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Evaluating Potential Areas for Mountain Wellness Tourism: A Case Study of Ili, Xinjiang Province

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Abstract: Evaluation of land-use suitability can prevent problems, such as environmental disruption, wastage of resources, and ecological disruption, when unsuitable tourism-based exploration is undertaken in an area. This study summarizes a novel concept and proposes the idea of wellness tourism, which constitutes health preservation, sports and recovery, medical healing, and aged nursing, integrated with Chinese culture. A spatial suitability evaluation system for wellness tourism was developed in a mountain area via the integration of the analytic network process-Delphi. As wellness tourism activities diversified, land suitability was assigned to four kinds of wellness tourism activities, while considering their unique requirements. Comparative analysis and five-degree suitable maps of four kinds of activities revealed that Yining City and its peripheral localities have the potential of functioning as a comprehensive and national wellness tourist destination. The counties of Horgos, Huocheng, Qapqal, Zhaosu, Tekes, Tokkuztara, and Narat should make full use of their strengths, as they have the advantage of catering to different wellness tourism activities. This paper discusses some conceptual aspects of wellness tourism, provides an example for the selection of potential areas for wellness tourism in the mountainous regions of China, and provides baseline information that can support the development of wellness tourism.

Keywords: wellness tourism; spatial suitability analysis; mountainous region; ANP; Delphi; GIS

1. Introduction

In the twenty-first century, the tourism industry faces a challenging environment, resulting from hurricanes and other environmental catastrophes, military conflicts and wars, information technology developments, and even greater competition among airline companies [1]. Meanwhile, concomitant progress in science and medicine has led human to focus attention on mental, psychological, and emotional problems [2]. Enhanced aging of the population and increasing sub-health lifestyles are positively driving the tourism market toward restoration, preservation, and a continued state of readiness and physical fitness. A shift in the understanding of the meaning of health and wellness has given rise to wellness tourism, which perfectly meets peoples' increasingly growing needs of health at a global level. These factors have led to the robust growth of wellness tourism in Europe, the Americas, Middle East, Asia Pacific, and even Africa [3]. Wellness tourism has now become some of the most promising markets worldwide [4].

Wellness was originally defined as a state with optimal physical, mental, and social well-being [5–7]. With the boom in wellness tourism in the recent years, the diversification and quality standard of this product has increased tremendously [4]. Along with the trend in the market, definitions ranged from general to multi-dimensional with many holistic and individual perspectives. Wellness became

a comprehensive concept that included the following dimensions: self-worth, exercise, spirituality, stress management, love, gender identity, realistic beliefs, leisure, humor, intelligence, nutrition, emotion, friendship, self-care, work, social identity, local safety, institutional concern, and personal attributions [8]. The definition was enhanced by Chen et al. [9] with some specific activities: wellness tourism now includes personal service, health promotion treatments, environment, healthy diet, relaxation, social activities, the experience of unique tourism resources, and mental learning.

As a new concept that is applicable on a worldwide basis, it is integrated with various cultural and historical backgrounds. Wellness translates to different meanings in different languages and cultures, such as wohlbefinden in German and hyvinvointi in Finnish [10]. By the same token, wellness tourism was integrated with Chinese traditional wellness culture [11–13] and given multiple signals by studies. Wellness in China started with zhuang-tse, meaning following life's principles and obtaining a better quality of life, including activities such as a simple worship dance and communicating with nature. As history continued, wellness was added to the core concepts of pre-Qin philosophers. Chinese wellness culture was formed within a scientific system, such as the Yellow Emperor's Canon of Internal Medicine [14]. Then, health care theory was composed of yin/yang, vital essence, a viscera state, and meridians, represented by the activities of wuqinxi, qigong, massage, tui na, meditation, medicinal recuperation, and pranayama. As Buddhism spread along the silk road, Daoism [11] and Confucianism was more closely integrated [15]. The scope of wellness was expanded with multiple meanings, covering the strengthening of the body's defense, healing and maintaining health, achieving a long-lasting life, and a harmonious and balanced relationship with nature [13]. Many researchers in China tend to give it a definition that can deterministically reflect the complex nature of wellness tourism. Whereas there is no agreed upon definition [10], by concentrating on tourism's features, Wu and Zheng [16] divided tourism products into eco-wellness, sports and fitness, leisure and vacation, health care, and regimens of culture tourism. In contrast, in terms of tourism carriers, Xie et al. [17] argued that wellness tourism should be composed of rural wellness, health preservation in the forest, sunbaths, spa, and a cultural regimen.

On the basis of this literature review, it is easy to see that wellness tourism integrates wellness culture, tourism resources, and the eco-landscape. It provides a healthy lifestyle for tourists in which people can keep and promote their physical, mental, and spiritual health via traveling. Natural bath, modification, taijiquan, wushu, traditional medicine, massage, herbal food or even living in a "longevity village" can be considered wellness activities from the perspective of Chinese wellness culture. On the basis of health status and age, these activities can be divided into health preservation, sports and recovery, medical healing, and aged nursing (Figure 1).
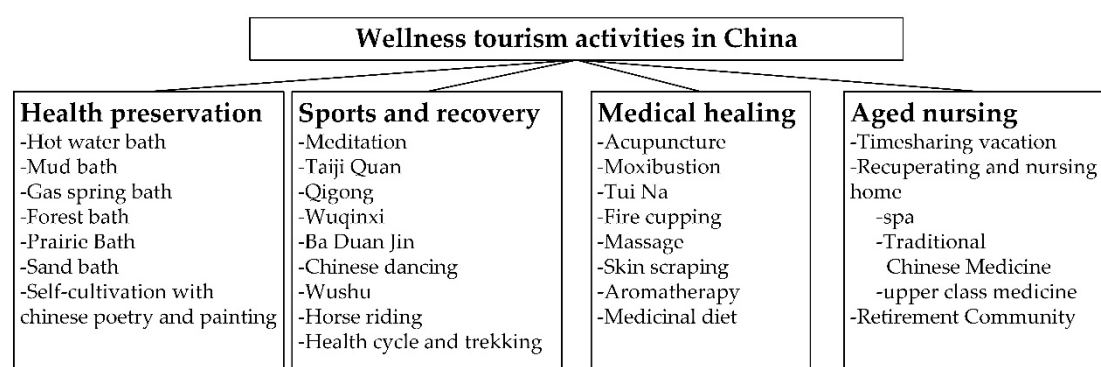
Wellness tourism activities in China

Health preservation	**Sports and recovery**	**Medical healing**	**Aged nursing**
-Hot water bath	-Meditation	-Acupuncture	-Timesharing vacation
-Mud bath	-Taiji Quan	-Moxibustion	-Recuperating and nursing home
-Gas spring bath	-Qigong	-Tui Na	-spa
-Forest bath	-Wuqinxi	-Fire cupping	-Traditional
-Prairie Bath	-Ba Duan Jin	-Massage	Chinese Medicine
-Sand bath	-Chinese dancing	-Skin scraping	-upper class medicine
-Self-cultivation with chinese poetry and painting	-Wushu	-Aromatherapy	-Retirement Community
	-Horse riding	-Medicinal diet	
	-Health cycle and trekking		

Figure 1. Wellness tourism activities in China.

