Supplementary Material

Table S1. Sampling dimensions and classification criteria.

Dimension	Classification criteria
Age	18–35 years; 36–55 years; 55+ years
Length of stay	Short-term (1–7 days); Medium-term (8–14 days); Long-term (14+ days)
Travel mode	Solo; Couple; Family (3+ people); Friends/Colleagues
Place of origin	Shanxi Province; Neighboring provinces (Henan, Hebei); Other provinces (Shandong, Jiangsu, Beijing, etc.)
Visiting experience	First-time visit; Repeat visit

Table S2. Interviewee profile.

ID	Gender	Age	Place of origin	Travel mode	Length of stay	Visiting experience	Interview site
R01	Male	38	Neighboring (Henan)	Family (3 people)	Short-term (3 days)	First-time visit	S1
R02	Female	34	Neighboring (Henan)	Family (4 people)	Short-term (5 days)	Repeat visit	S4
R03	Male	29	Shanxi	Friends (3 people)	Short-term (2 days)	First-time visit	S3
R04	Female	32	Neighboring (Henan)	Family (4 people)	Medium-term (9 days)	Repeat visit	S2
R05	Male	41	Neighboring (Henan)	Family (4 people)	Short-term (4 days)	Repeat visit	S1
R06	Female	26	Shanxi	Friends (2 people)	Short-term (4 days)	First-time visit	S2
R07	Male	35	Neighboring (Hebei)	Friends (4 people)	Short-term (4 days)	First-time visit	S4
R08	Female	31	Neighboring (Henan)	Family (3 people)	Short-term (2 days)	First-time visit	S5
R09	Female	26	Neighboring (Henan)	Friends (3 people)	Short-term (4 days)	First-time visit	S3
R10	Male	30	Shanxi	Friends (4 people)	Short-term (3 days)	First-time visit	S5
R11	Female	24	Neighboring (Henan)	Friends (2 people)	Short-term (3 days)	First-time visit	S4
R12	Male	33	Neighboring (Henan)	Family (4 people)	Short-term (6 days)	Repeat visit	S5
R13	Female	52	Neighboring (Henan)	Friends (3 people)	Short-term (3 days)	First-time visit	S6
R14	Male	45	Shanxi	Solo	Short-term (2 days)	Repeat visit	S6
R15	Female	40	Neighboring (Henan)	Family (5 people)	Short-term (7 days)	Repeat visit	S7
R16	Male	56	Neighboring (Henan)	Friends (4 people)	Short-term (5 days)	Repeat visit	S7
R17	Female	37	Shanxi	Family (3 people)	Short-term (3 days)	First-time visit	S6
R18	Male	62	Neighboring (Hebei)	Couple	Medium-term (13 days)	Repeat visit	S7
R19	Female	35	Neighboring (Henan)	Family (4 people)	Medium-term (10 days)	Repeat visit	S7
R20	Male	43	Shanxi	Friends (2 people)	Short-term (3 days)	Repeat visit	S1
R21	Female	39	Neighboring (Henan)	Family (3 people)	Short-term (3 days)	First-time visit	S8
R22	Male	58	Other (Jiangsu)	Couple	Long-term (45 days)	Repeat visit	S1
R23	Female	66	Neighboring (Henan)	Couple	Long-term (15 days)	Repeat visit	S8
R24	Male	48	Shanxi	Friends (3 people)	Short-term (3 days)	Repeat visit	S5
R25	Female	42	Neighboring (Henan)	Family (6 people)	Medium-term (11 days)	Repeat visit	S9

R26	Female	36	Neighboring (Henan)	Family (4 people)	Short-term (3 days)	First-time visit	S10
R27	Male	44	Shanxi	Family (3 people)	Short-term (7 days)	Repeat visit	S10
R28	Male	29	Neighboring (Henan)	Colleagues (5 people)	Short-term (2 days)	First-time visit	S11
R29	Female	50	Neighboring (Hebei)	Family (4 people)	Medium-term (8 days)	Repeat visit	S11
R30	Female	47	Shanxi	Friends (4 people)	Short-term (2 days)	First-time visit	S11

