

Multivariate Calculation of Psychological Carrying Capacity of Ecotourism Community Residents Based on Interactive Emotional Cognitive Framework

Li Fu^{1,✉}, Yi Yao²

¹ School of Economics and Management, Taiyuan Normal University, Jinzhong Shanxi, 030619, China

² School of Economics and Management, Xinzhou Normal University, Xinzhou Shanxi, 034000, China

ABSTRACT

As one of the important stakeholders in ecotourism, community residents play a crucial role in ecotourism development. This study takes interactive emotional cognition, social exchange theory and the concept of psychological carrying capacity as the guiding theories, and designs the community residents' questionnaire from the aspects of emotional cognition and psychological carrying capacity, respectively. Correlation analysis and regression modeling were used to test the influence of interactive emotional cognition on the psychological carrying capacity of ecotourism community residents. The calculation results show that the psychological carrying capacity of ecotourism community residents is positively correlated with positive interactive emotional cognition ($r > 0$) and negatively correlated with negative interactive emotional cognition ($r < 0$). It was also found that community residents' proud emotional perception of tourism development had the highest degree of influence on the psychological adjustment capacity variable ($R^2 = 0.299$). This study verifies the mechanism of community residents' interactive emotional cognition on their psychological carrying capacity and enriches the theoretical research on promoting ecotourism development.

Keywords: correlation analysis, regression model, interactive emotional cognition, psychological carrying capacity

1. Introduction

While the development of eco-tourism in protected areas is booming, its negative impact on protected areas is also becoming increasingly evident. A survey conducted by the China National Biosphere Committee on nature reserves above the provincial level in China shows that some reserves have garbage nuisance, water pollution, noise pollution and air pollution, and some nature reserves have been victimized by the protected objects and degradation of tourism resources due to the development

✉ Corresponding author.

E-mail address: fuli2520@126.com (L. Fu).

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of eco-tourism [1-3]. The negative impacts of reduced quality of tourism experience and grievances of community residents due to the number of tourists and the degree of development, etc. exceeding the load in some protected areas are also equally prominent, and finally backfire on the ecotourism in the protected areas, resulting in undesirable consequences [4-6]. The study of tourism environmental carrying capacity of ecotourism in nature reserves can be very necessary as a management tool for managers. Once tourism activities are carried out, the tourist places will inevitably change. The disturbance of the natural environment by tourism activities and the impact on the local community are predictable, how to coordinate the relationship between visiting tourists and the natural environment of the destination, community environment, economic environment, community residents and other aspects of the relationship between man and nature in harmony, tourism capacity management is crucial [7-10].

With the continuous development of ecotourism and other forms of sustainable tourism, people gradually recognize the importance of community residents' participation in tourism development and begin to pay attention to the psychological carrying capacity of community residents [11-12]. Tourism is a kind of cultural difference activities, this difference determines both the size of the attraction of the destination to the tourists, but also determines the size of the influence of the tourists on the residents of the destination [13]. The more closed the destination is, the fewer opportunities for contact with the outside world, which means that the cultural differences between the tourists and the community residents are greater, and the social and psychological impact on the community residents will be greater. At the same time, ecotourism attractions are often established on the basis of nature reserves [14-15]. The establishment of nature reserves will cause the loss of some of the original sources of income of the residents of the surrounding communities, and it is difficult for these community residents to find new sources of income to compensate for their own. Ecotourism, however, emphasizes community participation and promotes local economic development, providing a large number of employment opportunities for community residents and enabling them to obtain economic benefits [16-17]. This makes community residents have a certain dependence on the development of ecotourism. Although tourists can bring income increase to some people, more residents who do not participate in the tourism industry have to share the inconvenience caused by tourism [18-19]. Consequently, the community residents will quickly show aversion to tourists and even take measures to boycott the arrival of tourists.

