel decreases with the increase in risk perception[7][8][9][20][21][22][23] have the same views. In addition, under the background of the new crown pneumonia epidemic, the public’s willingness to travel for short distances (M=3.56) is
significantly stronger than the willingness to travel for long distances (M=2.60), which further confirms Scholars Qingzhong and Zhao Jianping pointed out that tourists may try to travel short distances instead of long-distance travel due to safety issues[10].

Conclusion 2: Risk perception significantly positively affects negative emotions. That is to say, in the new crown pneumonia epidemic, the higher the public's risk perception level, the higher their negative emotions. Overall, the survey found that the new crown pneumonia epidemic has placed the public at a higher level of risk perception (M=2.86), and higher risk perception will put people in negative emotions such as depression and anxiety (M=2.77). The pneumonia epidemic, a public emergency, confirms the negative impact of the public's risk perception on their negative emotions, and also broadens the applicability of this conclusion in tourism practice research.

Conclusion 3: Negative emotions significantly positively affect the public's willingness to travel long distances. In other words, the higher the negative sentiment of the public, the stronger their willingness to travel long distances. This conclusion is consistent with scholars Yang Yang et al., Wang Chunyang et al., Huang Chunhui et al. pointed out in their respective studies that the public’s willingness to travel will follow its negative The increase in emotions decreases[27][28][29], which is contrary to our general perception. It is speculated that the reason is that tourism activities themselves are pleasurable[34], and the public is trying to offset the epidemic through tourism activities. Negative emotions produced during long periods of isolation. Scholars such as Isen have also confirmed this view. Trail adventures are attractive to people in negative emotional states in order to transform negative emotions into positive emotional states[35]. That is, under the influence of negative emotions, the public may prefer to travel in search of pleasant emotional experiences.

Conclusion 4. Negative emotions have a partial mediating effect between public risk perception and long-distance travel willingness, but there is no mediating effect between public risk perception and short-distance travel willingness. That is to say, public risk perception can bridge negative emotions The role indirectly affects the public’s long-distance travel willingness. This aspect shows that the relationship model of “risk perception-negative emotion-long-distance travel willingness” in the context of the new crown pneumonia epidemic has been verified, which helps to deepen the understanding of public emergencies, especially It is the effect of the public's risk perception level and negative emotions on the public's long-distance travel willingness in the context of an infectious disease event. On the other hand, it also shows from the side that negative emotions have no significant impact on the public's short-term travel willingness. Under the background, we can focus on the development of short-distance tourism market.

5.2 Suggested Enlightenment

Risk perception and negative emotions have affected the public's willingness to travel. These phenomena are common problems that the tourism industry faces after emergencies. They are important for tourism crisis management in the context of public health emergencies and the recovery and revitalization of tourism after the event. To a certain degree of enlightenment, this study proposes the following response methods from the three aspects of the government, tourism-related enterprises and industry associations: (1) Give full play to the leading role of the government to guide and encourage tourism-related industries and the public to build confidence. In terms of prevention and control, it is necessary to announce the actual situation of the epidemic in a timely manner, not to conceal the truth of the facts, and to take measures such as condolences and comfort to effectively alleviate the negative emotions of the public due to perceived risks; in terms of industry revitalization, it is necessary to start and implement the tourism industry's support policies to enhance the confidence of the industry, and at the same time promote the integration of government, industry, university, research and application, and concentrated efforts to provide relevant guidance for the recovery of the tourism industry; in terms of boosting consumer confidence, the use of multimedia platforms to strengthen the guidance and publicity of the official media on the tourism market, but also Take this opportunity to regulate the development of the tourism industry; (2) Actively respond to the needs of tourists and pay attention to the tourism consumption potential released by the short-distance travel market. In terms of
epidemic prevention and control, actively implement the normalized prevention and control policies of the national and local governments, and the employees strictly record health conditions, disinfect public places, control the number of people, post drainage signs and distinguish channels, set up “body temperature measurement + check health code” entry and exit checkpoints, improve their own safety credibility, reduce tourism risks, and attract tourists; in terms of tourism activities, to fully explore the pleasure of tourism activities, and plan colorful and personalized activities for the purpose of alleviating the negative emotions of tourists due to the epidemic to attract tourists; in addition, it is necessary to refine the demand market in stages and pay attention to different demographic characteristics. The demand performance of the crowd, the development of targeted tourism services, and at the same time, pay more attention to the short-distance travel market, and carry out more precise marketing; (3) timely grasp the market demand trends and actively pay attention to and respond to them, and strengthen the construction of collaborative communities. In prevention and control, play an important coordinating role in the epidemic, industry self-discipline, and industry mutual assistance, and provide think tank services for the government and enterprises.

5.3 Shortcomings and Prospects

This article builds a theoretical model based on the relationship between risk perception, negative emotions, and long-term/short-term travel willingness, but there are still some limitations: On the one hand, due to the online survey and research, there is an uneven distribution of demographic characteristics of the survey sample. The impact of demographic characteristics on the public's risk perception in the context of the epidemic on their willingness to travel needs to be further studied; on the other hand, as the duration of the new crown epidemic extends, the public's risk perception, negative sentiment and willingness to travel are all possible There are changes and deviations, and in the future, it can be combined with previous literature for longitudinal comparative research and regular summary.

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