Note: Interview sites: S1 = Zheshui Station, Taihang No. 1 Highway; S2 = Gao Laozhuang Station, Taihang No. 1 Highway; S3 = Wofozhuang Station, Taihang No. 1 Highway; S4 = Songmiao Station, Taihang No. 1 Highway; S5 = Viewing platform, Taihang No. 1 Music Highway; S6 = Qizi Mountain Forest Wellness Base; S7 = Wangmangling Forest Wellness Base; S8 = Zhanghe Village, national pilot household for forest wellness tourism; S9 = Geta Village, national pilot household for forest wellness tourism; S10 = Colorful Taihang Wellness Tourism Resort; S11 = Taihang Xiyagou National Tourism Resort.

Table S3. Illustrative results of the open coding process.

Original Statement (Interviewee Code)	Initial Concepts	Initial Categories
"*The summer heat in Zhengzhou is just unbearable. I wanted to find somewhere cool to escape to with my child.*" (R01-005)	Sweltering heat, escaping heat with child	Sweltering heat
"*Work is high-pressure and fast-paced. I'm staring at a computer screen all day—my mind is constantly wound up tight.*" (R01-011)	High work pressure, mental tension	Work pressure
"*I'm always hunched over a computer at work—my neck and shoulders are constantly aching.*" (R04-055)	Shoulder and neck soreness	Health distress
"*We're all just doing our own thing at home, glued to our phones.*" (R05-032)	Lack of companionship, phone dependency	Lack of companionship
"*The temperature here is so pleasant—way cooler than Zhengzhou.*" (R01-029)	Obvious temperature difference, cool comfort	Cool climate
"*Green everywhere—just looking at it puts your mind at ease.*" (R04-023)	Natural landscape, visual pleasure	Natural landscape
"*There's no noise at all—it's so peaceful.*" (R03-025)	Quietness, natural sounds	Quiet atmosphere
"*You don't even need the air conditioning at night—just a thin quilt and it's perfect.*" (R01-022)	No air conditioning, thin quilt	Temperature perception
"*The air is so fresh—taking a deep breath feels wonderfully refreshing.*" (R01-030)	Comfortable breathing	Air perception
"*Beautiful mountains, clear waters—green as far as the eye can see.*" (R04-023)	Visual aesthetics	Landscape perception
"*You can hear birds singing and the wind rustling through the leaves.*" (R01-033)	Natural soundscape	Acoustic environment perception
"*My whole body just loosened up—so incredibly comfortable.*" (R05-024)	Physical relaxation	Physical comfort
"*Just strolling along at a leisurely pace—not the least bit tiring.*" (R04-036)	Slow pace, no fatigue	Slow-paced activities
"*The whole family just sticks together—it feels so close and intimate.*" (R08-030)	Intimate interaction	Family companionship
"*Just hanging out with the guys, shooting the breeze, venting a bit, cracking jokes—super relaxing.*" (R03-036)	Casual chat with friends, relaxation	Friend companionship
"*Laughing and chatting with my colleagues really brought us closer.*" (R28-020)	Colleague interaction, improved bonding	Colleague companionship
"*Had an incredibly sound sleep—woke up to the morning light.*" (R01-022)	Sound sleep	Sleep improvement
"*My shoulders and neck have loosened up so much—the ache is gone.*" (R04-057)	Shoulder and neck relief	Shoulder and neck relief
"*I've got so much more energy—I feel full of vigor.*" (R05-043)	Energetic	Energy recovery
"*The stress just lifted instantly.*" (R04-060)	Reduced pressure	Stress relief
"*A real sense of steadiness inside—just calm and secure.*" (R08-042)	Inner peace	Inner peace
"*It felt so deeply healing—as if my heart had been cleansed.*" (R13-098)	Spiritual purification	Spiritual healing
"*This feeling of being completely at ease—I think it'll last for a while.*" (R01-061)	Sustained benefits	Benefit sustainability
"*Really satisfied—I'd rate it a 9 out of 10.*" (R01-071)	High rating	Satisfaction
"*I'll definitely come back—next summer for sure.*" (R01-073)	Revisit commitment	Revisit intention
"*I've already been telling my friends about it—urging them to come too.*" (R02-083)	Active recommendation	Recommendation intention