Literature [20] empirically reveals that residents of tourism communities have positive attitudes towards the development of the tourism industry, especially with regard to the improvement of their quality of life and reproductive well-being as a result of tourism development. Literature [21], based on fieldwork analysis, reveals that the rural tourism development process in South Korea suffers from exclusion of tourism community residents, unfair distribution, neglect of diversity, and insufficient negative impacts. Literature [22] based on a new framework of quality of life of residents in tourism communities showed that the impact of tourism on residents is reflected in the performance of interpersonal trust and the promotion of pro-social and environmental behaviors, which affects the support of residents for the development of the tourism industry and the enhancement of the quality of life. Literature [23] illustrates that resident empowerment promotes tourism community well-being, resident community attachment, and support for tourism festivals by enhancing channels of resident happiness. Literature [24] used the PLS-SEM tool to discuss that residents' cultural self-confidence is highly correlated with mental health, and based on this, constructed a framework for analyzing residents' subjective well-being, which can provide an important reference for tourism development and development to deal with issues related to residents in tourism communities. Literature [25], based on the bottom-up spillover theory, points out that cultural inputs to tourism development influence residents' attitudes toward tourism development by intervening in residents' spiritual well-being and place attachment.

This paper explores the correlation between ecotourism development and the psychological

carrying capacity of community residents based on the interactive emotional cognition theory and the social exchange theory, and then proposes three variables of psychological carrying capacity based on the concept of defining the psychological carrying capacity: the degree of support for ecotourism development, the degree of emotional stability, and the ability to adapt to the psychological carrying capacity. After selecting the Beidaihe Ecotourism Demonstration Area as the case study site, a questionnaire on community residents' interactive emotional cognition and psychological carrying capacity was designed, and the reasonableness and reliability of the questionnaire were examined through pre-surveys. The questionnaires were randomly distributed to collect data, and SPSS software was used to statistically analyze the sample and questionnaire data, and Spearman's correlation method was used to analyze the correlation between the dimensions of community residents' interactional emotional cognition and the variables of psychological carrying capacity, and finally, the degree of the influence of the emotional cognition on the psychological carrying capacity was examined by linear regression model.

2. Theoretical basis of research

2.1. *Cognitive Theory of Interactive Affect*

"Cognitive-Interactive Emotional-Behavioral" originated in the field of psychology as a theory used to explain the occurrence of individual behavior. The recognized "cognitive-interactive affective-behavioral" theory was proposed by Hovland and Rosenberg, highlighting the anticipatory tendency of attitude responses, and the two scholars believe that attitudes are composed of cognition, emotion and behavior. Among them, cognition refers to the individual's awareness, understanding and evaluation based on experience and knowledge accumulation of perceiving something. Interactive emotion is the psychological feelings produced by individuals based on the perception of objective things, including joy, anger, sadness and fear. Behavior is the individual's tendency to react to something by accepting or rejecting it. According to this theory, an individual's behavior is influenced by cognition and emotion. Individuals generate cognition about the things around them and influence behavior based on the mediating variable of emotion. The theory also has explanatory power for the behavior of residents of tourist destinations. This paper argues that the psychological carrying capacity of ecotourism community residents is affected by their cognition and interactive emotions, and that community residents' cognition of tourism development issues based on their own experience and cultural accumulation, and their interactive emotions based on these cognitions, will determine whether they have a high level of psychological carrying capacity.

2.2. *Social exchange theory*

Social Exchange Theory (SET) [26] was proposed by famous sociologists, Social Exchange Theory summarizes all human behaviors as exchange behaviors, in which rewards and rewards are gained in the process of exchanges, and corresponding costs and expenses are also paid. When the benefits of the exchange result outweigh the disadvantages, the individual or group will have a positive attitude, and vice versa, it will have a negative attitude. Social exchange theory is a more important theory to study ecotourism community residents' attitudes toward tourism development and psychological carrying capacity, and has been applied by a wide range of scholars in different tourism scenarios to explore the perception of tourism impacts by residents of tourism destinations. Benefits and costs are the two basic elements in social exchange theory, which can be subdivided into economic, social, environmental and other aspects of the perception of benefits and costs on the basis of the basic elements. According to the social exchange theory, in the process of tourism development, all tourism subjects will form their attitudes towards tourism development based on the comparison of benefits and costs in the exchange process of tourism development. From the perspective of local residents, if the perceived benefits are higher than the perceived costs in the process of tourism development, the

residents tend to show positive supportive attitudes, including good word-of-mouth publicity, participation in tourism management, and warm hospitality and other behaviors. If the perceived benefits are lower than the perceived costs, they tend to show negative resistance and do not cooperate with local tourism development.

