

Article

Building the future of rural-based wellness tourism: Infrastructure and policy considerations for rural Thailand

Parichat Suntararak*, Watsida Boonyanmethaporn

Graduate School of Tourism Management, National Institute of Development Administration (NIDA), Bangkok 10240, Thailand

* **Corresponding author:** Parichat Suntararak, parichats@yahoo.com

CITATION

Suntararak P, Boonyanmethaporn W. (2024). Building the future of rural-based wellness tourism: Infrastructure and policy considerations for rural Thailand. *Journal of Infrastructure, Policy and Development*. 8(14): 9387. <https://doi.org/10.24294/jipd9387>

ARTICLE INFO

Received: 29 September 2024
Accepted: 31 October 2024
Available online: 20 November 2024

COPYRIGHT



Copyright © 2024 by author(s).
Journal of Infrastructure, Policy and Development is published by EnPress Publisher, LLC. This work is licensed under the Creative Commons Attribution (CC BY) license.
<https://creativecommons.org/licenses/by/4.0/>

Abstract: Rural-based wellness tourism presents a unique opportunity for sustainable economic development in Thailand, particularly in regions rich with natural and cultural resources. The significance of this study lies in its focus on addressing the gap in understanding how rural-based wellness tourism can be supported through infrastructure development and policy frameworks. While wellness tourism has been extensively studied in urban settings, there is a clear need for research that examines the unique attributes of rural wellness destinations, particularly in Thailand, where rich cultural heritage and natural landscapes provide a strong foundation for wellness tourism development. This study examines the key attributes of rural-based wellness tourism destinations, emphasizing how infrastructure development and policy frameworks can support their sustainable growth. Quantitative method using structured questionnaire is the primary research tool. Using Exploratory Factor Analysis (EFA), six core attributes—Uniqueness, Facilities, Activities, Attractions, Natural Setting, and Wellness Therapy—were identified as critical components that shape tourist experiences and drive destination success and validates them using Confirmatory Factor Analysis (CFA). The article highlights the vital role of infrastructure, such as transportation and wellness facilities, in enhancing the accessibility and appeal of rural destinations. Additionally, policy considerations are explored, focusing on environmental protection, community-based tourism, and investment incentives that encourage the sustainable development of wellness tourism in rural Thailand. A proposed model integrates these attributes with infrastructure and policy measures, offering practical recommendations for stakeholders to promote rural-based wellness tourism that fosters local economic growth while preserving natural and cultural heritage. The findings contribute to the broader understanding of how rural wellness tourism destinations can be developed to meet the evolving needs of modern travelers and support long-term sustainable tourism strategies.

Keywords: rural-based wellness tourism; rural-based wellness tourism destination attributes; community-based tourism; rural development; Thailand

1. Introduction

Wellness tourism, a rapidly growing segment within the global tourism industry, focuses on travel experiences that promote health, well-being, and relaxation. It extends beyond traditional medical tourism by incorporating activities such as spa treatments, yoga, meditation, physical therapies, and immersive experiences in natural environments. These activities aim to enhance overall well-being, including physical, mental, and emotional health, and are prevalent in wellness retreats worldwide, which emphasize mindfulness, self-care, and reconnection with nature to promote relaxation and rejuvenation (Glion, 2024;

Medical Tourism Association, 2024). In 2022, Thailand attracted 10.4 million wellness tourists, generating \$7.8 billion in revenue, making the country the 15th largest wellness tourism destination globally (GWI, 2023).

In Thailand, rural-based wellness tourism has emerged as a key component of the tourism industry, with rural regions offering unique opportunities for immersive wellness experiences. These areas are rich in cultural heritage and natural landscapes, making them ideal for wellness activities that blend traditional Thai therapies with the tranquility of nature. Rural-based wellness tourism not only meets the increasing demand for transformative travel experiences but also provides significant economic benefits, including job creation, preservation of local traditions, and sustainable community development (Connell, 2023; Smith and Diekmann, 2017). In particular, rural-based wellness tourism in Thailand often involves activities such as herbal therapy, meditation, and holistic health practices that draw on the country's deep cultural and spiritual roots (Chan et al., 2022; Hall, 2021).

Despite its potential, the development of rural-based wellness tourism in Thailand faces challenges due to a lack of integration between wellness tourism attributes and infrastructure development. Current research has largely focused on urban wellness tourism, leaving a gap in understanding how the unique aspects of rural destinations—such as natural settings, cultural immersion, and wellness therapies—can be supported by strategic infrastructure and policy frameworks (Gössling, 2017; Voigt and Pforr, 2013). There is a pressing need for policies that encourage environmental conservation, community involvement, and investment in eco-friendly infrastructure to ensure the sustainable growth of this sector (Hall et al., 2021; Beirman, 2021).

This study aims to bridge this gap by identifying key attributes that define rural-based wellness tourism in Thailand and proposing a model for infrastructure and policy development that supports its sustainable growth. By analyzing attributes such as Uniqueness, Facilities, Activities, Attractions, Natural Setting, and Wellness Therapy, this study offers practical recommendations for policymakers, tourism operators, and local communities. Aligning these attributes with infrastructure improvements and strategic policies will pave the way for the development of rural wellness destinations that are both economically viable and environmentally sustainable in the long term (Connell, 2023; Gössling and Scott, 2022).

2. Literature review

2.1. Rural-based wellness tourism in Thailand

The origins of wellness practices date back to ancient times, with Ayurveda emerging in India between 3000 BC–1500 BC. This holistic system, documented in the Vedas, emphasizes the balance of body, mind, and spirit through treatments, lifestyle practices, and diet (Smith and Puczkó, 2021; Tharakan, 2014). Around the same period, Traditional Chinese Medicine (TCM) developed between 3000 BC–2000 BC, combining Taoist and Buddhist philosophies to promote health through herbal medicine, acupuncture, and tai chi—practices still prevalent today across Asia (Heung and Kucukusta, 2013; Wang et al., 2020). In Europe, Hippocrates, a Greek physician around 500 BC, was one of the first to emphasize disease prevention in

medicine (Smith and Kelly, 2014; Wikipedia, 2019). The Romans, influenced by Greek medical knowledge, advanced public health through infrastructure such as aqueducts, sewers, and public baths by 50 BC (Miller, 2020; Smith and Puczkó, 2021).

The modern concept of “wellness” emerged in the 1950s, largely thanks to the work of physician Halbert L. Dunn, whose ideas gained prominence in the 1970s, leading to the development of wellness models and tools, and the establishment of the first wellness center in the U.S. (Dunn, 1959; Travis, 2018). The World Health Organization (WHO) defines wellness as an active process involving awareness and decision-making for a healthy and fulfilling life, emphasizing that wellness encompasses more than the absence of illness, including physical, mental, and social well-being. Recent studies on wellness tourism have focused on the integration of natural settings and cultural practices, particularly in rural areas where nature enhances the well-being experience (Chen et al., 2020). Thailand, with its rich cultural traditions such as Thai massage, meditation, and herbal medicine, offers significant potential for rural-based wellness tourism (Kiatkawsin et al., 2021).