"This place is pristine—no over-commercialization at all." (R07-082)	Recognition of original ecology	Recognition of pristine ecology
"I just hope they don't overdevelop it. Otherwise, it'll lose that special something." (R12-092)	Concern about commercialization	Anti-commercialization attitude
"I've slowed right down—my whole being has relaxed." (R26-028)	Slowing down	Physical and mental relaxation
"I feel totally recharged. It's like I pressed the pause button on life." (R25-139)	Sense of recharge	Physical and mental recharging

Note: Due to space limitations, only a selection of representative original statements and their corresponding initial categories are presented in this table.

Table S4. Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist

Domain 1: Research Team and Reflexivity

- **Personal Characteristics**

No.	Item	Guide Questions / Description	Compliance	Author Response (Location in Manuscript and Detailed Explanation)
1	Interviewer/facilitator	Which author(s) conducted the interview or focus group?	Yes	Interviews were conducted collaboratively by the first four authors (Y. Li, J. Yang, H. Li, S. Zhao). **Location**: Page 7 (3.3. Data Collection)
2	Credentials	What were the researcher's credentials? (e.g., PhD, MD)	Yes	First author Y. Li holds a PhD in Forest Management and is a Lecturer; Corresponding author Z. Liu holds a PhD in Tourism Management and is a Lecturer; The remaining authors are Master's students in Tourism Management. **Location**: Page 1 (Author Affiliations)
3	Occupation	What was their occupation at the time of the study?	Yes	Y. Li and Z. Liu were university faculty members; J. Yang, H. Li, and S. Zhao were graduate students pursuing their Master's degrees.

				Location: Page 1 (Author Affiliations)
4	Gender	Was the researcher male or female?	Yes	The research team included 1 male researcher (Y. Li) and 4 female researchers (J. Yang, H. Li, S. Zhao, Zhenzhen Liu). **Location**: Page 1 (Author Affiliations)
5	Experience and training	What experience or training did the researcher have?	Yes	The first and corresponding authors have extensive research experience in forest tourism and wellness tourism, with proven expertise in conducting in-depth interviews. All other authors received systematic training in qualitative research methods prior to data collection, including rapport building, probing techniques, and non-leading questioning. **Location**: Page 7 (3.3. Data Collection)

- **Relationship with Participants**

6	Relationship established	Was a relationship established prior to study commencement?	No	No personal relationships existed between the researchers and participants before the study. All participants were recruited on-site at major visitor gathering spots in Lingchuan County. Interviews were conducted only after verbal informed consent was obtained. **Location**: Page 7 (3.3. Data Collection)
7	Participant knowledge of the interviewer	What did the participants know about the researcher? (e.g., personal goals,	Yes	Before each interview, researchers clearly informed participants of: (1) their institutional affiliation (Shanxi University); (2) the research purpose (to understand

		reasons for doing the research)		motivations, experiences, and health benefits of summer forest sojourning); (3) that all data would be used exclusively for academic research; and (4) that all identifying information would be strictly anonymized. **Location**: Page 7 (3.3. Data Collection)
8	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? (e.g., bias, assumptions, reasons and interests in the research topic)	Yes	Prior to data collection, we conducted a systematic literature review to develop our initial research questions. Importantly, no specific theoretical model or predetermined conclusions were established a priori. We acknowledge that our disciplinary backgrounds in tourism management and human geography may have sensitized us to specific dimensions of the data (e.g., spatial behavior and destination management) while potentially making us less attuned to certain psychological dimensions. To mitigate this potential bias, we intentionally recruited a diverse sample of participants and maintained openness to unanticipated themes throughout the research process. **Location**: Page 7-8 (3.3. Data Collection; 3.4. Data Analysis and Reliability Testing)

