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Evaluation of the Applicability of the Therapeutic Recreation Forest Therapy in Antalya Termessos National Park

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Abstract

Nowadays, many scientists, especially in the period of developments all over the world, have stated that the healing effect of modern medical techniques and the existence of many products and activities in certain proportions naturally provide benefits for the protection of health. Within the scope of this successful therapeutic recreation, the healing feature of wide nature therapy (ecotherapy) for human health, the specialty of forest therapy and the organized presentation and the termination of its applicability in Antalya Termessos National Park, which is regionally important in terms of tourism. For this purpose, the scale of 'Determination of Recreational Potential of Open Air and Forest Areas', first proposed by Kiemstedt and later developed by Leier and Gülez (1990), was used in the study. As a result of on-site observation and evaluation of Termessos National Park, landscape value was evaluated as 25 points, climate value out of 23 points, accessibility 13 points, presence of recreational facilities and playgrounds within the park 15 points and negative factors 0 points. These scores reveal the result that the recreational potential value of Termessos National Park is 75%. This high score shows that the park is mainly used by local people for recreational activities and is suitable to meet the recreational needs of its visitors. The absence of literature investigating the applicability of Forest Therapy to a specific destination makes it different.

Keywords: Therapeutic Recreation, Nature-Based Recreation, Nature Therapy, Forest Therapy, Termessos National Park.

JEL Codes: L83

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Introduction

Tourism can significantly enhance the well-being of tourists, offering both social and economic benefits, particularly in the context of healthcare systems and health insurance. Visiting parks and natural environments often promotes mental health improvements (Buckley & Cooper, 2022). Research indicates that integrating nature-based products and activities with modern medical practices yields notable health benefits (Berger & Tiry, 2012; Bor, 2018; Dolling et al., 2017; Kil et al., 2023; Kim et al., 2015; Lee et al., 2017; Lyu et al., 2019). This trend has led to increased consumption of natural resource-based products and a heightened interest in outdoor activities, which are known to enhance mental health, foster social connections, and aid rehabilitation—especially for individuals with health restrictions, such as those with disabilities, the elderly, and chronic patients (Song et al., 2016).

A study on therapeutic camps in Hungary highlighted key developmental areas for young people with serious illnesses, such as perseverance, empathy, self-confidence, and teamwork, all of which participants attributed to their camp experiences (Papp et al., 2023). Therapeutic recreation utilizes purposeful recreational and experiential interventions to promote holistic health transformations across social, emotional, intellectual, physical, and spiritual dimensions (Carter & Van Andel, 2019). According to the National Council for Therapeutic Recreation Certification (NCTRC), therapeutic recreation systematically employs activity-based interventions to address the needs of individuals with illnesses or disabilities, promoting overall well-being. This process enhances various aspects of functioning, facilitating full participation in life. Therapeutic recreation includes diverse activities—arts and crafts, animal interactions, sports, games, music, and community outings—aimed at improving physical, mental, and emotional health by reducing stress, aiding recovery, building confidence, and enhancing socialization (Bor, 2018; Uzun Dönmez, 2019; NCTRC, n.d.).

Forest therapy, a form of therapeutic recreation, focuses on a mindful and immersive approach to experiencing nature, engaging all the senses. This practice can be integrated with various recreational activities to enhance its benefits (Kil et al., 2021). Environmentalists, public health experts and tourism planners recognize that there is a growing need to promote more sustainable approaches to improving human health by encouraging more frequent use of the natural environment and forest environments. It is stated that forest therapy, which we particularly emphasize in this study, has not only become a health and wellness trend in recent years, but also a highly desired activity in nature-based tourism destinations (Zoric, et al., 2022: 1). The concept, known as shinrin-yoku or "forest bathing," originated in Japan, introduced by the Japanese Forestry Agency in 1982, and has since gained widespread popularity (Rajoo et al., 2020). Research indicates that engaging in forest therapy can significantly enhance both physical and mental health (Joschko et al., 2023; Rosa et al., 2021; Song et al., 2017; Zhang et al., 2023). A study conducted in Japan on the mental health of children and adolescents discovered that forest therapy, a therapeutic recreation method that involves a slow and mindful connection with nature, can enhance mental well-being. The research concluded that structured forest therapy programs significantly reduced negative mood states and markedly improved positive mood states (Kil et al., 2023). A research study involving 60 male adults aged 19 to 24 years, all with similar health conditions, investigated the psycho-physiological effects of bamboo forest therapy. The results demonstrated that a three-day therapy session significantly enhanced positive mood states while reducing negative mood states among the participants. Additionally, the study found improvements in both psychological and physiological well-being, alongside strengthened immune functions (Lyu et al., 2019).

