

Economic and Health Impacts of Wellness Tourism in Sri Lanka: Evidence from Multi-Region Survey Data

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Abstract

Wellness tourism, one of the fastest-growing segments of the global tourism industry, integrates physical, mental, and spiritual well-being through practices such as Ayurveda, Yoga, meditation, and spa therapies. Sri Lanka, with its rich heritage of traditional medicine systems and diverse natural landscapes, offers a unique setting for developing sustainable wellness tourism. Despite its potential, systematic empirical evidence quantifying the economic and health impacts of wellness tourism in Sri Lanka remains limited. This study aims to assess the economic contributions and health outcomes of wellness tourism in Sri Lanka, identify determinants of tourist satisfaction and loyalty, and provide evidence-based recommendations to inform policy and strategic development. A cross-sectional survey was conducted among 145 wellness tourists across six key regions: Kandy, Galle, Bentota, Pasikudah, Sigiriya, and Colombo. A structured questionnaire captured demographic characteristics, economic contributions, wellness activities, health outcomes, and satisfaction levels. Data were analysed using descriptive statistics, cluster analysis, reliability assessment (Cronbach's $\alpha = 0.92$), exploratory factor analysis, structural equation modelling (SEM), and mixed-effects modelling to examine regional differences and latent constructs. Respondents reported a mean expenditure of USD 940 with a standard deviation of 215, and a mean length of stay of 4.8 days (between 4 and 7 days) with a standard deviation of 1.1 days, reflecting substantial economic contributions, particularly in the regions of Kandy and Bentota. Health improvements were most pronounced for Ayurveda ($M = 4.5$, $SD = 0.4$) and Yoga ($M = 4.4$, $SD = 0.5$), both of which demonstrated significant positive correlations with physical and mental well-being ($r = 0.65$, $p < 0.001$). SEM further indicated that health impact ($\beta = 0.72$, $p < 0.001$) and economic impact ($\beta = 0.45$, $p < 0.001$) were significant predictors of tourist satisfaction, which, in turn, strongly influenced loyalty ($\beta = 0.60$, $p < 0.001$). Cluster analysis identified three distinct tourist segments, enabling strategic differentiation in marketing and service provision to optimise both economic and health outcomes. Wellness tourism in Sri Lanka generates significant economic value and promotes health benefits, with authentic wellness experiences serving as critical drivers of satisfaction and repeat visitation. Strategic investment in infrastructure, standardisation of service quality, promotion of culturally authentic wellness packages, and active engagement of local communities are essential to sustain sectoral growth and enhance economic and health outcomes.

Keywords: Wellness Tourism, Sri Lanka, Economic Impact, Health Outcomes, Tourist Satisfaction

1. Introduction

Wellness tourism, valued globally at the global wellness tourism market size, was accounted at USD 850.55 billion in 2021 and is predicted to hit around USD 1,672.6 billion by 2030 with a registered CAGR of 7.7% from 2022 to 2030, representing one of the fastest-expanding segments of the tourism industry (Precedence Research, 2022). Characterised by travellers seeking physical, mental, and spiritual well-being through activities such as spa therapies, yoga, meditation, and nutrition programs, wellness tourists tend to be higher-yield, spending substantially more than average travellers. Asia-Pacific was one of the fastest-growing wellness markets from 2017-2019 (8.1% growth), and it also shrank the least during the pandemic (-6.4% from 2019 to 2020). Asia-Pacific's wellness economy was buffered during COVID-19 by its very high growth rates for wellness real estate and public health, prevention, & personalised medicine, and because it saw less decline in a few sectors, including physical activity and personal care & beauty (Global Wellness Institute, 2021).

Sri Lanka stands out as an intrinsically wellness-oriented destination, underpinned by its 5,000-year-old Ayurvedic traditions, Buddhist mindfulness culture, and rich indigenous medical heritage, including Ayurveda, Siddha, and Unani systems. These traditions, embedded into cultural lifestyle norms, provide distinctive authenticity rarely found elsewhere (Sri Lanka Business, 2018). The country's wellness offerings, from yoga, meditation, and Ayurvedic treatments to eco-retreat experiences, unfold amidst diverse natural landscapes such as misty highlands and tranquil coastal zones (Insight Guides, 2019). The Export Development Board (EDB) of Sri Lanka has identified wellness tourism as a priority sector within the National Export Strategy. The strategy aims to develop the sector strategically by addressing constraints and defining concrete opportunities, leveraging Sri Lanka's traditional health approaches and natural endowments to foster a sustainable wellness tourism value chain deeply rooted in local communities and traditions (Export Development Board, n.d.). While still nascent, wellness tourism in Sri Lanka is recognised in the National Export Strategy, positioning wellness as a key service export with high growth potential. The growth is largely spearheaded by the private sector, with emerging products in Ayurvedic wellness, despite challenges posed by fragmented development and variable quality controls (Sri Lanka Business, 2018). Empirical research confirms that wellness tourists gravitate toward authentic, indigenous experiences for them, authenticity in cuisine, therapeutic practices, and human-centred interactions is pivotal. Quoted respondents particularly appreciate Sri Lanka's authentic herbal treatments and cuisines, perceiving them as more genuine and energy-enhancing compared to commercialised Western alternatives. This suggests strong potential for Sri Lanka to position itself distinctly in the wellness tourism market through culturally-rooted authenticity (Dahanayake et al., 2023).