Domain 2: Study Design

- **Theoretical Framework**

9	Methodological orientation and theory	What methodological orientation was stated to underpin the study? (e.g., grounded	Yes	This study employed Strauss's grounded theory as its core methodology, following the three-stage coding procedure developed

		theory, discourse analysis, ethnography, phenomenology, content analysis)		by Corbin and Strauss: open coding → axial coding → selective coding. **Location**: Page 6-7 (3.2. Research Method; 3.4. Data Analysis and Reliability Testing)

- **Participant Selection**

10	Sampling	How were participants selected? (e.g., purposive, convenience, consecutive, snowball)	Yes	A combined sampling strategy of purposive sampling and maximum variation sampling was used. Participants were selected based on five predefined dimensions: age, length of stay, travel mode, place of origin, and previous visiting experience, to ensure sample heterogeneity. **Location**: Page 7 (3.3. Data Collection); Supplementary Tables S1 and S2
11	Method of approach	How were participants approached? (e.g., face-to-face, telephone, mail, email)	Yes	All participants were approached face-to-face on-site. Researchers conducted observations at major visitor gathering spots (tourist stations, viewing platforms, wellness bases, resorts) and approached potential participants to explain the study. **Location**: Page 7 (3.3. Data Collection); Supplementary Table S2
12	Sample size	How many participants were in the study?	Yes	A total of 30 valid interviews with summer forest sojourners were conducted. **Location**: Page 7 (3.3. Data Collection); Supplementary Table S2

13	Non-participation	How many people refused to participate or dropped out? Reasons?	Yes	A small number of visitors declined participation citing "time constraints" or "preference for privacy"; the exact number was not systematically recorded. No participants dropped out during the interview process. **Location**: Page 7 (3.3. Data Collection)

- **Setting**

14	Setting of data collection	Where was the data collected? (e.g., home, clinic, workplace)	Yes	Data were collected at 11 visitor gathering spots across Lingchuan County, including: stations along the Taihang No.1 Highway (Zheshui, Gao Laozhuang, Wofozhuang, Songmiao), Taihang No.1 Music Highway Viewing Platform, Qizi Mountain Forest Wellness Base, Wangmangling Forest Wellness Base, Zhanghe Village National Forest Wellness Pilot Household, Geta Village National Forest Wellness Pilot Household, Colorful Taihang Wellness Resort, and Taihang Xiyagou National Tourism Resort. All interviews were conducted in quiet outdoor corners within the natural environment, closely aligned with participants' sojourning experience. **Location**: Page 7 (3.3. Data Collection); Supplementary Table S2
15	Presence of non-participants	Was anyone else present besides the participants and researchers?	Yes	In most cases, participants' companions were present but maintained a respectful distance. Interviews were conducted by a two-person research team: one researcher served as the primary interviewer, while the other took

				detailed field notes and observed non-verbal cues without participating in the conversation. **Location**: Page 7 (3.4. Data Analysis and Reliability Testing)
16	Description of sample	What are the important characteristics of the sample? (e.g., demographic data, date)	Yes	Detailed sample characteristics are presented in Supplementary Table S2, including gender, age group, place of origin, travel mode, length of stay, previous visiting experience, and interview location. Data collection was conducted from July 12 to August 31, 2025. **Location**: Page 7 (3.3 Data Collection); Supplementary Table S2

