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INTERNATIONAL RESEARCH AND EVALUATIONS IN THE FIELD OF LANDSCAPE ARCHITECTURE

EDITOR

DOÇ. DR. MELİH ÖZTÜRK

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Chapter 1

ALTERNATIVE SUGGESTIONS TO TRADITIONAL PUBLIC TRANSPORT SYSTEMS IN URBAN TRANSPORTATION

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1.Introduction

Urbanization, which began with the Industrial Revolution in the world's major cities, brought many problems. One of the most important of these is transportation. Transportation, in short, is "the movement of people and goods and their organization" (Abbasgil, 1994; Eren et al., 2020). In parallel with developments in social life, the place and importance of transportation within society have increased daily. It is one of the most important elements of economic life. It is also a service that cannot be dispensed with or even disrupted. Especially before the Industrial Revolution, cities were more compact. With migration, they experienced significant population increases, and existing urban infrastructures were inadequate for this new population. Subsequently, the proliferation of the automobile and the development of accessibility were among the primary factors that reshaped our cities (Yaman, 2015; Düzenli et al., 2018).

Urban transportation encompasses the travel and goods movements of the urban population within the city. While this was previously only possible using pedestrian vehicles, the need for workers to reach their workplaces and homes has emerged over time. People engaged in socio-economic activities in and around the city create vehicle traffic. As urban transportation systems fail to keep pace with these developments, transportation and traffic problems in cities are increasing exponentially (Öncü, 1997). Urban transportation is the system that enables the efficient, safe, and sustainable movement of people and goods from one point to another within a city. With increasing urbanization, urban transportation has become critically important for individuals' quality of life and environmental impacts.

However, urban transportation has grown rapidly in recent years and has become increasingly difficult to solve. This has created various problems. The rapid increase in the population and the number of private vehicles per capita in our major cities, combined with disproportionate urbanization and inadequate infrastructure, further exacerbates the problem. To eliminate urban transportation problems, an efficient, healthy, and reliable system must be established. Furthermore, comprehensive transportation planning is essential, especially in major cities, to ensure the coordination of the elements that make up the transportation system.

Therefore, new transportation systems have emerged as alternatives to urban planning in recent years. The common goal of these systems is to create a sustainable transportation network. Alternatives to traditional public transportation systems in urban transportation, such as buses,

metros, and trams, operate on fixed routes and schedules, and offer more flexible, technologically advanced, personalized, or environmentally friendly solutions. These alternatives aim to solve transportation problems, reduce traffic and environmental problems, customize user needs, and offer systems driven by digital technology and data. Alternative systems include electric scooters, bicycles, e-bikes, minibuses summoned via mobile apps, autonomous (driverless) vehicles, cable car transportation systems, pedestrian paths, and bicycle transportation infrastructure in walkable cities.

2.Urban Transportation

Transportation is moving people, animals, or objects from one place to another. Transportation has gained importance over time as people have adopted a settled lifestyle. As travel distances have lengthened, pedestrian and bicycle-based transportation systems have been replaced by motor vehicles, making travel dependent on them. Urban transportation (Figure 1) encompasses the ever-growing movement of passengers and goods in our country, where the urban population has built daily routines. The fact that most of the country's population lives in cities, the spread of cities, and car ownership all contribute to the increase in these distances and travel demands.

It encompasses short- and medium-distance travel (usually 0–50 km). It takes place in densely populated and built-up areas. Routes can be fixed or flexible. Factors such as time, cost, environmental impact, and comfort are essential. Meeting urban transportation demands and providing the necessary options depends on developing long- and short-term transportation plans.

Figure 1. Urban Transportation (URL-1, URL-2)

2.1. Urban Transportation Problems

The primary cause of urban transportation problems is urbanization and the construction associated with population growth. As cities grow, they increasingly accommodate the daily movements of the urban population, encompassing both passenger and goods movements. Socio-economic activities increase the demand for urban transportation. Because urban transportation systems cannot keep pace with rapid developments or lag, transportation and traffic problems in cities continue to grow. Addressing urban transportation problems is crucial for improving the quality of urban life. Traffic congestion, lost time, increased costs, and transportation problems cause physical and psychological harm.

Urban transportation not only causes problems such as traffic congestion and accidents but also causes serious environmental problems. Transportation, in its entirety, contributes to various environmental and health issues, including climate change, air pollution, acid rain, noise problems, land use, and the destruction of natural species (Kırımhan et al., 2001). As a result of these negative impacts on urban areas, traditional transportation systems have been replaced by modern alternative methods.

3. Traditional Transportation Systems in Transportation

Although urban transportation is divided into four main groups, it is further subdivided into three: individual transportation, paratransit transportation, and public transportation (Figure 2) (Murat & Şahin, 2010). Individual transportation is a transportation system where passengers typically use their vehicle, separate from public transportation, in a dedicated manner. In this transportation system, the driver's preferences determine travel time and route. Bicycle transportation, where the city's topography plays a significant role, is the most cost-effective mode of transportation (Kalpakçı, 2013).

