Outdoor tourism: risk preference, information acquisition, and safety decisions

Caihua Yu, Heng Zhang and Tonghui Lian

Abstract
Purpose – This study aims to explore the influence of risk preference and information acquisition on outdoor tourism safety decision-making.
Design/methodology/approach – Five hundred twenty outdoor tourists were surveyed, and data were analyzed using two-stage regression.
Findings – Risk preference positively affects tourists’ safety decisions for outdoor travel. The greater the risk preference is, the more likely the tourists are to make the risky decision of outdoor tourism. Information acquisition significantly negatively affects tourists’ safety decisions for outdoor tourism. Tourists who obtain information through social channels are more likely to make safer travel decisions than those who do not.
Originality/value – Risk preference and information acquisition are introduced into outdoor tourism safety decision-making.
Keywords Risk preference, Information acquisition, Outdoor tourism, Safety, Decision-making
Paper type Research paper

Outdoor tourism: risk preference, information acquisition, and safety decisions

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Turismo al aire libre: preferencia por el riesgo, adquisición de información y decisiones de seguridad

Resumen
Propósito: Explorar la influencia de la preferencia por el riesgo y la adquisición de información en la toma de decisiones sobre seguridad en el turismo al aire libre.
Diseño/metodología/enfoque: Se encuestó a 520 turistas al aire libre y los datos se analizaron mediante regresión en dos etapas.
Hallazgos: La preferencia por el riesgo afecta positivamente a las decisiones de seguridad de los turistas en los viajes al aire libre. Cuanto mayor es la preferencia por el riesgo, más probable es que los turistas tomen la decisión arriesgada de hacer turismo al aire libre. La adquisición de información afecta significativamente de forma negativa a las decisiones de seguridad de los turistas para hacer turismo al aire libre.
aire libre. Los turistas que obtienen información a través de los canales sociales son más propensos a tomar decisiones de viaje más seguras que los que no lo hacen.

**Implicaciones prácticas:** Con el fin de reducir los accidentes de seguridad en el turismo, el gobierno y las empresas deben centrarse en la población con preferencias por el alto riesgo y canales sociales de valor.

**Originalidad:** La preferencia por el riesgo y la adquisición de información se introducen en la investigación sobre la seguridad del turismo al aire libre.

**Palabras clave** Preferencia por el riesgo, Adquisición de información, Turismo al aire libre, Seguridad, Toma de decisiones

**Tipo de papel** Trabajo de investigación

1. Introduction

Outdoor tourism is developing rapidly and becoming an integral part of the tourism industry (Janowski et al., 2021). In outdoor tourism, tourists detach themselves from indoor chores, plunge into nature, participate in profound experiences, use their bodies as a medium to interact with outdoor activities and completely relax (Farkic, 2021). However, the depth of interaction between outdoor tourism and nature is often accompanied by safety hazards that can lead to injuries during the trip (Musavengane et al., 2020). Whether skiing, mountaineering, horseback riding or scuba diving, danger can occur (Hildebrandt et al., 2011). Although there are many different forms and causes of outdoor travel accidents, if tourists can make scientific decisions about their trips, the probability of accidents will be greatly reduced (Bentley and Page, 2001; Li et al., 2020). The process of tourists making decisions to ensure their personal and property safety is called tourism safety decisions (Zou and Meng, 2020). In the existing research on outdoor tourism, scholars have primarily focused on tourists’ travel decisions (Margaryan and Fredman, 2017) and consumer decisions (Broegaard, 2022) while neglecting the issue of tourist safety. There has been limited attention given to the study of travel safety decisions, and when such studies do exist, they mainly concentrate on the influence of external factors, overlooking the internal factors that affect tourists (Wang et al., 2019). Therefore, it is necessary to deeply explore the factors that affect outdoor tourism safety decision-making to reduce the probability of safety accidents.

