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Pedagogical sciences

WELLNESS CULTURE IN THE KNOWLEDGE-BASED ECONOMY: THE CASE OF FOREST MEDICINE

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Abstract

Introduction: Using the power and unique possibilities and resources potential of the Nature Heritage. *Methods*: The study aims to detect citizens' culture regarding forest medicine and therapies related to a healthy lifestyle. *Results*: Consumers' opinions on innovative services such as forest air and oxygen bath, forest art, forest menu, forest hammam, and forest elephant eyes were explored. A psychometric experiment was conducted to evaluate importance, self-perception, and satisfaction associated with forest-based wellness activities. *Discussion*: Respondents determine as priority all forests' therapies with argument for missing contraindications and health prevention practice for free. The future professionals in the Recreational and wellness industry need stable knowledge, professional and personal competencies about effective organisational and methodological approaches. *Conclusions*: The results demonstrate high perceived importance of forest wellness services and confirm their multidimensional contribution to recreation, prevention, and sustainable tourism.

Keywords: Wellness, innovations, Forest medicine, specialised knowledge, Wellness activities.

Introduction

The recreational and Wellness industry represents one of the most dynamically developing sectors within the global health economy. Its expansion reflects a fundamental transformation in contemporary understandings of health — from a reactive, treatment-oriented paradigm toward a preventive, lifestyle-based and sustainability-driven model (1-3). Wellness is no longer perceived merely as leisure or luxury consumption; it has evolved into a multidimensional socio-cultural and economic phenomenon directly linked to public health outcomes, productivity, and long-term human capital development. Public health and working capacity are deeply interconnected (4, 5). Health influences cognitive performance, emotional stability, resilience to stress, and overall professional efficiency. In knowledge-based economies, human capital is the primary driver of competitiveness (6, 7). Consequently, investments in preventive health, recreation, and wellness services are increasingly viewed not as optional expenditures, but as strategic socio-economic priorities (8). Within the European Union alone, more than 200 million citizens annually engage in wellness and spa-related practices, including hydrotherapy, balneology, Eastern relaxation techniques, mindfulness-based interventions, and nature-integrated programs (9-11). This widespread participation illustrates the institutionalisation of wellness culture as part of everyday life (12). Between 2017 and 2019, the global Wellness tourism market demonstrated sustained growth, driven by increasing demand for nature-based experiences, mental health recovery, digital detox programs, and sustainable travel models (13). Although the sector experienced contraction during the global health crisis of 2020, recovery trajectories indicate renewed growth fueled by heightened awareness of immune resilience, environmental consciousness, and psychosocial wellbeing (14,15). Contemporary travelers increasingly seek destinations offering integrated health packages that combine medical prevention, environmental immersion, and personalised recreation (16). Despite this rapid expansion, the industry faces a structural challenge: a shortage of highly qualified professionals possessing interdisciplinary competencies in health sciences, recreation management, psychology, sustainability, and tourism innovation (17). The lack of specialised staff limits service quality, innovation capacity, and the ability to implement evidence-based wellness models. This workforce gap highlights the necessity of advanced educational frameworks capable of integrating theoretical knowledge, applied research, and practical skills within the wellness domain (18). In this context, Bulgaria has emerged as a European scientific and educational leader in the field of wellness culture and niche tourism (19). The National Sports Academy "Vasil Levski" in Sofia has successfully accredited and integrated specialised educational programs in wellness, spa, and thalassotherapy culture across bachelor's, master's, and doctoral levels. This vertical

academic integration ensures continuity between foundational knowledge, advanced research, and professional specialisation. Furthermore, the establishment of the Centre for Excellence "Heritage BG" under the Operational Program "Science and Education for Smart Growth," co-financed by the European Structural and Investment Funds, has significantly strengthened the scientific infrastructure supporting creative and recreative industries (20). The center promotes interdisciplinary research, social innovation, and the development of new professional profiles — including the emerging European qualification of "Wellness Instructor." Through its research and dissemination activities, "Heritage BG" contributes to the conceptualisation of wellness culture as a multidimensional construct encompassing preventive health, environmental sustainability, socio-cultural identity, and niche tourism development. The growing interest in forest medicine and nature-based therapies represents a logical extension of this multidimensional framework. Forest air and oxygen baths, forest art, forest gastronomy, forest hammam experiences, and other innovative services illustrate how wellness culture increasingly integrates ecological awareness with psychophysical regeneration (20). These developments raise important research questions concerning public perception, perceived value, and the psychometric validation of forest-based wellness services within emerging European tourism models. Accordingly, this study investigates the multidimensional content of wellness culture through empirical analysis of consumer attitudes toward innovative forest-based therapies (21). By combining psychometric evaluation with socio-demographic segmentation, the research contributes to the theoretical clarification and statistical validation of wellness culture as an evolving interdisciplinary field (22).

