

# Study on the Influencing Factors of Tourists' Perception of Crowding in Baotu Spring Scenic Spot

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**Abstract.** With the increase of national tourism demand, tourist spots are bound to face the phenomenon of tourist congestion every peak season. Congestion destroys the environmental quality of scenic spots, and reduces the tourist experience and satisfaction. The author investigated tourists and some citizens of Baotu Spring Scenic Spot in Jinan. The obtained data were processed by multivariate linear statistical regression with SPSS 21 software. After data analysis, the conclusions are as follows: (1) Tourist motivation has a significant positive influence on the perception of tourist crowding. (2) The factors of scenic spot construction have a significant negative effect on the perception of tourist crowding. (3) The adjustment behavior has a significant positive effect on the perception of congestion.

## 1. Introduction

In recent years, China's tourism industry is developing vigorously, the demand of consumers for tourism is increasing, and the number of tourists in popular scenic spots is surging, especially during the holidays. Baotu Spring, as a popular 5A scenic spot in Jinan, is crowded during the holidays. The increase of tourists' negative emotions and the decrease of tourism experience quality and satisfaction seriously affect the overall service quality evaluation of the scenic spot.

In this study, according to the actual situation of Baotu Spring Scenic Area, several significant related factors are selected for analysis. According to the literature review, it is decided to take tourism motivation, local identity, scenic area construction and adjustment behavior as dependent variables, and to study the influence of these four variables on the perception of tourists' crowding.

## 2. Literature review and research hypotheses

### 2.1 Foreign research on crowd perception

The author found that foreign scholars generally focus on the density of a certain region. Stokols, an environmental school scholar, found that when the density of a certain area increases, the mood of tourists will be affected; and he proposed that when a person is under psychological pressure, the crowding of the actual environment cannot meet the personal space demand, resulting in a huge sense of crowding [1]. Shelby, a scholar, defines crowding as the evaluation of responsiveness to a specific density [2]. Scholars who study outdoor tourism rest focus on the negative feelings of people after crowding. Therefore, they found that tourists with a strong sense of crowding had a negative subjective evaluation of the scenic spot, while tourists with a low sense of crowding had a more objective evaluation of the scenic spot [3]. Lee and Graefe found that people's perception of crowding was different in different places with different densities when they surveyed tourists participating in festivals. The number of tourists in the activity intensive places is large, so the negative emotions generated increase [4]. The above research shows that most scholars pay attention to the negative evaluation of congestion perception. However, scholars Montano and adamopoulos conducted a field survey in 1984 and found that not all tourists have negative psychology towards crowding, and the

reasons for tourists' feeling of crowding also include tourists' emotions, behaviors and different crowding environments [5]. Amberger and Shelby think that an important indicator of social carrying capacity is congestion theory, which is closely related to the overall image of tourism destination. At the same time, congestion theory is often used to test the quality and satisfaction of tourists' experience [5]. Therefore, in the field of tourism research, congestion perception is the most important research of foreign scholars, which is related to the health of scenic spots and the long-term development of tourism destinations.

## **2.2 Domestic research on congestion perception**

When I look up the perception of tourists' crowding in the domestic literature, I find that there are few articles devoted to the study of crowding perception in the domestic tourism science, and most of the literatures about crowding come from the measurement literature. For example: the environmental carrying capacity of scenic spots, tourist psychological capacity and other documents. Most of these literatures do not study the factors that affect the perception of crowding, but take the perception of crowding of tourists as the index of carrying capacity and psychological capacity of tourists. Therefore, we will review the only few literatures about congestion perception in China. Luo Yanju conducted a field survey on Zhangjiajie National Forest Park in the study of tourists' satisfaction, and concluded that congestion perception has a negative impact on tourists' satisfaction [6]. Zhang Li chose Guilin and Xiangshan as empirical research places when studying the factors that influence tourists' experience and crowding during the golden week holiday. Through repeated argumentation, she thinks that the two significant personal factors that affect crowding degree are tourists' motivation and tolerance; the other factors that affect crowding degree are other tourists' improper behaviors; and the two scenic area factors of the crowding degree are the main tourist road and scenic area space [7]. Wang Bing determined 12 significant correlation factors in the form of on-the-spot questionnaire when studying the perception of tourists' crowding. Playing time, expected crowding degree, flow of people on some mainstream roads, contact degree between tourists, health situation, quality of service personnel, education background and occupation of tourists are considered as significant influencing factors, while tourism motivation, scenic facilities, number of toilets and age of tourists are considered as secondary influencing factors [8].