In the realm of tourism, research on forest therapy appears to lack depth. Kil et al. (2021) investigated the variations in demographic and visit characteristics, preferences for recreational experiences (i.e., desired on-site experiential benefits), and preferences for enhanced well-being outcomes (i.e., long-term off-site benefits) among forest therapy participants, considering their level of place attachment. The study revealed that individuals with a strong attachment to the place prioritized recreational benefits such as social connectedness, enjoyment of nature, and recreational health more highly. Sim et al. (2018) explored the influence of nature-based experiences in national parks on visitor satisfaction and their intention to revisit. The authors identified positive correlations between visitor experiences, satisfaction, and the intention to return. Given the scarcity of publications on forest therapy, this study seeks to address this gap in the literature. In this context, the study initially presented nature therapy, highlighting its significance, qualities, and health benefits of forest therapy. Subsequently, it evaluated the feasibility of applying this therapy within Antalya Termessos National Park. The distinctiveness and originality of this research stem from its status as the first study in Turkey to examine the applicability of forest therapy in a specific location. Identifying the outdoor recreation potential of Termos National Park is also crucial for tourism diversification. Diversification is a key strategy for reducing a destination's dependency on a limited range of attractions or markets, thereby promoting innovation and sustainability within the tourism sector. By broadening its base, a destination can offer various products and experiences, target different market segments, and develop

extensive networks and partnerships. This approach balances tourist flows throughout the year and increases capacity utilization, thereby enhancing the overall competitiveness of the destination. In addition, diversification is associated with value creation or risk minimization at the customer end (Benur ve Bramwell, 2015; Weidenfeld, 2018). In this context, the assessment of Termessos National Park's outdoor recreational potential is pivotal. ıt enables the development of diverse tourism offerings that can attract a wider audience, mitigate the risks associated with market dependency, and foster a more resilient and dynamic tourism economy. The Gülez Method will be employed to comprehensively assess the outdoor recreational potential of Antalya Termessos National Park. This method, known for its systematic approach to evaluating natural landscapes, has been validated through extensive research and application in various contexts. Prior studies, such as those conducted by Eroğlan et al. (2022), Sü Eröz & Aslan (2017), and Tülek (2021), have established the method's suitability and effectiveness in similar assessments. These studies have demonstrated that the Gülez Method provides a robust framework for analyzing environmental attributes, visitor capacity, and recreational opportunities, ensuring a thorough and reliable evaluation of the park's potential for outdoor activities.

Literature Review

Nature Therapy (Ecotherapy)

In light of advancements in technology and urbanization, stress levels have evidently been on the rise. Consequently, nature therapy, a method of improving health, has been garnering increasing interest. Exposure to natural stimuli, such as forests, plants, and sunlight, has been demonstrated to have beneficial effects on well-being and relaxation. This exposure enhances mindfulness and activity in the parasympathetic nervous system, which, in turn, facilitates relaxation (Song et al., 2016). Currently, nature therapy is being utilised in numerous countries as a component of positive psychotherapy. A study conducted in Israel demonstrated that nature therapy can facilitate rehabilitation, personal growth, and development in adults experiencing emotional and psychiatric disorders (Berger & Tiry, 2012). Research conducted in Australia has recognized nature as a valuable public health resource, highlighting the potential of nature tourism businesses to offer therapeutic benefits. For these businesses, it is crucial to develop programs that foster contact and connectivity with nature while supporting personal development and transformative experiences. This approach ensures the sustainable well-being of both individuals and the planet through consistent engagement with natural environments (Clissold et al., 2022). A study assessing the efficacy of nature-based therapy for young patients with psychosomatic conditions found improvements in mental health and nature attachment, alongside reductions in stress levels over the therapy period (Joschko et al., 2023). Another study by Song et al. (2019) in Japan revealed that a combination of forest-related visual, olfactory, and auditory stimuli elicited both physiological and psychological relaxation effects, notably enhancing feelings of comfort and relaxation. In recent years, the popularity of these therapeutic applications has surged in Turkey, with their utilization significantly increasing, particularly in clinical settings and in the rehabilitation of individuals with special needs (Sarıçam et al., 2015).