Risk preference refers to a psychological state presented by decision-makers when facing risks in decision-making behavior (Zhang and Lin, 2019). People have different attitudes toward risks when making decisions, resulting in different behavioral states (Kahneman and Tversky, 1979). A tourist’s participation in outdoor tourism can be described as an “adventure” where risks and benefits coexist (Buckley, 2012). The trip’s fun can be seen as a benefit, while the safety hazard can be viewed as a potential risk. So, if tourists need to consider both, their decision-making behavior may be impacted by risk preferences. Therefore, there is a need to explore whether tourists’ risk preferences have an impact on their safety decisions for outdoor tourism.

In an information-based and digital society, users’ information acquisition behavior has significantly increased, and information acquisition affects their perception of external things, which may influence their decision-making behavior. For example, information acquisition affects agribusiness decision-making behavior (Nikam et al., 2022), consumers’ willingness to pay (Cao et al., 2021) and attitudes toward vaccination (Rusgis et al., 2022). Does information acquisition influence tourists’ risk preference, and thus, affect their safety decisions for outdoor tourism?

To this end, a study on outdoor tourism safety decision is proposed to explore the following two questions: first, whether risk preference directly or indirectly affects tourists’ safety decisions for outdoor tourism, and second, whether information acquisition moderates the relationship between tourists’ risk preference and safety decisions. This paper defines outdoor tourism as a tourism activity carried out outdoor with certain risks. In addition, there are differences in the risks and safety decisions faced by tourists at different stages of
outdoor tourism. For example, before traveling, based on the destination risk, tourists will decide whether to travel and how to take safety measures such as property and life. When traveling, facing unexpected risks, how tourists will make decisions, etc.

In this paper, we focus on the outdoor tourism safety decisions during tourist journeys, that is, when facing risks such as life safety threats during the outdoor tourism process, how tourists make a trade-off between safety and pleasure based on risk preferences and information acquisition. This study is a beneficial attempt to introduce risk preference and information acquisition into outdoor tourism safety decisions. This study also provides a theoretical reference for tourism managers to provide personalized information services.

2. Literature review, hypothesis and model setup

2.1 Outdoor tourism safety decision

Tourists tended to be negative and less willing to travel to destinations with higher crime rates and preferred destinations with better security (Barker et al., 2002; Giusti and Raya, 2019). Risk information such as destination crisis events (Luo and Zhai, 2017) and catastrophic accidents (Crò and Martins, 2017) can change tourist decision-making behavior. Psychological states such as tourists’ psychological bias toward a destination (Xu et al., 2018), stereotypes caused by racial discrimination (Benjamin and Dillette, 2021) and sense of nationality due to historical factors (Podoshen, 2013) can lead to changes in tourists’ safety decisions.

As a branch of tourism, outdoor tourism, which includes nature observation, wildlife watching and adventure pursuits in the air, on land and on water, has its own unique tourism safety (Page et al., 2005). Unlike life safety (Wan et al., 2021), property safety (Hua et al., 2020) and food safety (Lee et al., 2019) in tourism, outdoor tourism safety decisions mainly occur before a particular activity during the trip, such as deciding whether to wear protective gear before riding a horse (Asa et al., 2019), whether to climb a mountain based on weather (Jackman et al., 2020) and whether to maintain a safe distance when watching the tide (Wang et al., 2019). Taking safety measures can reduce the likelihood of risk, but it can also lead to a loss of enjoyment for tourists (Weber, 2001).

2.2 Hypothesis

2.2.1 The impact of risk preferences on tourists’ safety decisions for outdoor tourism. Everyone holds different risk preference or risk aversion, which will affect their final decision (Wen et al., 2019). With the development of psychology, the relationship between risk preferences and decision-making has become a long-standing topic in studying consumer or managerial behavior in fields such as finance. Consumers with higher-risk preferences were significantly more willing to pay for something never bought before than those with low-risk preferences (Akinwehinmi et al., 2022; Lusk and Coble, 2005). Farmers with high-risk preference are more willing to take risks (Mishra et al., 2018).

Tourism behavior as a type of consumer behavior is equally influenced by risk preference (Sharifpour et al., 2014). Tourists will change their decision-making behavior due to the change of mental state (Karl et al., 2021). Past travel experiences contribute to risk perceptions, which influence their travel behavior decision-making, and tourists with higher risk preferences tend to choose lesser-known destinations (Karl et al., 2020).