2.3. Definition of the concept of psychological carrying capacity

Regarding the definition of psychological carrying capacity of ecotourism community residents, some scholars believe that the psychological carrying capacity of ecotourism community residents refers to the ability to adapt, regulate and react to the local ecotourism formed by people under the interactive effect of individual psychological characteristics, tourism industry perceptions and emotional values of community residents in ecotourism places. It is mainly manifested in the ability of individuals to feel and recognize the probability and controllability of local ecotourism development, and then make a dynamic response through self-regulation, so as to make their own interactive emotional perception, psychological endurance state and behavior more adaptable to the requirements of their own development as well as the requirements of the ecotourism environment. This paper refers to the definition of scholars that the psychological carrying capacity of ecotourism community residents refers to the ability of community residents to adapt, regulate and react according to their own character, psychology, emotion and behavior in the context of local ecotourism. It is mainly manifested as the ability of community residents to cope with the psychological adaptation and adjustment in the process of local ecotourism, and the psychological carrying capacity is an intangible factor related to the psychological state of human beings, which refers to the psychological character traits of community residents, and in this study, it mainly includes three variables of the acceptance of tourism development, emotional stability, and the ability to adjust the psychological factors.

3. Research design

3.1. Study case sites

In 2016, the State Council approved Beidaihe to become the first national life and health industry innovation demonstration zone, which means that the development of Beidaihe Life and Health Industry Innovation Demonstration Zone (hereinafter referred to as the "Demonstration Zone") has been elevated to a national strategy. The Demonstration Zone includes Beidaihe District, Beidaihe New District, and Beidaihe International Airport Airport and Harbor Area, with a planning area of 520 square kilometers. The goal of the plan is to create a life and health industry cluster integrating medicine, health, wellness and tourism. The Beidaihe area has a favorable ecological environment and a comfortable climate, and the demonstration area is rich in high-quality recreation and tourism natural resources such as the ocean, beaches, forests and wetlands. In terms of cultural heritage, the Beidaihe area included in the demonstration area has a long history of health care, and became a summer resort during the Qing government. After the founding of New China, it is Beidaihe is identified as a summer resort and convalescence place for national leaders, Chinese and foreign professionals and other national outstanding talents, with deep cultural heritage of health and wellness, it is recognized as a recreation resort and national coastal recreation tourism resort.

This study takes Beidaihe Ecotourism Innovation Demonstration Zone as the case place for three reasons, one is that Beidai has a beautiful ecological environment, a long history of developing recuperation tourism, and is a recognized recuperation tourism resort, which is representative. Secondly, Beidaihe, as the earliest life and health industry innovation demonstration set up by the state, has a development model that has matured through continuous exploration in practice, and constantly promotes the upgrading of local eco-tourism infrastructure, which is typical as a demonstration area at the national level. Finally, in the process of selecting the case study, it was found that there are problems such as marginalization of residents, weak participation, lack of value perception and vague

supportive attitudes in the development of ecotourism in the demonstration area. Therefore, it is urgent to carry out relevant research to understand the residents' emotional perception of ecotourism and psychological carrying capacity. Therefore, this paper selects the Beidaihe Ecotourism Innovation Demonstration Zone as a case study.

3.2. Research tools

3.2.1. Scale design. After combing and summarizing the literature and thinking about it, the framework structure of the scale design of this study was initially constructed, and in order to further enhance the feasibility and reliability of the scale, the scale design of this study was finalized after taking the initiative to consult the experts in the direction of ecotourism related to make modifications. This questionnaire is mainly composed of two parts, the first part is a demographic survey, which mainly includes basic information such as gender, age and education. The second part is the survey of each observed variable, which consists of the interactive emotion measurement part and the psychological carrying capacity measurement part. The Likert 5-point scale was used for each variable, and the specific meaning is as follows: 1 is "strongly disagree", 2 is "somewhat disagree", 3 is "average", 4 is "somewhat agree", and 5 is "strongly agree".

