

INFLUENCING FACTORS OF CYCLING TOURISM CONSUMPTION INTENTION OF COLLEGE STUDENTS IN YULIN, CHINA

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ABSTRACT

The purpose of this study is to explore the influencing factors of consumption intention towards cycling tourism among college and university students in Yulin City, China, based on the Theory of Planned Behavior (TPB). A quantitative research method was adopted, using a structured questionnaire. Data were collected from 400 undergraduate students in Yulin via stratified random sampling, employing a hybrid online-offline approach. The survey instruments measured behavioral attitude, subjective norms, perceived behavioral control (the three core TPB constructs), and cycling tourism consumption intention using validated 5-point Likert scales. Demographic factors (gender, age and monthly income) were included as control variables. Data analysis involved descriptive statistics, independent-samples t-tests, one-way ANOVA, and multiple regression analyses using SPSS 26.0. The results revealed that two of the three TPB factors significantly affect consumption intention. Perceived behavioral control was the most significant predictor ($\beta = 0.523$, $p < 0.001$), followed by subjective norms ($\beta = 0.363$, $p < 0.001$). Contrary to theoretical expectations, behavioral attitude was not significantly related to consumption intention ($\beta = -0.004$, $p = 0.941$). Furthermore, no significant differences in consumption intention were found across gender, age, or income categories. This study bridges an empirical gap by applying the TPB to the niche context of cycling tourism among university students in a non-metropolitan Chinese city (Yulin). It challenges the universal predictive power of attitude in TPB within this specific setting and highlights the paramount importance of perceived feasibility and social influence. The findings offer novel insights for destination marketers and policymakers, suggesting a strategic shift from promoting generic benefits to reducing practical barriers and leveraging social networks. For local tourism enterprises and policymakers, the study recommends focusing on: 1) Enhancing perceived behavioral control through affordable rental packages, skill-training workshops, and improved infrastructure; 2) Leveraging subjective norms via social media campaigns and community events; 3) Shifting marketing messaging from "value advocacy" to "ease of access and social popularity"; 4) Adopting universal targeting strategies for the student population.

Keywords: Cycling Tourism, Consumption Intention, College Students, Theory of Planned Behavior, Yulin City, Sustainable Tourism

INTRODUCTION

Under the influence of globalization and the global push for sustainable development, the tourism industry is undergoing a significant transition towards low-carbon and environmentally friendly models. According to data from the United Nations World Tourism Organization (UNWTO), global tourism-related carbon emissions accounted for approximately 8% of total global emissions in 2023. This pressing environmental context has catalyzed the search for alternative, sustainable travel modes. Cycling tourism – characterized by zero direct carbon emissions, health benefits, and strong experiential value – is increasingly recognized as a viable and effective approach to sustainable tourism development. Research indicates that cycling tourism not only contributes to alleviating urban traffic congestion and reducing pollution but also enables tourists to engage in deeper, more immersive experiences with destinations, fostering a unique connection with local culture and natural landscapes (Ciascai et al., 2022).

University students represent a critical demographic within the tourism market. As a youth cohort with growing consumption potential, they exhibit distinct characteristics in their travel patterns and preferences. They actively pursue personalized, experience-oriented consumption, place a high value on health and wellness, and are heavily influenced by the social and sharing aspects of travel activities. Their adoption of sustainable practices can have a long-term impact on future travel trends. However, existing academic research on student travel behavior has predominantly focused on traditional tourism models (e.g., budget travel, cultural tourism) or has been conducted in first-tier and major metropolitan cities. There remains a notable research gap concerning niche tourism markets, such as cycling tourism, particularly in second- and third-tier cities in China. The formation mechanism of consumption intention towards cycling tourism among university students in such regions, and specifically the interplay and relative importance of key factors from behavioral theories such as attitude, subjective norms, and perceived behavioral control, requires more granular investigation.