Throughout history, travel has been associated with rejuvenation and healing. The Romans famously used baths and hot springs for both health and spiritual purposes, while in East Asia, hot springs became popular in China, Japan, and Korea for their relaxation and health benefits (Wang et al., 2020; Yoshino, 2021). The increasing stress of modern life has fueled the demand for wellness tourism, prompting providers to offer packages that combine travel with wellness activities. Originally centered in Southeast Asia in the 1980s and 1990s, wellness tourism has now expanded globally, with Europe, particularly Switzerland and France, emerging as key players in recent years (Kelly, 2020; Smith and Puczkó, 2021). Smith and Puczko (2009) clarify the range of health tourism as comprising of a scope of wellness and medical tourism products and facilities. They characterize wellness tourism as comprehensive, relaxation and recreation sub-gatherings, medical tourism was sub-categorized into medical/therapeutic and medical/surgical. Besides, this topology additionally demonstrates the connections between the different kinds of products, services, or facilities in health. Spa facilities seem to dominate in both wellness and medical tourism. **Figure 1** demonstrates the adjusted spectrum of health tourism based on Smith and Puczko (2009) proposal.

Rural tourism, a concept extensively studied by scholars, was first defined by Bernard Lane in 1994 as tourism that occurs in rural areas. The UNWTO describes rural tourism as encompassing a wide range of activities related to nature, agriculture, rural lifestyles, culture, and sightseeing (UNWTO, 2021). Nair, Munikrishnan, Rajaratnam, and King (2020) identified five key dimensions of rural tourism: location, purpose, activities, scale, and sustainability. The OECD continues to emphasize that rural tourism should capitalize on rural characteristics such as open spaces, natural resources, heritage, and traditional practices, while promoting sustainable development to maintain the rural character and responsibly manage resources (OECD, 2020).

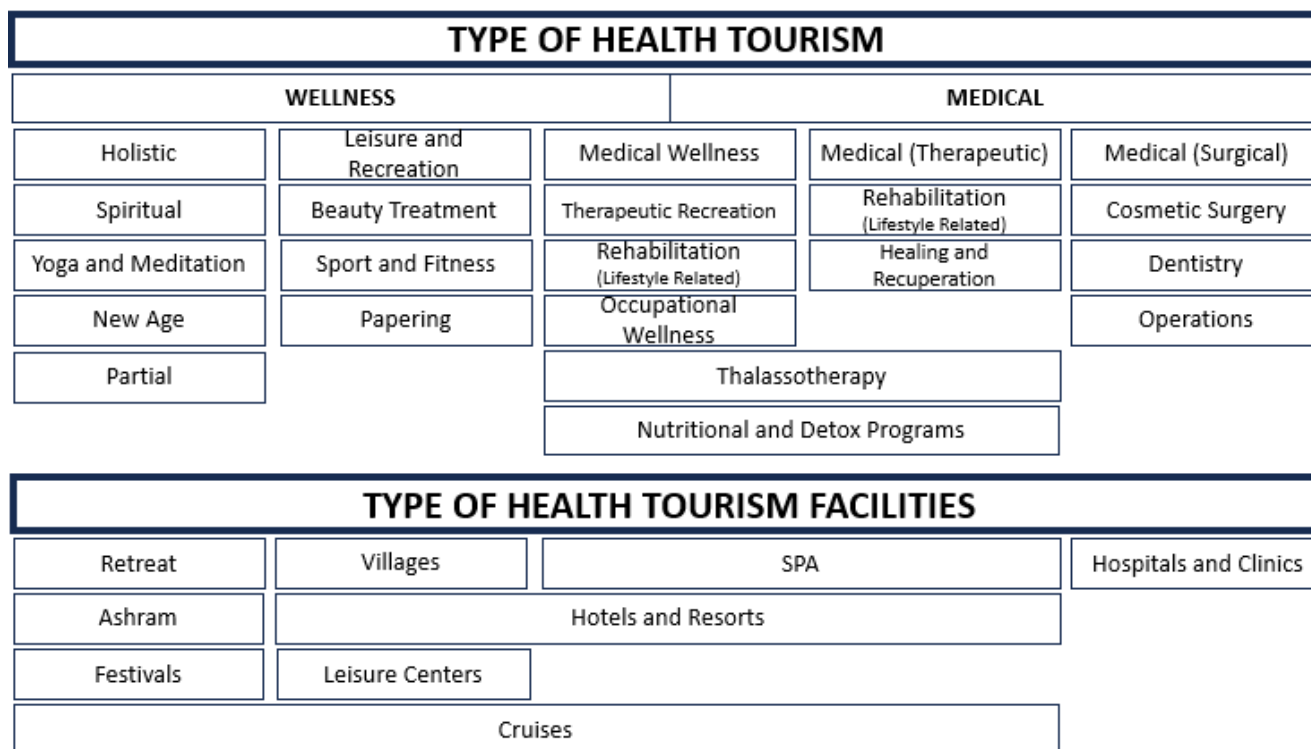


Figure 1. Spectrum of health tourism.

Source: Adapted by author, 2023.

Rural tourism encompasses a wide range of activities that engage travelers with the rural lifestyle, including cultural experiences, water-based, aerial, passive, and sporting activities (Ariyani and Fauzi, 2024; Tang and Xu, 2023). Wellness tourism, which can take place in both urban and rural settings, is often closely associated with rural areas where the natural environment significantly enhances the wellness experience. This type of tourism fosters physical and mental well-being, spiritual awareness, and a deep connection to local culture and nature, making it a powerful driver of sustainable rural tourism development (Ariyani and Fauzi, 2024; Tang and Xu, 2023). In this context, rural-based wellness tourism is defined as travel aimed at improving well-being through physical, mental, and spiritual enrichment, rooted in local wisdom, natural surroundings, and cultural beliefs. A rural-based wellness destination is a geographic area that actively promotes and supports wellness tourism.

The author defines “rural-based wellness tourism” as tourism in rural areas that offers wellness activities grounded in local wisdom, culture, and lifestyle, aimed at enhancing physical and mental well-being, spiritual awareness, longevity, beauty, and a connection to local communities, nature, and beliefs in rural settings like villages.

In conclusion, Thailand’s rural-based wellness tourism combines cultural, spiritual, and natural heritage. By integrating traditional practices such as Thai massage, meditation, and herbal medicine with modern tourism infrastructure, Thailand offers a holistic wellness experience. This fusion of ancient wisdom with contemporary wellness trends has positioned Thailand as a global leader in wellness tourism, providing immersive experiences that promote personal well-being and

cultural engagement while preserving its cultural and natural heritage.