The concept of "nature therapy" refers to a collection of practices designed to achieve preventive medical benefits by exposing individuals to natural stimuli. These stimuli induce a state of physiological relaxation and enhance weakened immune functions, aiding in disease prevention. Unlike the targeted effects commonly associated with pharmacological treatments, nature therapy aims to bolster immune functions, prevent illnesses, and promote overall health through interaction with natural environments. This approach not only fosters a state of relaxation but also contributes to long-term health maintenance and disease prevention. (Song et al., 2016). The term "nature therapy" encompasses a range of creative activities, including gardening, physiotherapy, traditional therapies, socialization, stress management, relaxation, and handicrafts. A synthesis of these activities within a natural setting has been demonstrated to be an effective approach to stress rehabilitation (Dolling et al., 2017). A clinical trial of patients undergoing flexible bronchoscopy indicated that a combination of nature sounds and images resulted in a reduction in pain. Patients exposed to these natural stimuli reported a notable increase in their perception of pain control. In a separate study conducted on healthy individuals, exposure to videos of natural landscapes was found to increase both pain tolerance and threshold. Additionally, a study by Summers and Vivian (2018), showed that patients who had undergone spine surgery experienced reductions in pain, stress, the need for painkillers and overall drug costs when exposed to sunlight.

Forest Therapy

Forest therapy, or forest bathing, involves spending time in a forest environment or participating in therapeutic activities within a forest setting to enhance health and well-being (Lee et al., 2017). The rise in urbanization, along with air, noise, and water pollution, work-related pressures, and other urban stresses, is driving individuals to seek stress relief and healthier lifestyles. Recently, an immersive forest experience termed 'forest therapy' has gained significant attention as a novel psychological therapy

aimed at reducing stress and promoting relaxation. This therapeutic approach is rapidly expanding, with researchers striving to better understand and evaluate the connection between forests and human health (Lyu et al., 2019). Rosa et al. (2021) found that, on average, forest therapy is more effective in alleviating depressive symptoms compared to similar activities conducted in hospitals or urban areas without forests, as well as interventions centered on diet and forest-based exercise.

The term "forest therapy" refers to a brief, restorative visit to a forest park, known in Japanese as "Shinrin-yoku," which is akin to natural aromatherapy. The phrase "shinrin-yoku" translates to "bathing in the forest atmosphere" or "sensory immersion in the forest." A forest therapy excursion involves visiting a park for relaxation and recreation, facilitated by the inhalation of phytoncides—volatile organic compounds emitted by trees, such as □-pinene and limonene. The concept of integrating forest therapy trips into a healthy lifestyle was first introduced as a national health program by the Japan Forest Agency in 1982. Since then, it has gained significant recognition in Japan as an effective activity for relaxation and stress management (Li, 2019). Interest in forest therapy research has increased over time, with most studies focusing on its effects on human health from physiological and psychosocial perspectives. Additionally, some research explores its potential effectiveness in treating specific conditions, such as hypertension and depression (Kil et al., 2023; Rajoo et al., 2020; Yeon et al., 2021; Zhang et al., 2023). Integrated into Japanese culture, forest bathing is not merely a walk in the forest; it also entails perceiving and experiencing the environment with a tranquil, composed, and alert consciousness during the walk. Since the 1980s, forest bathing has been investigated from various perspectives (Yalvaç et al., 2022). Medical professionals including doctors, environmental physicians, ecologists, and wildlife educators are investigating the reasons for the healing effect of forests on humans and their protective effect against cancer. The initial study in this field was conducted by Swedish physician Roger Ulrich, who demonstrated in 1980 that the mere presence of a tree visible from a hospital window facilitated the recuperation process for patients. Twenty-three surgical patients placed in rooms with windows overlooking natural scenery experienced shorter postoperative hospital stays, received fewer negative comments in nurses' notes, and required fewer potent analgesics compared to 23 matched patients in rooms with windows facing a brick wall (Ulrich, 1984). In another study, Kim et al. (2015) conducted a study involving 11 patients with stage 3 breast cancer who were exposed to forest therapy for 14 days. The results demonstrated a significant reduction in both natural cytotoxicity and immunosuppression. The authors concluded that forest therapy has the potential to be an effective adjuvant therapy following standard cancer treatments. Forest bathing, a key component of Japanese medical practice, has been demonstrated to offer numerous health benefits, including alleviation of mental fatigue, enhancement of happiness, strengthening of the immune system, promotion of physical activity and cardiovascular health, reduction of stress, improvement of visual acuity, and increased capacity to manage pain (Ivens, 2018). Following a period of exertion in an outdoor setting, such as a forest walk, the number of white blood cells in the bloodstream can increase by approximately 50%. Furthermore, these white blood cells remain active for an extended period following a forest walk, allowing them to combat foreign microbial pathogens and the body's malignant cells. This phenomenon, which may appear to be miraculous, has been statistically validated by the Nippon Medical School. Their research indicated that individuals residing near forest environments exhibited a reduced likelihood of developing cancerous conditions compared to those living in other locations. As Wöfle (2016) notes, scientists have recently revealed that spending time in forests has a relaxing and stress-reducing effect. The practice of forest walking has been demonstrated to result in a reduction in parasympathetic nerve activity, as well as a decline in pulse, blood pressure, and cortisol levels. In addition to the favourable impact on the cardiovascular system, there is a notable enhancement in the production of anti-aging proteins and cancer-fighting cells. As reported by Morse (2013), a 2007 study conducted by researchers at Kyoto University Medical School found that forest environments were particularly advantageous for those experiencing chronic stress, especially in terms of acute emotional responses. Therefore, it can be concluded that forest bathing represents an effective method of stress reduction, with forest environments offering a therapeutic environment. Moreover, it has been determined that forest therapy is linked to the concept of 'biophilia,' which refers to the innate human affinity for life and the natural world. Contemporary research supports the idea that interactions with nature and other living organisms enhance human well-being and health on both psychological and physiological levels. Recent findings in forest therapy provide significant biomedical support for the concept of biophilia, reinforcing the understanding that exposure to natural environments and living organisms contributes positively to overall health and well-being (Arvay, 2019). Furthermore, there is evidence to suggest that trees have a positive effect on mental state. The literature review revealed that all studies reported a decrease in aggression, anxiety, and depression due to increased vitality and satisfaction after spending time among trees (Ergüven, 2019).