Outdoor tourists are also affected by risk preference when making decisions. Outdoor tourists make decisions with the desire to maximize the pleasure of exploring unknown risks while minimizing the safety hazards (Hanna et al., 2019). Based on the prospect theory, we think that outdoor tourists with a higher risk preference are less concerned about the safety of their trips and, thus, less likely to take adequate safety measures during their trips and
more likely to make travel decision-making behaviors with safety hazards. H1 is proposed in this study:

H1. The higher the risk preference, the more likely outdoor tourists are to make high-risk travel decisions.

2.2.2 The impact of information acquisition on tourists’ safety decisions for outdoor tourism. Information-seeking behavior is the process of using information acquired by an individual or organization to change perceptions (Deng and Liu, 2017). Information acquisition is defined as consulting various relevant information sources before making a consumption decision (Moutinho, 1987). Previous research has demonstrated that access to information influences decision-maker behavior (Guo et al., 2020; Nikam et al., 2022; Rusgis et al., 2022). For travel consumers, travel information-seeking behavior is a common risk control measure to reduce the perceived risk level in unfamiliar destinations (Kambele et al., 2015). Tourists are more willing to accept information about situations similar to their own (Hennig-Thurau et al., 2010). When traveling, tourists obtaining different information will draw different pictures of the destination in their mind. To some extent, these pictures drawn by multiple information can influence their travel safety decisions (Martín-Santana et al., 2017).

Meanwhile, risk preferences influence people’s information acquisition strategies, and that acquired information intersects with risk preferences to influence decision-making behavior (McDougual, 1995). Tourists adjust their information acquisition strategies while perceiving risks and use them as a reference to determine their final decision-making behavior (Björk and Kauppinen-Räsänen, 2014). When faced with the risk, tourists will proactively obtain information and adjust their travel decision behavior (Zielinski and Botero, 2020). Therefore, we regard that outdoor tourists who obtain different information through different channels will make different safety decisions. H2 is proposed based on relevant study:

H2. Tourists’ access to information impacts their safety decisions for outdoor tourism.

2.3 Model setup

Based on H1 and H2, an econometric model of risk preference, information acquisition and safety decisions for outdoor tourism is constructed:

\[ B = \lambda + \beta_1 RP + \beta_2 IC + \beta_3 CV + \varepsilon \]  

(1)

B in Model (1) is the tourist’s safety decisions for outdoor tourism, RP is the tourist’s degree of risk preference, IC is the tourist’s access to information and CV is a control variable that mainly includes the tourist’s characteristics (age and education level) and other factors that affect the travel decision (transportation, price and service). \( \lambda \) is the intercept term, \( \beta_1, \beta_2 \) and \( \beta_3 \) are the parameters to be estimated, and \( \varepsilon \) is the random disturbance term.

There exists possible reverse causality between information acquisition channels and outdoor tourism outing safety decisions in Model (1). For example, if tourists decide to buy safety features such as oxygen tanks when climbing higher elevations, they will get more information during the purchase process. Therefore, this study uses an instrumental variables method and a two-stage least squares regression to address the endogeneity issue. The first stage is to reverse the model of factors influencing tourist information acquisition, considering Model (2):

\[ IC = \theta + \alpha_1 RP + \alpha_2 CV' + \alpha_3 IV + \delta \]  

(2)

In Model (2), IC is the tourists’ access to information, RP is the tourists’ degree of risk preference, CV’ denotes the control variables such as the tourist’s characteristics and IV indicates the instrumental variables. \( \theta \) is the intercept term, \( \alpha_1, \alpha_2 \) and \( \alpha_3 \) are the parameters to be estimated, and \( \delta \) is the random disturbance term.
3. Research methods

3.1 Questionnaire and pretest

This study sets out safety decisions for outdoor tourism as a binary dummy variable. A scenario-based questionnaire is set. “When climbing a mountain over 4,000 meters above sea level, there are still 500 meters to reach the summit. At that time, the weather conditions have started to deteriorate, and you feel slight discomfort, do you choose to continue climbing so as not to leave any regrets, or do you just descend and put safety first?” If the safety hazard is ignored and the climbing continues, the explained variable is taken as 1. Otherwise, the explained variable is taken as 0.