Health preservation, sports and recovery, and medical healing are appropriate categories for people who are in a state of sub-health. Via staying in a quiet place and concentrating on recuperating resources, health-preserving activities aid in recovery from suboptimal conditions of the mind and body. Considering the various carriers of these activities, health preservation may consist of a hot

water bath, mud bath, gas spring bath, forest bath, prairie bath, sand bath, and self-cultivation with Chinese poetry and painting. Adequate sports are helpful for rehabilitation, maintaining health, and rebuilding confidence. The activities of sports and recovery cover the meditation, taiji quan, qigong, wuqinxi, ba duan jin, Chinese dancing, wushu, horse riding, health cycle, and trekking in exercise intensity order. Chinese medical healing treatments are time-honored, featuring various complex therapies which have significant therapeutic value against illness. This paper enumerates the widely known activities of medical healing, including acupuncture, moxibustion, tui na, fire cupping, massage, skin scraping, aromatherapy, and medicinal diet. Due to the prominent position of longevity in Chinese wellness culture, aged nursing is subsumed within Chinese wellness tourism. Considering the physical capabilities of the aged, the activities of aged nursing are divided into timesharing vacation—recuperating and living in nursing homes—and living in retirement communities. Recuperating and living in nursing homes specifically covers the spa, traditional Chinese medicine, and upper-class medicine for aged people.

Tourists frequently seek transcendent locations and landscape. The same can be said of wellness tourists. Mountains with their spectacular scenery, majestic beauty, and unique amenity values, are one of the most popular destinations for tourists. It is no coincidence that many international tourist resorts are located on mountain tops [18,19]. However, the steepness, fragility, marginality, and high cost in terms of economic resources are limitations for the development of tourism in the mountains. Yet, for a long time, recreational tourism was the dominant type of tourism in mountain areas, with activities such as fishing, hiking, skiing, snowmobiling, and snowboarding [20]. With the emergence of alpine wellness [21], studies on mountain tourism gradually moved to focus on its positive effects on health and other specialized, differentiated products. Wellness tourism in mountain areas is becoming a hot topic in tourism research. Huang and Xu [22] illustrated the effect of therapeutic landscapes in healing illness and enhancing physical health for achieving longevity in mountain areas. An exploratory survey was conducted with hikers in Portugal, where the main motivation was to observe and enjoy the beauty of the landscape, to breathe pure air, and to interpret nature [23]. The Ili region is a mountainous area located in the west of Xinjiang Tianshan. There are mountains named Keguqin, Borohoro, Halik, and Narat, covering approximately 73% of the overall area [24]. As the area receives abundant precipitation, it has the best vegetation, soil and landcapes in Xinjiang Tianshan; Ili region is a mountainous area with magnificent sceneries, ice-capped mountains, snow-topped peak, azure alpine lakes, dense forests, and boundless prairies. With its multifarious natural resources and ethnic culture, this area may be the best place for developing mountain wellness tourism in China.

Tourism is considered an effective catalyst for economic growth. However, tourism development can also lead to environmental disruption and wastage of resources, when unsuitable tourism exploration happens in a sensitive area. Therefore, a suitability evaluation is required to determine the best development mode of wellness tourism. The spatial suitability evaluation of tourism involves the use of a wide variety of methods from different fields of science, and the results are used in every field of suitability development [25]. In most cases, multi-criteria decision making (MCDM) was chosen to solve such a problem [26]. The Delphi method and public surveys were used to identify sustainability criteria and indicators for evaluating sustainable ecotourism development in Taman Negara National Park, Malaysia [27]. Bunruamkaewa and Murayam [28] chose the analytic hierarchy process (AHP) to identify and prioritize potential ecotourism sites based on nine chosen criteria, including visibility, land use/cover, reservation/protection, species diversity, elevation, slope, proximity to cultural sites, distance from roads, and settlement size. The integration method of the analytic network process (ANP) and the technique for order performance by similarity to ideal solution (TOPSIS) have been used to construct an evaluation model for the selection of optimal tourism sites [29]. Aiming at involving the stakeholders in the participatory and consensus-building process, Mónica García-Melón et al. [30] attempted to make a combined ANP-Delphi approach to evaluate sustainable tourism.

These studies either focused on a particular product of wellness tourism or they did not indicate the plurality of the expected tourism products. As for the multiplicity characteristic of wellness

tourism, the evaluation system must be composed of four aspects: health-preservation, sports and recovery, medical healing, and aged nursing. It was reasonable only when the tourism activities were assigned scores by considering the different effects of each factor by a group of specialists. The integration of ANP-Delphi approach has the advantage of enhancing experts' participation and transparency, and offering support for experts' decisions, which will help experts to reassess and reselect the evaluation factors with the abovementioned method. It is possible to build a scientific rationality system of spatial suitability of mountainous wellness tourism, which might fill the gaps in theory and broaden the scope of application.

2. Materials and Methods

2.1. Study Area

The study area, approximately 5,580,119 ha, is located in the Ili valley in the western part of Xinjiang Ili Kazak Autonomous Prefecture, between northern latitudes 40°14′ and 49°10′ N and eastern longitudes 80°9′ and 91°01′ E, officially known as the Xinjiang Ili Region (Figure 2). The study area covered Yining City, Yining County, Horgos County, Huocheng County, Qapqal County, Zhaosu County, Tekes County, Nilka County, Tokkuztara County, and Narat County. As this area receives the most abundant precipitation, it has the best vegetation and soil in Xinjiang Tianshan and is famous for its magnificent sceneries, ice-capped mountains, snow-topped peaks, azure alpine lakes, dense forest, boundless prairie, historical and cultural origins, and distinctive folk customs [31]. These multifarious resources are the foundation for developing wellness tourism in the Ili valley.
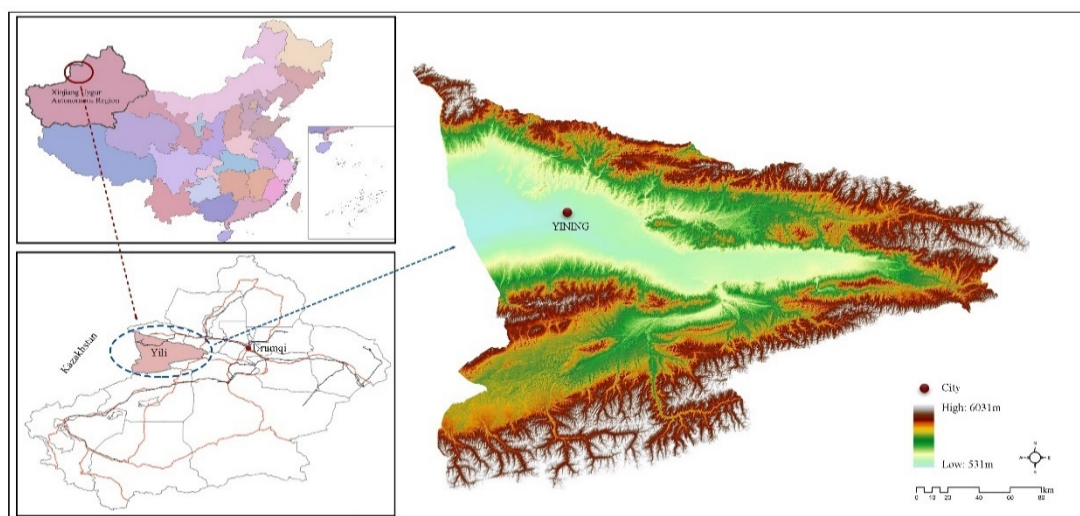

Figure 2. Location of the study area.