## **2.3 Influencing Factors of Tourists' Perception of Crowding**

### *2.3.1 Tourist Motivation and Visitor Congestion Perception*

Scholars have found that when tourists have different motivations, there are significant differences in their tolerance for the choice of tourist destinations and spatial density. If tourists aim at relieving pressure and being alone, it will have a significant positive impact on tourist density. If people travel for the purpose of making friends and socializing with others, tourists will feel less crowded. Many domestic scholars have found that there is an inevitable relationship between tourists' recreational motivation and tourists' perception of crowding. Li Li, Yan Bingjin and others take Sanqing Mountain as an empirical research site, and use factor analysis method to get the influencing factors of tourists' perception of crowding degree. Finally, they come to the conclusion that the weaker the social motivation of tourists is, the stronger the perceived crowding degree is [9]. Most of the tourists in Baotu Spring Scenic Spot have obvious social motivation. The stronger the tourists focus on the tour, the more they will ignore the negative impact of crowding. Therefore, the author puts forward the following assumptions:

H1, Tourist motivation has a significant negative impact on tourists' crowding perception.

### *2.3.2 Local Identity and Visitor Crowding Perception*

As for the relationship between local identity and tourists' sense of crowding, Williams believes that tourists with higher local identity have a higher estimate of using density through empirical research [10]. Budruk and Zhao zongjin repeatedly prove that when a person has identity psychology to the local, he can ignore the negative perception brought by congestion, that is to say, the stronger the local identity, the weaker the sense of congestion. Budruk also pointed out that the strong sense of local identity will increase the use time and reduce the occurrence of transfer adjustment behavior [11]. The author believes that local identity is one of the important factors for tourists to choose a

tourist destination, and also one of the decisive factors for tourists to get a good tourism experience. Therefore, the author puts forward the following assumptions:

H2, Local identity has a significant negative impact on tourists' crowding perception.

### 2.3.3 Scenic Spot Construction and Visitor Crowding Perception

Wu Ruiyu pointed out in the study of forest recreation area that if the signs of the scenic area are perfect, the crowding perceived by tourists is low [12]. Many domestic scholars have confirmed through field investigation that the number of infrastructure in the scenic spot, especially the number of temporary toilets, has a serious impact on tourists' recreational experience. The reason is that if the number of toilets is insufficient, frequent contact between tourists will be caused, thus increasing the degree of tourists' crowding. Shelby believes that the behavior of scenic area managers will have a significant negative impact on tourists' perception of congestion [13]. According to previous scholars' research, the author believes that the more perfect the construction of the scenic spot, the higher the tourists' evaluation of the scenic spot, and the lower the perception of tourists' crowding degree. Therefore, the author puts forward the following assumptions:

H3, Scenic spot construction has a significant negative impact on tourists' crowding perception.

### 2.3.4 Adjustment Behavior and Visitor Crowding Perception

Scholars have found that in order to get a good experience quality in tourism, tourists will consciously take adjustment actions to cope with the resulting sense of crowding [14]. For example, there will be the rationalization, aggressive behavior, retreat, escape and other reactions caused by cognitive imbalance. In this way, it can be less crowded, or even crowded, it can reduce its pressure. That is to say, although the debugging behavior cannot reduce the crowd perception of tourists, it can reduce the psychological pressure of tourists and improve their tourism experience. Domestic existing research shows that debugging behavior has a positive impact on the perception of tourists' crowding degree. Therefore, the author believes that debugging behavior has a significant positive impact on the perception of tourists' crowding degree. Based on this, the author puts forward the following assumptions:

H4, Adjusting behavior has a significant positive effect on tourists' crowding perception.

## 3. Questionnaire design and investigation process

### 3.1 Scale Selection

The first part of the questionnaire is the personal information of tourists, and the second part is the four influencing factors of tourists' perception of crowding and the scale of tourists' perception of crowding. Tourism motivation was measured by the scale of tourism motivation developed by Metin [15], including four items, namely, the purpose of tourism is to relieve pressure, relax body and mind, accompany relatives and friends, and increase knowledge. This scale is widely used in empirical research and has good credibility. Local identity refers to Tang Wenyue's local Attachment Scale for tourists, including five options, i.e. always mentioning it to your friends and its irreplaceable position in your heart [16]. The construction of the scenic spot adopts the real situation scale developed by Hu Wenyue, which includes four items: you think the image of the scenic spot is well publicized, you think the service staff of the scenic spot has a good attitude, and you think the leisure facilities of the scenic spot are good [17]. The scale has been verified to be reliable through field investigation and multiple demonstrations. The adjustment behavior of tourists is also measured by the adjustment behavior scale developed by Hu Wenyue, and the adjustment behavior dimension includes 6 items, including, you should control the number of tourists if it's too crowded here, I will choose non holiday to visit here, etc. The perception of tourists' crowding adopts the scale of tourists' crowding perception designed by Li Li [9], in which the dimension of social crowding includes four options: crowding can't be enjoyed at ease, too much contact makes people uncomfortable, destroys the quiet environment, and too many people affect the appreciation.

### 3.2 Data Collection

Part of the questionnaire data comes from the tourists in Baotu Spring Scenic Spot, and the other part comes from the network research. From March 1 to April 10, 2019, 230 questionnaires were issued and 220 were recovered, 215 of which were valid and 93% effective.