Transportation systems can be motorized or non-motorized, individual, or group based. The system designed for transportation allows for flexible or fixed routes, overlapping systems, and shared use with other systems (Elker, 2002). It allows for the mass movement of people living within the city or in settlements near it. Systems operate on specific routes, according to specific time schedules, stopping at specific stops, and operating in conjunction with or independently of other vehicles in the corridor (Murat & Şahin, 2010).

Figure 2.Traditional Transportation Systems in Transportation (URL-3, URL-4)

Public transportation systems are the best example of traditional public transportation. Public transportation encompasses all transportation systems used for journeys without individual vehicles. By carrying multiple passengers, energy and resources are saved. While public transportation generally uses buses and trains, it also includes airlines, sea routes, and, in our country, minibuses enabling urban residents to move between two points. On the other hand, public transportation consists of systems that allow people living within the city or nearby settlements to move collectively. More broadly, they can be defined as "systems that are open to every individual living in society, operate for a predetermined fee, on a specific route, according to a specific timetable, at specific stops, and operated either together with or independently of other vehicles in the corridor" (Murat & Şahin, 2010; Ağaoğlu & Başdemir, 2019). Buses are the most common means of public transportation worldwide. Rail systems include metro, tram, and suburban trains (urban rail systems). Common characteristics of these systems are that they are public and accessible to everyone. They operate with regular schedules and fixed routes. They offer a paid system, often integrated with transportation cards. They are more environmentally sustainable than private vehicles.

4. Motorized Vehicles in Urban Transportation

The use of motorized vehicles began with producing self-propelled, wheeled vehicles suitable for passenger transport. Initially, the automobile evolved into small minibuses and, later, buses for public transportation. Motorized vehicles have environmental impacts such as air pollution, climate change, and loss of green space. Economically, they include fuel consumption, infrastructure costs, time loss, social inequality (not everyone

has a car), accidents, and spatially, the need for roads and parking. Furthermore, they provide freedom of movement based on personal preferences regarding flexibility and comfort. They offer direct routes compared to public transportation, saving time. Their load-carrying capacity makes them particularly effective in commercial transportation.

5. Why Are We Looking for Alternatives to Traditional Transportation?

Why are we looking for alternatives to traditional methods? Reducing traffic congestion in densely populated cities is the most effective way to improve the quality of life. These systems are being developed to reduce carbon emissions and fuel costs, provide more personalized and flexible transportation options, and complement inadequate traditional systems. The primary reason for the need for alternatives to conventional urban transportation is that traditional systems cannot adequately address today's cities' population density, environmental challenges, flexibility, and technological advancements. As lifestyles and mobility in modern cities change, transportation systems are expected to become more sustainable, accessible, user-focused, and efficient.

Transportation is a sector highly affected by technological advancements. It is inevitable for transportation to renew, change, and advance itself with technological advancements. Transportation and life interact (Altuntaş & Eyigün, 2021). In this sense, innovative services featuring high technologies, traffic control, and various transportation systems have emerged. Intelligent Transportation Systems (ITS) are technologies such as electronics, information processing, and wireless networks that increase safety and efficiency in the transportation network. These applications can reduce the time vehicles spend on the road. Pollution from fossil fuel use is prevented. Road safety also reduces the risk of accidents and ensures communication. The increase in intelligent transportation system applications increase will lead to new investment products in electronics and information processing (Eicher, 2015; Altuntaş & Eyigün, 2021).

Traffic Congestion and Time Loss: Traditional systems (e.g., buses) are affected by heavy traffic. The increasing number of vehicles clogs roads, causing individual and public transportation delays. Alternative systems (bicycles, scooters, on-demand vehicles) offer routes outside of traffic or the advantage of individual use.

Inadequate Service Areas and Lack of Infrastructure: Traditional sys-

tems are either absent or infrequent in some areas (e.g., nighttime, rural areas). Alternative systems can provide flexible service to fill these gaps.

Safety and Health: Public transportation poses a risk for infectious diseases due to crowding. Individual or small-group alternatives (scooters, bicycles, shared vehicles) have been deemed safer.

Alternative proposals for public transportation systems are significant for reducing traffic congestion, minimizing environmental impacts, and meeting individual transportation needs.

Bicycle and Micromobility Solutions (Figure 3): Increasing bicycle lanes. E-bike (electric bicycle) and e-scooter sharing systems are cost-effective and environmentally friendly options for short-distance transportation. Especially when integrated with pedestrian zones close to vehicle traffic in city centers, they strengthen sustainable transportation and improve the quality of city life. This approach reduces reliance on cars for short-distance travel, creating an environmentally friendly and accessible transportation ecosystem. Streets close to city center vehicle traffic are suitable for bicycles and scooters. In these areas with high pedestrian density, low speed limits ensure safety.