Methods

The study involved 110 Bulgarian participants (49 men and 61 women), aged 18–36 years (mean age = 27). Respondents were segmented by age, professional experience, and job position level. Data was collected between March and June 2023 using an online psychometric questionnaire. The evaluation applied ranking methods to determine the relative importance and satisfaction associated with forest wellness services. For registering the satisfaction levels of each respondent, we modify and apply the Scale of answers at "Kundemonitor ® Deutschland" based upon a verbalised scale of 5 answers:



For the questions about customer satisfaction the different levels are: "very satisfied" (=5), "satisfied" (=4), "neutral" (=3), "less satisfied" (=2) and "dissatisfied" (=1).

Results

The multidimensional character of wellness culture is particularly evident in the interaction between psychological, physiological, and socio-environmental components. Physical health benefits (relaxation, revitalisation, immune support, recreation) are interwoven with mental and emotional outcomes (confidence, positivity, stress resilience, selfness). Simultaneously, respondents demonstrate implicit recognition of environmental preservation as a prerequisite for sustaining such practices. This indicates that wellness culture operates at the intersection of individual health optimisation and collective ecological responsibility (see Tab. 1).

Table 1

Mean Importance and Satisfaction Scores

Service	Mean Importance (1-5)	Mean Satisfaction (1-5)
Forest Air & Oxygen Bath	4.6	4.5
Forest Art	4.2	4.0
Forest Menu	4.4	4.3
Forest Hammam	4.1	4.2
Forest Elephant Eyes	3.9	3.8

Forest Air & Oxygen Bath received the highest importance and satisfaction ratings, indicating strong consumer demand for nature-based oxygen therapy services. The present findings confirm the accelerating cultural shift toward forest medicine and nature-based wellness practices as integral components of contemporary preventive health models (see Tab. 2).

Table 2

Self-Assessment of the Significance of Applied Forest-Based Health Prevention Practices (Forest Medicine and Therapeutic Services)

Self-Assessment Statement	I (4 pts) n / weighted	II (3 pts) n / weighted	III (2 pts) n / weighted	IV (1 pt) n / weighted	Total (n / weighted score)	Rank	Significance Level
I feel more relaxed	26 / 104	25 / 75	25 / 50	15 / 15	91 / 244	I	Very High
I feel more energized and positive	33 / 132	10 / 30	28 / 56	20 / 20	91 / 238	II	High
I am more confident	33 / 132	10 / 30	20 / 40	28 / 28	91 / 230	III	Moderate–High
I did not feel positive effects	2 / 8	0 / 0	0 / 0	89 / 89	91 / 97	IV	Low

**Legend: I = 4 points (highest significance); II = 3 points; III = 2 points; IV = 1 point (lowest significance). Total respondents (N = 91 for this sub-analysis). Ranking weight reflects cumulative weighted score.*

The consistently high importance ratings assigned to forest-based services suggest that wellness is no longer perceived merely as a recreational supplement, but as a strategic lifestyle orientation grounded in health preservation, psychosocial balance, and ecological consciousness. The dominance of relaxation and positive emotional activation among reported outcomes aligns with theoretical frameworks in environmental psychology and preventive medicine, which emphasis the restorative capacity of natural environments. The positive self-assessment results suggest strong market readiness and consumer receptiveness, which are critical factors for long-term sector growth. Furthermore, the demonstrated satisfaction levels imply potential for repeat visitation, brand loyalty, and regional economic multiplier effects. The educational and institutional dimension also warrants attention.

Analytical Commentary: The results of the self-assessment demonstrate a clearly positive perception of forest-based health prevention practices. The highest cumulative weighted score (244 points) corresponds to the statement "I feel more relaxed," indicating that relaxation is the most strongly perceived outcome of forest medicine services. This confirms the stress-reduction and parasympathetic activation effects widely associated with nature-based therapies. The second-ranked indicator, "I feel more energized and positive" (238 points), suggests that forest interventions are not limited to passive relaxation but also contribute to enhanced vitality and psychological activation. This dual effect—relaxation combined with revitalisation—reflects the multidimensional nature of wellness culture. The third-ranked statement, "I am more confident" (230 points), indicates psychosocial reinforcement and potential long-term behavioral effects. Increased self-confidence may be interpreted as a mediating factor linking wellness practices to improved working capacity and professional performance. Notably, the statement "I did not feel positive effects" received the lowest weighted score (97 points), with the overwhelming majority (89 respondents) assigning it the lowest significance level. This confirms high overall satisfaction and perceives effectiveness of forest-based wellness services. From a strategic perspective, these findings support the prediction that forest medicine practices may generate long-term societal impact across economic, social, health, and niche tourism dimensions. Demonstrating measurable psychosocial benefits aligns with the mission of Centers of Excellence to translate scientific research into practical solutions addressing societal challenges. Forest exposure has been associated with reductions in stress markers, improved autonomic nervous system balance, enhanced mood regulation, and strengthened immune response.