Yulin City, located in southwestern China, is an ideal context for this study. The city boasts rich natural landscapes, including scenic mountainous areas and rivers, which provide a solid foundation for developing cycling routes. In recent years, the local government has actively promoted the construction of cycling greenways and eco-tourism initiatives. Preliminary data suggests a growing interest in cycling tourism; for instance, in 2022, the number of cycling tourists in Yulin increased by 35% compared to the previous year, with university students constituting a substantial 42% of this growth (Yulin Municipal Tourism Bureau, 2023). Despite this positive trend, significant challenges persist. These include resource constraints faced by students (limited disposable income, time pressures from academics), undeveloped social norms surrounding cycling as a leisure tourism activity, and a noticeable gap between generally positive attitudes towards cycling and the actual conversion into consumption behavior.

To systematically investigate these mechanisms, this study focuses on college students in Yulin City and is guided by the following research questions:

RQ1: To what extent do demographic factors (gender, age and monthly income) influence college students' consumption intention for cycling tourism?

RQ2: What is the impact of behavioral attitude towards cycling tourism on college students' consumption intention?

RQ3: What role do subjective norms play in shaping cycling tourism consumption intention among college students?

RQ4: How does perceived behavioral control affect college students' intention to engage in cycling tourism?

This research aims to bridge the identified empirical gap in the literature regarding cycling tourism in non-metropolitan Chinese cities. The findings are anticipated to offer actionable, evidence-based recommendations for various stakeholders: local tourism enterprises to optimize product and service design; municipal governments and planners to improve cycling-related infrastructure and policies; and educational institutions to promote a green travel culture among youth. Theoretically, the study seeks to enrich and potentially challenge the application of the Theory of Planned Behavior (TPB) in the specific context of an emerging low-carbon tourism mode within a distinct socio-cultural and geographical setting.

LITERATUR REVIEW AND HYPHOTHESES DEVELOPMENT

Theoretical Foundation: Theory of Planned Behavior (TPB)

This study employs the Theory of Planned Behavior (TPB) as its primary theoretical and analytical framework. Proposed by Icek Ajzen (1991), the TPB is one of the most influential and widely applied models for predicting and understanding human social behavior. The core premise of TPB is that an individual's behavioral intention—the immediate antecedent to actual behavior—is jointly determined by three conceptually independent factors:

1. **Attitude toward the behavior:** This refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. It encompasses beliefs about the outcomes of performing the behavior and the value attached to those outcomes. In the context of cycling tourism, attitude would involve evaluations of its perceived benefits (e.g., health improvement, environmental friendliness, enjoyment, cost savings) and drawbacks (e.g., physical exertion, weather dependence, safety concerns).
2. **Subjective norms:** This factor refers to the perceived social pressure to perform or not perform the behavior. It incorporates *injunctive norms* (beliefs about what significant others think one should do, such as family, friends, or societal expectations) and descriptive norms (perceptions of what significant others are actually doing). In collectivist cultures like China, the influence of family and peer groups is often particularly potent.
3. **Perceived behavioral control (PBC):** PBC refers to the perceived ease or difficulty of performing the behavior, which is assumed to reflect experience as well as anticipated impediments and obstacles. It encompasses the individual's perception of their control over required resources (e.g., time, money, equipment, skills) and opportunities. A high level of PBC implies that the individual feels capable of executing the behavior despite potential barriers.

The TPB posits that these three factors—attitude, subjective norms, and PBC—combine to influence behavioral intention, with intention being the most proximal determinant of actual behavior. The model has been successfully applied across diverse fields, including tourism, to predict intentions related to eco-friendly travel, destination choice, and sustainable tourism activities (Han et al., 2020; Lam & Hsu, 2005).

Cycling Tourism and Youth Consumption

Cycling tourism is defined as tourism that involves cycling as a significant part of the holiday or leisure experience. It ranges from day trips to long-distance tours and is associated with slow travel, physical activity, and environmental sustainability (Ciascai et al., 2022). Research on cycling tourism has explored its economic impacts, environmental benefits, and participant motivations, which often include health, freedom, exploration, and challenge (Gossling et al., 2019).

The youth market, particularly university students, represents a crucial segment for cycling tourism's growth. Students are typically more health-conscious, environmentally aware, and budget-sensitive. They seek authentic, adventurous experiences that also offer opportunities for social interaction and sharing on digital platforms. Studies have begun to examine young adults' travel behavior, noting their increasing preference for flexible, independent, and sustainable modes of travel. However, detailed investigations into the psychological determinants of their intention to consume cycling tourism products, especially in developing regional contexts, remain scarce.