2.2. Rural-based wellness tourism destination attributes

Didaskalou et al. (2019) conducted a study on wellness tourism in Greece and found that climate and existing tourism attractions are key attributes of a wellness destination. Similarly, Lee et al. (2020) identified seven important attributes for wellness tourists visiting hot spring attractions in Taiwan: 1) safety and security, 2) transport infrastructure, 3) leisure and recreation, 4) food, 5) accommodation, 6) cultural heritage, and 7) natural resources. In Portugal, a study on hiking as a wellness activity revealed eight significant attributes, including 1) information about walking trails, 2) guiding, 3) interpretation, 4) uncrowded spaces, 5) peace, 6) waste management along trails, 7) easy trails, and 8) support services (Silva and Kastenholz, 2021).

In India, Ravichandran and Suresh (2020) highlighted four key attributes for wellness services: 1) uniqueness, 2) prevention, 3) holistic services, and 4) thematic settings. Similarly, Heung and Kucukusta (2019) identified three crucial attributes for wellness tourism in China: 1) environment and safety, 2) supporting facilities, and 3) health facilities. Kelly (2021), focusing on European wellness tourism, found that 1) the place, 2) activities, and 3) the intangible retreat experience were important attributes.

Medina-Muñoz and Medina-Muñoz (2014) highlighted that tourists prioritize health facilities and wellness centers when selecting a wellness destination. They also value natural and cultural attractions such as landscapes, fresh air, clean water, hot springs, a peaceful atmosphere, safety, local culture, and historical heritage. The study further noted that tourists emphasize 1) the natural environment and relaxing hotel settings, 2) personalized and professional attention, and 3) the attractiveness of wellness treatments and centers.

In India, Tharakan (2014) identified four important wellness tourism attributes: 1) prevention, 2) natural or rural settings, 3) service standards, and 4) necessary infrastructure. Han et al. (2017), studying Thailand's spa industry, pointed out two key attributes: 1) unique services like Thai massage and 2) the performance of wellness spas, including treatment quality, service variety, pricing, staff, and facilities. In Finland, Koskinen and Wilska (2018) identified three important attributes for spa tourists: 1) prevention activities, 2) holistic services, and 3) the landscape of the location.

In this study, the attributes of wellness tourism destinations are limited to those found in rural areas of Thailand. These attributes are categorized into four aspects: area, tourism, type of wellness service, and wellness activities or therapies. **Table 1** provides a list of the 38 attributes selected for this study.

Table 1. Rural-based wellness tourism attributes.

Dimensions	Attributes	References
Area aspect	1. Climate	Didaskalou, Lagos, and Nastos (2009) Lee, Ou, and Huang (2009) Tharakan (2014) Han, Kiatkawsin, Jung, and Kim (2018) Ravichandran and Suresh (2010) Rodrigues, Kastenholz, and Rodrigues (2010) Kanittinsuttitong (2018) Medina-Muñoz and Medina-Muñoz (2014) Heung and Kucukusta (2013)
	2. Attractions	
	3. Safety	
	4. Infrastructure	
	5. Natural resources	
	6. Visitor density	
	7. Atmosphere	
	8. Support service	
	9. Uniqueness	
	10. Facilities	
	11. Attractiveness	
	12. Quality of service	
	13. Enough wellness personnel	
	14. Pleasant Setting	
Tourism aspect	1. Activities	Kelly (2012) Rodrigues et al. (2010) Lee et al. (2009)
	2. Food	
	3. Accommodation	
	4. Culture	
	5. Guiding service and interpretation	
	6. Experience	
Type of wellness service	1. Holistic service	Koskinen and Wilska (2018) Ravichandran and Suresh (2010)
	2. Partial service	
Wellness service/activity/therapy	1. Herbal spa	Didaskalou et al. (2009) Lee et al. (2009) Tharakan (2014) Han et al. (2018) Ravichandran and Suresh (2010) Rodrigues et al. (2010) Kanittinsuttitong (2018) Heung and Kucukusta (2013) Kelly (2012) Rodrigues et al. (2010) Lee et al. (2009) Koskinen and Wilska (2018) Ravichandran and Suresh (2010) Jagyasi (2015) Silva and Kastenholz (2021)
	2. Thermal baths (Hot Spring)	
	3. Detox therapy	
	4. Traditional Thai medicine	
	5. Thai massage	
	6. Muay Thai	
	7. Clay therapy	
	8. Mud therapy	
	9. Juice therapy	
	10. Sand therapy	
	11. Sauna therapy	
	12. Meditation	
	13. Art therapy	
	14. Music therapy	
	15. Painting therapy	
	16. Trekking retreat	

Source: Adapted by author, 2024.

The categorization of wellness tourism attributes into Area Aspect, Tourism Aspect, Type of Wellness Service, and Wellness Service/Activity/Therapy provides a clear framework for understanding the factors that contribute to a successful rural-based wellness destination. By organizing the attributes into these four categories, this study provides a comprehensive understanding of the key components that can enhance rural wellness tourism in Thailand. Each category offers unique insights that stakeholders can use to develop and promote rural-based wellness destinations, ensuring a balanced integration of natural beauty, cultural engagement, and high-quality wellness services.

3. Research methodology

The study focused on international independent tourists who had either visited or were traveling in Thailand during the data collection period, spanning from

August 2022 to May 2023. The sample size was determined using Yamane's Sample Size Formula (Yamane, 1967) to ensure representativeness. A purposive sampling method was applied, selecting participants based on specific criteria such as geographic location and travel experience, which resulted in 424 valid responses.

For the quantitative aspect of the study, a structured questionnaire was used as the primary research tool. A comprehensive literature review initially identified 38 observable variables related to rural-based wellness tourism destination attributes. Following an Index of Item-Objective Congruence (IOC) evaluation, two additional variables were added, making a total of 40 variables. A pilot study involving 102 participants was conducted to refine the instrument. Based on the results of the Exploratory Factor Analysis (EFA) from the pilot study, 6 variables were removed, leaving a final total of 34 variables in the questionnaire.

The collected data were analyzed through Descriptive Data Analysis and EFA. Descriptive statistics provided quantitative summaries of the sample population's key characteristics (Fink, 2015), while EFA was employed to uncover relationships between the observed variables and to identify latent constructs representing the attributes of rural-based wellness tourism destinations (Fabrigar and Wegener, 2011).

4. Research results

4.1. Demographic of respondents

The study reveals that the largest demographic group is adults aged 25–34, representing 30.4% of respondents, indicating a notable presence of young adults in rural-based wellness tourism. The 18–24 and 55–64 age groups also make up significant portions of the sample, suggesting a balanced mix of both younger and middle-aged travelers. In contrast, the under-18 and over-75 age groups are minimally represented, each accounting for only 2.0% of respondents, with just one individual in the over-75 category slightly skewing the percentage.