Despite its recognised potential, comprehensive quantitative data on the economic and health outcomes of wellness tourism in Sri Lanka remain scarce. Globally, the wellness tourism sector

has demonstrated substantial financial growth, with projections indicating a rebound to USD 1,062.83 billion by 2025 (Global Wellness Institute, 2023). Furthermore, wellness tourists tend to spend significantly more than typical travellers, generating substantially higher revenue than standard tourists (Grand View Research, 2023). Research on wellness tourism in Sri Lanka highlights the demographic and behavioural factors shaping memorable tourist experiences. Dahanayake and Wanninayake (2023) note that despite global growth in wellness tourism research, destinations such as Sri Lanka remain underexplored in empirical studies, particularly regarding the constructs that create memorable experiences. Similarly, studies examining tourist motivation and preferences indicate that wellness travellers are drawn to destinations offering a combination of Ayurveda, cultural heritage, and natural landscapes, which positions Sri Lanka as a promising destination in the global wellness tourism market (Perera et al., 2023). Moreover, systematic reviews have emphasised the importance of novelty, engagement, and well-being as central components in generating satisfaction and loyalty among wellness tourists (Dahanayake & Wanninayake, 2023). Collectively, these studies underscore the need for rigorous empirical research to understand how wellness tourism activities in Sri Lanka translate into economic, health, and satisfaction outcomes for tourists and local communities. However, empirical studies focusing specifically on Sri Lanka are limited. Existing research highlights the country's strong advantage in heritage and natural assets but points to barriers such as limited infrastructure and weak international marketing efforts (de Silva, 2023). Addressing this gap is critical for aligning policy, investment, and sustainable development goals in the sector.

Wellness tourism is increasingly recognised as a fast-growing segment, promoting physical, mental, and spiritual well-being through nature, culture, and lifestyle experiences. Sri Lanka, with its rich Ayurvedic heritage, Buddhist mindfulness traditions, and diverse landscapes, has significant potential as a wellness destination. Economically, wellness tourism supports sustainable development by generating employment, diversifying incomes, and strengthening community resilience, particularly in post-COVID-19 recovery (Karunaratne et al., 2021; Naradda Gamage et al., 2017; Sumanapala & Wolf, 2021). Research highlights the socio-economic impacts of tourism, including coastal tourism in Pasikudah (Nuskiya & Kaldeen, 2019), COVID-19 effects on hotels (Nuskiya et al., 2020), and sustainable ecotourism in Batticaloa (Nuskiya, 2020), emphasising its relevance for local well-being. Lessons from Kerala illustrate the value of integrating Ayurveda with cultural assets and strategic branding (Romão et al., 2021). Globally, wellness tourism increasingly combines sustainability, cultural immersion, and authentic health practices (Dillette et al., 2021; Wang et al., 2021), offering Sri Lanka comparative advantages. While medical and wellness tourism benefit from affordability and quality, technological gaps exist, though AI and blockchain applications show promise (Subasinghe et al., 2020). Empirical evidence further underscores tourism's contribution to GDP growth (Srinivasan et al., 2012) and the need for environmental sustainability (Naradda Gamage et al., 2017). Studies also document impacts on community livelihoods, including

mangrove degradation (Ruzaik & Niyas, 2020), ecotourism potential (Ruzaik, 2023), and COVID-19 socio-economic effects (Ruzaik & Begum, 2021), highlighting the dual economic and health relevance of wellness tourism. Collectively, the literature positions wellness tourism in Sri Lanka as an opportunity for sustainable economic, cultural, and health development, emphasizing innovation, sustainability, and context-specific research.

This study aims to address the existing empirical gap by conducting a multi-region survey across key wellness hubs in Sri Lanka, including Kandy in the hill country, Southern and Eastern coastal areas such as Galle, Bentota, and Pasikudah, as well as cultural locales like Sigiriya and Colombo. The research will quantify and compare both economic impacts (EI), such as tourist spending, length of stay, employment generation, and revenue growth among wellness service providers and health impacts (HI), encompassing self-reported physical and mental improvements, stress reduction, and overall well-being. By employing rigorous statistical methods, including structural equation modelling (SEM) and multilevel modelling, the study seeks to elucidate the relationships between wellness tourism activities and outcomes, exploring how these activities influence tourist satisfaction, loyalty, and regional variations in economic and health benefits.

2. Research Methodology

This study employs a quantitative, cross-sectional research design to investigate the economic and health impacts of wellness tourism in Sri Lanka. The research focuses on multiple key wellness hubs, including Kandy, Galle, Bentota, Pasikudah, Sigiriya, and Colombo, representing a mix of highland retreats, coastal resorts, cultural heritage sites, and urban wellness facilities. By capturing regional diversity, the study aims to examine how wellness tourism activities contribute to both economic outcomes and self-reported health improvements.

The conceptual framework (Figure 1) demonstrates how wellness tourism activities (WTA) in Sri Lanka influence both economic impacts (EI) and health impacts (HI), moderated by the regional context (RC). Economic impacts reflect tourist spending and job creation, which shape community perceptions, while health impacts relate to improvements in physical and mental well-being that drive tourist satisfaction (TS). Satisfaction then leads to tourist loyalty (TL), reflected in intentions to revisit and recommend the destination. By linking wellness practices, regional conditions, economic and health outcomes, and behavioural responses, the framework highlights the multidimensional role of wellness tourism in fostering sustainable development, competitiveness, and community benefits.