- **Data Collection**

17	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Yes	A semi-structured interview guide was used, covering themes including: motivations for visiting Lingchuan in summer, on-site experiences and feelings, perceived psychophysical changes, and evaluations of the destination. The interview guide was pilot-tested with 2 mock participants prior to formal data collection, and wording and question order were refined accordingly. The full interview guide is provided as Supplementary Material. **Location**: Page 7 (3.3. Data Collection); Supplementary Material: Semi-Structured Interview Guide
18	Repeat interviews	Were repeat interviews carried out? Did other	No	Each participant was interviewed once; no repeat interviews were conducted. However, on-site observational notes and post-

		methods provide data triangulation?		interview memos were used as supplementary data sources to provide a degree of methodological triangulation. **Location**: Page 7 (3.3. Data Collection)
19	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Yes	All interviews were fully audio-recorded using digital recording devices, with prior informed consent from all participants. **Location**: Page 7 (3.3. Data Collection)
20	Field notes	Were field notes made during and/or after the interview or focus group?	Yes	Immediately following each interview, researchers completed a detailed memo documenting the interview context, the participant's emotional state, and initial theoretical reflections. **Location**: Page 7 (3.3. Data Collection)
21	Duration	What was the duration of the interviews or focus group?	Yes	Interviews lasted an average of approximately 40 minutes. **Location**: Page 7 (3.3. Data Collection)
22	Data saturation	Was data saturation discussed?	Yes	Of the 30 total transcripts, 27 were randomly selected for the three-stage coding process. The remaining 3 transcripts were reserved for theoretical saturation testing. All concepts identified in the reserved transcripts were fully accommodated within the existing category system, and no new significant categories or relational patterns emerged, confirming that theoretical saturation had been achieved.

				Location: Page 7-8 (3.4. Data Analysis and Reliability Testing)
23	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No	Due to time constraints in fieldwork and the high mobility of participants, transcripts were not returned to participants for verification. However, all transcripts were checked word-for-word against the original audio recordings to ensure accuracy. **Location**: Page 7 (3.3. Data Collection)

Domain 3: Analysis and Findings

- **Data Analysis**

24	Number of data coders	How many data coders coded the data?	Yes	To strengthen the trustworthiness of the analysis, investigator triangulation was employed during the open coding phase. Three authors (Y. Li, J. Yang, and H. Li) independently conducted open coding on a randomly selected subset of six interview transcripts, representing 20% of the total sample of 30. The authors then convened to compare and discuss their individual coding outputs. Discrepancies were resolved through iterative re-examination of the original transcripts until full consensus was achieved, yielding a standardized initial coding framework. Subsequently, the first author completed coding of the remaining 24 transcripts, with regular team meetings held at key intervals to monitor and ensure ongoing coding consistency. To further assess coding reliability, a fourth author (S. Zhao), who was not involved in the initial coding process, independently coded the

				same six transcripts. Using the reliability formula developed by Boyatzis (1998), inter-coder agreement was calculated to be 0.73, with an overall reliability coefficient of 0.84. Both values exceed the widely accepted threshold of 0.70, indicating satisfactory inter-rater consistency. **Location**: Page 7-8 (3.4. Data Analysis and Reliability Testing)
25	Description of the coding tree	Did authors provide a description of the coding tree?	Yes	The hierarchical structure of the coding process is presented in: (1) Table 1 (Main categories, their connotations, and positions within the paradigm model); (2) Supplementary Figure S1 (Paradigm model of summer forest sojourning behavior); (3) Figure 1 (Theoretical model). An illustrative example of the open coding process is provided in Supplementary Table S3. **Location**: Page 8 (4.1. Open and Axial Coding; 4.2. Selective Coding); Page 12-15 (4.3. Theoretical Model); Supplementary Table S3, and Figure S1.
26	Derivation of themes	Were themes identified in advance or derived from the data?	Yes	All categories and themes were inductively derived from the raw empirical data; no predefined categories were used. This study strictly adheres to the core principle of grounded theory: "theory should be systematically generated from empirical data rather than tested against a pre-established framework." **Location**: Page 7-8 (3.2. Research Method; 3.4. Data Analysis and Reliability Testing)