In this paper, risk preference is measured by five items (Table 1) using seven-point scales, according to Higbee and Lafferty (1972), $1 = \text{disagree strongly}$, $7 = \text{agree strongly}$. The utilization of a seven-point scale is justified due to its advantages over a five-point scale, which includes providing respondents with a wider range of response options, enhancing measurement sensitivity, reducing central tendency bias, facilitating ease of analysis and improving reliability (Colman et al., 1997). Information sources are often divided into user-generated content (UGC) and official channel information (Lian and Yu, 2019). The information acquisition in this paper is measured by two values: social channels and nonsocial channels (Table 2), according to Giglio et al. (2019). Social channels include UGCs and other information acquired through communication with people, while nonsocial channels refer to official publications or formal sources such as books and newspapers. If the social channel is selected, the variable is taken as 1. Otherwise, the variable is taken as 0.

<table>
<thead>
<tr>
<th>Question no.</th>
<th>Question content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am willing to give up my current stable but slightly less well-paid job if I can work for a better-paid but smaller company</td>
</tr>
<tr>
<td>2</td>
<td>A person with a severe medical condition should undergo surgery, even if there is a risk that the surgery will fail and he will die</td>
</tr>
<tr>
<td>3</td>
<td>If I need to take a risk but have the chance to double the dividend, I will not buy low-risk and low-yield stock</td>
</tr>
<tr>
<td>4</td>
<td>If I had a chance to win by one goal at the last minute, I would give up the chance of a draw even if I might lose</td>
</tr>
<tr>
<td>5</td>
<td>I am willing to go abroad to make high-return but high-risk investments rather than stable but low-return investments at home</td>
</tr>
</tbody>
</table>

Source: Table provided by the author

<table>
<thead>
<tr>
<th>Variable values</th>
<th>Access to information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social channels</td>
<td>Friends and family using social software, such as WeChat and QQ Comments on social media platforms, such as Xiaohongshu, Zhihu and Sina Weibo Comments in short video platforms, such as Tik Tok and Watermelon Video Live stream platforms, such as Tik Tok Live Stream and Douyu Live Stream Comments on Online travel platforms, such as Xiecheng, Qunaer</td>
</tr>
<tr>
<td>Nonsocial channels</td>
<td>Traditional mass media, such as newspapers, radio, TV and magazines Not obtaining information from the outside, completely relying on their own knowledge and experience Official channels of tourism destinations, such as official websites, official Weibo accounts and public WeChat accounts Information channels of government agencies, such as the Ministry of Tourism and Culture, local tourism and culture bureaus, government websites or public websites</td>
</tr>
</tbody>
</table>

Source: Table provided by the author
The number of social apps on mobile phones and the number of contacts in WeChat are used as instrumental variables in this paper, according to Hu et al. (2022). The control variables, such as age, education level and time, were selected by the research of Jacobsen and Munar (2012).

Combining the scenario material of outdoor travel safety decision-making, items related to risk preference, information acquisition channels, instrumental variables and control variables, a research questionnaire was formed. To ensure the validity of the questionnaire, the researchers sent the questionnaire to eight experts in tourism and asked for their opinions. Experts have only proposed some modifications to the wording.

3.2 Data collection

From July to August 2022, random surveys were conducted on hikers at the exits of classic hiking routes in Suzhou and Xuzhou, as well as at the foot of a climbing peak in Nanjing. All investigations were conducted on mobile phones. There are three reasons for doing this. One is to ensure that the respondents had participated in outdoor travel or had some knowledge of outdoor travel. Two is to ensure that the respondents had some ability to use electronic devices and could obtain information through the Internet. The final reason is that all respondents were randomly selected, and the local tourists were from different regions across the country. A total of 520 questionnaires were received, with 516 valid and an effective rate of 99.23%.