Figure 3.Bicycle and Micromobility Solutions in Cities (URL-5, URL-6)

Shared Vehicle Systems: Car-sharing, such as Zipcar, Moov, and Getaround. Driverless taxis (autonomous vehicles): A developing field. Carpooling: Ridesharing reduces traffic and costs.

Promoting Pedestrian Transportation (Figure 4): Promoting pedestrian transportation is a cornerstone of sustainable urban transportation policies. Walkable cities mean healthier individuals, less traffic, and a cleaner environment. They also increase social interaction, the local economy, and the quality of life. They are environmentally friendly and offer zero-emission modes of transportation. They reduce air and noise

pollution. They reduce obesity, diabetes, and heart disease by increasing physical activity. Minibus or bus systems, which operate at fixed times and are directed according to user demand, can be an effective alternative, especially in low-density areas. They integrate with mobile applications. To encourage pedestrian transportation, it is necessary to create pedestrianized areas, implement sidewalk and crosswalk improvements, prioritize pedestrian traffic management, and establish walking routes and themed streets.

Figure 4.Pedestrian Transportation Solutions in Cities (URL-7, URL-8)

Smart Mobility(Figure 5): Collecting and analyzing transportation data achieves more efficient route and time management. Application-based solutions (Mobility-as-a-Service) offer all vehicles on a single platform. It is the use of technology, data analytics, and digital solutions to make transportation systems more efficient, sustainable, and user-friendly. It reduces traffic congestion, reduces carbon emissions, increases road safety, improves public transportation systems, and saves time and money.

Figure 5.Smart Mobility (URL-9, URL-10)

Electric and Zero-Emission Vehicles (Figure 6): Electric and zero-emission vehicles are environmentally friendly transportation solutions developed to reduce carbon footprint, improve air quality, and reduce dependence on fossil fuels. They are becoming increasingly common in both individual use and public/public transportation. All-electric vehicles operate solely on batteries. These vehicles emit no carbon dioxide or harmful gases and reduce noise pollution. Electric motors are three times more efficient than internal combustion engines. They significantly reduce air pollution, especially in city centers.

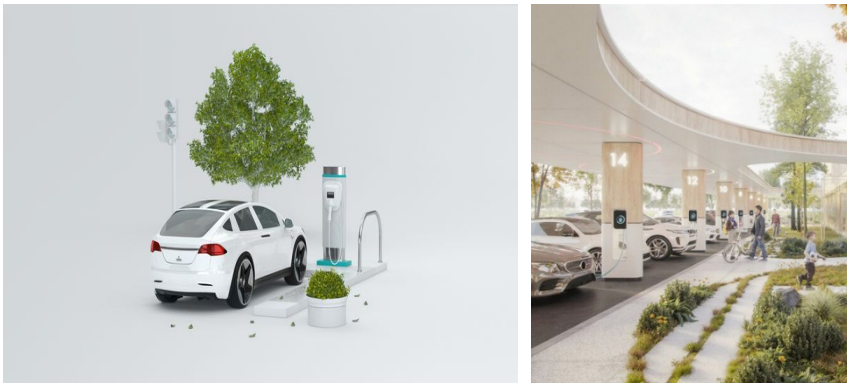

Figure 6.Electric and Zero Emission Vehicles (URL-11, URL-12)

Conclusion

Transportation is a service sector that is crucial to a country's economic development. Urban transportation is one of the most rapidly growing and increasingly complex problems. The rapid increase in the population and the number of private vehicles per capita in our major cities, combined with disproportionate urbanization and inadequate infrastructure, further exacerbates the problem. Urban growth creates diverse transportation demands with inadequate resources. Urban transportation services are insufficient to meet the increasing demands for automobile traffic, commercial traffic, mass transportation, and parking. The increase in economic, social, and cultural activities required by urbanization has also increased travel.

Increasing urbanization also brings with it traffic congestion problems. These adverse effects of urbanization have also reduced people's quality of life. This also causes significant losses to our country's economy. Therefore, with the rapid development of cities, planning and implementing

new public and private transportation facilities is necessary. Urban transportation planning has been implemented by creating alternatives to traditional methods.

Alternative transportation methods are essential for cities to become more livable, accessible, environmentally friendly, and efficient. These alternatives are being developed not to replace traditional systems, but to complement and support them. These applications can reduce the time vehicles spend on the road. Shorter travel times provide economic savings for commercial vehicles.

