

Research Article

Hsiao-Hsien Lin[#], Tzu-Yun Lin[#], Chih-Cheng Lo, Chao-Yen Lin, Su-Fang Zhang, Po-Hsuan Wu, Qi-Yuan Li, I-En Tsai, Xue-Qi Yan, Jing-Hui Huang, and Gan-Hong Chen*

Adolescents' consumption intentions toward leisure tourism in high-risk leisure environments in riverine areas

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Abstract: This study investigated the effects of food culture on the economic and ecological development of rural rivers and adolescents' intentions toward tourism in high-risk leisure environments. The study applied a mixed-methods design. A questionnaire was designed and distributed to recruited

participants, and 900 responses were collected and analyzed, with SPSS 26.0 used to perform basic statistical validation and Pearson's correlation analysis. Structured interviews were conducted to collect the opinions of experts, tourists, and residents of the investigated areas. A multivariate analysis was used to analyze the results, which revealed that superior economic, societal, and ecological development is associated with greater leisure, tourism, and consumption intentions. However, varying levels of environmental literacy among tourists can present challenges. Problems such as tourism waste; overdevelopment; loss of historic architectural features; and pollution of water, forests, and air may deter young tourists from revisiting an area and diminish their willingness to engage in and share leisure experiences.

Keywords: environmental risk, leisure experience, special diet, rural economy, water pollution, consumer desire

[#] H. H. Lin and T. Y. Lin have equal contributions to this article.

* **Corresponding author: Gan-Hong Chen**, School of Finance and Business, Guangdong Meizhou Vocational and Technical College, 514011, Meizhou, Guangdong, China, e-mail: chenganhong0584@gmail.com

Hsiao-Hsien Lin: School of Physical Education, Jiaying University, Meizhou 514015, Guangdong Province, China, e-mail: chrishome12001@yahoo.com.tw

Tzu-Yun Lin: Department of Industrial Education and Technology, National Changhua University of Education, Changhua City, 500207, Taiwan, e-mail: lincoach8@gmail.com

Chih-Cheng Lo: Department of Industrial Education and Technology, National Changhua University of Education, Changhua City, 500207, Taiwan, e-mail: charleslo@cc.ncue.edu.tw

Chao-Yen Lin: School of Physical Education, Jiaying University, Meizhou 514015, Guangdong Province, China, e-mail: o981193168@gmail.com

Su-Fang Zhang: Tourism Management, Athena Institute of Holistic Wellness, WuYi University, No 26, WuYi Avenue, Wuyishan, Fujian, 354300, China, e-mail: Tina060513015627929@gmail.com

Po-Hsuan Wu: Department of Environmental Science and Engineering, National Pingtung University of Science and Technology, Pingtung 912301, Taiwan, e-mail: Peggy.wu.19918012@gmail.com

Qi-Yuan Li: School of Physical Education, Jiaying University, Meizhou 514015, Guangdong Province, China, e-mail: akestudio99990823@gmail.com

I-En Tsai: Department of Physical Education and Sport Sciences, National Taiwan Normal University, Taipei, 106209, Taiwan, e-mail: lic7172422@gmail.com

Xue-Qi Yan: School of Physical Education, Jiaying University, Meizhou 514015, Guangdong Province, China, e-mail: m13421136103@163.com

Jing-Hui Huang: School of Physical Education, Jiaying University, Meizhou 514015, Guangdong Province, China, e-mail: 18028767307@163.com

1 Introduction

Tourism activities can enable individuals to gain leisure benefits and can promote local economic development [1]; however, these benefits can be compromised in high-risk destinations where environmental uncertainties contribute to an unhealthy or unsafe tourism environment [1–3]. Since its onset in December 2019, the COVID-19 pandemic has considerably affected global health and increased the risks associated with travel [4]. The development of vaccines has improved human resilience to the virus and holds the potential to restore people's habitats [5]. Nevertheless, homogeneity in global tourism activities, driven by an over-reliance on natural landscapes and cultural monuments [6,7], along with heightened insecurity of tourism environments due to factors such as pandemics and climate anomalies, has increased environmental risks [6]. These risks have contributed to a decrease in tourist numbers and a consequent decline in economic revenue for tourist sites and adjacent rural communities, severely affecting the global

tourism industry [7]. In response to the changes associated with the COVID-19 pandemic, numerous governments have strengthened their vaccination campaigns and implemented stringent measures to manage the pandemic, with the aim of rejuvenating tourism and revitalizing the economies and development of local rural areas [8].