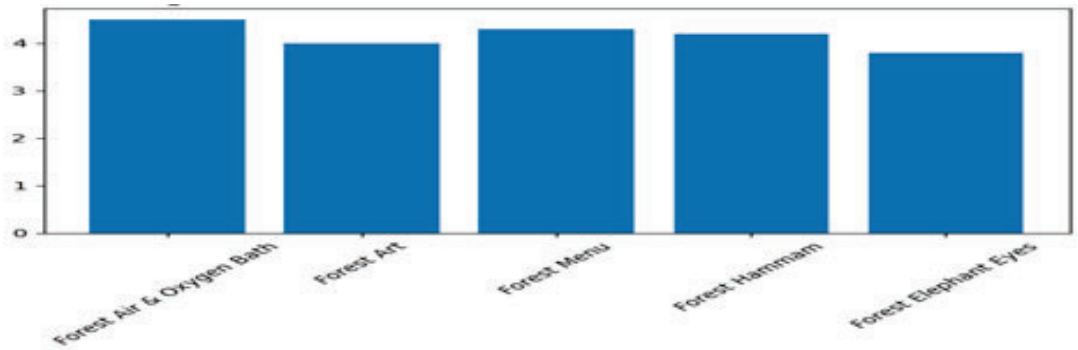


Fig.1. Mean importance of Forest Wellness Services

In this context, the respondents' strong valuation of forest air and oxygen baths reflects not only subjective preference but also broader public awareness of scientifically supported preventive approaches. The data suggest that participants internalise forest-based wellness as a meaningful health investment rather than a temporary leisure activity.

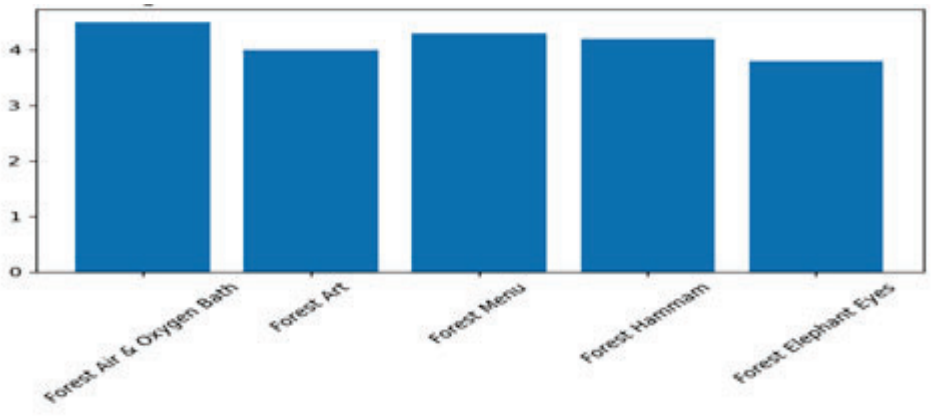


Fig.2. Mean satisfaction with Forest Wellness Services

From an economic perspective, the findings support the strategic positioning of forest medicine within niche tourism development. As global tourism increasingly shifts toward sustainability-oriented and experience-based models, forest-based services represent high-value, low-impact alternatives to mass tourism.

Discussion

The shortage of qualified wellness professionals, identified as a structural challenge in the sector, underscores the importance of integrated academic programs and specialised training infrastructures. The role of advanced educational institutions and Centers of Excellence is crucial for ensuring scientific validation, quality standards, and innovation in service design. The translation of empirical research into applied wellness models exemplifies how scientific knowledge can generate tangible social, economic, and health impact. Importantly, the psychometric consistency observed in the study (supported by reliability and correlation indicators) reinforces the conceptual coherence of wellness culture as a measurable construct. The statistically validated relationships between perceived relaxation, positive activation, and confidence suggest that forest-based therapies function as interconnected elements within a unified experiential framework rather than isolated services. The broader societal implications extend beyond individual wellbeing. Increased engagement with forest medicine may contribute to reduced healthcare expenditures through preventive mechanisms, improved workforce productivity via enhanced working capacity, and strengthened environmental advocacy through experiential connection to natural heritage. In this sense, wellness culture can be interpreted as a soft-power instrument influencing public health policy, sustainable development strategies, and regional innovation ecosystems. Nevertheless, certain limitations should be acknowledged. The sample is geographically concentrated and age-specific, which may restrict generalisability across broader demographic segments. Future research should incorporate longitudinal designs to assess long-term behavioral changes and physiological biomarkers. Additionally, comparative cross-cultural studies would further clarify the universality or contextual specificity of forest wellness perceptions. Overall, the discussion confirms that forest medicine and nature-based therapies represent more than an emerging tourism trend. They embody a systemic transformation in how modern societies conceptualise health, sustainability, and quality of life.

Conclusions

The integration of scientific validation, educational infrastructure, and market demand positions forest wellness as a structurally significant component of the evolving European wellness paradigm. Forest-based wellness services represent an innovative and multidimensional segment of the wellness industry. The psychometric analysis demonstrates strong perceived value among young professionals. The integration of forest therapies into wellness tourism supports sustainable development, health prevention, and the advancement of specialised professional training in Europe.

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Declarations *of informed consent have been signed regarding the publication of survey data.*

ChatGPT is used for English grammar revision and translation.