### 3.3 Sample Analysis

The results are as follows: female tourists accounted for 67.09% of the total number of the survey, while male tourists accounted for 32.91%. The age of tourists is distributed from 18 to 60 years old, among which the age group of 18-25 years old is the most, accounting for 66.24%. In the distribution of education level, most of them have bachelor degree or above, accounting for 71%. The average income is 3000-5000 yuan, accounting for 46%. According to the above sample analysis, the questionnaire has representativeness and diversity, which can be used as a sample for this research.

## 4. Data Analysis Process

### 4.1 Multiple Statistical Regression Analysis

In order to verify the accuracy of the hypothesis about the influence of tourism motivation, local identity, scenic area construction and adjustment behavior on the perception of tourists' crowding, the author uses spss21 software to carry out multiple statistical regression analysis on the data, taking the four influencing factors as the independent variable and tourists' crowding as the dependent variable. After multiple linear regression analysis with SPSS21 software,  $R = 0.778$ ,  $R^2 = 0.605$ , adjust  $R^2 = 0.593$ , all greater than 0.5. This shows that the data fitting effect of the theoretical model is good. F value is 50.475, P value is 0.000, which is significant at the level of 0.1%, indicating that the overall linearity of the theoretical model is very significant. To sum up, the theoretical model in this paper can be used to analyze the hypothesis test results.

### 4.2 Analysis of Hypothesis Test Results

The hypothesis test results are shown in Table 1.

Table 1 Hypothesis Test Results

Dependent variable	Independent variable	Regression Coefficient	P value
Visitor Congestion Perception	Tourism Motivation	0.174	0.032
	Local Identity	-0.028	0.708
	Scenic Area Construction	-0.152	0.048
	Adjustment Behavior	0.563	0.000

The regression coefficient of tourist motivation is 0.174, and the significance level is 0.032, which shows that tourist motivation has no significant negative impact on visitor congestion perception, that is, hypothesis 1 is not tenable, which further shows that tourist motivation is not one of the factors that affect the visitor congestion perception.

From the above data analysis, we can see that tourism motivation not only has no significant negative impact on the perception of tourist congestion, but also has a positive impact. The author thinks that tourists' travel is triggered by tourism motivation. Baotu Spring Scenic Spot is a beautiful scenic spot. The main purpose of most tourists visiting here is to relax their spirit and enjoy the beautiful scenery. Tourists are not willing to visit in the crowded environment. Crowding affects the quiet environment, which leads to the increase of tourists' sense of crowding. That is to say, tourists' tourism motivation has a positive impact on tourists' perception of crowding.

The regression coefficient of local identity factors is -0.028, the significance level is 0.708, greater than 0.1, which indicates that local identity has no significant negative impact on the perception of tourists' crowding, that is, hypothesis 2 is not tenable, which further indicates that local identity is not one of the perception factors affecting tourists' crowding degree.

In this survey, through the questionnaire analysis of the sample population, it is found that local identity does not have a significant negative impact on the perception of tourist congestion. The

possible reason is that most of the respondents from other provinces are not strong in cultural identity of Baotu Spring Scenic spot.

The regression coefficient of scenic area construction factor is -0.152, and the significance level is 0.048, which shows that tourists' participation has a negative impact on the willingness to revisit, that is, hypothesis 3 is established, and further explains that scenic area construction factor is one of the factors affecting tourists' perception of crowding .

The regression coefficient of the adjustment behavior factor is 0.563, the significance level is 0.000, less than 0.001, which indicates that the adjustment behavior has a positive impact on the perception of tourists' crowding, and is significant at the level of 0.1%, that is to say, hypothesis 4 is established, which further proves that the adjustment behavior is one of the factors affecting the perception of tourists' crowding.

In conclusion, the factors that have a significant positive impact on visitor congestion perception are adjustment behavior and tourism motivation. Among them, the positive impact of tourism motivation does not conform to the hypothesis put forward earlier by the author. The construction of scenic spots has a significant negative impact on visitor congestion perception. Although local identity has a negative impact on visitor congestion perception, it is not significant and does not conform to the hypothesis put forward by the author before. So in the theoretical model of visitor congestion perception, hypothesis 3 and 4 are valid, while the rest are not.

## 5. conclusion

This paper makes a series of research on the relationship between tourism motivation, local identity, scenic area construction, adjustment behavior and visitor congestion perception, and draws the following conclusions.

Local identity has no significant negative effect on visitor congestion perception.

Tourism motivation and adjustment behavior have significant positive effects on visitor congestion perception.

The construction of scenic spots has a significant negative impact on visitor congestion perception.

Comparing the absolute value of the regression coefficient of the significant factors, we can see that the adjustment behavior is the most significant to visitor congestion perception, followed by the tourism motivation, and the least is the construction of scenic spots.

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