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Chapter 2

ECOTOURISM AND LOCAL COMMUNITY INTERACTION: A QUANTITATIVE STUDY ON PUBLICATION TRENDS

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INTRODUCTION

Ecotourism emerged in the 1980s as an alternative development model to traditional tourism, focusing on nature-based experiences, participatory methods, and a conservation-driven approach to sustainability (Cater, 2006; Guerrero-Moreno and Oliveira-Junior, 2024; Mowforth and Munt, 2015). This idea aims to protect natural areas while providing visitors with unique experiences and supporting the economic, social, and cultural growth of local communities. One of the most precise and most effective definitions of ecotourism was given by Ceballos-Lascurain (1996). It describes ecotourism as 'travel to unspoiled or minimally impacted natural areas for the purpose of observing, appreciating, and enjoying the landscape, natural life (flora and fauna), and cultural values (both historical and contemporary) found in these areas.'

The increasing popularity of ecotourism has led to evolving definitions in this field created by different researchers over time. Samal and Dash (2024) define ecotourism as travel to relatively untouched or unpolluted areas aimed at discovering, appreciating, and experiencing natural landscapes, flora, fauna, and cultural expressions in these regions. The International Ecotourism Society (TIES, 1995) views ecotourism as a type of activity that combines conservation efforts, local community involvement, and sustainable travel principles. Essentially, ecotourism is an approach that emphasizes conserving natural resources and considering ecological sensitivities during the planning and implementation of tourism activities. It also encompasses social and economic components, including creating more job opportunities for local communities, developing income-generating initiatives, fostering skills development, and empowering communities (Samal and Dash, 2024). In this context, the role of ecotourism in promoting sustainable development is closely linked to active participation and support from local populations.

Ecotourism is recognized as one of the most effective strategic approaches to support sustainable development and enhance the livelihoods of local communities living in protected areas (Ren et al., 2021). It is also regarded as a crucial component of the tourism sector's efforts to promote sustainable tourism (Weaver, 2005). In this context, primary objectives include creating long-term employment opportunities, increasing access to public services for local residents, and implementing measures to reduce resource scarcity (Buhalis and Amaranggana, 2014). The successful planning and management of ecotourism requires, first and foremost, a comprehensive assessment of the region's natural, cultural, and economic features. Following this assessment, it is crucial to establish planning and management priorities through a participatory and objective approach.

Although the positive impacts of ecotourism on the sustainability of local economies are generally acknowledged, the active role of local communities in this development process is often overlooked. Therefore, it is crucial to involve local people in ecotourism planning from the earliest stages (Khaledi Koure et al., 2023). Suansri (2003) emphasizes that ecotourism should be developed with a people-centered approach that empowers local communities, strengthens their economic structures, and fosters community-based governance. Likewise, Spencer and Nsiah (2013) emphasize that community participation is critical for success in ecotourism and is essential for achieving sustainable development goals. Mannigel (2008) highlights the importance of considering stakeholders as both means and ends in participatory methods. Eco-tourism practices supported by well-designed planning processes can generate substantial economic benefits for local communities. For instance, fishermen living in ecotourism destinations can explore new avenues of income, such as offering boat trips, guiding scuba diving tours, or managing seafood stalls.

In recent years, there has been a significant rise in studies focusing on ecotourism. Gössling et al. (2012) reviewed the existing literature to summarize the attitudes and behaviors of ecotourists toward climate change. Deery et al. (2012) explored the social impacts of ecotourism, while Buckley et al. (2008) tackled the issue on a global level. Additionally, numerous studies have demonstrated that stakeholder support and participation are crucial for developing sustainable tourism within businesses (Byrd, 2007; Byrd et al., 2008, 2009; Graci, 2013, 2020; Murphy, 2013). Similarly, it is often emphasized that the active involvement of local stakeholders in planning and management processes is crucial for the sustainable growth of tourism (Byrd, 2007; Mannigel, 2008; Pookhao Sonjai et al., 2018).

KC et al. (2021) states that the perceptions and attitudes of local communities regarding ecotourism and nature conservation should be regularly assessed. Suyadnya et al. (2025) emphasizes that local community participation and offering unique experiences to ecotourists are fundamental for developing ecotourism as part of sustainable tourism. The same research also notes that while many ecotourism studies highlight environmentally friendly features, there is a relatively limited focus on relationships with local communities (Suyadnya et al., 2025). This underscores the need for systematic data to understand how ecotourism studies and community interactions have influenced the literature and evolved over time.

The main goal of this study is to analyze trends in academic publications about the interaction between ecotourism and local communities using quantitative data. To achieve this, a bibliometric analysis was

conducted, and a comprehensive search was performed using the Scopus database. Using the 'title, abstract, and keyword' search fields in Scopus, a bibliometric analysis was conducted on the terms 'local people and ecotourism' and 'yerel halk ve ekoturizm' covering the period from 1992 to August 7, 2025. The analysis examined the number of publications per year, authors, subject areas, document types, sources, languages, keywords, authors' affiliated institutions, funding organizations, and the distribution by country or region. Additionally, the most cited studies were examined based on their titles, authors, and journals. Furthermore, in the fields of environmental and social sciences, collaboration networks among authors and countries, along with keyword co-occurrence analyses, were performed using VOSviewer software. This approach provided a comprehensive view of how the literature on ecotourism and local communities has developed over time, highlighting the influence of pioneering research and the structure of academic collaboration networks.