Song et al. (2017) conducted a comprehensive evaluation of the long-term impact of a forest therapy

program on the blood pressure of office workers. The study involved participants in a structured one-day forest therapy session. The findings revealed a significant reduction in both systolic and diastolic blood pressure immediately following the completion of the program. Remarkably, these beneficial effects were not transient; the reduced blood pressure levels were maintained for five days post-program. This sustained improvement underscores the potential of forest therapy as an effective intervention for managing blood pressure and promoting cardiovascular health among individuals subjected to the stresses of office work. The study emphasizes the importance of incorporating natural environments into wellness programs to achieve long-lasting health benefits.

Materials and Methods

The study utilized the method of 'Determining the Recreational Potential of Open Air and Forest Areas,' originally proposed by Kiemstedt (1967, cited in Tülek, 2021) and later refined by Leier (1979, cited in Tülek, 2021) and Gülez (1990), to evaluate the recreational potential of Termessos Natural Park. In 1967, Kiemstedt investigated the suitability of natural landscape elements for recreational purposes, evaluating factors such as forest and water coast landscapes, climate, and various land uses. However, methods used to determine the potential for recreational activities often fail to accurately reflect the true recreational potential of a specific location. Some of these methods are designed to assess the suitability of large regions for recreational activities on a broader scale. Most of these methods, which adopt an economic perspective, predict future recreational potential by considering various criteria, but they often overlook or minimally incorporate existing natural landscape elements. Methods that use formulas to estimate the recreational value of an area typically require a basic understanding of statistics. In approaches that consider the actual natural landscape and geophysical features of a region, negative factors are usually either excluded or included only to a limited extent. Similarly, the weights and scores assigned to climate factors are largely subjective. Additionally, only a few of these methods apply to forest recreation areas (Gülez, 1990). Therefore, the Gülez Method was employed to effectively determine the outdoor recreation potential of a forest recreation area. The efficacy of this method is corroborated by the findings of Eroğlan et al. (2022), Sü Eröz and Aslan (2017), and Tülek (2021). By substituting all values into the V-Value (Versatility Value) formula, the resulting value indicates the recreational suitability of the region (Gülez, 1990). Gülez's (1990) method, designed to determine the actual outdoor potential of small area units using a simple mathematical formula, facilitates the calculation of the recreational potential of forest and outdoor areas. This practical method is demonstrated below.

$$\% RP = P + I + U + RK + OSE$$

The Table 1 illustrates the significance of symbols used in the formula, along with their assigned weights and the distribution of maximum points they can receive. As shown in the table, since the total points are theoretically capped at 100, the percentage of points allocated to the elements in the formula will quantify the recreation potential of a forest recreation area (Gülez, 1990, p. 134).

Table1. Formula Items and the Scores

Symbol	Meaning	Maximum Score (Weight Score of the Item)
P	Landscape Value	35
İ	Climate Value	25
U	Accessibility	20
RK	Recreational Convenience	20
OSE	Negative Factors	0 (Min.-10)
%RP	Recreational Potential	100

Source: Gülez, 1990, p.134

In order to facilitate the calculation of elements in the method, Gülez (1990, pp. 134-138) devised a "Forest Recreation Potential Evaluation Form" (ORPDF) that also illustrates the comprehensive scores that can be attained for each element within a given recreation area. The following section explains the elements and scoring system employed in this method.

The most crucial element in assessing the recreational potential of a given area is its landscape value (L). Accordingly, the landscape value is accorded the highest ranking in the evaluation, with a weight of 35%. The evaluation form details the characteristics that must be considered when calculating the landscape value and the highest scores that can be attained.