Rivers, with their abundant freshwater supplies, are vital for sustaining diverse ecosystems [9]. They have aesthetic appeal and create environments conducive to relaxation [4,9]. The Jinsha River, which runs through the mountains of western China, spans 2,308 km and has a watershed of 340,000 km². This river is rich in water resources and ecological diversity and thus provides neighboring towns with opportunities to enhance the development of their water resources, agriculture, industry, power generation, and tourism [10]. Lijiang City is located in northwest Yunnan Province, next to the Jinsha River. This city has a pleasant climate with four seasons, subtropical plateau weather, and a rich history. In addition, the city has a population of 1,305,400 [11]. Lijiang City is historically notable as a major military, commercial, and cultural hub and is known for its ancient structures and the cultures of its indigenous minority groups [12]. More specifically, the city is known for its insect food culture, which initially developed during a period of material scarcity [13]. The insect food culture in this region has developed into a cultural hallmark involving deep-fried insect delicacies, local dishes, and festivals. These features have become the city's main tourist attractions [11,13]. University students, who have a keen interest in leisure and exploration, have emerged as primary consumers in the leisure and tourism market [14]; they seek to broaden their horizons through adventures and exposure to novel experiences [15], which they are able to do because they have substantial leisure time [16]. Lijiang City attracts 18.38 million visitors each season, and the total tourism revenue of this city is US\$26.8 billion [11]. Lijiang City is currently recognized as a UNESCO World Cultural Heritage Site and is a world-renowned three-star tourist attraction [17]. This indicates that its local cultural traits are strategic assets that can be utilized to attract adolescents, foster the development of rural leisure, and drive economic progress. Figure 1 illustrates the location of Lijiang City.

Scholars such as Yen-Yin Hsu have argued that leveraging local attributes to foster tourism development can enhance rural economic development [18] and strengthen community awareness of environmental [19], cultural, and ecological resource conservation [9,19], which can in turn lead to greater interest from tourists [4,9,19,20], increase the public's willingness to arrange leisure or tourism activities, and increase awareness in leisure participation and consumption [21] and can thus achieve the goal of sustainable

riverine and rural development. However, predictions regarding the outcomes of developmental strategies or theories frequently diverge from actual results [22]. Moreover, such outcomes materialize and are validated over time, after the practical implementation of strategies [4,9]. Hence, insight into potential outcomes of strategies can best be derived by analyzing the perspectives of local residents and tourists [19,20]. However, studies exploring the effects of the rural economy, leisure pursuits, and consumption intentions within the context of minority cultures, insect food culture, and the Jinsha River are scant. Accordingly, to fill this research gap, the present study investigated the effects of the current state of economic, social, environmental, and ecological development on the leisure and consumption awareness of adolescents in rural riverine villages that leverage their food culture to promote tourism in high-risk tourism environments. We used Lijiang City as a case study. The findings of this study can improve awareness of distinctive culinary culture, improve public awareness regarding leisure and consumption, stimulate rural economic and leisure development, and facilitate the sustainable development of rivers and rural communities. Hence, our findings have academic and practical value.

2 Methodology

This study investigated the effects of economic, social, environmental, and ecological development on the leisure and consumption awareness of adolescents in riverine villages that have leveraged their distinctive culinary culture to promote tourism in high-risk tourism environments. Our literature review revealed that leveraging local ecological or cultural attributes for tourism development in rural areas can stimulate the local economy, foster social exchange, enhance community well-being, and promote ecological conservation. However, potential adverse effects, such as economic disruption, public disorder, and environmental degradation [4,9,18–20], may influence individuals' intentions to engage in leisure and may alter consumption intentions [21].

On the basis of our literature review, we proposed the following hypotheses:

Hypothesis 1 (H1): The current state of economic development enhances young people's willingness to engage in recreation and tourism in rural villages that have leveraged their local food culture to promote tourism.

Hypothesis 2 (H2): The current state of social development enhances young people's willingness to engage in recreation and tourism in rural villages that have leveraged their local food culture to promote tourism.