DATA ANALYSIS

2.1 Annual publication trend analysis

Based on a search of the Scopus database, a total of 1,039 academic studies on ecotourism and local community interaction had been published by August 7, 2025. Among these, 39 were published between 2025 and the specified date. The earliest academic publication on this topic appeared in 1992, and by 2000, a total of 42 studies had been added to the literature. Examining publication trends after 2000, it is evident that the number of publications has increased at a significantly faster rate. While the count was limited to single digits (9) at the start of the 2000s, it nearly doubled to 19 by 2011. This upward trend peaked in 2021 with 88 publications, showing a rapid acceleration in research activity (Figure 1).

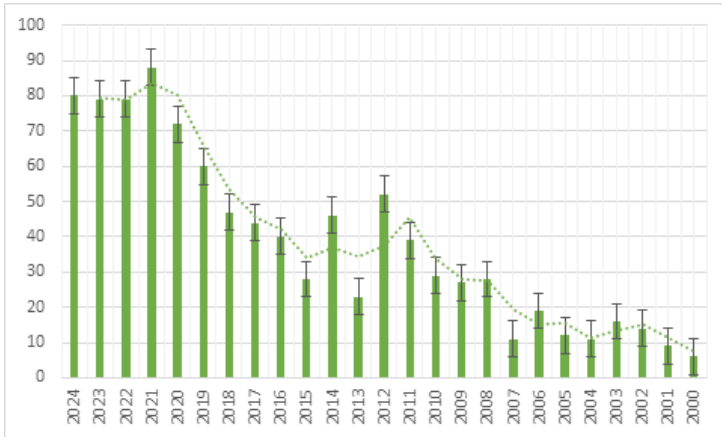

Figure 1. Distribution of publications on ecotourism and local community interaction by year

Analyzing publication trends over five-year periods shows a steady rise in studies on ecotourism and local community interaction. The initial period, from 1992 to 1996, indicates that the topic was only briefly explored in a few academic studies. In contrast, recent years have witnessed a notable increase in research in this area, particularly over the last five years. This period has been identified as the most active in terms of academic output. The final ten-year span, in particular, represents a pivotal phase in the literature. Studies published during this time account for 62.8% of all publications on ecotourism and local community interaction, indicating that research has primarily focused on recent developments (Figure 2).

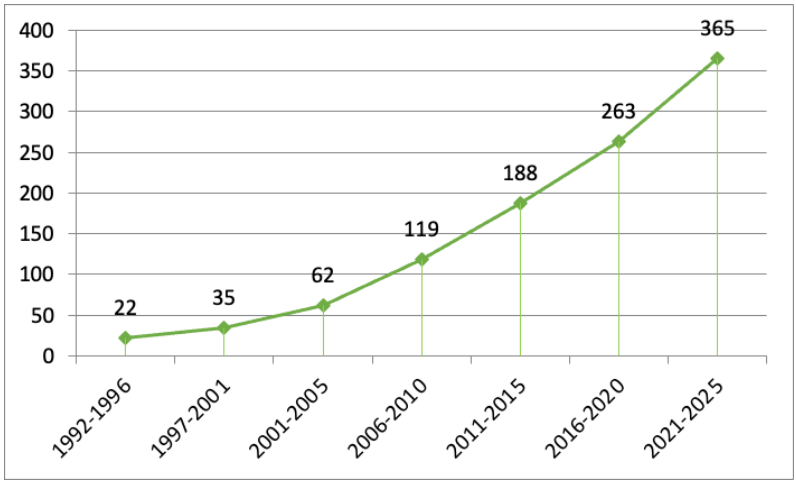

Figure 2. Trends in ecotourism-local community interaction studies over five-year periods

2.2 Scientific field analysis

Analyzing the scientific fields that focus on ecotourism and community involvement shows that the topic is closely linked to environmental, social, economic, and technological aspects. Environmental sciences (510 publications) and social sciences (502 publications) are the primary areas of focus in this research area. This clearly indicates that ecotourism is a field that is both nature-based and community-focused. Additionally, the topic's connection to other disciplines, such as economics, management, agriculture, and engineering, suggests that involving local communities in ecotourism planning and execution has multiple benefits. Moreover, publications related to computer science indicate that research in this area is increasingly relying on technology-driven methods and digital tools (Figure 3).