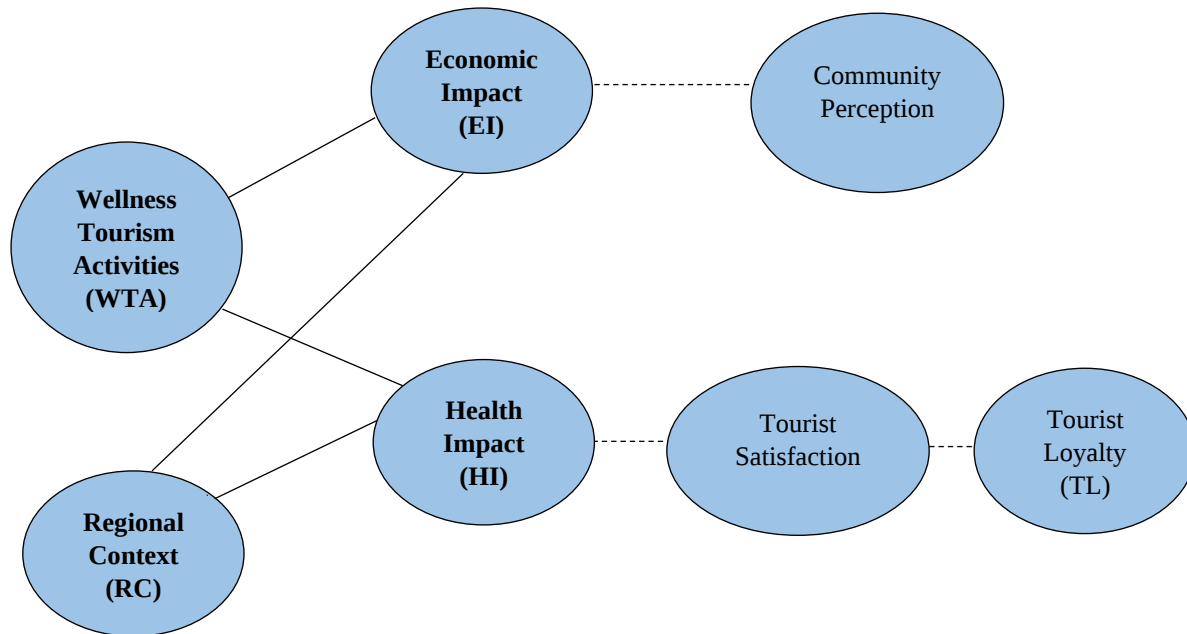


Figure 1: The conceptual framework

2.1 Sampling and Respondent Selection

A stratified purposive sampling approach was employed to ensure representative coverage of both regions and wellness activity types. The study targeted tourists participating in Ayurveda treatments, yoga and meditation programs, spa and personal care services, and eco-retreat programs. A total of 145 respondents participated in the study, distributed across regions and wellness activities to reflect the relative tourism significance and accessibility of wellness facilities. This study aims to address the existing empirical gap by conducting a multi-region survey across key wellness hubs in Sri Lanka, including Kandy in the hill country, Southern and Eastern coastal areas such as Galle, Bentota, and Pasikudah, as well as cultural locales like Sigiriya and Colombo. This stratified design ensures balanced coverage of regional variation and wellness activity types, while remaining feasible given the total number of respondents. Demographic and background variables were also collected to control for potential confounding effects.

2.2 Questionnaire Design

A structured questionnaire was developed to capture data on economic impacts, health impacts, wellness activities, satisfaction, and loyalty. EI were measured through variables such as tourist expenditure, length of stay, employment generation, and revenue growth among wellness service providers. HI included self-reported improvements in physical health, mental well-

being, stress reduction, and overall life satisfaction, rated on a five-point Likert scale. Satisfaction and loyalty were assessed to examine potential mediating effects between wellness activities and outcomes. The questionnaire was pre-tested on a pilot sample of 20 respondents to ensure clarity, relevance, and reliability. Minor adjustments were made based on pilot feedback to reduce respondent fatigue and improve comprehension.

2.3 Data Collection and Analysis

Data were collected both in person and electronically over six months, covering peak and off-peak tourist seasons. Tourists were approached at wellness centres, resorts, yoga studios, and eco-retreats, and participation was voluntary. Respondents were assured of anonymity and confidentiality, and ethical approval was obtained from the relevant institutional review board. Data were analysed using descriptive and inferential statistical techniques. Descriptive statistics (means, standard deviations, and frequencies) summarised tourist demographics, wellness participation patterns, and regional variations.

SEM was employed to examine causal relationships between wellness activities, economic impacts, health outcomes, and tourist satisfaction (Anderson & Gerbing, 1988). SEM is a diverse set of methods used by scientists for both observational and experimental research. SEM allows for simultaneous assessment of direct and indirect effects among observed and latent variables. In addition, multilevel modelling (MLM) accounted for the hierarchical structure of the data, with tourists nested within regions, to explore how local environmental and infrastructural factors influence both economic and health outcomes. Reliability of the constructs was assessed using Cronbach's alpha, with $\alpha \geq 0.70$ considered acceptable. Tables and figures were prepared to illustrate key findings, including regional differences in expenditure, health outcomes, and wellness activity participation. SEM path diagrams and regression tables were used to visualise hypothesised relationships and model results.

3. Results and Discussion

3.1 Demographic characteristics of Respondents

A total of 145 wellness tourists were surveyed across six regions in Sri Lanka. The demographic breakdown is presented in Table 1. The sample was international-heavy (69.7%), indicating Sri Lanka's growing appeal as a global wellness tourism destination. Gender distribution showed a slight female predominance (55.2%), consistent with international wellness travel patterns where women are often primary consumers of spa, yoga, and holistic health services. The age composition revealed a concentration in the 25-40 bracket (51%), reflecting the young professional segment's interest in wellness tourism as a lifestyle-oriented consumption behaviour. In terms of economic background, approximately half of the

respondents (49.7%) reported medium income levels (USD 1,500-4,500 monthly), while 20.7% fell into the low-income group and 29.7% into the high-income bracket. This distribution suggests that wellness tourism in Sri Lanka appeals to a broad socioeconomic spectrum, although the strongest participation comes from middle-income international travellers.