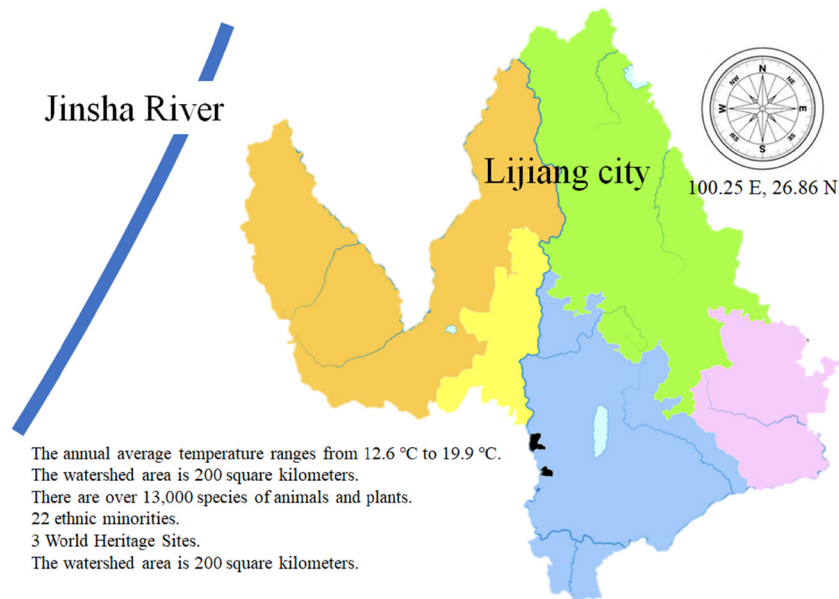


Figure 1: Location of Lijiang city.

Hypothesis 3 (H3): The current state of environmental development enhances young people's willingness to engage in recreation and tourism in rural villages that have leveraged their local food culture to promote tourism.

Hypothesis 4 (H4): The current state of ecological development enhances young people's willingness to engage in recreation and tourism in rural villages that have leveraged their local food culture to promote tourism (Figure 2).

A mixed-methods research approach is typically used in studies in disciplines such as sociology and psychology on single or multiple topics. In this approach, qualitative and quantitative methods are applied sequentially to develop research questions, collect and analyze data, and interpret findings [21]. The present study applied a mixed-methods design to investigate the effects of the current states of economic, social, environmental, and ecological development on the public's leisure and consumption awareness of Lijiang City, which is adjacent to the Jinsha River. The reason for

the adoption of mixed-methods design is outlined in the following: Scholars have reported that single-method research in one domain can yield reliable, rigorous, and valid conclusions [22,23]. However, interdisciplinary research necessitates the integration of various fields, subjects, and dimensions to ensure comprehensive analysis [24]. Accordingly, with consideration of the potential of local food culture to supplement riverine tourism resources and sustain socioeconomic development in high-risk environments, the present study applied a mixed-methods design to obtain a more nuanced understanding of its data processed through compilation, categorization, and comparison [25–28].

First, we reviewed the literature on Lijiang City focusing on the tourism appeal of its food and beverage specialties and its unique insect-based diet [11–17]. Subsequently, we developed a questionnaire on the basis of the literature on economic, social, environmental, and ecological development as well as that on leisure and consumption

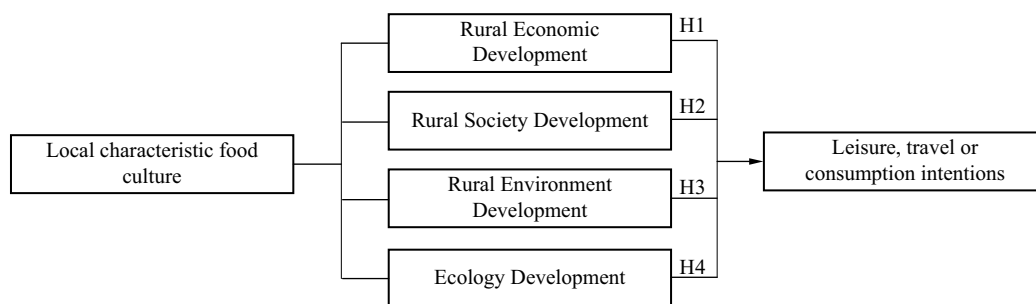


Figure 2: Research framework.