Demographic Factors and Travel Intention

Demographic variables are traditionally considered fundamental in market segmentation and consumer behavior analysis. In tourism, factors such as gender, age, and income are often hypothesized to influence travel preferences, constraints, and ultimately, intentions.

1. **Gender:** Some studies suggest gender differences in travel behavior, with males potentially showing a higher preference for adventure and risk-taking activities like mountain biking, while females might prioritize safety, comfort, and social aspects. However, findings are inconsistent, and other studies in sustainable tourism contexts find minimal gender differences in intention (Kim et al., 2020).
2. **Age:** Age is linked to life stage, physical capability, and discretionary time. Younger adults (such as university students) are generally more physically active and open to new experiences, but may face different time constraints (e.g., academic schedules) than older adults.
3. **Income:** Disposable income is a critical resource factor that directly affects an individual's ability to participate in tourism activities. For students, who typically have limited financial resources, income is likely a significant practical constraint affecting their perceived ability to engage in cycling tourism, which may involve equipment rental, accommodation, and other costs.

Despite their intuitive appeal, empirical evidence on the direct impact of demographics on specific behavioral intentions, such as cycling tourism, is mixed, suggesting that psychological factors from models like TPB may be stronger predictors. Nevertheless, we test their potential moderating or direct effects.

H1: Demographic factors have a significant impact on college students' consumption intention for cycling tourism.

H1a: Gender has a significant impact on cycling tourism consumption intention.

H1b: Age has a significant impact on cycling tourism consumption intention.

H1c: Monthly disposable income has a significant impact on cycling tourism consumption intention.

Hypotheses Based on the Theory of Planned Behavior

Behavioral Attitude (BA)

Attitude is a central construct in most social psychological models of behavior. A positive attitude towards a behavior forms when an individual believes that performing it will lead to mostly positive outcomes. In the domain of sustainable and pro-environmental travel, research consistently shows that positive attitudes towards the environmental and health benefits of a behavior significantly enhance participation intention. If university students perceive cycling tourism as highly beneficial (e.g., for personal health, environmental protection, stress relief, enjoyment), their intention to consume such tourism offerings should be stronger.

H2: Behavioral attitude has a positive impact on college students' consumption intention for cycling tourism.

Subjective Norms (SN)

Subjective norms capture the influence of an individual's social environment. In collectivist cultures like China, where group harmony and social approval are highly valued, the expectations and behaviors of family members, close friends, and peers are potent drivers of individual behavior. Furthermore, the pervasive influence of social media and digital

networks creates powerful descriptive norms. Seeing peers, influencers, or online communities engage in and positively portray cycling tourism can generate social pressure and a desire to conform, thereby encouraging participation.

H3: Subjective norms have a positive impact on college students' consumption intention for cycling tourism.

Perceived Behavioral Control (PBC)

PBC addresses the realistic constraints that individuals face. For university students, significant barriers to cycling tourism may include limited financial resources, time constraints due to academic workload, a lack of confidence in cycling skills (especially for long distances or challenging terrain), and concerns about safety and infrastructure (e.g., availability of bike lanes, rental facilities, repair stations). A high level of PBC implies that students feel they possess or can access the necessary resources, time, and skills to overcome these barriers, which should be a strong, direct predictor of their intention to engage in the behavior.

H4: Perceived behavioral control has a positive impact on college students' consumption intention for cycling tourism.

Conceptual Research Model

Based on the theoretical framework and hypotheses developed above, the conceptual model for this study is presented in Figure 1. The model posits that Demographic Factors (Gender, Age, Income), Behavioral Attitude (BA), Subjective Norms (SN), and Perceived Behavioral Control (PBC) serve as independent variables influencing the dependent variable, Cycling Tourism Consumption Intention (CI).