4. Results

4.1 Respondents’ socio-demographic profiles

As can be seen from Table 3: 52.87% of the total sample were aged 28–35, 29.46% of the total sample were aged 35–45, the sample is young in age; 300 respondents with bachelor’s degrees and above, accounting for 58.14% of the overall sample, the sample has high levels of education.

4.2 Descriptive analysis of other variables

Survey shows that 54% of tourists chose to continue to climb, indicating that the probability of risk occurring in outdoor tourism is relatively high. The relationship between tourists’ risk

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Respondents’ socio-demographic profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic indicators</strong></td>
<td><strong>N</strong></td>
</tr>
<tr>
<td><strong>Age (N = 516)</strong></td>
<td></td>
</tr>
<tr>
<td>Under 18 years old</td>
<td>12</td>
</tr>
<tr>
<td>18–25 years old</td>
<td>206</td>
</tr>
<tr>
<td>25–35 years old</td>
<td>72</td>
</tr>
<tr>
<td>35–45 years old</td>
<td>152</td>
</tr>
<tr>
<td>Over 45 years old</td>
<td>74</td>
</tr>
<tr>
<td><strong>Education level (N = 516)</strong></td>
<td></td>
</tr>
<tr>
<td>Junior High School Degree</td>
<td>44</td>
</tr>
<tr>
<td>High School Degree</td>
<td>58</td>
</tr>
<tr>
<td>Associate degree</td>
<td>104</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>226</td>
</tr>
<tr>
<td>Master’s degree or above</td>
<td>74</td>
</tr>
<tr>
<td><strong>Location (N = 516)</strong></td>
<td></td>
</tr>
<tr>
<td>Eastern China</td>
<td>320</td>
</tr>
<tr>
<td>Central China</td>
<td>108</td>
</tr>
<tr>
<td>Northeast China</td>
<td>57</td>
</tr>
<tr>
<td>Western China</td>
<td>31</td>
</tr>
</tbody>
</table>

**Source: Developed from findings**
preference and information acquisition channels is shown in Table 4. Tourists who obtain information through social channels have a lower probability of making risky decisions. Meanwhile, tourists who obtain information through social channels generally have a greater risk preference than those who obtain information through nonsocial channels.

Tourists who take part in outdoor tourism generally have strong economic strength, have a certain amount of free leisure time and located in the area with convenient transportation. Interestingly, while outdoor tourists tend to travel in groups, they do not have large social circles or use social apps extensively (Table 5).

4.3 Model estimation results

Eviews 8.0 software was used to estimate Model (1) by using a “probit” model containing endogenous variables (Han and Vytacil, 2017). First, the chi-square test is used to verify whether or not the independent variable is endogenous. The two-way significance level is 0.023, which is less than the 5% confidence level, passing the chi-square test. Therefore, the information acquisition can be considered as an endogenous variable. The instrumental variable can be seen to have an explanatory effect through the first stage of regression. A two-stage regression was performed using a “probit” model with endogenous variables, and the results are shown in Table 6.

The regression results of the first stage show that the degree of respondents’ risk preference has a significant positive effect on tourists’ access to travel information channels. The main reason may be that tourists with a high level of risk are more inclined to participate in more adventurous outdoor tourism activities, and due to the difficulty of outdoor tourism activities, tourists are more interested in learning from experienced people with common hobbies, which explains why these people will be more concerned with social information. The number of social software in the respondents’ cell phones has a significant positive effect on the tourists’ access to tourism information channels, indicating that the more social software in the respondents’ cell phones, the easier it is for tourists to access tourism information through social channels. It is easier for them to generate social behavior with online friends in the network and thus access social information. The number of respondents’ WeChat contacts significantly positively impacts information acquisition channels. The more WeChat contacts tourists have, the larger their social circle, the more friend-making behavior and the greater the possibility of accessing social information.