awareness [4,9,19,20,24,29,30]. Purposive sampling was used to recruit adolescents who had leisure or travel experience and expressed a willingness to participate in interviews; gift vouchers were offered as an incentive. A snowball sampling approach was used; in this approach, respondents referred individuals who met the inclusion criteria. The developed questionnaire was distributed in November and December 2022 through an online questionnaire platform. After the removal of invalid responses, 900 valid samples were retained and analyzed. The data from the questionnaire were analyzed using SPSS Statistics 26.0. The validity of the questionnaire and its items was confirmed using several criteria. Specifically, according to Wang *et al.*, questionnaire items for which the Kaiser–Meyer–Olkin (KMO) value is >0.06 and Bartlett’s test significance level is <0.01 ($p < 0.01$) are suitable for factor analysis [31]. Moreover, questionnaire items for which the Cronbach’s α value is >0.60 in subsequent tests are considered highly reliable and can be used for further analysis [32,33]. In the present study, the questionnaire items met these criteria, confirming the high reliability of the questionnaire for subsequent analysis. The analytical results are presented in Table 1.

The questionnaire comprised two sections: the first addressed background variables, such as the respondent’s identity (resident or tourist) and gender (male or female);

the second part evaluated the effects of economic (9 items), social (13 items), environmental (4 items), and ecological (6 items) factors, as well as the willingness to engage in recreation and tourism (3 items). Three experts conducted a content validity assessment of the draft questionnaire. Subsequently, 100 young volunteers completed the draft questionnaire, and a reliability and validity assessment was conducted using SPSS Statistics 22.0. The assessment results confirmed that the KMO and Bartlett’s test values for each variable met the required criteria, and the Cronbach’s α values for the economic factor ($\alpha > 0.700$), social factor ($\alpha > 0.740$), environmental factor ($\alpha > 0.730$), ecological factor ($\alpha > 0.780$), and willingness to engage in leisure and tourism ($\alpha > 0.820$) were all >0.6 . These results indicate that the questionnaire met the necessary criteria and was thus highly reliable.

Nine respondents with diverse backgrounds, that is, who were academics, local government officials, tourists, young visitors, and residents, were recruited to participate in semistructured interviews. The interviews were designed to elicit personal opinions that would complement the findings derived from the questionnaire analysis. The gathered information was subjected to a meticulous process of categorization, ranking, integration, comparison, and discussion through multivariate analysis. The details regarding the

Table 1: Analysis of questionnaire items

Construct	KMO (χ^2/DF)	Issues	α
Economic impact awareness	0.453 (82.137/36)*	Increase in tourism facilities (E1); development of leisure industry (E2); creation of special products (E3); maintenance of public facilities (E4); increase in employment (E5); increase in income (E6); increase in prices (E7); improvement of medical quality (E8); improvement of protection policies (E9).	0.700–0.710
Social impact awareness	0.521 (356.172/78)*	Increase in popularity (S1); increase in quality of tourism services (S2); increase in quality of leisure activities (S4); increase in leisure opportunities (S5); increase in people’s willingness to participate in the community (S5); adequate tourism signs (S6); diversification of private tourism organizations (S7); promotion of young people’s willingness to return to their hometowns (S8); emphasis on humanistic conservation (S9); strengthening historical or monument maintenance (S10); promotion of friendly interactions among people (S11); presence of sufficient security personnel (S12); availability of sufficient parking or resting spaces (S13).	0.740–0.798
Environmental impact awareness	0.512 (20.187/6)*	Damaged village environment (En1); improved accessibility (En2); excessive tourism waste (En3); a sufficient number of public trash cans (En4).	0.730–0.770
Ecological impact awareness	0.544 (58.872/15)*	Increase in water waste (Eco1); increase in water oil pollution (Eco2); overdevelopment of land (Eco3); destruction of habitats (Eco4); destruction of forests and vegetation (Eco5); air pollution (Eco6).	0.780–0.800
Leisure, travel, and consumption intentions	0.463 (1067.425/3)*	Willingness to re-engage in leisure, tourism, or consumption activities (CW1); willingness to share consumption experiences (CW2); willingness to recommend experiences to family and friends (CW3).	0.820–0.866

* $p < 0.000$.