The "C" element, designated as the Climate Value, is acknowledged as having a considerable influence on recreational activities. Consequently, it has been determined that this element should be assigned a weight of 25% in the evaluation process. The primary climatic factors, including temperature, precipitation, sunshine and windiness, have been assigned specific weights based on their impact on recreational activities. The evaluation form outlines the elements to be considered in calculating the climate value and the maximum achievable scores.

For the temperature value, the mean temperatu-

res of the summer months (June, July, and August), when recreational activities are more prevalent, have been considered. The average temperature for optimal recreational activities in summer is assumed to be 25°C. Accordingly, 10 points have been allocated, with 1 point for temperatures between 16°C and 34°C, and intermediate values for other temperatures.

In consideration of the detrimental impact of precipitation on recreational activities, areas with total precipitation during the summer months (June, July, and August) of 50 mm or less are given an 8-point score, with scores decreasing as precipitation amount increases.

In evaluating the Sunshine value, the clarity of the weather is taken into account, with 0 representing clear skies and 10 representing cloudy skies. Intermediate values have been assigned to represent varying degrees of cloudiness. A value of five points is assigned for clear skies, with a corresponding decrease in score as cloudiness increases.

Concerning the windiness value, it is hypothesized that the presence or absence of wind has a marginal impact on general recreational activities. However, in certain activities, such as windsurfing, paragliding, and kitesurfing, windiness is a desirable attribute. Consequently, a score of one has been allocated to regions with an average wind speed of 1–3 m/s during the summer months (June, July, and August), while a score of two has been assigned to locations where the average wind speed is less than 1 m/s.

The accessibility value, represented by the letter "A", is a key factor in determining the recreational potential of a given location. It is important to note that the accessibility of a place is a significant determinant of site's suitability for recreational activities. The suitability of a location depends on the extent to which the public can benefits from it and access it without significant transportation issues. Concequently, the accessibility element has been incorporated into the recreation evaluation method with a weight of 20%. The evaluation form outlines the elements considered in calculating the accessibility value and the maximum attainable scores.

The "RC" element, or Recreational Convenience Value, considers the contribution of existing recreational facilities to the potential for forest recreation. Therefore, it has been deemed appropriate to prioritize the assessment of recreational facilities, with a weight of 20%. The evaluation form outlines the elements to be considered in determining the recreational convenience value and the maximum achievable scores.

When evaluating the recreational potential of a given location, it is essential to consider the presence of negative factors. This is reflected in the "NE" Negative Factors Value. The optimal scenario would involve the absence of negative factors, resulting in a score of zero for negative points. However, it is assumed that negative factors can be assigned a score of up to-10. These scores are incorporated into the evaluation as negative values, which are subsequently deducted from the total score. The evaluation form details the characteristics to be considered in calculating the negative factors value and the maximum applicable scores.

In the evaluation formula for recreation potential, elements other than climate value may be determined by the individual evaluating the area under consideration. The scoring system employed in the Recreation Evaluation Form is designed to assist the evaluator, based on field observations, in determining the forest recreation potential in a relatively short period of time. In order to obtain the climate value following the specified method, data from the nearest meteorological station must be utilised (Gülez, 1990, p. 138).

Based on the results obtained from the method prepared by Gülez (1990, p.139), the following evaluation method is suggested (Table 2);

Table 2. Classification of Landscape Value

Forest recreation potential	Value
Very low	Below 30%
Low	30%-45%
Moderate	46%-60%
High	61%-75%
Very high	Above 75%

Source: Gülez (1990)

In this method, which is designed to determine the potential for forest recreation, natural elements (landscape value and climate value) are assigned a total weight of 60%, while cultural elements (accessibility and recreational convenience) are represented with a total weight of 40%. It is emphasized that the method allows for the appropriate weighting of both natural and cultural elements, while also accounting for negative factors (Gülez, 1990, p. 139).

The aim of this evaluation is to determine the forest recreation potential of Termessos National Park, located 34 km northwest of Antalya. The park lies between 36° 55′ 24″ and 37° 02′ 30″ north latitudes and 30° 03′ 12″ and 30° 31′ 30″ east longitudes, spanning the districts of Korkuteli, Döşemealtı, and Konyaaltı within Antalya's administrative region. Designated as a national park in 1970, Termessos National Park covers 6,702 hectares and includes one of Turkey's best-preserved ancient cities, Termessos (Figure 1). The name 'Terme' is derived from the Luwi/Etruscan language, meaning 'Mountain Waist/Pass,' while 'Assa' means 'High Fortress,' combining