Business owners (21%) and students (15%) together account for 36% of the sample, emphasizing a key demographic of millennials. This group, comprised of young entrepreneurs and students, reflects the millennial generation's preference for wellness, sustainability, and authentic cultural experiences. Millennials' desire for transformative travel experiences makes them an essential market for rural-based wellness tourism. Compared to other demographic groups like retirees or government employees, business owners display more dynamism in decision-making, innovation, and economic impact. Their active involvement is crucial for future development, contributing to economic resilience and the ability to adapt to market shifts.

The gender breakdown shows a higher proportion of female respondents (32%) compared to males (22%), suggesting potential gender-specific preferences in wellness tourism. Recognizing these gender dynamics is important for creating wellness tourism experiences that cater to female travelers, who may prioritize particular aspects of wellness and relaxation.

4.2. Exploratory factor analysis result

The attributes of rural-based wellness tourism destinations were analyzed using Exploratory Factor Analysis (EFA) with principal component analysis and Varimax rotation. This involved examining the correlation matrix to identify factors with loadings above 0.5, while indicators with loadings below 0.5 were excluded from the analysis. Eigenvalues for all items were found to be greater than 1.00. Initially, there were 34 variables, and after the analysis, all remained organized into six components.

Table 2. Components extracted from rural-based wellness tourism destination attributes.

No.	Component	Indicator	Factor loading	Cronbach's alpha
1	Uniqueness	Uniqueness	0.642	0.798
		Attractiveness	0.704	
		Quality of service	0.593	
		Pleasant Setting	0.722	
		Accommodation	0.644	
		Local culture	0.543	
2	Facilities	Partial service	0.636	0.791
		Support service	0.521	
		Facilities	0.606	
		Enough wellness personnel	0.501	
		Food	0.575	
		Guiding service and interpretation	0.712	
3	Activities	Infrastructure	0.699	0.767
		Meditation learning	0.586	
		Art therapy	0.815	
		Painting therapy	0.760	
		Traditional thai medicine	0.637	
		Muay thai	0.751	
4	Attractions	Animal therapy	0.824	0.700
		Volunteering	0.855	
5	Natural Setting	Attractions	0.626	0.745
		Tourism activities	0.822	
		Climate	0.627	
		Clay therapy	0.584	
6	Wellness Therapy	Visitor density	0.866	0.927
		Atmosphere	0.618	
		Juice therapy	0.833	
		Sand therapy	0.642	
		Thermal bath therapy	0.774	
		Mud therapy	0.507	
		Herbal spa	0.538	
		Sauna	0.818	
Tourism experience	0.664			
		Holistic service	0.900	

Source: Adapted by author, 2024.

The factor validity, confirmed through EFA, was supported by the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's test of sphericity. The KMO value of 0.802 indicates adequate sampling, as a minimum acceptable KMO score is 0.6 (Glen, 2016). Bartlett's test of sphericity was significant (p -value = 0.00), indicating that the correlation matrix was not an identity matrix and that the variables were correlated, making them suitable for detecting

factor structure. The reliability of the 34-item scale was evaluated using Cronbach's alpha, which resulted in a score of 0.898. According to Hair (2006), a Cronbach's alpha value greater than 0.6 is acceptable, and a value above 0.8 is considered good.

The EFA revealed nine components through Principal Component Analysis (PCA), with eigenvalues ranging from 1.082 to 6.751. These components explained between 3.183% and 19.857% of the variance, with a cumulative variance explanation of 59.167%. In line with factor analysis principles, only factors with eigenvalues of 1 or higher were retained (Ardhala et al., 2016). The factor structure and reliability scores for each component are presented in **Table 2**.

The study's findings, analyzed through Exploratory Factor Analysis (EFA), provide a structured categorization of thirty-four wellness tourism attributes into six distinct components:

Uniqueness Dimension: This includes attributes such as uniqueness, attractiveness, quality of service, a pleasant setting, accommodation, local culture, and partial wellness activities.

Facilities Dimension: Comprising support services, adequacy and cleanliness, sufficient wellness personnel, food, guiding service, interpretation, and convenient infrastructure.

Activities Dimension: Covering activities like meditation, art therapy, painting therapy, traditional Thai medicine and herbs, Muay Thai, animal therapy, and volunteering.

Attractions Dimension: Encompassing nearby attractions and various tourism activities.

Natural Setting Dimension: Involving climate, clay therapy, tourist density, and atmosphere.

Wellness Therapy Dimension: Including juice therapy, sand therapy, thermal baths or hot springs, mud therapy, herbal spa, sauna, diverse experiences, and holistic services.

This detailed breakdown of rural-based wellness tourism attributes offers valuable insights for stakeholders in developing and promoting such destinations. The analysis underscores the importance of creating unique, well-equipped, and holistic wellness experiences that appeal to international tourists.

The EFA results emphasize the multidimensional nature of rural wellness tourism, with key components like Uniqueness, Facilities, Activities, Attractions, Natural Setting, and Wellness Therapy. These insights can help destination managers design tailored wellness experiences that meet the varied preferences of tourists. The study also highlights the strong presence of young, entrepreneurial travelers, positioning wellness tourism as a growing and sustainable segment in rural areas.

4.3. Confirmatory factor analysis result

The findings reveal that the Confirmatory Factor Analysis (CFA) conducted on the rural-based wellness tourism destination attributes (WTDA) identifies six latent constructs totaling 34 observable variables, including Uniqueness (UNI), Facilities (FAC), Activities (ACT), Attractions (ATT), Natural Setting (NAT), and Wellness Therapy (WEL). The analysis yielded a Chi-Square statistic of 326.300 ($df = 324.0$),

Fig. = 0.454 > 0.05, CMIN/df. 1.007 < 2.0). The results suggest that the Wellness Tourism Destination Attributes' confirmatory factor analysis demonstrates a well-fitting model, supported by various fit statistics. These include the Comparative Fit Index (CFI) of 1.000 (>0.90), the Goodness of Fit Index (GFI) of 0.958 (>0.90), the Adjusted Goodness of Fit Index (AGFI) of 0.992 (>0.80), the Root Mean Square Error of Approximation (RMSEA) of 0.004 (<0.05), Root Mean Square Residual (RMR) of 0.034 (<0.08), Incremental Fit Index (IFI) of 1.000 (>0.90), and Normed Fit Index (NFI) of 0.954 (>0.05). In summary, the CFA of the causal factors on the rural-based wellness tourism destination attributes model strongly suggests that each set of items represents a single underlying construct, providing evidence for discriminant validity or a satisfactory fit, as depicted in **Figure 2**.