The psychological carrying capacity of community residents was investigated and analyzed in three aspects: tourism development support (PT1), emotional stability (PT2), and psychological adjustment ability (PT3). Interactive emotional cognition can be divided into various types, and it is most commonly categorized into positive emotional cognition and negative emotional cognition. Research on interactive emotion cognition for residents of the Beidaihe ecotourism community is mostly a kind of specific emotion research, such as satisfaction, happiness, place attachment, relative deprivation and other emotions, and focuses more on the measurement of positive emotion and lacks the measurement of negative emotion. Positive and negative emotions in affective experience are independent of each other, and an individual who appears to have higher positive emotions may also appear to have higher negative emotions. This paper draws on scales designed by relevant scholars to identify question items for the measurement of interactive emotional perceptions of residents in ecotourism communities. Among them, the positive affective cognition survey items include JJ1 "Satisfied with the development of local ecotourism", JJ2 "Satisfied with the development of local ecotourism", JJ3 "Proud of the development of local ecotourism" and JJ4 "Excited about the development of local ecotourism". Negative emotional cognition of interaction was investigated from XJ1 "Marginalization in ecotourism development and sense of exclusion", XJ2 "tourism development occupies resources and benefits and causes a sense of deprivation", XJ3 "Disgust caused by the influx of tourists" and XJ4 "Fear that ecotourism is not conducive to long-term local development".

3.2.2. Questionnaire pre-survey. Pre-surveys are small-scale surveys conducted prior to the formal distribution of the questionnaire to ensure the overall scientific validity and feasibility of the questionnaire. The specific content includes verifying whether the language expression of the questionnaire is accurate and clear, testing whether the measurement dimensions are correct and comprehensive, and evaluating whether the questionnaire question design is logical. Therefore, after completing the design of the questionnaire, this study conducted a pre-survey through WeChat friend circle and Weibo to measure the interactive emotional cognition and psychological carrying capacity of residents in ecotourism communities, and the research period was from October 20, 2023 to December 31, 2023, and a total of 87 valid samples were collected in this questionnaire pre-test. Cronbach's alpha and CITC values [27] were used to verify the reliability and trustworthiness of the questionnaire, generally requiring a Cronbach's alpha value greater than 0.7 and a CITC value greater than 0.4. The collected samples were further analyzed. The overall Cronbach's α value of the questionnaire was 0.967, which was greater than 0.7, and the CITC values of psychological carrying capacity, negative interaction affective cognition, and positive interaction affective cognition were

greater than 0.4, and the Cronbach's α values of the question items of the measurement dimensions were greater than 0.7, which made the survey results reliable and could be widely distributed as a formal questionnaire.

3.3. Data collection

The results of the pre-survey data showed that this questionnaire has good reliability and validity, so this study conducted the formal distribution of the questionnaire from January 10 to January 30, 2024, which lasted for 21 days. The questionnaire was distributed in two ways, online mainly through WeChat, Weibo, Questionnaire Star and other online platforms to distribute widely. Offline questionnaires were sent to the Beidaihe Eco-tourism Zone, where local community members were randomly invited to fill out the questionnaires on the spot. A total of 485 questionnaires were collected, and 21 invalid questionnaires were eliminated, resulting in 464 valid questionnaires and a validity rate of 95.67%.

4. Findings and analysis

4.1. Basic Sample Profile

The demographic information section of the questionnaire consisted of gender, age, disposable income and education. The results obtained after processing the data in this section using SPSS 26.0 are shown in Table 1. In terms of gender, 56.90% and 43.10% of the final surveyed sample of residents in the Beidaihe ecotourism community were male and female respectively, with more males than females. In terms of age, those aged between 31-40 years old predominate, accounting for 26.94% of the total sample, which microscopically reflects that middle-aged residents will be a bit more enthusiastic about this survey, and this type of group occupies a certain proportion in the tourism survey. Those aged between 18-25 and 26-30 accounted for 25.43% and 20.47% of the total sample, and those under 18 accounted for the least, at 52. In terms of disposable income, those with monthly disposable income between 2,000-4,000 yuan were the most numerous, accounting for 34.91% of the total sample size, which may be related to the fact that the sample contained a majority of residents from the local farming community. People with monthly disposable income of 2,000 yuan and below were the least, accounting for 12.50%. In terms of educational attainment, undergraduates accounted for the largest proportion at 34.91%, while doctoral and master's degree holders accounted for 15.30% and 26.94% respectively. In general, it seems that the questionnaire sample has more male samples than female samples, the middle-aged group accounts for a larger proportion, the monthly disposable income level is in the middle, which is in line with the basic characteristics of the community residents' groups in the Beidaihe Eco-tourism Area, and the sample comes from a wider range of sources, so that the sample of this study has a certain degree of representativeness.