to form 'Termeassa,' or 'Fortress city on the mountain Waist' (Antalya Provincial Directorate of Culture and Tourism-APDCT (2024). Termessos National Park is home to a diverse range of biodiversity, featuring 680 plant species typical of the Mediterranean climate, including mastic tree (Pistacia terebinthus), wild olive (Olea europaea), sandalwood (Arbutus andrach), carob (Ceratonia siliqua), laurel (Laurus nobilis), and rosemary (Rosmarinus officinalis). Notably, 80 of these plant species (11.76%) are endemic to Turkey. Despite a gradual decline in their populations, several significant species continue to inhabit and reproduce in the park, including the fallow deer (Cervus dama), wild goat (Capra aegagrus), imperial eagle (Aquila heliaca), and lynx (Felis lynx). Out of the 456 bird species recorded in Turkey, 113 can be found in this national park (Çetinkaya, 2008). Moreover, the park features a "Nature School," which provides hands-on nature courses in partnership with the General Directorate of National Parks, Hunting and Wildlife, academic institutions, and TÜBİTAK (The Scientific and Technological Research Council of Turkey). Additionally, five trails have been established within Termessos National Park specifically for forest therapy.

Figure 1. Termessos National Park Access Plan
Source: Çetinkaya (2008)

The primary objective of the National Park is to preserve the ruins of the ancient city of Termessos, from which the park derives its name. Visitors can access the area through a network of pathways that begin at the parking lot, located 9 km from the park entrance and reachable by vehicle (Figure 2). Along these pathways, a total of 32 ruins have been identified (Çetinkaya, 2008). The pathways are named as follows: the pathway to the Yenice Valley Wall, the King's Road pathway, the Top Tepe-Karaman upward pathways, the Atbaşı upward pathway, the pathway leading to the Cemetery, the Geopolitical pathway, and the Villa pathway.

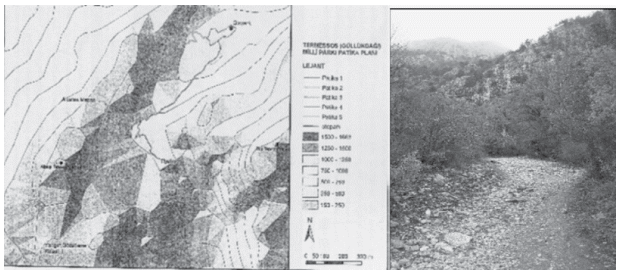

Figure 2. Termessos National Park Pathway Plan
Source: Çetinkaya (2008)

The Ministry of Agriculture and Forestry, the Directorate of Nature Conservation and National Parks, the Ministry of Culture and Tourism, and the Antalya Governorship, along with data from previous studies, were responsible for determining the scores for the criteria in the Forest-Based Recreation Potential Evaluation Form of Termessos National Park.

For the first criterion, Landscape Value, the scores were determined as follows: The park's area of 6,702 hectares received four points for its size. Eight points were given for vegetation, as the area is a national park. The presence of streams within the park earned one point. The park's gentle slopes and occasional flat areas were awarded three points, while panoramic views also received three points. The ancient city ruins, rich fauna, and diverse flora each garnered six points. The study area experiences a Mediterranean coastal climate with distinct seasons, characterized by dry, hot summers and mild, rainy winters. Since there is no meteorological station in Termessos National Park, the climate value was derived using data from the nearest meteorological station, as suggested by Gülez (1990, p.138). Consequently, records from the Antalya Central Meteorology Station were used. Data from the General Directorate of Meteorology (MGM, 2023) and previous studies by Yılmaz (2008, p. 26) and Uçar and Kokulu (2018, p. 8) were utilized to determine the scores for the Climate Value, the second criterion (Table 3).

Table 3. Climate Data for the Years 1930-2023 Determined from Antalya Meteorological Station

	MONTHS												
METEOROLOGICAL ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December	Annual Average
Average Temperature (°C)	10.0	10.7	12,9	16.4	20.6	25.3	28.6	28.4	25,3	20.6	15.5	11.7	18.8

Average Highest Temperature (°C)	14.9	15.6	18,0	21.4	25,7	30.7	34.2	34,1	31.2	26.6	21.3	16.7	24.2
Average Lowest Temperature (°C)	6.0	6.4	8,1	11.3	15,3	19.7	22.8	22,8	19.5	15.3	10.9	7.7	13.8
Average Sunshine Duration (hours)	5.1	5.8	67	8.0	9,8	11.4	11.8	11,3	9.8	7.9	6.3	4.9	8.2
Average Number of Rainy Days	12.50	10.45	8.63	6.51	5,22	2,56	0.53	0,55	1.71	5.45	7.49	11.91	73.5
Average Total Rainfall (mm)	234.5	150.2	92.1	49.0	34.3	11.0	4.4	4.3	16.9	70.9	129.7	256.1	1053.4

The average summer temperature of 27.4°C was awarded seven points, total summer precipitation of 19.7 mm received eight points, average summer cloudiness of 1.4 was given five points, and the average summer wind speed of 2.44 earned one point (Table 4).