There are two regression results of the second stage. (1) Risk preference has a positive effect on the risk-taking decision behavior. This result is consistent with H1 of this study. The possible reason for this is that although many actions in outdoor travel may lead to unknown risks, such as natural disasters, uncertain weather conditions and inadequate protective measures, tourists with a higher degree of risk preference tend to have a positive mindset and hope to have fun when making decisions rather than focus more on these possible risks. (2) Information acquisition significantly negatively impact tourists’ decision-making behavior, i.e. outdoor tourists who access travel information through social channels are less likely to develop risk-exposure behavior. There are two possible reasons for this. One is

| Table 4 Risk preference level, information acquisition and safety decisions for tourists |
|-----------------------------------|-------------------|-------------------|
| Mean value of risk preference level of tourists who do not make risky decisions | 4.33              | 3.75              |
| Mean value of risk preference level of tourists who make risky decisions       | 5.20              | 5.07              |
| The average degree of risk preference of tourists in all samples               | 4.74              | 4.33              |
| Probability of risky decision-making (%)                                     | 52.80             | 55.17             |

Source: Developed from findings
### Table 5: Measures of other variables

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Disagree slightly</th>
<th>Undecided</th>
<th>Agree slightly</th>
<th>Agree</th>
<th>Agree strongly</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not think it is expensive to take part in outdoor tours</td>
<td>5.04%</td>
<td>6.98%</td>
<td>13.57%</td>
<td>27.91%</td>
<td>18.6%</td>
<td>15.5%</td>
<td>12.4%</td>
<td>4.44</td>
<td>1.61</td>
</tr>
<tr>
<td>I think I have enough time for outdoor travel</td>
<td>10.47%</td>
<td>11.63%</td>
<td>13.95%</td>
<td>20.93%</td>
<td>18.6%</td>
<td>8.53%</td>
<td>15.89%</td>
<td>4.15</td>
<td>1.87</td>
</tr>
<tr>
<td>I think the transportation to participate in outdoor tourism is very convenient</td>
<td>4.65%</td>
<td>3.49%</td>
<td>10.08%</td>
<td>21.32%</td>
<td>23.64%</td>
<td>11.4%</td>
<td>25.58%</td>
<td>4.91</td>
<td>1.68</td>
</tr>
<tr>
<td>I think I have more social apps on my phone than the average person</td>
<td>1.16%</td>
<td>13.95%</td>
<td>36.05%</td>
<td>29.07%</td>
<td>11.24%</td>
<td>4.26%</td>
<td>4.26%</td>
<td>3.64</td>
<td>1.26</td>
</tr>
<tr>
<td>I think the number of contacts in WeChat is more than the average person</td>
<td>9.30%</td>
<td>20.54%</td>
<td>21.71%</td>
<td>22.09%</td>
<td>13.18%</td>
<td>2.71%</td>
<td>10.47%</td>
<td>3.59</td>
<td>1.71</td>
</tr>
</tbody>
</table>

**Source:** Developed from findings
that the information from social channels may include richer details, more detailed content and more intuitive expression (Lian and Yu, 2019), which is more conducive to outdoor tourists understanding how to avoid unnecessary risks during the trip. Another is that the information from social channels is provided by experienced people with the same interests, which gives the readers a sense of intimacy and easy empathy, making it easier for people to accept and, thus, believe and comply with the rules and avoid risks. This is consistent with H2 of this study.

Combining the results of the first-stage and second-stage regressions, it can be found that outside of the direct influence of risk preferences on outdoor tourism safety decisions, risk preferences also indirectly influence safety decisions for outdoor tourism through information acquisition. To further verify the effect of risk preference on the safety decision of outdoor tourism, Models (1) and (2) are combined to produce Model (3) as follows:

\[ B = \lambda + (\beta_1 + \beta_2 \alpha_1)R + \beta_2 \theta + \beta_2 \alpha_2 CV + \beta_2 \alpha_3 IV + \beta_2 \delta + \beta_2 CV + \varepsilon \]  

(3)

In Model (3), \((\beta_1 + \beta_2 \alpha_1)\) is the combined effect of risk preference on safety decisions for outdoor tourism, where \(\beta_2 \alpha_1\) is the indirect effect and \(\beta_1\) is the direct effect. According to the data in Table 6, it can be concluded that the value of \(\beta_2 \alpha_1\) is –0.10723, that is, the indirect influence of risk preference on safety decisions for outdoor tourism is –0.10723, and the value of \(\beta_1\) is 1.05125, which means the direct influence of risk preference on safety decisions for outdoor tourism is 1.05125. Thus, it can be concluded that access to information can offset 10.20% of the influence of risk preference on the impact of safety decisions for outdoor tourism.