2.2. Data Collection

In the analysis of sustainability in terms of wellness tourism, the topography, environment, accessibility, and tourism attractions were considered as the basis by taking the opinion of specialists involved in this area. At the beginning of this study, a field study was performed. Forty-four scenic areas, which have the potential to be developed for wellness tourism, were identified. After that, data regarding the sustainability evaluation was collected from relevant institutions. A geo-spatial database was formed using the attribute data and the geospatial data in ArcGIS 10.5. Details on the data and resources are shown in Table 1.

Table 1. List of data resources.

Data	Data Sources
Temperature, moisture, wind speed (1981–2010)	China Meteorological Information Center
Air quality, surface water quality, sound environment	Xinjiang Environmental Protection Bureau
Administrative divisions, vegetative cover	Resource and Environment Data Cloud Platform
Digital elevation data (DEM) 90 m × 90 m	Geospatial Data Cloud
Xinjiang administrative map, traffic vector data	Xinjiang Uygur Autonomous Region Bureau of Surveying and mapping of geographic information

2.3. Sustainability Assessment Methods

This study used a combined ANP-Delphi approach [30] to select effective indicators and to evaluate their weights. Calculations of the ANP method were carried out with the software Super Decision 1.6.0. To digitize and examine the data and maps, the ArcGIS 10.0 program was used. The spatial distribution of different suitable areas was ascertained using the fuzzy classifying method, as shown in Figure 3.
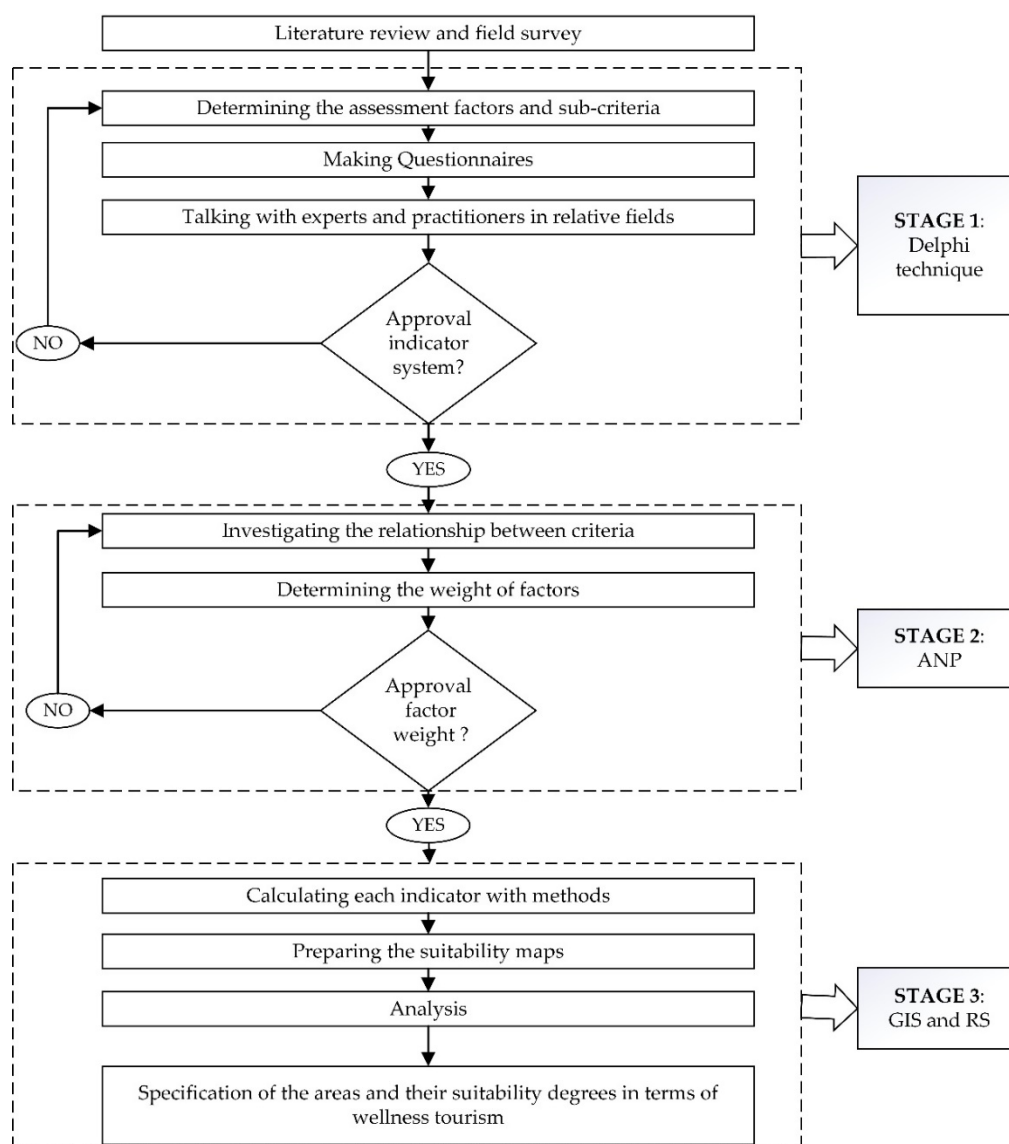
Figure 3. The steps included in the study method.

2.3.1. Selection of the Effective Factors and Sub-Criteria for Wellness Tourism in Mountain Areas Using the Method of Delphi

Indicators for measuring the tourism phenomenon are inherently difficult to select [32]. The Delphi technique was first described by Olaf and Norman Dalkey; it was described as "the unique method of eliciting and refining group judgment based on the rationale that a group of experts is better than an expert in relative fields" [33]. In recent years, numerous papers have used the Delphi technique for the measurement of tourism [34–36]. This method has advantages for dealing with questions that are complicated and do not have a settled conclusion [37].

The Delphi technique was chosen to construct a partial indicator system for mountain-wellness tourism with a group of specialists, consisting of the project team and faculty members from the Department of Tourism Planning, Geography, and Heritage Tourism. Using the frequency statistic method, the high-frequency indicators were screened out from numerous studies, which reflected the natural environment, social state, and financial situation. Afterwards, the Delphi method helped us to adjust and delete some unreasonable targets, add significant indicators, and reconstruct the evaluation system, as shown in Figure 3.