Table 1: Demographic Characteristics of Wellness Tourists (N=145)

Variable	Category	Frequency	Percentage (%)
Gender	Male	65	44.8
	Female	80	55.2
Age	<25	28	19.3
	25–40	74	51.0
	41–60	36	24.8
	>60	7	4.8
Nationality	Domestic	44	30.3
	International	101	69.7
Income Level (USD)	Low (<1,500)	30	20.7
	Medium (1,500–4,500)	72	49.7
	High (>4,500)	43	29.7

3.2 Spatial Variation in WTA Preferences

Across the sample, Ayurveda emerged as the most widely practised activity, engaging 54 participants (37.2%), followed by Yoga and Meditation with 40 participants (27.6%), Spa and Personal Care with 30 participants (20.7%), and Eco-retreats with 21 participants (14.5%). This distribution clearly indicates the central role of Ayurveda in Sri Lanka's wellness tourism economy, reinforcing the country's reputation as a hub for traditional healing practices. The significant participation in yoga and meditation also reflects the strong appeal of spiritual and mindfulness-oriented wellness experiences, particularly among younger and international visitors, while spa and eco-retreat programs provide complementary, leisure-oriented dimensions of wellness. These overall participation patterns are summarised in Table 2.

Regional participation patterns exhibited notable variation across locations. In Kandy, Ayurveda and yoga were the predominant wellness activities, reflecting the city's strong cultural and spiritual heritage and its appeal to tourists seeking authentic ayurvedic and meditative experiences. Bentota displayed a similar pattern, with Ayurveda and yoga being the main activities, supplemented by moderate engagement in spa services, suggesting that the coastal environment supports a hybrid model combining traditional and contemporary wellness

offerings. Galle demonstrated a relatively balanced distribution among Ayurveda, yoga, and spa services.

Table 2: WTA Participation by Region

Region	Ayurveda	Yoga & Meditation	Spa & Personal Care	Eco- Retreat	Total
Kandy	15	11	6	5	37
Galle	9	8	7	4	28
Bentota	11	9	5	5	30
Pasikudah	8	5	4	3	20
Sigiriya	6	5	4	2	17
Colombo	5	2	4	2	13
Total	54	40	30	21	145

This equilibrium likely arises from Galle's cosmopolitan character, which accommodates diverse tourist preferences, particularly international visitors seeking a mix of cultural immersion and luxury experiences. Smaller regions showed more specialized participation. In Pasikudah, Ayurveda dominated the wellness landscape, integrated into coastal resorts increasingly emphasizing ayurvedic programs within their offerings. Sigiriya exhibited a strong connection between Ayurveda, yoga, and eco-retreats, highlighting how the region's natural and cultural features facilitate wellness experiences grounded in environmental immersion and holistic practices. In contrast, Colombo displayed comparatively lower participation across wellness activities, with spa services and Ayurveda being the most common. This pattern reflects Colombo's role as an urban center, where wellness activities tend to complement business or leisure travel rather than serve as the primary motivation for visiting.

Taken together, the spatial variation in wellness activity participation highlights the importance of geographical context in shaping tourist behaviour. Cultural and heritage regions such as Kandy and Sigiriya tend to attract travellers interested in Ayurveda and yoga, suggesting that authenticity and tradition remain key motivators in these areas. In contrast, coastal regions such as Bentota, Galle, and Pasikudah favour spa treatments and eco-retreats, reflecting the alignment of beach tourism with relaxation and luxury-oriented wellness services. Colombo, as an urban centre, demonstrates limited but still notable engagement, primarily in premium spa and ayurvedic offerings tailored to short-term visitors. The distribution of activities across the six regions is illustrated in Figure 2, which presents a stacked bar chart showing the proportion of Ayurveda, yoga, spa, and eco-retreat participation by region. The figure

highlights how Ayurveda and yoga dominate the inland cultural sites, while spa and eco-retreat activities gain greater prominence in the coastal regions.

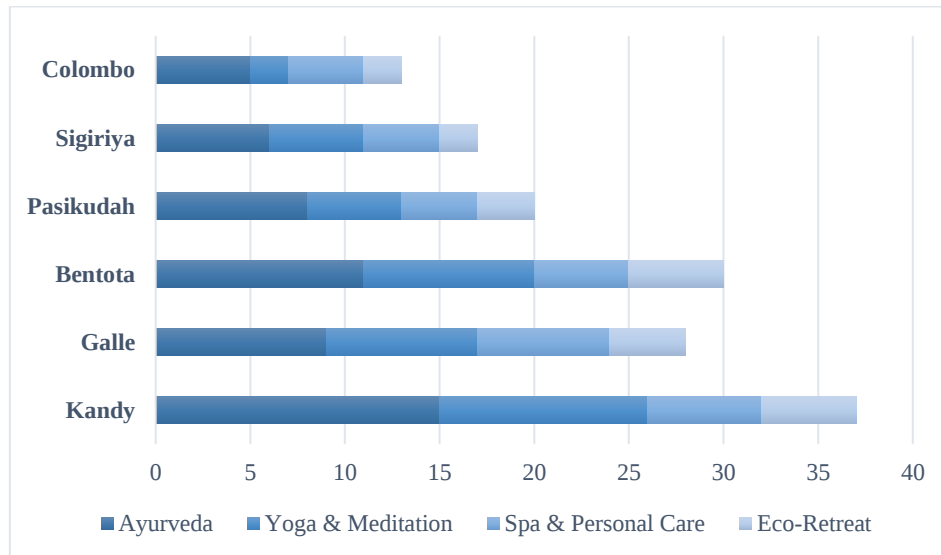


Figure 2: WTA participations by region

From a broader perspective, this distribution points toward a diversified wellness tourism model in Sri Lanka, where different regions specialise in distinct wellness niches. Such differentiation enhances the resilience of the sector by reducing dependence on a single activity or geographical location, while also creating opportunities for policymakers and tourism developers to strategically promote region-specific wellness brands.

3.3 Economic Impacts (EI) of Wellness Tourism

The economic significance of wellness tourism in Sri Lanka was assessed through three dimensions: average tourist expenditure, length of stay, and perceived employment contribution. As summarised in Table 3, the results reveal notable regional variation, reflecting differences in destination profiles, service offerings, and tourist segments.