The regression results for the control variables in Table 6 show that the effect of age on tourists’ safety decisions for outdoor tourism is statistically significant at the 1% level and in the negative direction. This indicates that the respondent's age factor negatively affects safety decisions for outdoor tourism. Price perception, education level, transportation perception and time perception were found to be insignificant.

<table>
<thead>
<tr>
<th>Table 6 Two-stage regression results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Variable name</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Core explanatory variables</td>
</tr>
<tr>
<td>Information acquisition</td>
</tr>
<tr>
<td>Risk Preference</td>
</tr>
<tr>
<td>Control variables</td>
</tr>
<tr>
<td>Price Perception</td>
</tr>
<tr>
<td>Time Perception</td>
</tr>
<tr>
<td>Traffic Perception</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Constant term</td>
</tr>
<tr>
<td>Instrumental variables</td>
</tr>
<tr>
<td>Number of apps</td>
</tr>
<tr>
<td>Number of WeChat contacts</td>
</tr>
<tr>
<td>Number of obs</td>
</tr>
<tr>
<td>R-squared</td>
</tr>
<tr>
<td>Adj R-squared</td>
</tr>
<tr>
<td>Wald chi2</td>
</tr>
</tbody>
</table>

Notes: ***Indicates that the coefficient is statistically significant at the 1% level; **indicates 5%; * indicates 10%

Source: Developed from findings
5. Discussion and conclusion

This study uses a two-stage least squares method to investigate the impact of risk preference and information acquisition on tourists’ outdoor travel safety decision-making behavior while controlling for factors such as age, education level, price, transportation and time.

5.1 Theoretical contribution

- Tourists with high-risk preferences often make adventurous decisions.

Previous studies have shown that individuals have different risk preference tendencies, and these preferences can influence decision-making (Zou et al., 2020). This conclusion has also been extended to various domains such as finance, consumer behavior and agriculture. For example, farmers with higher risk preferences are willing to take on greater risks for potentially higher returns when choosing crop types (Mishra et al., 2018). Consumers with high-risk preferences are more inclined to accept unknown risks associated with genetically modified foods (Lusk and Coble, 2005). However, there is limited research on applying risk preferences to the tourism industry.

In contrast, this study found that in outdoor tourism, tourists with high-risk preferences are more likely to make risk decisions to seek greater enjoyment and benefits from their trips. This finding is consistent with previous research on risk preferences among investors, consumers and farmers, suggesting that individuals with high-risk preferences tend to take greater risks in exchange for greater benefits. Consequently, it can be inferred that risk preferences also apply to the study of tourists’ safety decisions, filling a gap in research on risk preferences in the tourism field and providing new insights into the study of tourists’ safety decisions:

- Tourists who obtain information through social channels are more likely to make safer travel decisions than those who do not.

The acquisition of information plays a significant and negative role in influencing tourists’ safety decisions in the context of outdoor tourism. Specifically, when tourists choose to obtain information from social channels, it helps mitigate the influence of their risk preferences on making unsafe travel decisions and reduces the likelihood of hazardous occurrences during outdoor travel. This finding aligns with previous research conducted in the fields of agriculture (Nikam et al., 2022) and consumer behavior (Cao et al., 2021). The utilization of information obtained through social channels has the potential to decrease the probability of tourists’ exposure to potential dangers and enhance their overall awareness and concern for safety.