Secondly, an assessment was carried out to determine the land suitability of various wellness tourism activities. As the result of first-round Delphi questionnaires, this procedure mainly focused on factors that had a different impact on various wellness tourism activities, such as the slope, elevation, climate, air quality, and surface water quality. We chose a score range of 1–5 with 1 being "least suitable" and 5 being the "most suitable" [25]. After that, four kinds of wellness tourism activities were assigned scores for each factor.

The third round of Delphi questionnaires aimed to achieve the weight of factors, while evaluating the relationships among different factors. A 9 score range was selected with 1 being equally important and 9 being extremely more important. The results are shown in Table 2.

2.3.2. Determining the Weight of Indicators Using the ANP Method

Relationships among contributory factors in mountainous wellness tourism present a framework that is conflicting and complicated. Problems with feedback and intangibles in multi-criteria decision making (MCDM) can be addressed by decision modeling methods, such as the analytic network process (ANP) [29]. The ANP has the advantage of considering the dependence and feedback among indicators. As compared to other decision-making methods, such as the weighted sum model (WSM), the weighted produced model (WPM), and the analytic hierarchy process (AHP) [38], ANP can handle it more appropriately. Steps for solving the MCDM problem in ANP are given below.

(1) For proper pairwise correlation of factors, the questionnaire on the relationship among different factors was designed and dispatched to experts. Saaty's 9 point scale (Table 3) was used for quantifying the relationship among indices that were interdependent with each other. Finally, the opinion of experts was collected and entered into Super Decision 1.6.0.

(2) The judgment matrix A in every element a_{ij} ($i = 1, 2, \ldots \ldots, n$) is the quotient of the weight of criteria, as shown:

$$A = \begin{bmatrix} a_{11} & a_{12} & \ldots & a_{1n} \\ a_{21} & a_{22} & \ldots & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{n1} & a_{n2} & \ldots & a_{nn} \end{bmatrix} \tag{1}$$

where $a_{ij} = 1/a_{ji}$.

(3) The CR (consistency ration) of matrix A was used to check judgment in consistencies: $CR = CI/RI$, $CI = (\lambda max - n)/(n - 1)$ and λmax was the eigenvalue of matrix A. The RI (random index) is an experimental value that depends on n (Table 4) [35]. If the $CR < 0.1$, the final consistency can be accepted. If the CR exceeds 0.1, the evaluation process needs to be repeated until the CR falls below 0.1.

Table 2. Assessment factors and scores used to determine the potential use of wellness tourism.

Assessment Factors	Suitability Degree	Proposed Types of Wellness Tourism			
		Health Preserving	Sports and Recovery	Medical Healing	Aged Nursing
Slope	0–2%	5	5	5	5
	2–6%	4	5	3	5
	6–12%	3	4	1	3
	12–20%	2	3	1	1
	20–30%	1	2	1	1
	>30%	1	1	1	1
Elevation	<500 m	3	3	3	5
	500–1000 m	5	4	5	5
	1000–1500 m	5	5	4	3
	1500–2000 m	4	4	2	2
	2000–2500 m	2	3	1	1
	>2500 m	1	2	1	1
Climate	Temperature and humidity index (THI) 55 < THI < 75	5	5	5	5
	Wind chill index (WCI) −800 < WCI < 80	5	5	5	5
	Index of Clothing (ICL) 0.5 < ICL < 1.8	5	5	5	5
Air Quality	AQI ≤ 50	5	5	5	5
	50 < AQI ≤ 100	4	3	3	3
	100 < AQI ≤ 150	3	2	1	1
	150 < AQI ≤ 200	2	1	1	1
	AQI > 199	1	1	1	1
Surface Water Quality	Class I	5	5	5	5
	Class II	3	4	4	3
	Class III	1	3	3	1
	Class IV	1	2	2	1
	Class V	1	1	1	1
Noise Quality	Class 0	5	5	5	5
	Class 1	5	5	3	3
	Class 2	3	4	1	1
	Class 3	1	3	1	1
	Class 4	1	1	1	1
Vegetation Types	Forest	5	5	5	5
	Natural Steppe	5	4	3	5
	Transitional woodland/shrub	3	3	1	1
	Agricultural area	1	1	1	3
	Desert	2	1	2	1
Internal Road Convenience	High	5	3	5	5
	Average	3	5	3	3
	Low	1	1	1	1
Proximity to High-Grade Roads	0–500 m	5	2	3	3
	500–1000 m	4	4	5	5
	1000–2000 m	3	5	3	1
	2000–3000 m	2	3	1	1
	>3000 m	1	1	1	1
Concentration of Wellness Tourism Resources	High density of tourist spots	5	5	1	3
	Middle density of tourist spots	3	3	5	5
	Dispersing tourist spots	1	1	3	1

Table 3. The nine-point intensity of importance and its description.

Intensity of Importance	Definition	Explanation
1	Equally importance	Two activities contribute equally to the objective
3	Moderately more important	Experience and judgment slightly favor one over another
5	Strongly more important	Experience and judgment strongly favor one over another
7	Very strongly more important	Activity is strongly favored, and its dominance is demonstrated in practice
9	Extremely more important	Importance of one over another affirmed on the highest possible order
2, 4, 6, 8	Intermediate values	Used to represent compromise between the priorities listed above

Table 4. Random Index (RI) value.

n	1	2	3	4	5	6	7	8	9	10	11	12
RI	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49	1.51	1.54

(4) In this step, matrix A was integrated into an unweighted super-matrix, in which the sum of each row was not equal to 1. Then the weighted super-matrix was raised to successive powers, and a limit was obtained in which the sum of each row was equal to 1. A professional software named "Super Decision 1.6.0" was used to do the calculation of the super-matrix. The final value of each indicator is presented in Table 5.

Table 5. The weighted score of the factors.

Factors	Weighted Scores
Slope	0.03
Elevation	0.15
Climate	0.14
Air quality	0.13
Surface water quality	0.09
Noise quality	0.03
Vegetation types	0.16
Internal road convenience	0.04
Proximity to the high-grade roads	0.10
Concentration of wellness tourism resources	0.13

2.3.3. Image Processing with the Software of ArcGIS

To evaluate the suitability of wellness tourism, vectors graphic shapes (e.g., administrative boundary, highway, railway, land-use pattern), textual information (e.g., tourist sites, temperature, wind speed, air condition), and images must be covered. The coefficients of evaluation indicators for mountainous wellness tourism were calculated by the corresponding methods. Subsequently, a database was formed with different layers such as slope, elevation, climate comfort, environment, accessibility, and resource value, in the ArcGIS 10.0 program. Finally, the spatial distribution of the different suitable areas was determined by overlaying the maps on the weights shown in Table 5.