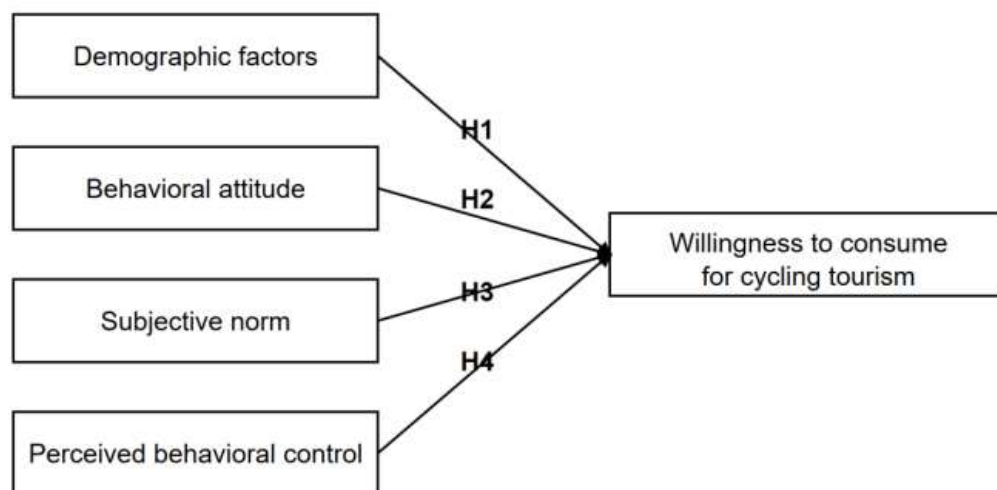


Figure 1. Conceptual Research Model

METHODS

Research Design

This study adopted a quantitative, non-experimental research design with a cross-sectional survey method to investigate the relationships proposed in the conceptual model. A structured questionnaire was used as the primary data collection instrument.

Sample and Data Collection

The target population was full-time undergraduate students enrolled in the primary university in Yulin City. A stratified random sampling method was employed to ensure the sample's representativeness across academic years (freshman, sophomore, junior and senior). The sample size was determined using a priori power analysis for multiple regression. With an anticipated medium effect size ($f^2 = 0.15$), a significance level (α) of 0.05, and a desired power ($1-\beta$) of 0.95 for testing up to 6 predictors (3 demographic + 3 TPB), the minimum required sample size was approximately 240. To account for potential invalid responses and increase robustness, we aimed for a larger sample.

Data collection was conducted over three weeks, from November 1 to November 23, 2024, using a hybrid online and offline approach. The online survey was distributed via the widely used Chinese platform *Wenjuanxing*, shared through university student group chats and online communities. Simultaneously, paper questionnaires were distributed on campus at high-traffic locations (libraries, canteens) to reach students who are less active online. Participation was voluntary and anonymous. A total of 420 responses were initially collected. After screening for completeness, consistency (e.g., attention-check items), and response time, 400 valid questionnaires were retained for analysis, yielding a response rate of 95.2%.

Measurement Instruments

All constructs were measured using multi-item scales adapted from established literature to fit the cycling tourism context. A 5-point Likert scale was used throughout, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

- 1. Behavioral Attitude (BA):** A 4-item scale adapted from Chen (2024) and Ajzen (1991) measured overall evaluation of cycling tourism (e.g., "I think cycling tourism is beneficial for my health," "I think cycling tourism is an environmentally friendly way to travel").
- 2. Subjective Norms (SN):** A 4-item scale adapted from Lam and Hsu (2005) measured social influence (e.g., "Most people who are important to me think I should participate in cycling tourism," "Many of my friends are interested in or have participated in cycling tourism").
- 3. Perceived Behavioral Control (PBC):** A 5-item scale adapted from Huang et al. (2023) and Ajzen (1991) measured perceived ease/difficulty (e.g., "I have enough disposable income to afford cycling tourism," "I have the necessary cycling skills to participate in tourism cycling," "I can find the time to participate in cycling tourism").
- 4. Consumption Intention (CI):** A 3-item scale adapted from Wang et al. (2022) and Ajzen (1991) measured the intention to engage in cycling tourism in the future (e.g., "I plan to participate in cycling tourism in the next year," "I will try to participate in cycling tourism when possible").
- 5. Demographic Information:** Participants reported their gender, age, and average monthly disposable income (from all sources).