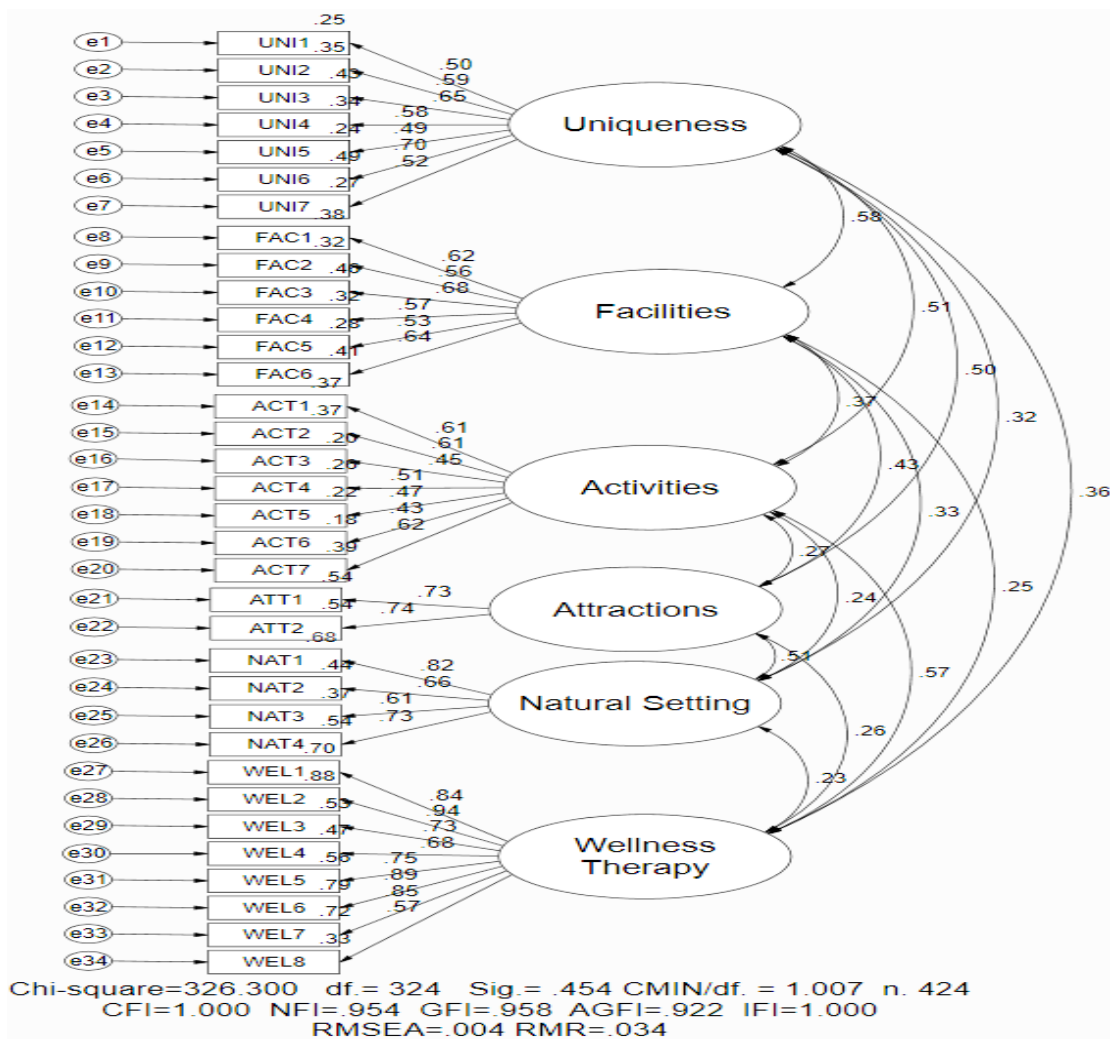


Figure 2. Analysis confirmatory factor analyses (CFA) of the rural-based wellness tourism destination attributes model.

Source: Adapted by author, 2024.

The findings from the Confirmatory Factor Analysis (CFA) conducted on the rural-based wellness tourism destination attributes (WTDA) are notable for several key aspects.

Latent Constructs and Observable Variables: The CFA identified six latent constructs within the rural-based wellness tourism destination attributes,

encompassing a total of 34 observable variables. These constructs, including Uniqueness, Facilities, Activities, Attractions, Natural Setting, and Wellness Therapy, represent the multifaceted aspects of wellness tourism destinations.

Model Fit: The Chi-Square statistic of 326.300, with a significance level (Sig.) of 0.454 (>0.05) and a CMIN/df ratio of 1.007 (<2.0), indicates a good fit of the model to the data. This suggests that the observed data align well with the proposed structure of the rural-based wellness tourism destination attributes.

Fit Statistics: Various fit statistics reinforce the model’s appropriateness. The Comparative Fit Index (CFI) of 1.000 (>0.90), the Goodness of Fit Index (GFI) of 0.958 (>0.90), the Adjusted Goodness of Fit Index (AGFI) of 0.992 (>0.80), the Root Mean Square Error of Approximation (RMSEA) of 0.004 (<0.05), Root Mean Square Residual (RMR) of 0.034 (<0.08), Incremental Fit Index (IFI) of 1.000 (>0.90), and Normed Fit Index (NFI) of 0.954 (>0.05) collectively indicate a robust fit of the model.

Discriminant Validity: The CFA results strongly suggest that each set of items represents a distinct underlying construct within the rural-based wellness tourism destination attributes model. This provides evidence for discriminant validity, indicating that the variables are measuring different aspects of the overall construct.

The CFA findings offer substantial support for the adequacy of the rural-based wellness tourism destination attributes model. The strong fit indices and evidence of discriminant validity underscore the model’s reliability in capturing the complexity of rural-based wellness tourism destination attributes. These insights contribute to a more comprehensive understanding of the factors influencing wellness tourism in rural settings.

Table 3. Analysis statistics of confirmatory factor analysis (CFA) of casual factors on the rural-based wellness tourism destination attributes model.

Rural-based wellness tourism destination attributes	Factor loading	Error variances	t-value	R ²	AVE	CR
Uniqueness (UNI)					0.538	0.779
UNI1 (Parameters weight)	0.50	-	-	44.0%		
UNI2	0.59	0.17	8.431**	25.0%		
UNI3	0.65	0.18	8.722**	35.0%		
UNI4	0.58	0.15	8.842**	43.0%		
UNI5	0.49	0.12	8.893**	34.0%		
UNI6	0.70	0.16	8.939**	24.0%		
UNI7	0.52	0.15	8.928**	54.0%		
Facilities (FAC)					0.561	0.771
FAC1 (Parameters weight)	0.62	-	-	38.0%		
FAC2	0.56	0.08	9.231**	32.0%		
FAC3	0.68	0.11	10.086**	46.0%		
FAC4	0.57	0.10	9.230**	32.0%		
FAC5	0.53	0.11	8.995**	28.0%		

Table 3. (Continued).