3. Results

According to the results obtained, the rich forest, vast prairie, convenient transportation, unique position, and tourism sites are the vital resources for developing wellness tourism in this area. Other

factors that did not show a great advantage in any region include air quality, surface water quality, and noise quality, as shown in Figure 4.
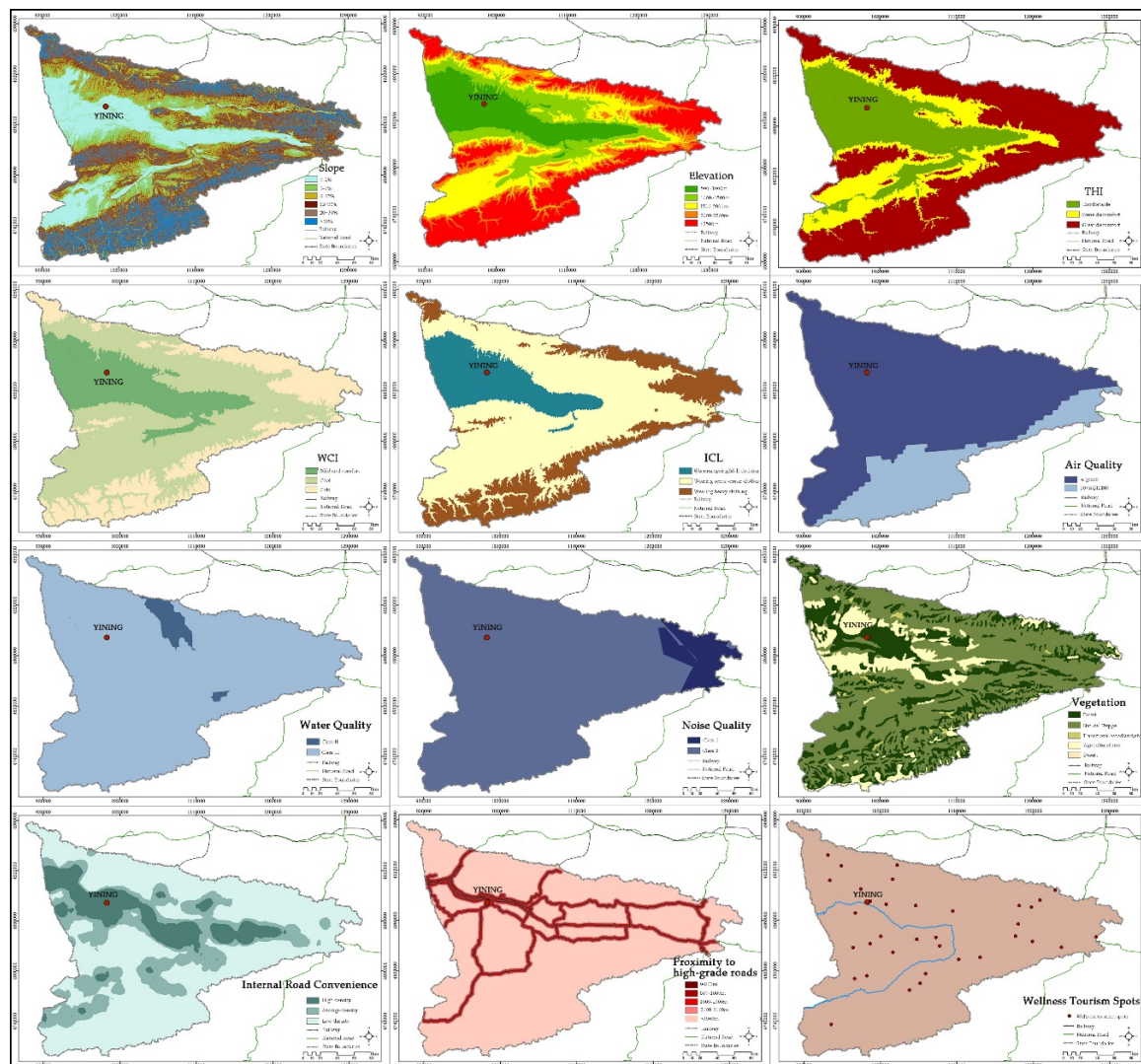

Figure 4. Current situation maps of assessment factors in determining the potential wellness tourism usage.

The geomorphology of the Ili region is complex, followed by the mountains, hills, intermontane basin, and valley at different altitudes [31]. According to Zhou [39], the slope is an important factor influencing construction intensity. Building a large and standardized service facility is essential for some wellness tourism activities, such as the spa, rehabilitation therapy, medical health care, and aged caring. The optimal slope for building such installations is 0–2%, covering 8.48% of this area, concentrated in and around the city of Yining. The optimal slope for conducting activities of sports and recovery is 2~12%, covering 51.4% of this area. The terrain of the Ili valley has been transforming into a landscape with little plain and multi-mountain catchment basins and a large elevation difference, shown in Figure 4. There was 5.81% of the area that stayed below 1000 m and 18.87% of the area over 2500 m. The evaluation from 1000 m to 1500 m, which contains hot springs, forest, and natural steppe covering 18.47% of the area, is the best place to carry out a natural spa, bodybuilding, and meditation.

The temperature–humidity index (THI), wind-chill index (WCI), and index of clothing (ICL) was chosen to comprehensively evaluate the tourism climate of this region, while considering the temperature, humidity, wind speed, solar radiation, and human metabolism. As shown in the results,

the THI ranged from 12.21 to 53.46. The spatial difference of temperature was not so obvious. Most parts of this region were moderate, humid, and comfortable and, thus, presented one of the best places to launch a summer's journey. Partial mountains in Ili region were not too chilly to prevent tourism activities, such as climbing, mountain spa or forest resort. The WCI was located in the scope of −490 to −1100 of study area. The comfort zones, within the range of −490 to −600, were mainly located in the area near the Ili River, Kunes River, and Tekes River, i.e., they covered 9.44% of the area. The map of the ICL showed that the places requiring lightweight clothes were mainly in Chabuchar County and Tokkuztara County, and, partially, Tekes County; they accounted for 5.39% of the area.

Living in a comfortable region with fresh air, clean surface water, and low noise levels is considered to be a means of promoting health, especially in Chinese culture [22]. The data were collected from the Xinjiang Environmental Protection Bureau and subjected to Kriging interpolation to obtain the spatial variability of environmental quality in our research area. The map of air quality showed that roughly two-thirds of this region were present in the range of 29–50—a grade of 2 in the China Ambient Air Quality Standards. The spatial distribution of surface water quality was easy to find after overlaying the topographical maps, as shown in Figure 4. The upper Kashgar, Kunas, and Big Giergelang rivers had good water quality and may be used for Chinese diet nutrition therapy, spas, and drinking water supply. The sound environment quality of this region had a strong correlation with the terrain, elevation, and economic development. As the map shows that the Yourdusi basin had a better acoustical environment than other regions.