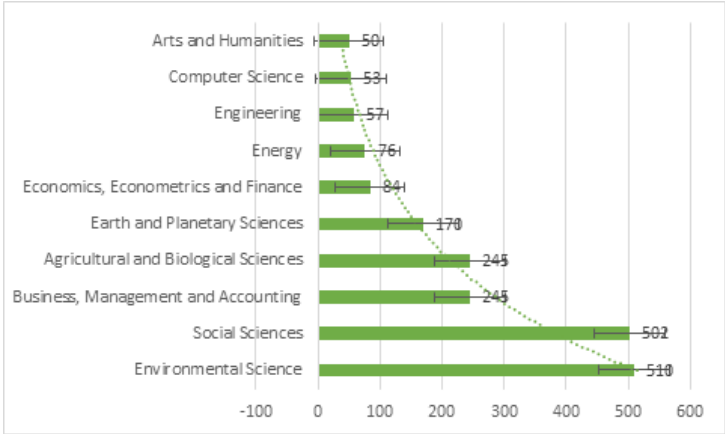

Figure 3. Distribution of publications on ecotourism and local community interaction, organized by the top ten scientific disciplines

2.3 Publication-document-language type analysis

According to the review findings, most publications on ecotourism and local community interaction are in peer-reviewed journal articles, supported by conference papers and book chapters. The dominance of articles indicates the high academic credibility of this research area and its strong scientific visibility (Figure 4). When categorized by document type, journal articles lead with a total of 812 publications, accounting for approximately 78.15%. Additionally, conference papers and book chapters each contribute significantly, with a share of 9.05% (Figure 5). This distribution indicates that the topic is not only covered through academic journals but also through scientific meetings and book studies, reflecting its multidimensional and diverse nature.

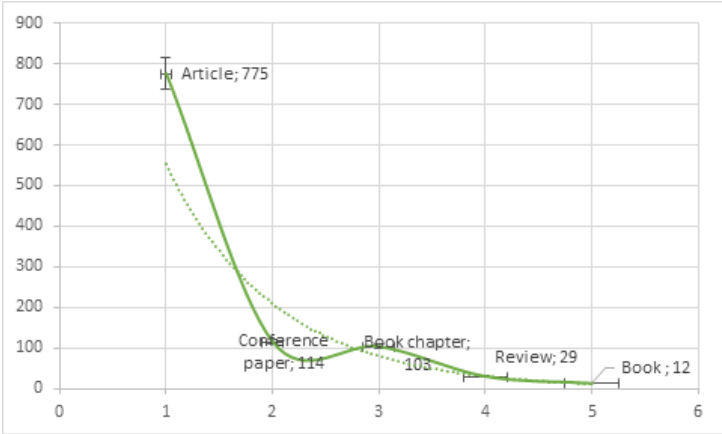

Figure 4. Distribution of studies on ecotourism and local community interaction, categorized by the top five publication types

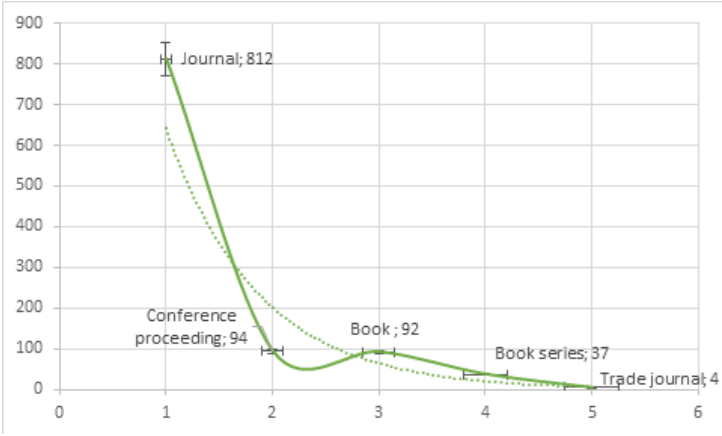

Figure 5: Distribution of ecotourism and local community interaction studies by the top five document types

An analysis of the distribution of publication languages reveals that English is by far the most prevalent, accounting for 94.71% of publications. Additionally, 12 studies were published in Chinese, and six each in Spanish, Portuguese, and Persian (Figure 6).

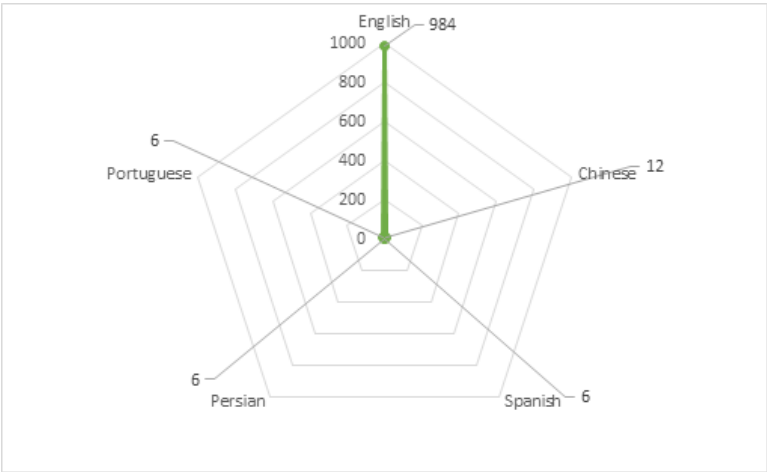

Figure 6. Distribution of publication languages in studies on ecotourism and local community interaction (top five languages)