Table 1. Analysis of the basic profile of the survey

Categories	Options	Sample size	percentage (%)
Gender	Male	264	56.90%
	Female	200	43.10%
Age	<18	52	11.21%
	18-25	118	25.43%
	26-30	95	20.47%
	31-40	125	26.94%
	41-50	74	15.95%
Disposable income	<2000	58	12.50%
	2000-4000	162	34.91%

Educational background	4000-6000	118	25.43%
	>6000	126	27.16%
	Junior college and	106	22.84%
	Undergraduate	162	34.91%
	Master graduate	125	26.94%
	Doctoral student	71	15.30%

4.2. Analysis of survey data

4.2.1. Descriptive statistical analysis. This part of the content of the 464 valid questionnaires have been obtained to carry out the descriptive statistics analysis of the formal sample data, related research usually sample skewness absolute value is less than 3, kurtosis absolute value is less than 10 as a criterion for determining whether the sample obeys the normal distribution. The results of the descriptive statistics normal distribution test are shown in Table 2, the absolute value of skewness and the absolute value of kurtosis of each measurement item are in the range of 0.560-1.500 and 0.082-1.249 respectively, which are in line with the standard, and the sample data obeys the normal distribution, and can be analyzed in the next step.

Table 2. The statistics are analyzed according to the normal distribution

Item		Degree of bias		Kurtosis	
		Statistics	Standard error	Statistics	Standard error
Psychological ability	PT1	-1.313	0.155	0.272	0.326
	PT2	-1.298	0.155	1.185	0.326
	PT3	-1.5	0.155	0.082	0.326
Interactive positive emotional cognition	JJ1	-0.889	0.155	0.524	0.326
	JJ2	-1.074	0.155	0.541	0.326
	JJ3	-1.17	0.155	0.393	0.326
	JJ4	-0.56	0.155	1.249	0.326
Interactive negative perception	XJ1	-0.704	0.155	1.193	0.326
	XJ2	-1.217	0.155	0.738	0.326
	XJ3	-1.07	0.155	0.426	0.326
	XJ4	-0.85	0.155	0.529	0.326

The questionnaire data collected in this study were statistically analyzed by SPSS software, and the results are shown in Figure 1, with (a)-(c) representing the results of the survey on the psychological carrying capacity of ecotourism community residents, the positive interaction emotional cognition, and the negative interaction emotional cognition, respectively. The mean values of the psychological carrying capacity of the surveyed community residents in the Beidaihe Ecotourism Innovation Demonstration Zone in terms of tourism development support, emotional stability and psychological adjustment ability were 3.34, 3.77 and 3.30 respectively, which were at a medium level. In terms of positive emotional cognition, except for JJ3's "proud of local ecotourism development" whose mean score was lower than 4.00, the mean values of community residents' satisfaction (4.05), happiness (4.21) and expectation (4.47) were all above 4.00. In terms of community residents' negative interaction sentiment perceptions, most of the residents are not excluded from the development of local ecotourism, and the negative sentiment values are all below 2.00 points.