Table 4. Average Climate Data for Summer Months in Antalya Province

Climate Characteristics	June	July	August	Summer Months Averages and Totals
Temperature	25,3	28,6	28,4	27.43
Rainfall	11,0	4,4	4,3	19.7
Sunlight	1.7	1.3	1.2	1.4
Windiness	2.36	2.50	2.47	2.44

The Accessibility Value scores ranked third among the evaluation criteria, have been determined as follows: Termessos National Park is located on the Mediterranean coastline, 34 km from Antalya city center, 36 km from Konyaaltı district center, 18 km from Döşemealtı district center, and 46 km from Korkuteli district center. The park is 9 km from the D350/E87 Antalya-Denizli highway and 23 km from the D650 Antalya-Burdur highway, earning it 4 points. Due to its 34 km distance from Antalya city center, which had a population of 2,696,249 in 2023, the park received four points. Its 18 km distance from Döşemealtı district center, with a population of 86,109 in 2023 and a 28-minute car journey, earned it three points. The site was awarded two points for being inaccessible by taxi or private vehicle and zero points for the lack of alternative transportation facilities.

The Recreational Facilities Value scores, ranked fourth among the evaluation criteria, are as follows: Four points are awarded for having a regular and fixed picnic area. Three points are given for the provision of drinking and utility water facilities. No points are awarded for the absence of fixed overnight accommodation and for the camping area not being open to visitors. Two points are awarded for the availability of sufficient toilets and parking spaces to meet basic needs. One point is given for the presence of a sales kiosk. Two points are awarded for the presence of a continuous guard or officer, considering the park's national park status. Lastly, two points are awarded for facilities such as a children's play area and a mosque within the park.

The Negative Factors Value scores, ranked fifth among the evaluation criteria, are as follows: Zero points are awarded for air, noise, and water pollution due to the park's protected status. Zero points are given for the day-use area being safe and well-maintained, and zero points are assigned for the absence of quarries, construction sites, and factory remains within the protected area. The results pertaining to the aforementioned points and evaluations for Termessos National Park are presented in Table 5.

Table 5. Termessos National Park's Forest Interior Recreation Potential Evaluation Form

Items	Item Features	Rating
Landscape Value (L)	Area Size	4
	Vegetation	8
	Sea, Lake, Streams	1
	Surface Condition	3
	Visual Quality	3
	Other Features	6
Climate Value (C)	Temperature	7
	Rainfall	8
	Sunlight	5
	Windiness	1
Accessibility (A)	Touristic Importance of the Region	4
	City with a population of at least 100,000 in the region	4
	Time to reach (from a nearby city with a population of at least 5,000)	3
	Transportation (except taxi and private car)	2
	Other conveniences in transportation	0
Recreational Facilities	Picnic facilities	4
	Water availability	3
	Overnight facilities	0
	WCs	2
	Parking lot	2
	Gazianthro, sales kiosk	1
	Guard and attendants	2
	Other facilities	2
Negative Factors	Air Pollution	0
	Lack of Security	0
	Water Pollution	0
	Lack of Maintenance	0
	Noise	0
	Other Negative Factors	0
Total Score or Forest Recreation Potential (%)		75

Source: Prepared by the authors according to the method of Gülez (1990)

When the characteristics of Termessos National Park are evaluated using the criteria from the Forest Recreation Potential Assessment Form developed by Gülez (1990), the forest recreation potential of the area is determined to be 75%. As shown in the value assessment table, this indicates a notably high level of forest recreation potential. Specifically, the landscape value of Termessos National Park is 25%, the climate value is 21%, the accessibility value is 13%, the recreational facilities value is 16%, and the negative factors value is 0%.

The park's proximity to Antalya province, its tourism

potential, its forest resources, and the presence of designated pathways make it an ideal location for implementing activities similar to those conducted by Song et al. (2017) for forest therapy in Japan. Incorporating the observation of endemic flora and fauna into a forest therapy program could enhance the experience. Additionally, Antalya's tourism potential offers opportunities for both tourists and local residents to participate in forest therapy activities.

Discussion

Forest therapy, also known as shinrin-yoku or forest bathing, is increasingly recognized for its significant benefits to mental and physical health. This practice involves immersing oneself in a forest environment and engaging all five senses to foster a deep connection with nature. Research has shown that forest therapy can reduce stress levels, lower blood pressure, and improve mood by decreasing cortisol levels and promoting relaxation. Additionally, it enhances cognitive function and creativity by providing a break from the constant stimuli of urban life. The natural environment also boosts the immune system through exposure to phytoncides, which are antimicrobial compounds released by trees. Overall, forest therapy offers a holistic approach to well-being, emphasizing the therapeutic potential of natural environments in enhancing human health and quality of life.