2.4 Analysis of country-author distribution and collaboration networks

An analysis of the Scopus database revealed that research on ecotourism and local community interaction has been conducted in 116 countries worldwide. The United States leads with 147 publications, followed by Indonesia with 127. Regionally, Asian countries are prominent, accounting for 357 publications (34.36%), while North American countries (the United States, Canada, and Mexico) together account for 238 publications (22.91%). Turkey ranks tenth among the most productive in this field, with 38 studies. The top fifteen countries by publication output contributed 80.48% of all studies, indicating that the literature in this area is mainly influenced by a few countries (Figure 7).

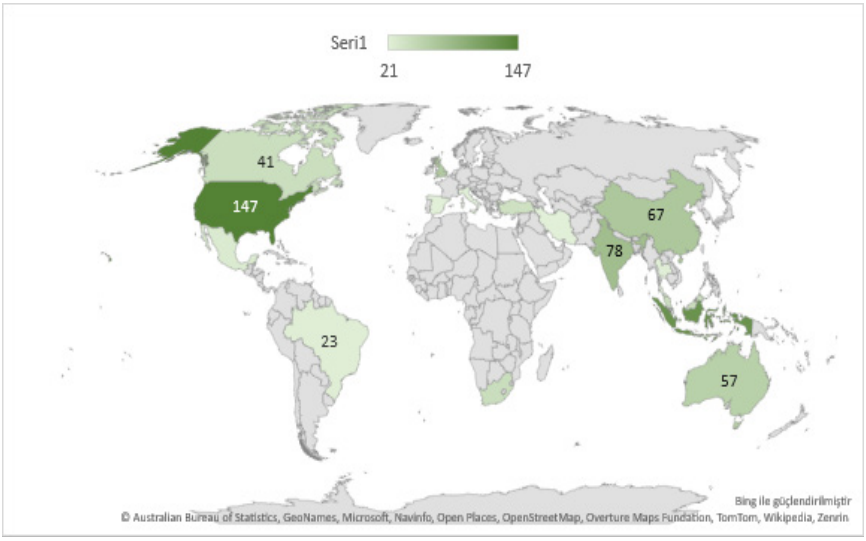

Figure 7. The top twenty countries by the number of publications on ecotourism and local community interaction

The visualization of the international collaboration network reveals the scientific partnerships among countries actively researching ecotourism and community engagement. Each node in the network represents a country, and the connections between nodes indicate co-authored publications between those nations. The analysis identified five distinct clusters. The United States, the United Kingdom, India, China, Indonesia, and South Africa occupy central positions within the network, demonstrating a high number of connections. Notably, the United States and the United Kingdom have emerged as key players in global research collaborations. Examining the cluster structures reveals that these countries have high publication outputs and strong collaborative relationships with other countries. The collaboration network's pink cluster centers on the United States and includes partnerships with countries such as Canada, Argentina, and Brazil. The purple cluster highlights relationships focused on India and China, while the yellow-green cluster illustrates connections around the United Kingdom and South Africa. The blue cluster centers on Malaysia, Thailand, and Bangladesh, while the orange cluster reflects collaborations centered on Indonesia (Figure 8).

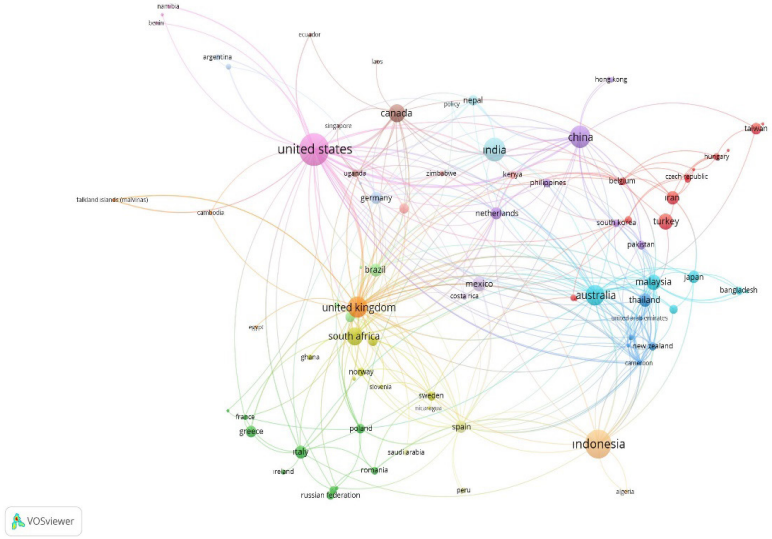

Figure 8. An international collaboration network of countries researching ecotourism and local community interaction.