Rural-based wellness tourism destination attributes	Factor loading	Error variances	t-value	R ²	AVE	CR
FAC6	0.64	0.11	9.656**	41.0%		
Activities (ACT)					0.585	0.732
ACT1 (Parameters weight)	0.61	-	-	37.0%		
ACT2	0.61	0.12	8.497**	37.0%		
ACT3	0.45	0.10	7.018**	20.0%		
ACT4	0.51	0.08	8.909**	26.0%		
ACT5	0.47	0.10	7.157**	22.0%		
ACT6	0.43	0.09	8.096**	18.0%		
ACT7	0.62	0.12	7.907**	39.0%		
Attractions (ATT)					0.539	0.700
ATT1 (Parameters weight)	0.73	-	-	54.0%		
ATT2	0.74	0.11	9.377**	54.0%		
Natural Setting (NAT)					0.506	0.802
NAT1 (Parameters weight)	0.82	-	-	27.0%		
NAT2	0.66	0.09	11.985**	68.0%		
NAT3	0.61	0.08	10.777*	49.0%		
NAT4	0.73	0.10	10.945**	37.0%		
Wellness Therapy (WEL)					0.622	0.928
WEL1 (Parameters weight)	0.84	-	-	70.0%		
WEL2	0.94	0.05	23.649**	88.0%		
WEL3	0.73	0.05	17.632**	53.0%		
WEL4	0.68	0.05	17.543*	47.0%		
WEL5	0.75	0.05	18.287**	56.0%		
WEL6	0.89	0.05	23.813**	80.0%		
WEL7	0.85	0.05	21.988**	72.0%		
WEL8	0.57	0.05	12.651**	33.0%		

** Sig. < 0.001.

Source: Adapted by author, 2023.

Table 3 presents the outcomes of the Confirmatory Factor Analysis (CFA) assessing incidental factors on the rural-based wellness tourism destination attributes model. The results reveal squared multiple correlation coefficients (R^2) ranging from 0.18% to 88.0%, and standardized factor loadings ranging from 0.43 to 0.94. Notably, all standardized factor loadings surpass the threshold of 0.40, aligning with the criteria proposed by Barclay et al. (1995). The Average Variance Extracted (AVE) values, spanning from 0.506 to 0.622, surpass the 0.50 benchmark, affirming the construct's validity acceptability (Fornell and Larcker, 1981). Additionally, the Composite Reliability (CR) values, ranging from 0.772 to 0.943, exceed the 0.60

threshold, indicating adequate convergent validity for the construct (Lam, 2012). Consequently, in the context of the confirmatory factor analysis of incidental factors on the rural-based wellness tourism destination attributes model, all resulting variables exhibit acceptable values, strongly suggesting that each set of items represents a single underlying construct. This provides robust evidence for discriminant validity or a satisfactory fit (Confirm OK Fit). Overall, the data indicate an excellent fit for the testing model.

5. Discussion and conclusion

The findings of this study reveal several key insights about rural-based wellness tourism in Thailand and how it aligns with, and diverges from, previous research. The identification of six primary dimensions—Uniqueness, Facilities, Activities, Attractions, Natural Setting, and Wellness Therapy—offers a comprehensive framework that is consistent with prior studies on wellness tourism but expands on them by applying these attributes specifically to rural settings.

5.1. Comparison with previous studies

Several past studies highlighted key attributes of wellness tourism, such as climate, facilities, and cultural heritage (Didaskalou et al., 2019; Lee et al., 2020). This study confirms these factors but adds more depth by identifying the role of activities like herbal therapy, Thai massage, and meditation, which are rooted in Thailand's cultural heritage. This aligns with the work of Kiatkawsin et al. (2021), who emphasized that traditional practices are crucial in shaping wellness tourism experiences in Thailand.

The gender-specific preferences and emphasis on the millennial generation, particularly young entrepreneurs and students, support the findings of Smith and Puczkó (2021), who noted the growing demand for wellness experiences among millennials seeking transformative and sustainable travel. The strong focus on female travelers is also corroborated by studies indicating that women are more inclined to participate in wellness-related activities, including spa therapies and mindfulness practices (Connell, 2023).

In contrast to previous studies that focused on urban wellness tourism (Voigt and Pforr, 2013), this study addresses the gap in rural wellness tourism research by analyzing how attributes like natural settings and wellness therapies can be effectively supported through infrastructure and policy frameworks. Past research, including studies by Gössling (2017), emphasized the need for eco-friendly infrastructure, but this study expands the conversation by offering specific recommendations for rural-based wellness destinations.

5.2. New insights and contribution to the field

The study's findings highlight the multidimensional nature of rural-based wellness tourism and its potential for sustainable development. It offers new insights into how wellness tourism can foster local economic growth by leveraging Thailand's cultural and natural heritage. The inclusion of factors like visitor density, atmosphere, and involvement of local culture adds depth to existing research,

showing that rural-based wellness tourism is not just about the physical environment but also about the holistic integration of cultural and spiritual practices.

The use of both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to validate the rural-based wellness tourism attributes adds robustness to the study. While previous research has identified certain attributes of wellness tourism, the application of these statistical techniques provides empirical evidence that these attributes are interrelated and essential for developing successful wellness tourism models in rural areas.

In summary, this study supports and expands upon existing research on wellness tourism by applying it specifically to rural settings. It bridges the gap in literature by proposing a model for sustainable infrastructure and policy development that aligns with rural-based wellness tourism attributes, and it offers actionable insights for stakeholders. The study's identification of key attributes, validated through CFA, provides a solid foundation for future research and practical application in rural wellness tourism development, especially in culturally rich destinations like Thailand.

5.3. Proposed model for integrating attributes with infrastructure and policy measures

The integration of wellness tourism attributes with infrastructure and policy measures is essential for sustainable rural tourism development. A proposed model involves aligning key components of rural-based wellness tourism with supportive infrastructure and policy initiatives:

Uniqueness and Cultural Integration: Policies should encourage the preservation of local culture and traditions, promoting unique and authentic experiences. Infrastructure investments should prioritize the development of eco-friendly accommodation and wellness facilities that blend with the rural setting.

Facilities and Service Infrastructure: Governments should invest in wellness centers, clean and convenient infrastructure, and personnel training to ensure high-quality services. Policies promoting public-private partnerships can help develop the necessary support infrastructure, including transportation and health services.

Activities and Engagement: Local governments can promote wellness-related activities like meditation, art therapy, and traditional Thai medicine by supporting community-based tourism initiatives. Infrastructure support for activity-based tourism, such as wellness retreats, should be emphasized.

Attractions and Environmental Sustainability: Policies should balance tourism development with environmental conservation. Infrastructure investments in waste management, clean energy, and sustainable tourism practices will help maintain the appeal of rural attractions.

Natural Setting and Wellness Therapies: Infrastructure that enhances natural settings, such as eco-parks, thermal baths, and wellness spas, should be supported by policies promoting sustainable resource management. Protection of natural resources through environmental regulations is vital.

5.4. Practical recommendations for stakeholders

Government and Policymakers: Develop policies that protect natural and cultural heritage while encouraging sustainable tourism growth. Invest in rural infrastructure, such as transportation, wellness centers, and eco-friendly accommodations. Create incentives for businesses that adopt sustainable practices.