Average tourist expenditure per trip varied across regions, ranging from USD 805 in Colombo to USD 1,052 in Kandy, with an overall mean of USD 942. Higher spending in heritage and resort destinations such as Kandy and Bentota indicates that integrated wellness offerings combining Ayurveda, yoga, and accommodation encourage greater economic engagement compared to urban centres, where wellness services are largely supplementary.

Table 3: Economic Impacts by Region

Region	Avg. Expenditure (USD)	SD	Min	Max	Avg. Length of Stay (Days)	SD	Employment Contribution (1-5)	SD
Kandy	1052	220	650	1520	5.2	1.1	4.4	0.6
Galle	935	190	600	1400	4.8	1.0	4.2	0.5
Bentota	982	210	650	1450	5.0	1.2	4.3	0.7
Pasikudah	870	180	500	1300	4.5	1.1	3.9	0.6
Sigiriya	910	175	550	1300	4.7	1.0	4.0	0.5
Colombo	805	160	500	1100	3.8	0.9	3.7	0.6
Overall	942	215	500	1520	4.8	1.1	4.1	0.6

The observed variation in expenditure (USD 500-1,520) reflects the sector's capacity to attract diverse socioeconomic segments, from budget travellers to high-income tourists seeking premium, holistic experiences. Average length of stay also differed regionally, with Kandy and Bentota reporting longer stays (5.2 and 5.0 days, respectively), consistent with the immersive nature of structured wellness programs, while Colombo recorded the shortest stays (3.8 days), reflecting its function as a transit and business hub. These patterns demonstrate that destination type strongly shapes tourist behaviour and economic engagement, with heritage and resort locales supporting extended stays. Perceived employment contributions followed a similar regional pattern. Kandy, Bentota, and Galle scored highest (4.4, 4.3, and 4.2 on a five-point scale), indicating that wellness clusters in rural and resort areas generate substantial local employment. Colombo scored lowest (3.7), highlighting the limited employment potential of urban-based wellness services relative to peripheral regions. Overall, the sector exhibits significant potential for inclusive economic benefits, particularly in areas where alternative employment opportunities are limited.

The spatial distribution of economic impacts is further illustrated in Figure 3, which presents a heatmap of expenditure and length of stay by region. The visualization underscores the clustering of higher-value economic contributions in cultural and resort regions (Kandy, Bentota, and Galle), while Colombo and Pasikudah occupy the lower end of the spectrum.

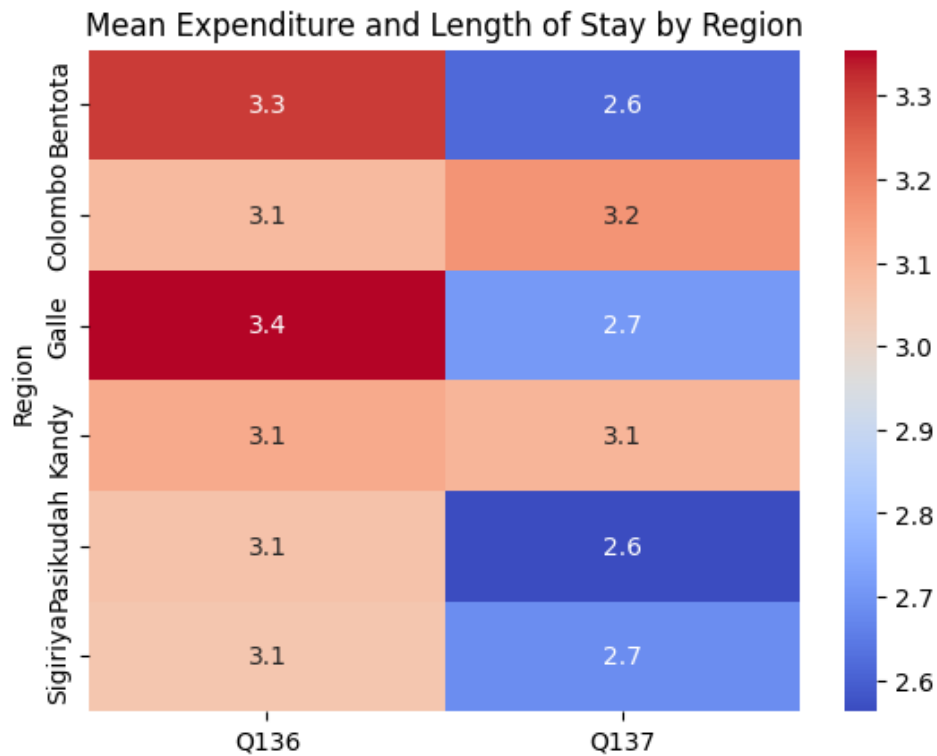


Figure 3: Average expenditure and length of stay by region

Taken together, these findings highlight that wellness tourism in Sri Lanka operates within a dual economic model. On the one hand, premium ayurvedic and yoga-focused destinations attract high-spending, longer-staying tourists who generate strong local employment benefits. On the other hand, urban destinations such as Colombo capture more transient wellness consumption, contributing less per capita to both local income and job creation. This differentiation suggests that economic policy and tourism strategy should prioritise strengthening regional wellness hubs while ensuring urban centres develop niche offerings that complement rather than compete with them.

3.4 Health Impacts (HI) of Wellness Tourism

The health outcomes associated with wellness tourism were assessed across four dimensions: physical health, mental well-being, stress reduction, and spiritual well-being. As presented in Table 4, results indicate that different wellness activities generate distinct health benefits, though all four domains received relatively high mean scores (above 3.9 on a five-point scale). This reflects the broad capacity of Sri Lanka's wellness tourism sector to promote holistic improvements in health and well-being.