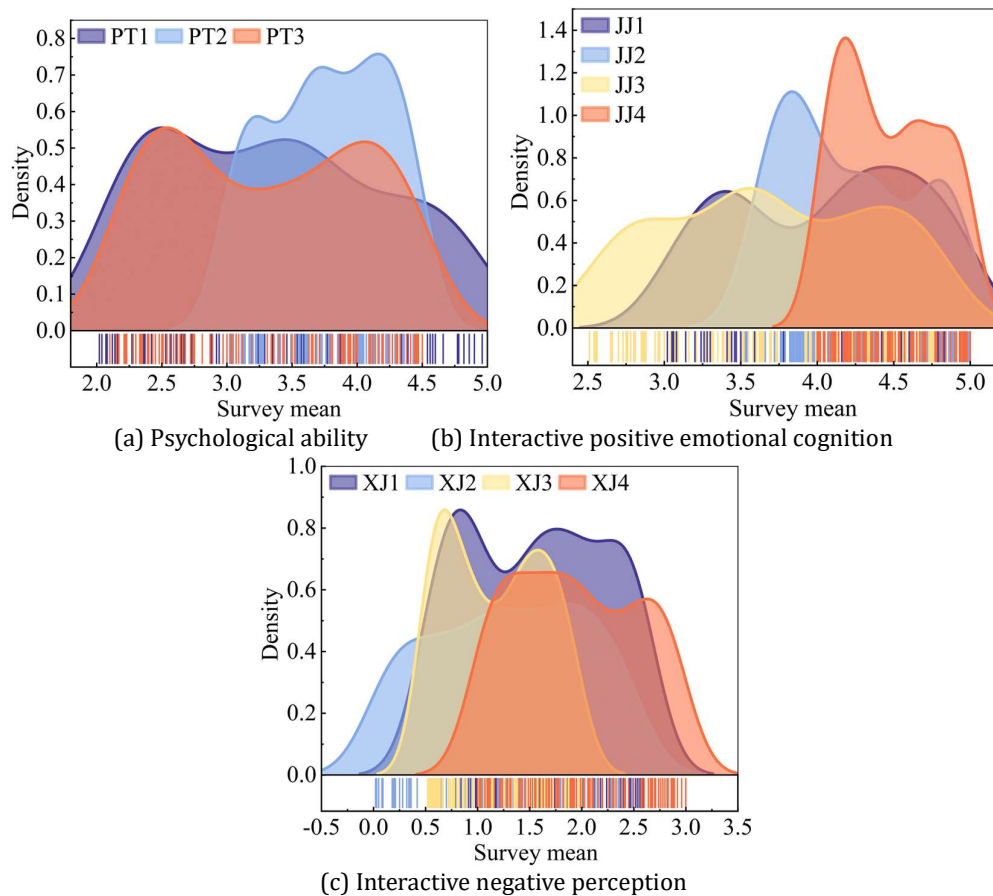


Fig. 1. Descriptive statistics of variable measurement items

4.2.2. Correlation analysis. In this section, the Spearman correlation test [28] will be used to explore the correlation between two different dimensions of interactional affective cognition (positive emotional cognition as well as negative emotional cognition) and the psychological carrying capacity of community residents in the Beidaihe Ecotourism Innovation Demonstration Zone. Considering that the questionnaire receipts may contain outliers or exhibit nonlinear characteristics, Spearman's correlation coefficient became the preferred method to analyze the relationship between these data. Spearman's correlation coefficient is a statistical index that measures the degree of linear correlation between two variables, with a value between -1 and 1, with values close to 1 or -1 indicating the existence of a strong positive or negative linear relationship between the variables. The results of Spearman's correlation test are shown in Figure 2. According to the correlation coefficients in Figure 2, it can be seen that the Spearman correlation coefficients between satisfaction, happiness, pride, anticipation and psychological carrying capacity in the positive emotional perception of the community residents in the Beidaihe Ecotourism Innovation Demonstration Area are all positive ($r > 0$), and most of them show positive correlations of medium to high degree. Among them, the correlation coefficients between satisfaction emotion and tourism development support, emotional stability and psychological adjustment ability are 0.618, 0.321 and 0.708, respectively, and this result is statistically very significant ($p\text{-value} < 0.001$). This indicates that when the satisfaction emotion of community residents rises, the performance of psychological carrying capacity also tends to be at a high level. From the results of the correlation analysis between negative emotion perception and psychological carrying capacity, the correlation between negative emotion and psychological carrying capacity is negative ($r < 0$), and this result is also statistically significant ($P\text{-value} < 0.001$). This indicates that when the community residents of Beidaihe Ecotourism Innovation Demonstration Zone have a negative tendency towards ecotourism interaction emotions, their psychological carrying capacity is also

reduced accordingly. Taken together, the cognitive state of ecotourism community residents' interactive emotions can influence the level of psychological carrying capacity.