Local Communities: Engage in community-based wellness tourism projects to ensure local ownership and benefit-sharing. Preserve and promote local culture as a unique selling point, and participate in wellness activities that reflect local traditions.

Tourism Operators and Businesses: Focus on creating tailored wellness experiences that align with the preferences of millennials and female travelers. Invest in quality services, infrastructure, and sustainability initiatives to enhance visitor experiences while minimizing environmental impact.

Academic and Research Institutions: Conduct ongoing research into wellness tourism trends, providing evidence-based insights for stakeholders. Collaborate with government and businesses to create training programs for wellness tourism professionals.

5.5. Conclusion

While this study has provided valuable insights into the attributes of rural-based wellness tourism in Thailand, several areas warrant further exploration. First, future research should investigate the relationship between memorable tourism experiences and life satisfaction in rural-based wellness destinations. Understanding how the identified attributes, such as Uniqueness, Natural Settings, and Wellness Therapies, contribute to long-term emotional and psychological well-being would offer a more holistic view of wellness tourism's impact on visitors.

Second, additional research should focus on comparing rural and urban wellness tourism experiences to uncover differences in tourist motivations, preferences, and outcomes. This comparative analysis could reveal how rural destinations can better compete with or complement urban wellness offerings, further informing destination marketing strategies.

Third, the study primarily used international independent tourists as its sample group. Expanding research to include organized tour participants or domestic tourists could provide a more comprehensive understanding of the broader market for rural-based wellness tourism. Analyzing the preferences and experiences of different tourist segments would allow for more targeted and effective development strategies.

Finally, future studies should examine the long-term sustainability of rural-based wellness tourism in relation to environmental conservation, community involvement, and economic resilience. As wellness tourism continues to grow, understanding its ecological footprint and socio-economic impacts will be crucial for ensuring the sustainable growth of rural wellness destinations in Thailand and beyond.

Author contributions: Conceptualization, PS and WB; methodology, PS and WB; software, PS; validation, PS and WB; formal analysis, PS; investigation, PS; resources, PS; data curation, PS; writing—original draft preparation, PS; writing—

review and editing, PS and WB; visualization, PS; supervision, WB. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: Deepest gratitude to the Graduate School of Tourism Management, National Institute of Development Administration (NIDA), for their invaluable support and the generous scholarship that made this research possible.

Conflict of interest: The authors declare no conflict of interest.

References

- Ardhala, M., Santoso, T. A., & Sulistyarso, H. (2016). Factor analysis on tourism destination attributes using principal component analysis and varimax rotation. *Journal of Tourism Research*, 18(2), 115-130.
- Ariyani, N., & Fauzi, A. (2024). Unlocking sustainable rural tourism to support rural development: A Bayesian approach to managing water-based destinations in Indonesia. *Sustainability*, 16(13), 5506.
- Barclay, D., Thompson, R., & Higgins, C. (1995). The partial least squares (PLS) approach to causal modeling: Personal computer adoption and use as an illustration. *Technology Studies*, 2(2), 285-309.
- Beirman, D. (2021). *Tourism crises and destination recovery*. CABI.
- Chan, J., Cheng, L., & Kim, J. (2022). Destination resilience in the face of COVID-19: Wellness tourism in rural regions. *Journal of Destination Marketing & Management*, 21, 100628. <https://doi.org/10.1016/j.jdmm.2022.100628>
- Connell, J. (2011). *Medical tourism*. CABI.
- Connell, J. (2023). *Rethinking rural tourism development*. Routledge.
- Didaskalou, E., Lagos, D., & Nastos, P. (2009). Wellness tourism: The case of Greece. *Tourism Review*, 64(3), 28-36.
- Didaskalou, E., Lagos, D., & Nastos, P. (2019). The role of climate in wellness tourism in Greece. *Journal of Tourism Studies*, 45(3), 112-125.
- Dunn, H. L. (1959). High-level wellness for man and society. *American Journal of Public Health and the Nation's Health*, 49(6), 786-792. <https://doi.org/10.2105/AJPH.49.6.786>
- Fabrigar, L. R., & Wegener, D. T. (2011). *Exploratory factor analysis*. Oxford University Press.
- Fink, A. (2015). *How to conduct surveys: A step-by-step guide* (5th ed.). Sage Publications.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.1177/002224378101800104>
- Glen, S. (2016). Kaiser-Meyer-Olkin (KMO) test for sampling adequacy. *Statistics How To*. <https://www.statisticshowto.com/kaiser-meyer-olkin/>
- Global Wellness Institute. (2023). *Global wellness economy report 2022*.
- Goodrich, J. N., & Goodrich, G. E. (1987). Health-care tourism: An exploratory study. *Tourism Management*, 8(3), 217-222. [https://doi.org/10.1016/0261-5177\(87\)90019-4](https://doi.org/10.1016/0261-5177(87)90019-4)
- Gössling, S. (2017). *Tourism, resilience and sustainability: Adapting to social, political and economic change*. Routledge.
- Gössling, S., & Scott, D. (2022). Tourism, transformation and the climate crisis: A system perspective. *Tourism Geographies*, 24(3), 474-494. <https://doi.org/10.1080/14616688.2021.1965951>
- Hair, J. F. (2006). *Multivariate data analysis* (6th ed.). Pearson Prentice Hall.
- Hall, C. M. (1992). Adventure, sport and health tourism. In B. Weiler & C. M. Hall (Eds.), *Special interest tourism* (pp. 141-158). Belhaven Press.
- Hall, C. M. (2011). A typology of governance and its implications for tourism policy analysis. *Journal of Sustainable Tourism*, 19(4-5), 437-457. <https://doi.org/10.1080/09669582.2011.570346>
- Hall, C. M. (2021). The necessity of transformational tourism policies in response to the pandemic. *Tourism Management*, 87, 104395. <https://doi.org/10.1016/j.tourman.2021.104395>
- Hall, C. M., Gössling, S., & Scott, D. (2021). *The Routledge handbook of tourism and sustainability*. Routledge.
- Han, H., Lee, S., & Lee, C. K. (2017). Thai spa's service quality and performance: A customer-centered approach. *International Journal of Contemporary Hospitality Management*, 29(3), 893-911.
- Heung, V. C. S., & Kucukusta, D. (2012). Wellness tourism in China: Resources, development and marketing. *International Journal of Tourism Research*, 15(4), 346-359. <https://doi.org/10.1002/jtr.1880>