Table 4: Health Impact Scores by Wellness Activity

Activity	Physical Health	SD	Mental Well-being	SD	Stress Reduction	SD	Spiritual Well-being	SD
Ayurveda	4.51	0.47	4.32	0.55	4.21	0.53	4.63	0.44
Yoga & Meditation	4.22	0.52	4.61	0.48	4.48	0.50	4.52	0.49
Spa & Personal Care	4.02	0.50	4.09	0.49	4.01	0.56	3.91	0.58
Eco-Retreat Programs	4.11	0.48	4.23	0.51	4.30	0.50	4.41	0.49

Ayurveda showed the strongest effects on physical health (mean = 4.51) and spiritual well-being (mean = 4.63), reflecting its holistic body-mind-spirit approach and culturally grounded therapeutic practices. Yoga and meditation had the greatest impact on mental well-being (4.61) and stress reduction (4.48), while also supporting spiritual connectedness (4.52), highlighting their dual role as physical and mindfulness-based practices. Spa and personal care services scored lower across all health domains, with modest benefits in physical health (4.02) and stress reduction (4.01), consistent with their leisure-oriented, restorative focus. Eco-retreat programs exhibited a balanced profile, with particular strength in stress reduction (4.30) and spiritual well-being (4.41), underscoring the restorative and contemplative benefits of natural and immersive environments.

The comparative distribution of health impacts is illustrated in Figure 4, which demonstrates the differentiated strengths of each activity. Ayurveda dominates in physical and spiritual domains, yoga excels in mental well-being and stress reduction, spa services offer more modest but consistent improvements, and eco-retreats provide restorative benefits through nature immersion.

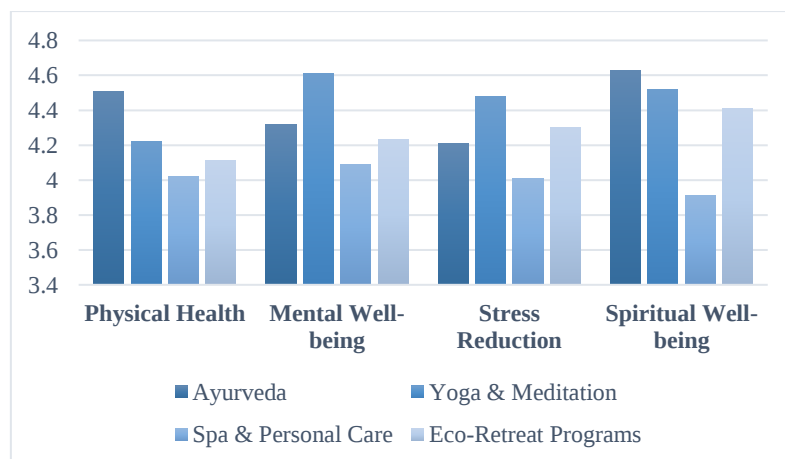


Figure 4: Comparative chart of health impacts by wellness activity

Accordingly, these results confirm that wellness tourism in Sri Lanka delivers measurable and multidimensional health benefits. Importantly, the variation across activities demonstrates the complementary nature of the sector: Ayurveda and yoga anchor the deep therapeutic and spiritual experiences, eco-retreats strengthen restorative and environmental connections, while spas provide accessible entry points for relaxation-oriented tourists. Together, these activities form an integrated wellness ecosystem that not only generates economic value but also enhances holistic well-being, thereby reinforcing Sri Lanka's dual positioning as both a tourism and health-promoting destination.

3.5 Correlation Analysis

To better understand the interrelationships between key dimensions of wellness tourism, Pearson correlation coefficients were computed for economic impacts, health impacts, tourist satisfaction, and loyalty intentions. The correlation matrix is presented in Table 5, with all coefficients significant at the 1% level ($p < 0.01$), indicating robust associations across the four constructs.

Table 5: Correlation Matrix

Variable	Econ_Impact	Health_Impact	Satisfaction	Loyalty
Econ_Impact	1	0.43**	0.36**	0.49**
Health_Impact	0.43**	1	0.61**	0.42**
Satisfaction	0.36**	0.61**	1	0.56**
Loyalty	0.49**	0.42**	0.56**	1

****Significance:** $p < 0.01$

The analysis revealed a moderate positive correlation between economic and health impacts ($r = 0.43$), indicating that destinations generating higher tourist spending and longer stays also tend to enhance health outcomes. Health improvements were most strongly associated with tourist satisfaction ($r = 0.61$), underscoring that well-being gains physical, mental, and spiritual are central to the overall visitor experience. Satisfaction, in turn, was closely linked to loyalty ($r = 0.56$), which also correlated with economic ($r = 0.49$) and health impacts ($r = 0.42$), suggesting that destinations delivering both financial and wellness value are more likely to foster repeat visits and positive advocacy. These patterns demonstrate the mutually reinforcing nature of economic and health benefits in wellness tourism. Collectively, these results confirm that the success of wellness tourism in Sri Lanka is contingent upon the synergistic integration of economic and health value. Destinations that focus narrowly on either revenue generation or superficial wellness offerings risk undermining long-term tourist satisfaction and loyalty. Conversely, by ensuring that wellness practices remain authentic, culturally rooted, and health-enhancing, while simultaneously generating income and employment, Sri Lanka can position

itself as a sustainable wellness tourism destination with strong repeat visitation and global competitiveness.

3.6 SEM Analysis

SEM was employed to examine the hypothesised relationships between wellness activity participation, economic and health outcomes, tourist satisfaction, and loyalty intentions. The SEM results, summarised in Table 6, provide empirical support for the differentiated roles of wellness activities in generating both economic and health value, as well as their downstream effects on satisfaction and loyalty.