Table 2: Respondents' backgrounds and interview topics

Professional background or age		Status	Professional background and qualifications	Status	Professional background and qualifications	Status
1	Tourism decision analysis	Professor	4 Decision-making and administrative business	Village Chief	7 Tourism industry	Business owner
2	Water sustainability	Professor	5 18 years old	Tourist	8 20 years old	Tourist
3	60 years old	Resident	6 25 years old	Resident	9 24 years old	Resident
Structure		Topics				
The impact of rural economic and ecological development on adolescents' leisure, tourism, and consumption intentions		What are the main reasons for current economic development, social development, environmental development, and ecological development interfering with the leisure, tourism, and consumption intentions of young people in rural areas that have leveraged their local food culture for tourism development? Please briefly explain.				

interviewees and the topics addressed are presented in Table 2.

3 Results and analysis

We used SPSS Statistics 26.0 to conduct basic validation checks on the 900 valid samples. Among the respondents, 249 (27.7%) were residents, and 651 (72.3%) were tourists. Moreover, 249 (27.7%) respondents were men, and 651 (72.3%) were women. Therefore, our sample involved a predominance of female participants and tourists.

The Pearson product-moment correlation coefficient (PPMCC) was used to analyze the correlations of the current economic, social, environmental, and ecological development of rural villages with the leisure, tourism, and consumption intentions of adolescents after the promotion of tourism with a focus on local food and beverage culture. The results indicated that the status of economic (0.038), social (0.092), and ecological (0.151) development significantly correlated ($p < 0.05$) with adolescents' leisure, tourism, and consumption intentions.

Further analysis revealed that public facilities (0.077) affected the respondents' leisure, travel, and consumption intentions. The labor market (0.104) affected the respondents' willingness to recommend their tourism experiences to family members and friends. Improvements in tourism service quality (0.095), the adequacy of tourism signs (0.101), and initiatives to encourage young people to revisit their hometowns (0.071) affected the respondents' desire for leisure, tourism, and consumption. Improving the quality of leisure activities (0.068), ensuring the preservation of historical sites or monuments (−0.067), and providing sufficient security personnel (0.070) influenced the respondents' willingness to share their experiences. Improvements in tourism service quality (0.069), initiatives to encourage young people to revisit their hometowns (0.092), and provision of adequate parking or resting areas (0.072) influenced the respondents' desire to recommend their experiences to friends and relatives. Factors such as excessive tourism waste (−0.115), increased water waste (0.131), forest and vegetation destruction (0.109), and air pollution (0.095) negatively influenced the respondents' leisure, tourism, and consumption intentions. Overdevelopment of land (0.069), destruction of biological habitats (0.095), destruction of forests and vegetation (0.099), and air pollution (0.080) also affected the desire to share experiences. Tourism waste overflow (−0.167), increased water waste (0.152), destruction of forest and vegetation (0.075), and air pollution (0.087) also negatively influenced the respondents' willingness to recommend their

experiences to friends and relatives. The results of the analysis are detailed in Table 3.

4 Discussion

According to our results, the current state of the economic, social, and ecological development in rural areas can influence the leisure, tourism, and consumption intentions of young people in villages that have leveraged their food and beverage culture to promote tourism; therefore, H1, H2, and H4, but not H3, were supported. These results are consistent with findings in the literature [4,9,17,18].

We believe that the abundance and ecological variety of Jinsha River along with the unique cultures of the ethnic minorities and insect cuisine of the region considerably enhance the distinctiveness of the area's tourism offerings and augment its appeal to younger tourists. Investments by the local government in improving infrastructure and conservation of ecological and cultural resources have been instrumental in refining the tourism environment and preserving the diversity of tourism resources [9,14]; these efforts have enhanced the area's tourism reputation, fostered cultural exchanges, stimulated economic development, and improved the rural living environment amidst high-risk conditions. The study findings indicate that raising ecological conservation awareness and maintaining ecological diversity can enhance trust among adolescents making tourism-related decisions and can ensure a collective commitment to preserving the local environment and tourism resources, which can provide positive leisure experiences and lead to repeat consumption. This thus explains why effective economic, social, and ecological development can enhance leisure, tourism, and consumption intentions in rural villages that have leveraged their unique food culture to promote tourism.