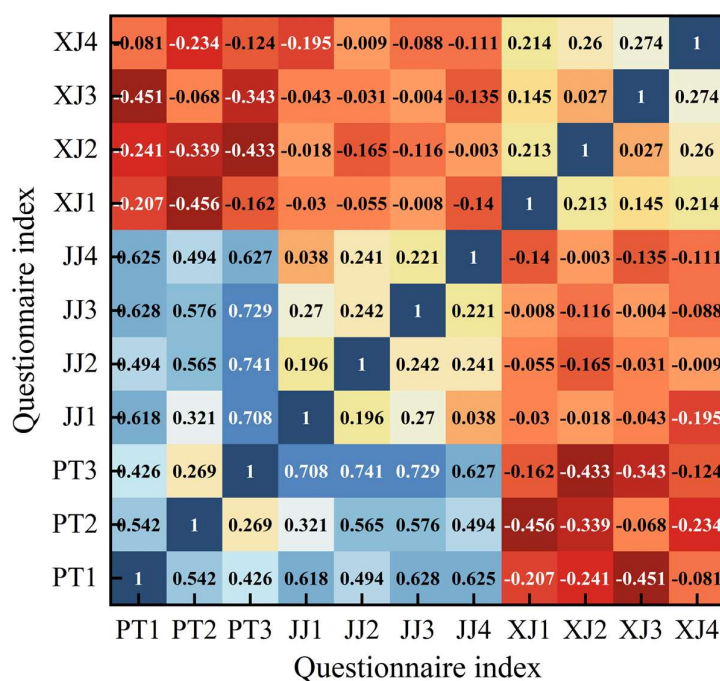


Fig. 2. Correlation analysis results

4.2.3. Linear regression analysis. In this section, linear regression analysis will be used to examine the relationship between community residents' interactive emotional cognition and the variables of psychological carrying capacity in the Beidaihe Ecotourism Innovation Demonstration Zone. Based on the above descriptive statistical analysis and correlation analysis, this paper chooses to conduct regression analysis on the scores of community residents' interactive emotional cognition and the scores of each variable of psychological carrying capacity. Before the regression analysis, first of all, the smoothness verification should be carried out to avoid the pseudo-regression problem, so the smoothness of each variable is tested by the ADF unit root test, and the results of the ADF test are shown in Table 3. The results of the ADF test show that the community residents' positive affective cognition, negative affective cognition, and psychological carrying capacity have passed the smoothness test, and the results are significant ($P=0.000$). Therefore, the relationship between community residents' interactive emotional cognition and psychological carrying capacity can be analyzed using a linear regression model that includes a constant term.

Table 3. Results of augmented dickey-fuller test

Variable	Difference order	t	P	Critical value		
				1%	5%	10%
PT1	0	-10.023	0.000	-3.526	-2.759	-2.635
PT2	0	-10.798	0.000	-3.526	-2.759	-2.635
PT3	0	-11.227	0.000	-3.526	-2.759	-2.635
JJ1	0	-13.022	0.000	-3.526	-2.759	-2.635
JJ2	0	-10.579	0.000	-3.526	-2.759	-2.635
JJ3	0	-14.649	0.000	-3.526	-2.759	-2.635
JJ4	0	-12.846	0.000	-3.526	-2.759	-2.635
XJ1	0	-14.753	0.000	-3.526	-2.759	-2.635
XJ2	0	-9.595	0.000	-3.526	-2.759	-2.635
XJ3	0	-13.43	0.000	-3.526	-2.759	-2.635
XJ4	0	-11.848	0.000	-3.526	-2.759	-2.635

The results of linear regression analysis between the emotional cognition and psychological carrying capacity of community residents are shown in Table 4, the results of linear regression analysis between emotional stability and emotional stability are shown in Table 5, and the results of regression analysis between emotional adjustment ability and psychological adjustment ability are shown in Table 6. The regression models of interactive affective cognition passed the significance test ($P=0.000$), indicating that there was a significant linear relationship between them and the psychological carrying capacity of community residents. From the perspective of the explanatory power of the model, although all affective cognitive dimensions show significant explanatory power for mental carrying capacity, there are differences in their explanatory power. Specifically, in the regression test model of tourism development support, JJ2 "happiness" showed the strongest explanatory power, and its goodness-of-fit R^2 was 0.300, which means that the model could explain about 30.0% of the variance in the change of tourism development support variables in the psychological carrying capacity of residents in ecotourism communities. XJ3 "disgust" has the highest ability to explain emotional stability in psychological carrying capacity, and its goodness of fit of R^2 is 0.240. In terms of the influence of psychological adjustment ability variables in psychological carrying capacity, JJ4 "expectation feeling" has the weakest explanatory ability, and its goodness of fit R^2 is 0.152.