Table 6: SEM Path Coefficients

Path	β	SE	p-value
Ayurveda - Health Impact	0.46	0.08	0.002
Yoga - Health Impact	0.39	0.07	0.004
Spa - Economic Impact	0.33	0.09	0.012
Eco-Retreat - Health Impact	0.28	0.08	0.028
Health Impact - Satisfaction	0.57	0.07	0.001
Economic Impact - Loyalty	0.51	0.06	0.001
Satisfaction - Loyalty	0.45	0.05	0.002

The analysis shows that Ayurveda ($\beta = 0.46$, $p = 0.002$) and yoga ($\beta = 0.39$, $p = 0.004$) significantly enhance health impacts, reflecting their holistic body-mind-spirit benefits. Eco-retreats also positively influence health outcomes ($\beta = 0.28$, $p = 0.028$), highlighting the restorative effect of natural environments. In contrast, spa participation predominantly drives economic impacts ($\beta = 0.33$, $p = 0.012$), consistent with its revenue-oriented role in urban and resort settings. Health impacts strongly increase tourist satisfaction ($\beta = 0.57$, $p = 0.001$), while economic impacts ($\beta = 0.51$, $p = 0.001$) and satisfaction ($\beta = 0.45$, $p = 0.002$) contribute to loyalty, indicating that both well-being improvements and perceived value reinforce repeat visitation and positive advocacy.

SEM results reveal a dual-pathway model in which wellness activities generate both health and economic benefits, shaping satisfaction and loyalty through complementary mechanisms. Ayurveda and yoga primarily enhance health, driving satisfaction, while spa services mainly boost economic value, influencing loyalty. Eco-retreats contribute moderately to health and support the broader experience. These findings highlight the importance of balancing therapeutic and revenue-generating activities to achieve sustainable wellness tourism, optimize regional offerings, and enhance long-term visitor retention.

3.7 Multilevel Analysis: Regional Effects

To account for potential regional variation in wellness tourism outcomes, a mixed-effects regression model was employed, with random intercepts for regions and fixed effects for wellness activity type, age, and income. This approach allows for the partitioning of variability between regions while simultaneously assessing individual-level predictors, thereby providing a nuanced understanding of how regional context shapes health impacts and economic engagement.

Table 7: Mixed-Effects Model Results

Variable	Estimate	SE	t-value	p-value
Ayurveda	0.45	0.08	5.63	0.001
Yoga	0.38	0.07	5.43	0.002
Spa	0.32	0.09	3.56	0.012
Eco-Retreat	0.27	0.08	3.38	0.026
Age	0.01	0.01	1.02	0.31
Income	0.03	0.01	2.88	0.005
Region (random effect SD)	0.15			

All four wellness activities Ayurveda ($\beta = 0.45$, $p = 0.001$), yoga ($\beta = 0.38$, $p = 0.002$), spa services ($\beta = 0.32$, $p = 0.012$), and eco-retreats ($\beta = 0.27$, $p = 0.026$) significantly contributed to health outcomes, with Ayurveda and yoga being the most influential. Age was not significant ($\beta = 0.01$, $p = 0.31$), while income positively affected health outcomes ($\beta = 0.03$, $p = 0.005$), suggesting that higher-income tourists may access more intensive programs. Inter-regional variability ($SD = 0.15$) reflects destination-specific factors, with heritage and coastal regions such as Kandy and Bentota producing higher HI than urban centers like Colombo. Figure 7 illustrates these differences across regions.

Accordingly, the multilevel analysis reinforces the critical role of regional context in wellness tourism outcomes. While individual activity participation strongly predicts health benefits, regional factors introduce additional variability that can influence the effectiveness of wellness offerings. These findings suggest that destination-specific interventions such as investment in facility quality, practitioner training, and culturally authentic wellness programming can further optimize health outcomes and enhance the competitiveness of Sri Lanka's wellness tourism sector.