Both in eastern and western countries, the positive effect of forest and grasslands on physical and mental health has been confirmed [40,41]. As for the spatial distribution map of vegetation, the Ili region can be characterized by heavy forest and vast open grass plains, covering around 43.73% of this area. The *Picea schrenkiana* forest belt of the Ili valley comprises grasslands; it is intensive, magnificent, and fascinating, which extends for more than a 100 km in the east–west direction. It is full of flowers, grasslands, and forests blending with the snow. There are natural advantages in conducting tourism activities here, like vacation, physical activities, relaxation/stress relief, which may all improve physical ability.

Internal road convenience and proximity to high-grade roads were chosen to evaluate the accessibility with the methods of linear density and buffer analysis. The findings showed that the area, near the Ili and Kunas rivers, was more convenient than the hilly area. In ranking the traffic concentration, Yining City has the best transport facilities than the other counties. The high-grade road system consists of railroads, national roads, and a provincial road. A map of the internal roads of convenience shows Yining City is the transportation center and an easily accessible area (Figure 4). As the frontier port between China and Kazakhstan, Khorgos has convenient communications. There were 24 wellness tourism points located around high-grade roads within 3 km, which accounted for 55.81% of the total area.

This district is very rich in tourism resources. As per a field survey, there were 18 tourism attractions that could be used as forest and prairie recuperation, seven high-grade hot springs, two gas springs that have a significant effect on chronic diseases, three outdoor activity centers, and serval medical services, providing traditional Chinese medicinal treatment. Kalajun is famous for its forests, in which *Picea schrenkiana* are dense and extend altitudinally for hundreds of meters. In Kuerdening, there are tall and dense original forests, and that were ranked as one of the top 10 forests in China in 2006. Besides, many high-quality tourism resources are concentrated in this area, including the Xiata Grassland, Nalati Scenic Area, Bozerdun Grassland, Hoendun Grassland, Almond flowers ditch, and Fruit Valley. This district hosts many diverse cultures and races such as the Han, Kazak, Uygur, Hui, Kirgiz, and Mongolia. These races have a long history and have developed unique and effective treatments for serious diseases, such as acupuncture, tui na, and balneation. As compared to other countries, these may be a unique resource for developing wellness tourism.

After overlaying the property maps and calculating each weight, the results were divided into five suitability classes—namely, suitable, less suitable, limited suitable, least suitable, and unsuitable using the method of natural break (Jenks). The results are presented in Figure 5 and Table 6.
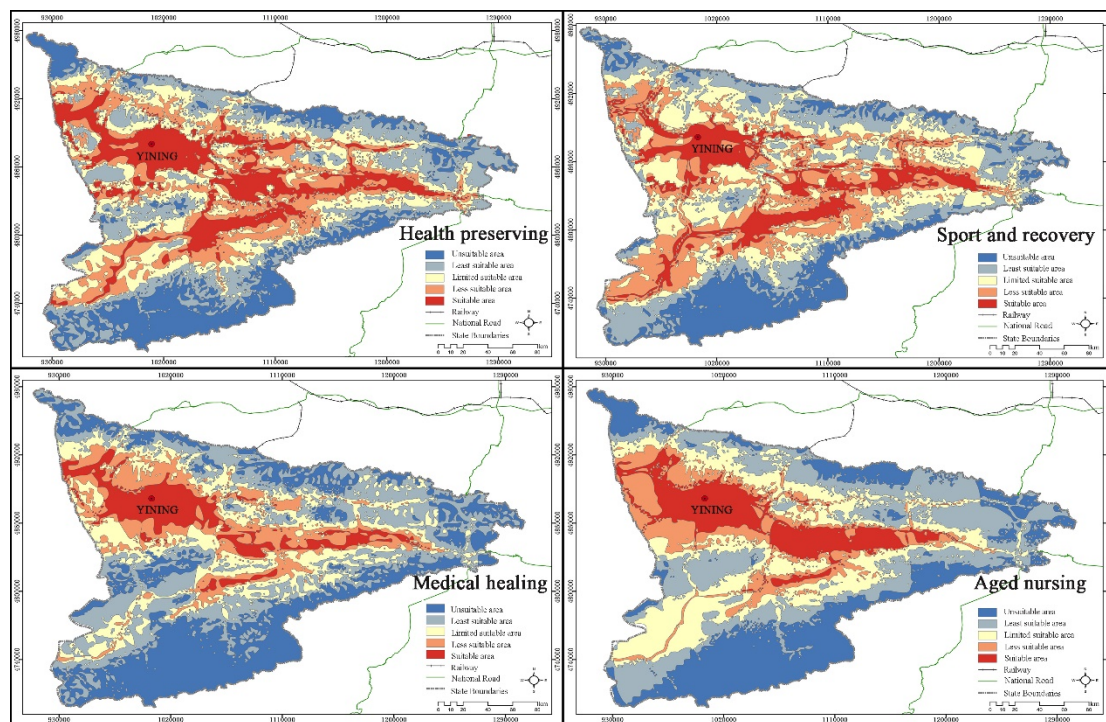

Figure 5. Five-degree suitable area for wellness tourism.

Table 6. The surface area of five-degree suitability.

Suitability Classes	Health Preservation		Sport and Recovery		Medical Healing		Aged Nursing	
	(In km^2)	(In %)	(In km^2)	(In %)	(In km^2)	(In %)	(In km^2)	(In %)
Suitable	14,489.62	26.19	5470.15	9.89	3314.23	5.99	5102.02	9.22
Less suitable	15,479.94	27.98	14,313.08	25.87	10,018.01	18.11	14,867.60	26.87
Limited suitable	11,922.54	21.55	16,212.04	29.30	16,307.51	29.48	15,066.89	27.23
Least suitable	5764.86	10.42	13,944.62	25.20	19,019.15	34.38	15,146.61	27.38
Unsuitable	14,489.62	26.19	5385.12	9.73	6666.12	12.05	5141.88	9.29

Through a comprehensive comparison of four maps, it was readily observed that this region was ideal for developing spa tourism. Suitable areas for spa tourism might be distributed dispersedly near high-quality tourism attractions, such as the Tangbula Grassland, Mshatta, Broom hot spring, Kuerdening, Kuokesu hot spring, and the Ningsanjing Geothermal spring. Due to the high altitude and inconvenient traffic, the Kalajun, Nalati, and Torusu grasslands, which have a great advantage in developing forest and prairie baths, were located in less suitable and limited suitable areas. Sports and recovery tourism may be more concentrated in the south and east part, including partial Zhaosu County, Tekes County, Tokkuztara County, and Narat county. This weakness in developing spa tourism might be the superiority in developing sports and recovery activities, especially in the Kalajun, Nalati, and Torusu grasslands. Therefore, in these places the local environment should continue to be protected and several exercises for life enhancement, such as the taijiquan, marathons, hiking, cycling, horse riding, mountaineering, and trekking, should be developed instead of building large spa service facilities. For medical healing tourism, suitable areas should mainly be Horgos City, Huocheng County, Yining City, and Yining County. As the map shows, the location may have a grand advantage in developing medical healing, especially in the context of Chinese traditional medicine being fashionable around the world. A suitable area for aged tourists should be based on old-age complex tourism

and aged sojourn tourism. Old-age complex tourism may be centered around Yining City, which has sufficient medical facilities and convenient communications. The second type should be near scenic areas with partial inclusion of Nilka, Tokkuztara, and Narat. Its splendid landscape, picturesque scenery, and convenient transportation will make it a world-renowned resort for aged tourists.