Validity and Reliability

Content validity was ensured through a two-stage process. First, the initial questionnaire was reviewed by two experts in tourism management and one in behavioral psychology. Second, the Index of Item-Objective Congruence (IOC) was calculated based on expert ratings. All items had IOC scores above 0.5, indicating satisfactory content validity. A pilot test was conducted with 50 students (excluded from the main study) to check for clarity and comprehension. Cronbach's alpha coefficients were calculated for the multi-item scales in the main study to assess internal consistency reliability. As shown in Table 1, all alpha values were well above the recommended threshold of 0.70, indicating good reliability.

Table 1. Reliability Analysis of Measurement Scales

Variable	Number of Items	Cronbach's Alpha	Interpretation
Behavioral Attitude (BA)	4	0.89	Excellent
Subjective Norms (SN)	4	0.85	Good
Perceived Behavioral Control (PBC)	5	0.87	Good
Consumption Intention (CI)	3	0.82	Good

Data Analysis

The data analysis was conducted in two main phases using SPSS 26.0, with a significance level of $p < 0.05$.

1. Descriptive Analysis: Frequencies, percentages, means, and standard deviations were calculated to describe the sample characteristics and the core variables.

2. Inferential Analysis:

Hypothesis H1 (Demographics): An independent samples t-test was used to test for gender differences (H1a). One-way Analysis of Variance (ANOVA) was used to test for differences across age groups (H1b) and income levels (H1c).

Hypotheses H2, H3, H4 (TPB constructs): Multiple linear regression analysis was performed. Consumption Intention (CI) was entered as the dependent variable. The three TPB constructs (BA, SN, PBC) were entered simultaneously as independent variables to assess their unique contributions. Demographic variables were also included in the initial regression model as control variables; however, because they were found to be non-significant, both collectively and individually, the final reported model includes only the TPB constructs for parsimony and clarity.

Results

Descriptive Statistics of the Sample

The demographic profile of the 400 valid respondents is summarized in Table 2. The sample was predominantly female (79.0%), which reflects the gender distribution of the student population in the surveyed university's arts and social sciences faculties, from which a large proportion of the sample was drawn. In terms of age, the vast majority (74.5%) were between 20 and 21 years old, with 24.0% aged 22-23. Regarding monthly disposable income, 98% of students reported having less than 3,000 RMB, with 55.5% in the 1,001-2,000 RMB range. This profile represents the typical economic status of university students in Yulin, who rely mainly on family support and part-time jobs.

Table 2. Demographic Characteristics of the Sample (N=400)

Category	Sub-Category	Frequency	Percentage (%)
Gender	Male	84	21.0
	Female	316	79.0
Age	20-21 years	298	74.5
	22-23 years	96	24.0
	≥24 years	6	1.5
Monthly Disposable Income	≤ 1000 RMB	170	42.5
	1001-2000 RMB	222	55.5
	2001-3000 RMB	8	2.0

Descriptive Statistics of Core Variables

The means, standard deviations, and interpretations for the four core latent variables are presented in Table 3. Students reported a generally positive attitude towards cycling tourism ($M = 3.74$). Subjective norms were also above the midpoint ($M = 3.66$). However, perceived behavioral control was the lowest among the TPB constructs ($M = 3.31$), indicating that students, on average, perceive moderate levels of constraint or difficulty associated with participating in cycling tourism. The mean score for consumption intention was 3.45, suggesting a moderate level of willingness to engage in cycling tourism.