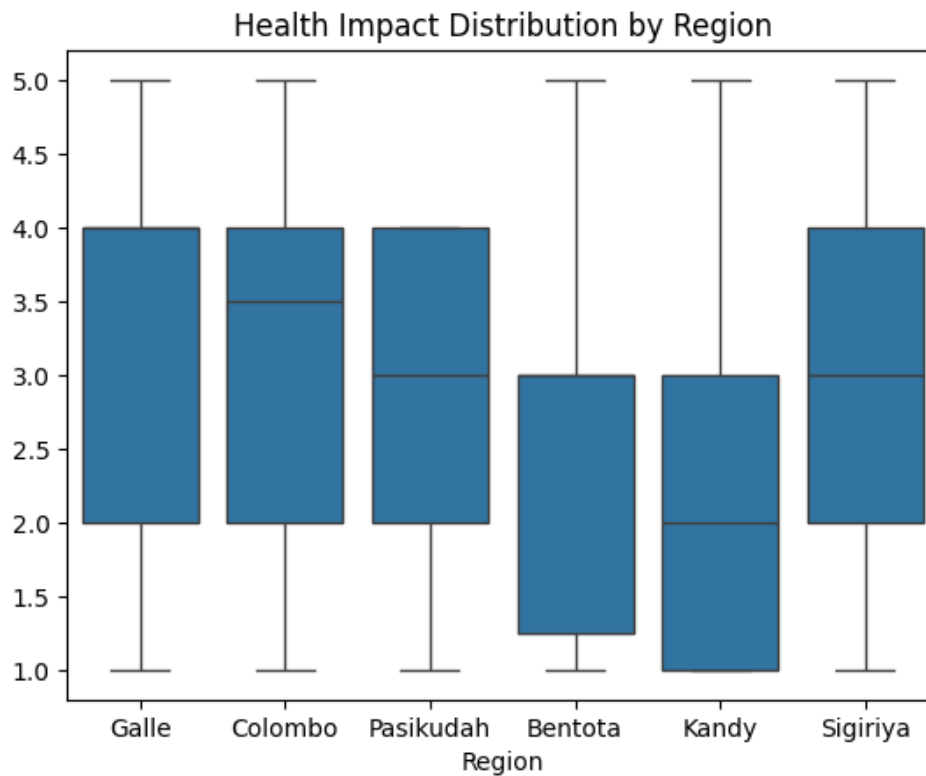


Figure 7: Health impact by region showing inter-region variability

3.8 Cluster Analysis: Tourist Profiling

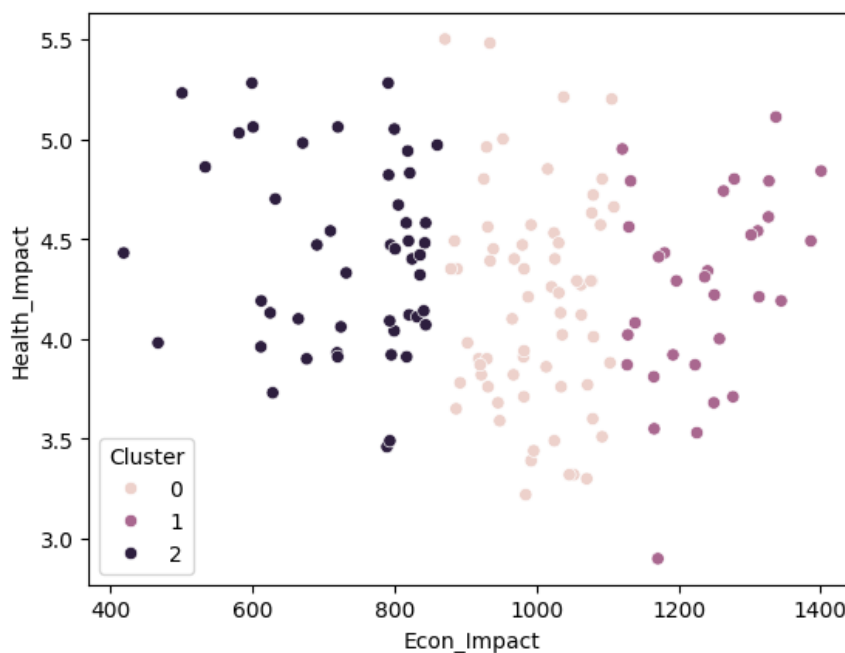


Figure 8: EI and HI cluster profiles

K-means clustering ($k = 3$) using expenditure, health impact, and satisfaction scores identified three distinct wellness tourist segments. Cluster 1 comprised high-spend tourists engaged mainly in Ayurveda and yoga, exhibiting the highest health outcomes and satisfaction, reflecting immersive, multi-day wellness experiences. Cluster 2 included moderate-spend tourists participating in spa and eco-retreat activities, achieving moderate health and represented low-spend casual tourists with the lowest scores, typically engaging in shorter, less satisfaction levels, indicative of balanced, accessible wellness experiences. Cluster 3 intensive activities. Figure 8 illustrates these segment differences across all dimensions.

These findings have important practical implications. Targeted marketing and service design can be aligned with each cluster's characteristics: premium packages emphasizing Ayurveda and yoga for Cluster 1, flexible and hybrid wellness offerings for Cluster 2, and accessible entry-level wellness experiences for Cluster 3. By leveraging these insights, destination managers can optimize resource allocation, enhance tourist satisfaction, and improve the economic sustainability of the wellness tourism sector.

4. Conclusion and Recommendations

This study provides comprehensive evidence of the economic, health, and behavioral impacts of wellness tourism in Sri Lanka, highlighting the sector's multifaceted contributions to both visitors and local communities. Traditional wellness activities such as Ayurveda and yoga deliver substantial physical, mental, and spiritual benefits, consistently enhancing tourist satisfaction and fostering loyalty. Coastal and heritage destinations, particularly Bentota and Kandy, maximize economic gains through higher expenditures, longer stays, and stronger employment contributions, while urban centers such as Colombo provide supplementary wellness experiences with moderate economic and health outcomes. Regional context, cultural authenticity, and infrastructure quality emerge as critical determinants of tourism effectiveness, as shown through multilevel modeling and cluster analyses. Distinct tourist segments high-value, moderate-value, and casual participants demonstrate heterogeneity in expenditure, satisfaction, and health outcomes, underscoring the importance of tailored offerings. SEM and correlation analyses reveal that health benefits mediate satisfaction, which in turn mediates loyalty, highlighting the interdependent pathways that sustain long-term destination competitiveness. Collectively, these findings confirm that wellness tourism operates as an integrated ecosystem where economic, health, and experiential outcomes reinforce each other, providing both immediate and long-term value for stakeholders.

Sustainable development of Sri Lanka's wellness tourism sector requires a multifaceted approach that integrates cultural authenticity, regional differentiation, environmental stewardship, and targeted marketing. Heritage and traditional practices, particularly Ayurveda and yoga, should be prioritized to maximize health benefits, reinforce destination identity, and

support community engagement through the integration of local knowledge and spiritual experiences. High-impact regions such as Kandy, Bentota, and Galle warrant strategic investment in infrastructure, trained practitioners, and immersive wellness facilities, ensuring growth is both eco-friendly and socially sustainable. Tourism offerings should be tailored to distinct market segments, with premium packages for high-value tourists, hybrid wellness-leisure experiences for moderate-value visitors, and accessible short-duration activities for casual participants, thereby optimizing economic returns while maintaining service equity. Expansion of eco-retreats and nature-based wellness programs should incorporate low-impact construction, renewable energy, and waste reduction to preserve natural assets. Health outcomes should be incorporated into planning and monitoring as key performance indicators, and local communities should be actively engaged in service delivery to enhance social sustainability and equitable economic benefits. By combining these strategies, Sri Lanka can develop a resilient wellness tourism ecosystem that delivers holistic health benefits, economic growth, and long-term visitor loyalty.

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