We also demonstrated that public facilities, tourism service quality, tourism signs, adolescents wishing to return to their hometown, tourism waste, and water waste influence adolescents' leisure, tourism, and consumption intentions. This finding is inconsistent with those in the literature [4,9,14,18].

We believe that leveraging local food culture and river ecology, along with improving leisure facilities and the tourism environment, can enhance the attraction of a tourism site and can lead to positive tourism experiences. Such actions are pivotal in advancing local economic growth, enhancing residents' well-being, and achieving the objectives of rural tourism development. The current results indicate that the more meticulously public facilities,

service quality, and signage are planned in tourist regions, the more they enhance the tourism experience, which in turn stimulates consumption and drives economic activity. Moreover, robust economic development and greater business opportunities increase young people's willingness to return to their hometowns [9,14,18]. However, although tourism generates business, it also incurs a substantial amount of waste, which can negatively affect communities, rivers, and surrounding ecological environments [4,18]; this can lead to negative tourism experiences and affect consumer intentions. This may explain why a location having more public facilities, higher tourism service quality, more tourism signs, and a higher likelihood of encouraging young people to return to their hometowns positively influences young tourists' leisure, tourism, and consumption intentions. This may also explain why water waste and rural waste influence consumption intentions.

Our results indicate that the quality of leisure activities, preservation of historical monuments, presence of security personnel, overexploitation of land, destruction of biological habitats, destruction of forests and vegetation, and air pollution influence young people's willingness to share their tourism experiences. This finding is inconsistent with those in the literature [4,9,14,18].

We believe that a comfortable recreational atmosphere, a safe tourist environment, and diverse tourist attractions can increase the public's consumption intentions. These elements are critical in advancing tourism and mitigating local developmental challenges. However, in their efforts to maximize developmental gains and meet tourist demands, local governments and businesses may overextend tourism development, which can result in the degradation of native woodlands and vegetation [4,9]. In addition, excessive modernization of rural architecture to satisfy consumer preferences can lead to the erosion of original architectural features and ambience, and this may diminish local character [14]. This may explain why the quality of leisure activities, presence of security personnel, overexploitation of land, destruction of biological habitats, destruction of forests and vegetation, and air pollution influence young people's willingness to share their tourism experiences. This may also explain why the loss of the original characteristics of reconstructed historical monuments may negatively influence young people's willingness to share their leisure experiences.

Our results also reveal that the labor market, tourism service quality, young people's desire to return to their hometowns, parking or open spaces, tourism waste, water waste, forest and vegetation destruction, and air pollution influence young people's willingness to recommend their experiences to family members and friends. This finding is inconsistent with those in the literature [4,9–11,18].

Table 3: Results regarding correlations of current economic, social, environmental, and ecological development with adolescents' leisure, tourism, and consumption intentions

	E1	E2	E3	E4	E5	E6	E7	E8	E9
Economic									
Leisure, travel, or consumption intentions	0.038*	0.060	-0.036	0.021	0.077*	0.051	-0.052	-0.061	-0.003
Willingness to spend again	0.037	0.034	-0.030	0.003	0.054	0.064	-0.026	-0.057	0.015
Willingness to share experience	0.014	0.059	-0.018	0.049	0.086*	-0.050	-0.045	-0.035	-0.033
Willingness to recommend experience to friends and family	0.033	0.039	-0.033	-0.007	0.028	0.104**	-0.044	-0.042	0.012
									0.042
Social									
	S1	S2	S3	S4	S5	S6	S7	S8	S9
Leisure, travel, or consumption intentions	0.092**	0.027	0.095**	0.038	-0.042	-0.031	0.101**	0.027	0.071*
Willingness to spend again	0.006	0.420	0.004	0.249	0.206	0.353	0.002	0.420	0.033
Willingness to share experience	0.050	-0.026	0.056	0.068*	0.042	-0.027	0.048	0.043	0.009
Willingness to recommend experience to friends and family	0.081*	0.018	0.069*	0.005	-0.049	-0.008	0.065	-0.001	0.092**
									0.009
									0.055
									0.020
									-0.041
									0.070*
									-0.012
									0.072*
Environmental									
	En1	En2	En3	En4	En5	En6	En7	En8	En9
Leisure, travel, or consumption intentions	-0.064	0.003	-0.115**	0.017	0.151**	0.131**	0.017	0.047	0.109**
Willingness to spend again	0.056	0.283	0.001	0.608	0.000	0.000	0.610	0.161	0.551
Willingness to share experience	0.038	0.042	0.018	-0.013	0.135**	0.010	0.017	0.069*	0.099**
Willingness to recommend experience to friends and family	-0.116**	-0.040	-0.042	-0.167**	0.010	0.152**	0.023	0.001	-0.015
									0.075*
									0.087**
									0.095**
									0.004
									0.080*
									0.087**