Table 3. Descriptive Statistics of Core Variables

Variable	Mean	Std. Deviation	Interpretation
Behavioral Attitude (BA)	3.74	0.79	Positive tendency
Subjective Norms (SN)	3.66	0.82	Above average
Perceived Behavioral Control (PBC)	3.31	0.89	Intermediate level / Perceived constraints
Consumption Intention (CI)	3.45	0.76	Above average / Moderate willingness

Hypothesis Testing Results

Tests for Demographic Differences (H1)

H1a (Gender): An independent samples t-test revealed no statistically significant difference in consumption intention scores between male ($M = 3.47$, $SD = 0.81$) and female ($M = 3.45$, $SD = 0.75$) students ($t = 0.24$, $p = 0.722$). **Therefore, H1a is not supported.**

H1b (Age): A one-way ANOVA showed no significant difference in consumption intention across the three age groups ($F(2, 397) = 0.080$, $p = 0.778$). **Therefore, H1b is not supported.**

H1c (Income): A one-way ANOVA indicated no significant difference in consumption intention across the three income levels ($F(2, 397) = 0.072$, $p = 0.931$). **Therefore, H1c is not supported.**

Conclusion for H1: Collectively, the results indicate that demographic factors (gender, age and monthly income) do not have a significant direct impact on cycling tourism consumption

intention within this specific sample of Yulin college students. Thus, the overarching H1 is not supported.

Multiple Regression Analysis (H2, H3, H4)

A standard multiple regression was conducted with Consumption Intention as the dependent variable and the three TPB constructs as predictors. The model summary and regression coefficients are presented in Tables 4 and 5, respectively.

Table 4. Regression Model Summary

Model R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.797	0.635	0.461

Note. Predictors: (Constant), Behavioral Attitude, Subjective Norms, Perceived Behavioral Control.

Table 5. Regression Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta, β)	t	Sig. (p)
(Constant)	0.312	0.205		1.520	0.129
Behavioral Attitude (BA)	-0.004	0.051	-0.004	-0.074	0.941
Subjective Norms (SN)	0.338	0.048	0.363	7.042	<0.001
Perceived Behavioral Control (PBC)	0.447	0.043	0.523	10.395	<0.001

Dependent Variable: Consumption Intention (CI)

The regression model was statistically significant ($F(3, 396) = 229.2, p < 0.001$) and explained 63.5% of the variance in consumption intention ($R^2 = 0.635$), indicating a strong model fit.

H2 (Behavioral Attitude): The standardized coefficient for Behavioral Attitude ($\beta = -0.004$) was negligible and statistically non-significant ($p = 0.941$). This indicates that, despite students holding generally positive attitudes ($M=3.74$), these attitudes do not significantly translate into or differentiate their level of consumption intention in this specific context. **Therefore, H2 is not supported.**

H3 (Subjective Norms): Subjective Norms had a significant positive impact on consumption intention ($\beta = 0.363, p < 0.001$). This suggests that social pressure and perceptions of what important others think or do are strong drivers of students' intention to engage in cycling tourism. **Therefore, H3 is supported.**

H4 (Perceived Behavioral Control): Perceived Behavioral Control had the strongest significant positive impact on consumption intention ($\beta = 0.523, p < 0.001$). This confirms that students' confidence in their ability to overcome barriers related to resources, time, and skills is the most critical factor in forming their intention. **Therefore, H4 is supported.**

The resulting regression equation is: **Consumption Intention = 0.312 + 0.338(SN) + 0.447(PBC).**

Summary of Hypothesis Testing

A concise summary of all hypothesis testing results is provided in Table 6.

Table 6. Summary of Hypothesis Testing Results

Hypothesis Variable / Relationship		Result	Significance (p-value)
H1	Demographic Factors → CI	Not Supported	$p > 0.05$
H1a	Gender → CI	Not Supported	0.722
H1b	Age → CI	Not Supported	0.778
H1c	Income → CI	Not Supported	0.931
H2	Behavioral Attitude → CI	Not Supported	0.941
H3	Subjective Norms → CI	Supported	< 0.001
H4	Perceived Behavioral Control → CI	Supported	< 0.001

Discussion

This study set out to investigate the factors influencing university students' intention to engage in cycling tourism in Yulin, China, using the Theory of Planned Behavior (TPB) as a framework. The findings reveal a nuanced picture that both confirms and challenges aspects of the TPB in this particular context.