Yining City and its peripheral locality are the hot spots for four kinds of wellness tourism. It has the potential for developing a comprehensive and national wellness tourist destination. Horgos and Huocheng counties should make full use of location advantages and develop medical healing tourism. Qapqal County has abundant geothermal tourism resources. Tourism development in this area should make full use of the advantages in healing chronic disease. Zhaosu and Tekes counties, famous for their natural landscapes, should hold big sporting events that will help build their brand as sport and recreation destinations. Places near Nilka, Tokkuztara, and Narat counties can develop tourism endowment. Places near the mountains may mainly cultivate sports and recovery activities. These activities could not only host young people, but also the elderly and children.

4. Discussion and Conclusions

In this study, a spatial suitability evaluation of wellness tourism in mountain areas was conducted using the integration method with the ANP-Delphi approach. As for the multiplicity of wellness tourism, suitable lands were divided into four kinds: health preservation, sports and recovery, medical healing, and aged nursing. With this evaluation system, it was easy to find comprehensive areas and advantaged areas. These results indicate that the Ili valley does have the potential to develop wellness tourism with natural resources and an economic structure. Health preservation, sports and recovery, medical healing, and aged nursing should be given priority in this area. It may help us answer the question of where proposed wellness tourism programs should be developed in terms of land-use suitability.

As compared to other research on suitability evaluation of tourism products, such as ecotourism [27,28], coastal tourism [29], forest tourism [41], and rural tourism [25], the integration of the ANP-Delphi approach helped us identify factors that had significant impacts on wellness tourism and confirmed the weights. This Delphi method helped experts reconsider the relationship between tourism and natural landform, climate, tourist attractions, economic, and national culture. These selected factors can adequately and accurately define the characteristics of the field and form of land use. In addition, different activities of wellness tourism have a particular requirement for these factors. The ANP helped experts easily understand the relationship among different factors, reconsider rationality, and determine the weight, especially when the criteria were relevant, controllable, and measurable. With these steps, a suitability evaluation system of wellness tourism was constructed.

As organized and reviewed in the relevant literature on wellness and health tourism [2,42–45], wellness tourism in China may be made up of health preservation, sports and recovery, medical healing, and aged nursing; it involves meditation, taiji quan, qigong, wuqinxi, ba duan jin, Chinese dancing, wushu, horse riding, acupuncture, moxibustion, tui na, fire cupping, massage, skin scraping, aromatherapy, medicinal diet, timesharing vacation, recuperating and nursing home, retirement community. As per the competitiveness model of spa tourism [24] and the suggestion of experts, these activities of health recovery tourism are sensitive to spa resource, land vegetation, natural landscape, and surface water quality. The activities of sports and recovery are more inclined toward the recovery effectiveness from doing some exercises, not competition, overcoming challenges, or self-actualization. Therefore, the slope, evaluation, air quality, and natural landscape are more important than other factors, which shows a remarkable change in assigning value. Medical healing in china mostly relies on some manual therapies of Chinese traditional medicine, which concentrates in cities and requires some facilities. This product is relevant with slope, air quality, vegetation types, and traffic location, in which it is easy to attain the atmosphere of a harmonious and balanced relationship with nature. Aged nursing mostly focuses on tourists who are older and tired in the mind and body. Areas with skilled nursing facilities, convenient transportation, and a good environment are

the most attractive destination. Besides that, as compared to data processing in the form of representing the land suitability for nine activities of rural activities in one map [25], it is easy to find advantages for each area in the four maps of the five-degree suitable area of wellness tourism.

This research summarizes the concept and types of wellness tourism with respect to Chinese culture; we constructed a spatial suitability evaluation system for wellness tourism in mountain areas, while considering the multiplicity and diversity of their different types. It may be use as an example for other studies in wellness tourism. As a future line of investigation, the research method and evaluation index need to be reassessed when implemented in different fields. In mountain areas, the undulating terrain, climate, forest, grasslands at high altitude, and other virgin areas make this area-specific and unique for wellness tourists. Beside mountain areas, activities such as sandspiel, a selenium-rich regimen, and ocean spas, which may be supplied only in deserts, plains or coastal areas, are also famous tourist attractions. A suitable evaluation index for such an area should be adjusted by adding significant indicators and by regulating the value. Furthermore, tourism planning should consider the possible future damage to the natural landscape and local socio-economic environment when wellness tourism happens in an ecologically sensitive area.

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References

1. Serre, L.D.; Chevalier, C. Marketing travel services to senior consumers. *J. Consum. Mark.* **2012**, *29*, 262–270. [CrossRef]
2. Smith, M. Holistic holidays: Tourism and the reconciliation of body, mind and spirit. *Tour. Recreat. Res.* **2003**, *28*, 103–108. [CrossRef]
3. Carrera, P.M.; Bridges, J.F. Globalization and healthcare: Understanding health and medical tourism. *Expert Rev. Pharm. Outcomes Res.* **2006**, *6*, 447–454. [CrossRef] [PubMed]
4. Pechlaner, H.; Fischer, E. Alpine wellness: A resource-based view. *Tour. Recreat. Res.* **2006**, *31*, 67–77. [CrossRef]
5. Dams, T.; Bezner, J.; Steinhardt, M. The Conceptualization and Measurement of Perceived Wellness: Integrating Balance Across and Within Dimensions. *Am. J. Health Promot.* **1997**, *11*, 208–218.
6. Halbert, L.D. *High Level Wellness*; Bantam Books: New York, NY, USA, 1979; pp. 21–24.
7. Jane, E.M.; Melvin, W.J.; Thomas, J.S. Wellness Evaluation of Lifestyle (WEL) Workbook. *Meas. Eval. Couns. Dev.* **2004**, *36*, 194–208.
8. Els, D.A.; De la Rey, R.P. Developing a holistic wellness model. *SA J. Hum. Resour. Manag.* **2006**, *4*, 46–56. [CrossRef]
9. Chen, K.-H.; Liu, H.-H.; Chang, F.H. Essential customer service factors and the segmentation of older visitors within wellness tourism based on hot springs hotels. *Int. J. Hosp. Manag.* **2013**, *35*, 122–132. [CrossRef]
10. Huang, L.; Xu, H. A cultural perspective of health and wellness tourism in China. *J. China Tour. Res.* **2014**, *10*, 493–510. [CrossRef]
11. Vincent, C.S.H.; Deniz, K. Wellness tourism in China: Resources, development and marketing. *Int. J. Tour. Res.* **2013**, *15*, 346–359.
12. Islam, N. Chinese Medicine as a product filling the wellness health tourism niche in China: Prospect and challenges. *Int. J. Tour. Sci.* **2014**, *14*, 51–69. [CrossRef]
13. Gong, S.; Luo, T. On Human health sustainable development. *Geogr. Geo-Inf. Sci.* **2005**, *3*, 109–112.
14. Zhang, Z.; Wang, Y. On the concept and scientific content of "treatment of disease" in traditional Chinese medicine. *J. B. U. C. M.* **2007**, *7*, 440–444.