* $p < 0.05$; ** $p < 0.01$.

The diverse ecology of the Jinsha River and the food culture and cuisine of the ethnic minorities of the region, along with related tourism products, offer broad appeal, thus providing diverse tourism resources and business opportunities; these advantages can be considered to improve tourism facilities, enhance the quality of tourism services, and increase public consumption. Moreover, such diversity can lead to additional business and employment opportunities, which enhance young people's willingness to settle and develop in their hometowns. The government has launched a project aimed at enhancing the cleanliness of scenic areas and community landscapes [34] and has encouraged enterprises to explore leisure and green energy technology to improve the local environmental landscape and community hygiene [35]. However, the development of tourism and evolving consumer demands have led to varying degrees of environmental conservation awareness [4,9]. Tour operators frequently rely on disposable packaging, which is convenient, and because of disparities in tourists' environmental literacy, an insufficiency of waste bins in scenic areas, and littering, tourism leads to the generation of considerable waste; this can severely affect the rural environment and river ecology, potentially leading to damage [9,18]. Such effects may result in unsatisfactory consumer experiences among young consumers, which reduces their willingness to share their experiences and to recommend travel experiences to friends and relatives. This may explain why a stronger labor market, higher tourism service quality, a stronger desire among young people to return to their hometowns, and more parking or open spaces influence young people's willingness to recommend their experiences to friends and relatives. This may also explain why severe river and scenic area waste, forest and vegetation destruction, and air pollution negatively influence young tourists' willingness to share their consumption experiences and their willingness to encourage their friends and relatives to visit tourism spots.

5 Conclusion

The current study demonstrated that leveraging local food culture and commodities can effectively enhance the attractiveness of tourism in riverine villages. This strategy can effectively lead to improvements in the quality of local tourism infrastructure and services and can stimulate business opportunities, stabilize economic growth, foster a safe and engaging leisure environment, and improve the attractiveness of local tourism, which can encourage young people to participate in leisure consumption. However, because of disparities in environmental literacy among tourists,

littering is common in tourism areas, and it can compromise the natural beauty, ecosystem integrity, and community environmental quality of the areas. Additionally, an excessive focus on tourism development in rural villages, along with the construction of numerous modern buildings, has resulted in the loss of historic structures and their unique features, as well as a deterioration in water, forest, and air quality. These problems have led to negative consumption experiences and have influenced young people's willingness to establish businesses in their hometowns, participate in recreational activities, or share their leisure experiences. To address these challenges, we recommend that additional environmental education signs be employed to improve tourists' environmental literacy; more waste bins be provided in scenic spots; the use of reusable shopping bags be encouraged to minimize waste; distinct architecture be employed in the planning of local tourism zones to preserve local characteristics; and original water and forest spaces be conserved. Public transportation could also be used to reduce emissions. Implementing these measures is likely to enhance the development of local leisure and tourism industries, enhance young people's willingness to consume leisure tourism, and contribute to the sustainability of river and rural areas. Although the present study used a mixed-methods research approach involving interviews and a questionnaire survey, some limitations of the study warrant consideration. For example, this study focused on adolescents' perceptions of economic, social, environmental, and ecotourism development impacts on rural areas and their willingness to engage in recreation. Such individuals may not have sufficient professional knowledge or awareness to provide informed responses. Moreover, research on this topic is limited. Therefore, we recommend that future studies explore related topics, such as adolescents' understanding of environmental impacts and their environmental sensitivity.

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