The Paramount Role of Perceived Behavioral Control (PBC)

The most striking finding is the dominant influence of Perceived Behavioral Control ($\beta = 0.523$), which emerged as the strongest predictor of intention. This underscores a fundamental reality for the student population: the feasibility of the activity outweighs abstract positive evaluations. For students with constrained financial resources, demanding academic schedules, and potentially varying levels of cycling proficiency, the question "Can I actually do this?" is primary. This finding aligns with studies on constrained consumer behavior and is particularly relevant for tourism products that require specific resources (time, money, skills, equipment). It suggests that, at the current stage of cycling tourism development in Yulin, students' intentions are held back more by practical obstacles than by a lack of interest. Marketers and policymakers must therefore prioritize barrier reduction.

The Significant Influence of Subjective Norms (SN)

The significant positive effect of Subjective Norms ($\beta = 0.363$) highlights the powerful role of social environment, consistent with the collectivist nature of Chinese society. The intention to participate in cycling tourism is not merely an individual choice but is significantly shaped by perceived family expectations, peer behaviors, and trends amplified through social media. This finding resonates with research on the diffusion of innovations and the role of social proof in consumer decision-making. It indicates that making cycling tourism appear popular, socially approved, and endorsed by relevant social groups can be an effective strategy to drive intention.

The Non-Significant Role of Behavioral Attitude (BA) – The "Attitude-Behavior Gap"

The most counterintuitive finding is the non-significant relationship between Behavioral Attitude and Consumption Intention ($\beta = -0.004$, $p = 0.941$). This presents a clear case of the "attitude-behavior gap," a phenomenon commonly observed in contexts of pro-

environmental and sustainable behavior. Students, on average, reported positive attitudes ($M=3.74$), likely agreeing that cycling tourism is healthy, environmentally friendly, and enjoyable. However, this positive attitude is so widespread and homogeneous that it fails to differentiate between those with high versus low intention. In other words, *almost everyone thinks it is a good idea, but not everyone intends to do it*. The differentiating factors lie elsewhere—in PBC and SN. This finding challenges a strict interpretation of TPB in this setting. It suggests that when a behavior is widely seen as "good" in principle, attitude may become a "hygiene factor" (a basic expectation) rather than a "motivator."

The Irrelevance of Basic Demographics

The lack of significant effects for gender, age, and income (within the narrow student range) is an insightful finding. It implies that the psychological drivers (PBC, SN) of cycling tourism intention are largely universal across these basic demographic segments within the student population. This challenges traditional, simplistic market segmentation based solely on demographics for this activity. Marketing and intervention strategies, therefore, need not be overly segmented by gender or age but can target the student population as a whole with messages focused on overcoming shared barriers and leveraging universal social drivers.

Theoretical Implications

Theoretically, this study enriches the application of TPB in tourism, particularly for niche, sustainable activities in developing regional contexts. It demonstrates that the relative weight of TPB constructs can vary significantly across target populations and behavioral contexts. For resource-constrained groups engaging in a behavior with high practical demands, PBC can be the paramount factor, potentially overshadowing attitude. The study also contributes to the literature on the attitude-behavior gap by providing a clear empirical example in tourism.

Practical Implications and Recommendations

Based on the discussion above, we propose the following targeted recommendations:

- 1. Primary Focus: Enhance Perceived Behavioral Control (Reduce Barriers)**
 - a. Economic Barriers:** Develop and promote low-cost cycling tourism rental packages, student discounts on equipment and affiliated accommodations (hostels, campgrounds), and subsidized "cycling tourism pass" in collaboration with local businesses.
 - b. Skill/Confidence Barriers:** Organize free or low-cost basic bicycle maintenance and safe touring workshops on campus. Create and clearly signpost a variety of routes with categorized difficulty levels (easy, moderate, challenging) starting from or near campuses.
 - c. Time/Logistical Barriers:** Promote short-duration cycling tourism products (half-day, one-day tours) that fit into busy student schedules. Develop integrated services (bike rental, guide and simple meal) to reduce planning complexity.
 - d. Infrastructure Barriers:** Advocate for and invest in improved connectivity between universities, tourist sites, and greenways through bike lanes. Ensure adequate safety measures, signage, and repair stations along popular routes.
- 2. Secondary Focus: Leverage Subjective Norms (Amplify Social Influence)**
 - a. Social Media & Influencers:** Collaborate with student Key Opinion Leaders (KOLs), university clubs, and local micro-influencers to create engaging, shareable content (vlogs, photos, guides) about their cycling tourism experiences in Yulin.