15. Dong, Z.; Dong, A. The Influence of Buddhism, Confucianism and Taoism on Chinese Traditional Health Preserving Thoughts. *J. S. N. N. U.* **1996**, *2*, 1–4.

16. Wu, G.; Zheng, X. Study on the development model of wellness tourism in China. *Health Care Today.* **2017**, *3*, 294–298.

17. Xie, X.; Guo, Q.; Wu, Y. Research on the regional characteristics of small wellness tourism town in China. *Ecol. Econ.* **2018**, *34*, 150–154.

18. Smith, M.; Puczkó, L. *Health and Wellness Tourism*; Routledge: Abingdon-on-Thames, UK, 2008; pp. 1–4.

19. Nepal, S.K.; Chipeniuk, R. Mountain Tourism: Toward a Conceptual Framework. *Tour. Geogr.* **2005**, *7*, 313–333. [CrossRef]

20. Heberlein, T.A.; Vuorlo, F.T. Current Tourism Patterns in the Swedish Mountain Region. *Mt. Res. Dev.* **2005**, *7*, 142–149. [CrossRef]

21. Weiermair, K.; Mike, P.; Markus, S. Destination development and the tourist life-cycle: Implications for entrepreneurship in Alpine tourism. *Tour. Recreat. Res.* **2007**, *32*, 83–93. [CrossRef]

22. Huang, L.; Xu, H. Therapeutic landscapes and longevity: Wellness tourism in Bama. *Soc. Sci. Med.* **2018**, *197*, 24–32. [CrossRef]

23. Áurea, R.; Elisabeth, K.; Apolónia, R. Hiking as a relevant wellness activity-results of an exploratory study of hiking tourists in Portugal applied to a rural tourism project. *J. Vacat. Mark.* **2010**, *16*, 331–343.

24. Zhao, X. Relationship between agricultural production and basic characteristics of the landscape in Ili area. *Arid Land Geogr.* **2000**, *3*, 233–238.

25. Lee, C.F.; King, B. Assessing Destination Competitiveness: An Application to the Hot Springs Tourism Sector. *Tour. Hosp. Plan. Dev.* **2006**, *3*, 179–197. [CrossRef]

26. Çiğdem, K.A.; Tülay, C.T.; Ferah, Ö.; Hasan, T. Land use suitability analysis of rural tourism activities: Yenice, Turkey. *Tour. Manag.* **2020**, *76*, 103949.

27. Zaaba, Z.A. *The Identification of Criteria and Indicators for the Sustainable Management of Ecotourism in Taman Negara National Park, Malaysia: A Delphi Consensus*; West Virginia University Libraries: Morgantown, WV, USA, 2001; p. 1147.

28. Bunruamkaew, K.; Murayam, Y.; Murayama, Y. Site Suitability Evaluation for Ecotourism Using GIS & AHP: A Case Study of Surat Thani Province, Thailand. *Procedia Soc. Behav. Sci.* **2011**, *21*, 269–278.

29. Morteza, Z.; Reza, F.M.; Seddiq, M.M.; Sharareh, P.; Jamal, G. Selection of the optimal tourism site using the ANP and fuzzy TOPSIS in the framework of Integrated Coastal Zone Management: A case of Qeshm Island. *Ocean Coast. Manag.* **2016**, *130*, 179–187. [CrossRef]

30. García-Melón, M.; Gómez-Navarro, T.; Acuña-Dutra, S. A combined ANP-delphi approach to evaluate sustainable tourism. *Environ. Impact Assess. Rev.* **2012**, *34*, 41–50. [CrossRef]

31. Yan, S.; Zhang, C.; Xu, Y.; Kan, Y. Development of tourism resources in Ili area. *Arid Land Geogr.* **2000**, *1*, 1–6.

32. Miller, G. The development of indicators for sustainable tourism: Results of a Delphi survey of tourism researchers. *Tour. Manag.* **2001**, *22*, 351–362. [CrossRef]

33. Kaynak, E.; Macauley, J.A. The Delphi technique in the measurement of tourism market potential: The case of Nova Scotia. *Tour. Manag.* **1984**, *5*, 87–101. [CrossRef]

34. Brian, G.; Alan, F. Managing heritage tourism. *Ann. Tour. Res.* **2000**, *27*, 682–708.

35. Garrigos-Simon, F.J.; Narangajavana, Y.; Marques, D.P. Carrying capacity in the tourism industry: A case study of Hengistbury Head. *Tour. Manag.* **2004**, *25*, 275–283. [CrossRef]

36. Spenceley, A. Nature-based Tourism and Environmental Sustainability in South Africa. *J. Sustain. Tour.* **2005**, *13*, 136–170. [CrossRef]

37. Stanley, J.P. Predicting the future using Delphi. *Manag. Decis.* **1983**, *21*, 31–38.

38. Saaty, T.L. *Fundamentals of Decision Making and Priority Theory with the Analytic Hierarchy Process*, 1st ed.; RWS Publications: Pittsburgh, PA, USA, 1994; pp. 5–8.

39. Zhou, J.-F.; Zeng, G.-M.; Huang, G.-H.; Li, Z.-W.; Jiao, S.; Tang, L. The ecological suitability evaluation on urban expansion land based on uncertainties. *Acta Oecol.* **2005**, *27*, 774–783.

40. Konu, H. Developing a forest-based wellbeing tourism product together with customers—An ethnographic approach. *Tour. Manag.* **2015**, *49*, 1–16. [CrossRef]

41. Van Berkel, D.B.; Munroe, D.K.; Gallemore, C. Spatial analysis of land suitability, hot-tub cabins and forest tourism in Appalachian Ohio. *Appl. Geogr.* **2014**, *54*, 139–148. [CrossRef]

42. Goodrich, J.N. Socialist Cuba: A Study of Health Tourism. *J. Travel Res.* **1993**, *32*, 36–41. [CrossRef]

43. Loverseed, H. Health and spa tourism in North America. *Travel Tour. Anal.* **1998**, *1*, 46–66.

44. Mueller, H.; Kaufmann, E.L. Wellness tourism: Market analysis of a special health tourism segment and, implications for the hotel industry. *J. Vacat. Mark.* **2001**, *7*, 5–17. [CrossRef]

45. Pesonen, J.; Komppula, R. Rural Wellbeing Tourism: Motivations and Expectations. *J. Hosp. Tour. Manag.* **2010**, *17*, 150–157. [CrossRef]