27	Software	What software, if applicable, was used to manage the data?	Yes	Audio recordings were initially transcribed using iFlytek Hearing (Version 26.03.2650, Hefei, Anhui, China) and then checked word-for-word by the researchers. All anonymized transcripts were imported into NVivo 12 (Version 12.6, Doncaster, Victoria, Australia) qualitative data analysis software for coding and management. **Location**: Page 7 (3.3. Data Collection)
28	Participant checking	Did participants provide feedback on the findings?	No	As noted in Item 23, due to fieldwork constraints and participant mobility, member checking was not conducted. **Location**: Page 7 (3.3. Data Collection)

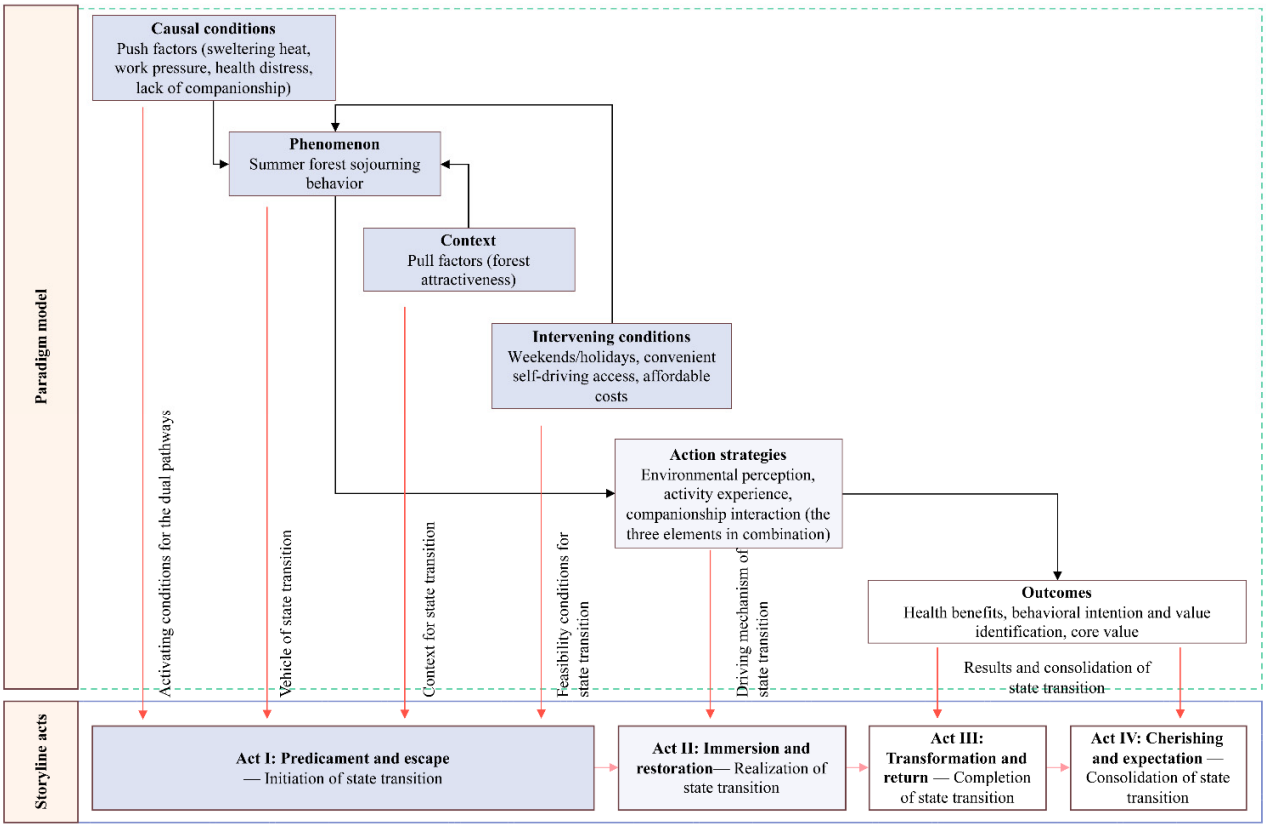
- **Reporting**

29	Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? (e.g., participant number)	Yes	Representative quotations from participants are extensively used throughout the findings section to illustrate key themes. Each quotation is clearly identified with a participant code (e.g., R01-005), where "R01" indicates the participant ID and "005" indicates the line number in the transcript. **Location**: Page 10-15(4.2. Selective Coding; 4.3. Theoretical Model)
30	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes	All research findings are directly grounded in the empirical data. The logical chain from raw data to categories to theoretical propositions is clearly illustrated in Figure 1 (Theoretical Model). No inferences are made that are not supported by the interview data.

				Location: Page 8-15 (4. Research Findings)
31	Clarity of major themes	Were major themes clearly presented in the findings?	Yes	The eight main categories and their interrelationships are clearly presented in Table 1 and Figure 1. The core category "Dual-Pathway Driving Mechanism for Psychophysical State Transition" and its five interrelated dimensions are elaborated in detail in Section 4.3, with the integrated theoretical model presented in Figure 1. **Location**: Page 8-15 (4. Research Findings)
32	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	No	While maximum variation sampling was used to ensure diversity across key participant characteristics, this study did not conduct comparative analyses of sub-groups (e.g., by age or length of stay). Such comparative analyses are identified as an important direction for future research. **Location**: Page 21 (5.3. Limitations and Future Research Directions); Supplementary Table S1.

Developed from: Tong, A., Sainsbury, P., and Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care* 19, 349–357. doi: 10.1093/intqhc/mzm042.

Figure S1. Paradigm model diagram.



Semi-Structured Interview Guide