The objective of this study was to examine the recreational potential of Termessos National Park, located in Antalya, one of Turkey's most prominent tourist destinations known for its opportunities for forest therapy. Based on extensive research, on-site observations, and evaluations, the landscape value of Termessos National Park has been determined to be 25 points. This score reflects the park's natural beauty, scenic views, and overall aesthetic appeal. The climate value, assessed at 23 points, indicates favorable weather conditions that enhance the park's attractiveness and usability throughout the year. Accessibility, an important factor for visitors, received a score of 13 points, taking into account the ease of reaching the park, the quality of transportation links, and the availability of facilities for people with disabilities. The recreational facilities within the park have been rated at 15 points, highlighting the presence of amenities such as picnic areas, walking trails, and playgrounds that cater to a variety of recreational activities. Additionally, the negative factors were evaluated at 0 points. These scores lead to the conclusion that the recreation potential value of Termessos National Park is 75%. This high score indicates that the park is predominantly utilized by the local population for recreational activities and is well-suited to meet the recreational needs of its visitors. This high score underscores the park's suitability for various recreational activities, including forest therapy, which can significantly enhance visitors' mental and physical well-being. The park's natural beauty, diverse flora and fauna, and serene environment make it an ideal location for activities that promote relaxation, stress reduction, and overall health.

Previous studies have highlighted the positive effects of forest therapy, especially for disadvantaged groups (Berger & Tiry, 2012; Bor, 2018; Dolling et al., 2017; Kil et al., 2023; Kim et al., 2015; Lee et al., 2017; Lyu et al., 2019; Rosa et al., 2021; Song et al., 2017). These studies have shown that forest therapy can be particularly beneficial for individuals facing various challenges, such as mental health issues, physical disabilities, and social isolation. By providing a natural and calming environment, forest therapy helps these individuals experience a sense of peace and rejuvenation, which can be difficult to achieve in urban settings.

The aim of this study was to evaluate the recreational potential of Termessos National Park within the framework of nature-based activities. The findings concluded that Termessos National Park, with its high recreational capacity, should be further utilized by actively promoting its therapeutic potential. Additionally, promoting forest therapy to tourists in popular destinations could boost tourism revenues and enhance the country's reputation as a health tourism destination. By highlighting the unique benefits of forest therapy, Termessos National Park can attract a diverse range of visitors, including those seeking relaxation, adventure, and improved well-being. The park's rich biodiversity, historical significance, and well-maintained facilities make it an ideal location for both locals and tourists to engage in various recreational activities. It should also be done from a managerial perspective;

- It is recommended that a Therapy Experience Center be established within the nature park so that studies on forest therapy can be carried out more systematically.
- It is thought that a camping area should be established so that visitors to the nature park can stay in a close vicinity or that guesthouses should be encouraged in the surrounding villages.
- In order for visitors to the nature park to be informed about the area and to know why it is a protected area, it is thought that an information brochure or information boards containing flora, fauna, cultural heritage, endemic plants etc. belonging to the nature park are needed. It is thought that it would be appropriate for the information brochures to be prepared visually and audibly or to be narrated by a field guide so that they can be inclusive of everyone.
- It is thought that a Forest Information and Education Center, Applied Woodworking Courses or Forest Museum can be established for both visitors and the local people to be more aware. It is also thought that local products, herbal products or wood products should be sold in order to develop

the local people economically.

- It is stated that biogenic volatile organic compounds in forest air, some of which function as anti-inflammatory, antitumor, antidepressant, antimicrobial, antiviral and sedative agents. In the forest where studies on terpenes were conducted in Serbia; α-cadinol and spathulenol, which are defined as antiviral, antitumor, antimicrobial and immunomodulatory agents, were detected (Zoric, et al., 2022: 1-2). It is recommended that a similar study be conducted in Termesos National Park to identify the types of terpenes in the forest.

The absence of a study in the literature investigating the applicability of Forest Therapy to a specific destination shows the theoretical contribution of the research to the field. In addition, using a lot of resources in the international literature and presenting ideas within the scope of national parks for the evaluation of forest recreation areas by scoring using the Gülez (1991) method emphasizes the existence of a theoretical method for the determination of open area recreation centers. Evaluating the research only at the Gülez scale and working on a single national park constitute the limitations of the research.In addition, similar national parks can be built throughout Antalya as a future academic study and can be used at different scales for recreational areas other than the Gülez (1990) scale. Conducting research on guests using similar national parks for recreational purposes will also contribute to the literature.

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