Table 4. Results of the linear regression analysis (PT1)

Variable	Nonnormalized coefficient		Normalization factor	t	P	R^2	Adjust R^2
	B	Standard error	Beta				
JJ1	0.502	0.035	0.502	13.735	0.000	0.218	0.216
JJ2	0.37	0.032	0.37	19.809	0.000	0.300	0.301
JJ3	0.49	0.033	0.49	14.452	0.000	0.256	0.256
JJ4	0.351	0.039	0.351	17.883	0.000	0.290	0.287
XJ1	-0.528	0.033	-0.528	16.472	0.000	0.167	0.165
XJ2	-0.522	0.04	-0.522	14.745	0.000	0.145	0.145
XJ3	-0.443	0.031	-0.443	16.399	0.000	0.163	0.163
XJ4	-0.356	0.03	-0.356	12.544	0.000	0.174	0.175

Table 5. Results of the linear regression analysis (PT2)

Variable	Nonnormalized	Normalization	t	P	R^2	Adjust R^2
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	coefficient		factor				
	B	Standard error	Beta				
JJ1	0.559	0.037	0.558	17.605	0.000	0.200	0.200
JJ2	0.495	0.035	0.495	13.034	0.000	0.138	0.138
JJ3	0.568	0.03	0.568	12.918	0.000	0.144	0.144
JJ4	0.499	0.035	0.499	15.661	0.000	0.199	0.199
XJ1	-0.430	0.033	-0.425	12.986	0.000	0.226	0.226
XJ2	-0.372	0.032	-0.377	15.111	0.000	0.170	0.170
XJ3	-0.558	0.034	-0.558	11.8	0.000	0.240	0.240
XJ4	-0.529	0.031	-0.529	19.644	0.000	0.162	0.162

Table 6. Results of the linear regression analysis (PT3)

Variable	Nonnormalized coefficient		Normalization factor	t	P	R^2	Adjust R^2
	B	Standard error	Beta				
JJ1	0.518	0.033	0.516	18.973	0.000	0.284	0.285
JJ2	0.428	0.039	0.428	18.913	0.000	0.171	0.171
JJ3	0.395	0.039	0.395	17.324	0.000	0.299	0.299
JJ4	0.414	0.035	0.414	17.919	0.000	0.152	0.152
XJ1	-0.464	-0.033	0.461	19.584	0.000	0.187	0.184
XJ2	-0.397	-0.034	0.395	15.4	0.000	0.215	0.219
XJ3	-0.374	-0.037	0.374	19.11	0.000	0.179	0.179
XJ4	-0.545	-0.037	0.546	19.887	0.000	0.247	0.245

5. Conclusion

This paper uses questionnaires to collect multivariate data on community residents' interactive emotional cognition and psychological carrying capacity of tourism development in case ecotourism sites, and calculates and analyzes the degree of influence of interactive emotional cognition on each variable of psychological carrying capacity.

1) The mean values of the psychological carrying capacity of community residents in the Beidaihe Ecotourism Innovation Demonstration Zone for the variables of support for tourism development, emotional stability, and psychological adjustment ability were 3.34, 3.77, and 3.30 points, respectively. And most of the community residents are not excluded from the local ecotourism development, and the negative emotional values are below 2.00 points.

2) Correlation analysis found that the correlation coefficients between community residents' positive interactive affective perceptions and their psychological carrying capacity variables were positive ($r > 0$), and there was a negative correlation between negative interactive affective perceptions and psychological carrying capacity ($r < 0$).

3) The regression model test shows that the regression model between interactive emotional cognition and psychological carrying capacity passes the significance test ($P = 0.000$), which indicates that there is a significant linear relationship between the two. Among them, the aversion in the negative affective cognition of community residents has the highest explanatory ability for the emotional stability variable in their psychological carrying capacity ($R^2 = 0.240$).

Based on the empirical results of this study, local ecotourism workers can, in the future, realize the benefits of ecotourism development to the people from emphasizing the interactive emotional

cognition of ecotourism community residents, promote community residents' participation in and support of tourism development, and enhance the health of ecotourism communities as well as the psychological carrying capacity of the residents for tourism development.

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