- b. **Community Building:** Actively support and promote university cycling clubs. Organize regular group cycling events, weekend tours, and competitions to foster a sense of community and peer encouragement.
 - c. **Family-Inclusive Messaging:** Develop marketing materials that subtly encourage students to discuss or invite family members, framing cycling tourism as a healthy, family-friendly activity, thereby aligning with injunctive family norms.
3. **Strategic Shift in Marketing Communication**
- Move away from generic messaging that merely promotes the benefits of cycling tourism (health, environment), as attitudes are already positive but not decisive. Instead, pivot marketing to emphasize:
- a. **Ease of Access:** "Cycling tourism made easy for students." "Everything you need in one affordable package."
 - b. **Social Popularity:** "Join the ride! What everyone is doing this weekend." "The most popular way for Yulin students to explore."
 - c. **Barrier-Free Experience:** "No bike? No problem. No time? We have short tours. New to cycling? We will guide you."
4. **Universal yet Targeted Approach**

Given the non-significant demographic differences, core strategies can be universally applied to the student population. However, messaging can be tailored to resonate with different social groups *within* the student body (e.g., adventure-seekers, eco-enthusiasts) without relying on gender or age stereotypes.

Conclusion, Limitations and Future Research

Conclusion

This study investigated the factors influencing university students' intention to engage in cycling tourism in Yulin, China, using the Theory of Planned Behavior. The key conclusion is that for this demographic in this regional context, intention is driven primarily by practical feasibility and social influence, rather than by personal attitude or basic demographic traits. Specifically, Perceived Behavioral Control (resource and skill confidence) is the strongest predictor, followed by Subjective Norms (social pressure). Behavioral Attitude, while generally positive, does not significantly predict intention, illustrating a clear attitude-behavior gap. Demographic factors (gender, age, income) showed no significant direct effects.

These findings indicate that the development of cycling tourism among Yulin's students is currently in a "constrained adoption" stage. Widespread positive sentiment exists, but practical barriers hinder conversion to intention and await stronger social reinforcement. For stakeholders, this means the strategic priority must shift from advocating *the why-to cycle* to *solving the how-to cycle* easily and making it socially prominent.

Limitations

This study has several limitations that should be acknowledged:

1. **Geographic Specificity:** The sample was drawn from a single university in Yulin. The findings may not be fully generalizable to university students in other Chinese cities (especially first-tier cities) or to university students in other countries with different cycling cultures and infrastructure.
2. **Cross-Sectional Design:** The study captures a snapshot of a given time point. It demonstrates association but cannot definitively prove causality. Longitudinal studies are needed to examine how changes in PBC or SN over time affect subsequent intention and

actual behavior.

3. **Self-Reported Data:** All measures were based on self-reports, which are susceptible to biases such as social desirability (e.g., over-reporting positive attitudes or intentions) and common method variance.
4. **Sample Composition:** The gender distribution was highly skewed (79% female), which, while reflective of the sampled faculties, limits the generalizability of the gender finding. Future studies should strive for a more balanced sample.
5. **Model Scope:** The TPB model, while robust, does not include all potential influencing factors. Other variables, such as past behavior, habits, personal norms, or specific destination attributes, could provide additional explanatory power.

Future Research Directions

To build upon this study, future research could:

1. Conduct comparative studies across different city tiers (e.g., Beijing vs. Yulin) or countries to examine contextual moderators of the TPB relationships.
2. Employ longitudinal or experimental designs (e.g., testing the impact of an intervention that provides skills training or social proof) to establish causal pathways.
3. Integrate the TPB with other theoretical lenses, such as the Model of Goal-Directed Behavior (which includes desire and anticipated emotions) or the Value-Belief-Norm theory, to gain a more comprehensive understanding.
4. Use mixed methods, combining surveys with in-depth interviews or focus groups, to explore the qualitative "why" behind the quantitative relationships, especially the attitude-intention gap.
5. Investigate the link between intention and actual behavior (participation) to understand the final conversion funnel in cycling tourism consumption.

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