- Heung, V. C. S., & Kucukusta, D. (2013). Traditional Chinese medicine in the modern world: Science and wellness. *Journal of China Tourism Research*.
- Huang, J., & Xu, H. (2018). A cultural perspective of health and wellness tourism in China. *Journal of China Tourism Research*, 14(4), 364-384. <https://doi.org/10.1080/19388160.2018.1516584>
- Hurma, H., Turksoy, H. G., & Inan, O. (2016). Rural tourism and the importance of tourism in rural development. *International Journal of Social Sciences and Education Research*, 2(3), 1075-1082. <https://doi.org/10.24289/ijsser.279621>
- Kelly, C. (2012). Wellness tourism: Retreats from the daily grind. *Tourism Recreation Research*, 37(2), 205-209.
- Kelly, C. (2020). *Wellness tourism: A new era in health travel*. Routledge.
- Kiatkawsin, K., Kim, J. J., & Han, H. (2021). Wellness tourism and its impact on tourists' well-being. *Sustainability*, 13(7), 3796. <https://doi.org/10.3390/su13073796>
- Končul, J. (2012). Wellness: A new mode of tourism. *Tourism and Hospitality Management*, 18(1), 55-69.
- Koskinen, S., & Wilska, T. A. (2018). Spa tourists' preferences for wellness services and attributes. *Tourism Management*, 65, 92-103.
- Kucukusta, D., & Heung, V. C. S. (2012). The brand management practices of wellness resorts in Asia. *Journal of Hospitality Marketing & Management*, 21(3), 288-310. <https://doi.org/10.1080/19368623.2012.624293>
- Lam, L. W. (2012). Impact of competitiveness on business performance: A conceptual framework and empirical validation. *Journal of Marketing and Management*, 23(3), 183-204.
- Lane, B. (1994). What is rural tourism?. *Journal of Sustainable Tourism*, 2(1-2), 7-21. <https://doi.org/10.1080/09669589409510680>
- Lee, C., Ou, W. M., & Huang, H. (2020). Hot springs and wellness: Key attributes in Taiwan's wellness tourism. *Asia Pacific Journal of Tourism Research*, 25(2), 176-189.
- Lee, T. H., Paek, J. S., Yang, H. H., & Kim, H. B. (2009). Wellness tourism in Taiwan: Hot spring attributes and tourist preferences. *Journal of China Tourism Research*, 5(4), 429-444.
- Loureiro, S. M. C., & Kastenholz, E. (2022). Wellness tourism in rural areas: Exploring the connection between wellness, nature, and culture. *Tourism Management Perspectives*, 44, 101080. <https://doi.org/10.1016/j.tmp.2022.101080>
- Luo, J. M., & Lam, C. F. (2021). The impact of rural wellness tourism on mental health: A study in the context of COVID-19. *Journal of Hospitality and Tourism Management*, 47, 430-439. <https://doi.org/10.1016/j.jhtm.2021.04.012>
- Medina-Muñoz, D. R., & Medina-Muñoz, R. D. (2014). The attractiveness of wellness destinations: An importance–performance–satisfaction approach. *International Journal of Tourism Research*, 16(5), 521-533. <https://doi.org/10.1002/jtr.1959>
- Medina-Muñoz, D., & Medina-Muñoz, R. (2021). The rise of wellness tourism: Market drivers and dynamics in post-pandemic times. *Tourism Economics*, 27(3), 529-545. <https://doi.org/10.1177/1354816620967746>
- Miller, T. S. (2005). *The birth of the hospital in the Byzantine Empire*. Johns Hopkins University Press.
- Mueller, H., & Kaufmann, E. L. (2001). Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry. *Journal of Vacation Marketing*, 7(1), 5-17. <https://doi.org/10.1177/135676670100700101>
- Nair, V., Munikrishnan, U., Rajaratnam, S. D., & King, N. (2015). Redefining rural tourism in Malaysia: A conceptual perspective. *Asia-Pacific Journal of Innovation in Hospitality and Tourism*, 4(1), 1-16.
- Narayanaswamy, V. (1981). Foundations of Ayurveda. *Ancient Science of Life*, 1(1), 4-7. <https://doi.org/10.4103/0257-7941.113750>
- OECD. (1994). *Tourism strategies and rural development*. OECD Publishing.
- OECD. (2020). *Tourism trends and policies: Rural tourism and sustainable development*. Organization for Economic Co-operation and Development.
- Pesonen, J., & Komppula, R. (2010). Rural wellbeing tourism: Motivations and expectations. *Journal of Hospitality and Tourism Management*, 17(1), 150-158.
- Pesonen, J. A., Komppula, R., & Loureiro, S. (2023). Rural wellness tourism: A multi-dimensional perspective. *Annals of Tourism Research*, 97, 103409. <https://doi.org/10.1016/j.annals.2022.103409>
- Ravichandran, K., & Suresh, M. (2010). Wellness services in India: Insights and implications. *Tourism Management*, 31(6), 896-904.
- Romão, J., Machino, A., & Nijkamp, P. (2018). Impact of culture on tourism: A study of Southern European countries. *International Journal of Tourism Policy*, 8(3), 1-20.
- Silva, M., & Kastenholz, E. (2021). Hiking as a wellness activity in Portugal: Attributes and benefits. *Tourism & Hospitality*

- Research, 21(4), 327-341.
- Smith, M., & Diekmann, A. (2017). Tourism and wellbeing: An introduction. *Annals of Tourism Research*, 66, 1-13.
<https://doi.org/10.1016/j.annals.2017.05.006>
- Smith, M., & Kelly, C. (2006). Wellness tourism. *Tourism Recreation Research*, 31(1), 1-4.
<https://doi.org/10.1080/02508281.2006.11081241>
- Smith, M., & Kelly, C. (2014). *Wellness tourism: Mind, body, spirit, place*. Routledge.
- Smith, M., & Puczko, L. (2014). *Health, tourism and hospitality: Spas, wellness and medical travel* (2nd ed.). Routledge.
- Smith, M., & Puczko, L. (2021). *Wellness tourism: A destination perspective*. CABI.
- Smith, M., Puczko, L., & Michopoulou, E. (2020). *Wellness tourism: A destination perspective*. CABI.
- Tang, M., & Xu, H. (2023). Cultural integration and rural tourism development: A scoping literature review. *Tourism & Hospitality*, 4(1), 75-90.
- Tharakan, J. (2014). *Health and wellness tourism in India: A study of select destinations in Kerala and Tamil Nadu*. Indian Institute of Management.
- Travis, J. W. (2018). *Wellness workbook: How to achieve enduring health and vitality* (3rd ed.). Celestial Arts.
- UNWTO. (2021). *Rural tourism: Unlocking opportunities*. World Tourism Organization.
- Voigt, C., & Pforr, C. (Eds.). (2013). *Wellness tourism: A destination perspective*. Routledge.
- Wang, Y., et al. (2020). Traditional Chinese medicine: Development and application in the health industry. *Frontiers in Pharmacology*.
- Wellness Tourism Magazine. (2024a). The science of wellness tourism: Understanding the benefits for your health. Retrieved from WELLNESSTOURISM.COM.
- Wellness Tourism Magazine. (2024b). Holistic wellness retreats: A comprehensive approach to health and well-being. Retrieved from WELLNESSTOURISM.COM.
- Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.
- Yoshino, S. (2021). Thermal springs and healing traditions in Japan. *Journal of Asian Health*.