Note: This study employed a semi-structured in-depth interview method for data collection. Interviewers used this guide as a basic framework, flexibly adjusted the order of questions and depth of follow-up probing based on respondents' answers, and encouraged participants to freely express their authentic experiences and feelings. All interviews were audio-recorded with written informed consent from participants and fully anonymized during transcription to ensure strict confidentiality of personal information.

(1) Background Information

1) Where are you traveling from? Who are you traveling with on this trip? How long do you plan to stay here?
2) Is this your first visit to Lingchuan? Have you been here before?
3) How did you first learn about this destination?

(2) Motivation and Expectations

4) What are the main reasons you chose to travel to Lingchuan in the summer?
5) Beyond escaping the summer heat, did you have any other considerations?
6) What expectations did you have for this trip before departure? What kind of experience did you hope to gain?

(3) Experience and Perceptions

7) How do you feel about the overall environment here? Which aspects have left the deepest impression on you?
8) How do the climate, air quality, and natural scenery here compare to those in your home city? What feelings do these differences bring you?
9) What do you typically do each day during your stay? What activities have you participated in?

10) Among these activities, which ones did you find most relaxing and satisfying? Why?
11) How much impact do you think these activities have had on your overall travel experience?
12) How has traveling with your family/friends made you feel?
13) What impact have the interactions and conversations during your trip had on your mood and overall experience?

(4) Health Benefits

14) After arriving here, what changes have you noticed in your physical condition and mood?
15) Have you observed any improvements in your sleep quality, energy levels, emotional state, or physical comfort?
16) Do you think these changes are temporary, or will they persist for some time after you return home?

(5) Behavioral Intentions and Value Identificaiton

17) Overall, how satisfied are you with this trip? Why?
18) Will you come back here in the future? Why or why not?
19) Would you recommend this place to your relatives and friends? How would you introduce it to them?
20) Do you have any suggestions or expectations for the future development of this destination?

(6) Open-Ended Question

21) Is there anything else you would like to share about your summer forest sojourning experience that we have not asked about?