In the field of tourism research, scholars commonly investigate UGC within social channels and have demonstrated its impact on tourists’ travel decisions (Lian and Yu, 2019). However, this conclusion has not been extended to the realm of safety. In this study, the concept of information within social channels is defined to encompass not only UGC but also all information generated through interpersonal communication. During the investigation of safety decisions in outdoor tourism, it was confirmed that information from social channels can significantly reduce the likelihood of tourists making risky decisions. This finding first enriches the understanding of the role of UGC by providing theoretical support for businesses and governments in conducting safety campaigns through UGC. Additionally, it expands the scope of research on information within social channels, offering new perspectives for the study of tourism decision-making:

- Tourists with high-risk preferences tend to favor information from social channels.

The observation that tourists with high-risk preferences show a greater inclination toward obtaining information from social channels is an intriguing and significant finding. Prior
research in the field of tourism has primarily focused on examining the influence of demographic variables, such as nationality, age, gender, income and wealth, on tourists' information acquisition preferences (Kambele et al., 2015). Additionally, studies have also explored the impact of travel-related factors, such as travel purpose, tourism type and duration, on tourists' information acquisition preferences (Oshriyeh et al., 2022).

However, this study goes beyond these traditional approaches by specifically examining the information-seeking behavior of outdoor tourists with high-risk preferences. By demonstrating their preference for social channels in obtaining information, this research addresses a notable gap in the existing literature and provides a fresh perspective on the study of tourism information sources.

This finding has several implications for both researchers and practitioners in the tourism industry. Researchers can further investigate the underlying motivations and psychological factors that drive high-risk preference tourists to favor social channels. Additionally, businesses and destination marketers can leverage this knowledge to tailor their communication strategies, effectively targeting and engaging this particular segment of adventurous travelers through social media platforms, online communities and interpersonal networks.

5.2 Practical contributions

- Adjusting safety information and paying attention to social channels.

Given that information acquisition channels significantly and negatively affect tourists' safety decisions for outdoor tourism, the government and tourism organizations such as tourism enterprises should pay attention to social channels when carrying out safety information distribution. For example, in the past, tourism safety information was officially released, which tended to bring tourists a sense of impersonality and unfamiliarity, resulting in authoritative safety knowledge often tending to be insufficiently accepted. Tourism organizations can try to use the form of how-to guides when carrying out safety information distribution, posted on social media platforms to popularize safety knowledge in a relaxed and pleasant atmosphere from the perspective of tourists, which will result in a higher likelihood of reading and a better level of acceptance by tourists:

- Creating outdoor travel safety topics and leading discussion of social hotspots.

Compared with traditional tourism projects, outdoor tourism is still slightly unpopular. Unknown risks are the greatest resistance to outdoor travel. Tourists with a higher risk preference are more likely to get information from social channels. Therefore, outdoor travel companies should adjust their publicity strategy, changing the traditional combination of graphics and text publicity mode to interactive publicity, such as taking a video with strangers in short video platforms. That being the case, it can attract the public to imitate the shooting and create a burst of social media, promoting the mass social discussion, enhancing the public's online participation, putting outdoor tourism projects in place and strengthening outdoor tourism safety:

- High-risk groups should be focused on.

Tourists with a higher risk preference were more likely to make high-risk travel decisions, especially younger generations. Therefore, when carrying out safety publicity, outdoor travel agencies should use big data technology to build user portraits, screen out high-risk groups according to current research findings and accurately push information to them. These agencies should emphasize the importance of outdoor travel safety measures, subtly cultivate safety awareness and reduce the probability of safety hazards.
5.3 Limitations and future research

To ensure that respondents have some experience in outdoor tourism, this study conducted a survey on tourists in outdoor tourism sites. However, it is a pity that only mountaineering is taken as an example in the setting of safety decisions. In future studies, multiple safety decision scenarios can be considered to improve the robustness of research conclusions.

In addition, two-stage regression analysis was used in this study. In the future, outdoor tourism safety decisions can be studied by using different machine learning tools used for sentiment analysis, including deep learning neural networks, hierarchical process analysis or Fuzzy Electre-type models (Gonçalves et al., 2013; Peña et al., 2021). In this way, the relationship between various factors in tourist safety decision-making can be analyzed more carefully.

References


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