An analysis of the most productive authors, defined as those who have published four or more studies in this field, shows that Stronza and Saarinen stand out with five publications each. Their research mainly focuses on themes such as community-based ecotourism, local community participation, sustainable tourism, tourism planning, and rural development (Figure 9). Figure 10 displays the author collaboration network, revealing the formation of two distinct clusters. Authors like Colin A. Chapin, Nishikant Gupta, and Jan F. Gogarten hold central and influential positions within the network. The red cluster revolves around Colin A. Chapin, while the green cluster centers on Jan F. Gogarten. Although both clusters have strong internal connections, collaborations between clusters seem to be relatively limited (Figure 10).

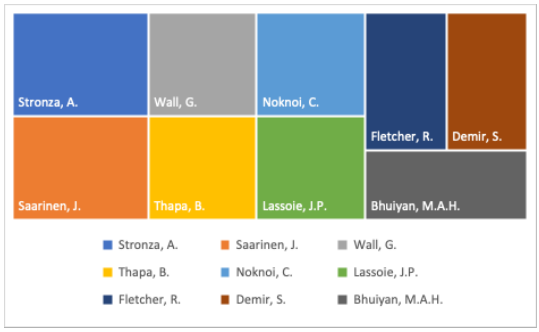

Figure 9. The most productive authors, with at least four publications on ecotourism and local community interaction

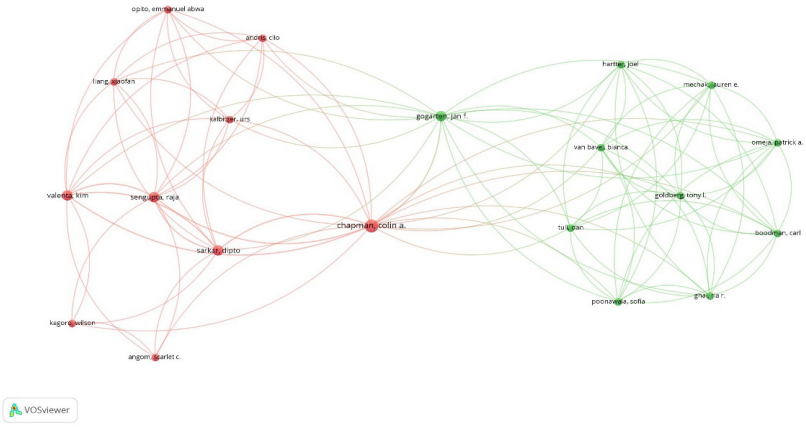

Figure 10. Network of author collaborations in ecotourism and local community interaction studies

2.5 Analysis of the distribution of active journals, institutions, and funding organisations

Analyzing the journals that published the most studies in this field shows that the Journal of Sustainable Tourism leads with 47 publications, followed by Sustainability (Switzerland) with 37. These findings indicate that ecotourism and local community interaction are mainly discussed within the context of sustainability. Additionally, the prominence of journals focusing on conservation, ecology, and management suggests that the topic is being examined from multiple perspectives, including envi-

ronmental, economic, social, and tourism. Therefore, it can be concluded that this body of literature on ecotourism and community interaction has strong interdisciplinary links with areas such as planning, management strategies, spatial analysis, biodiversity, and nature conservation (Figure 11).

Figure 11. Journals publishing studies on ecotourism and local community interactions

Figure 12 displays the institutions with the most articles on ecotourism and local community interaction, each having more than eight publications. The findings show that the Chinese Academy of Sciences leads with 17 publications, while Indonesia demonstrates significant productivity through four universities and the National Research and Innovation Agency. Overall, the results suggest that most publications in this research area originate from universities, underscoring the significant role of academic institutions in advancing this field.

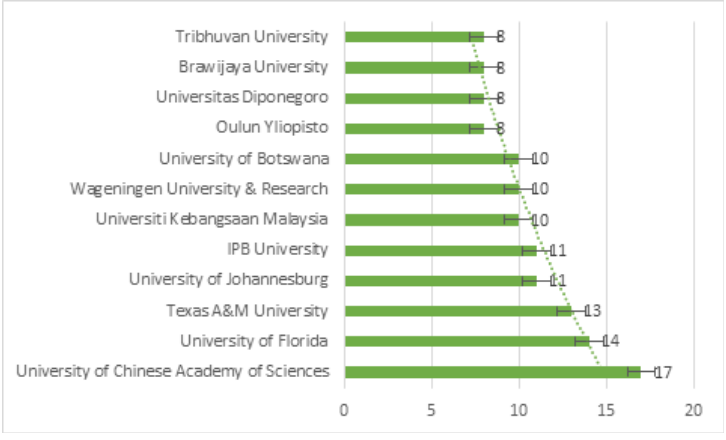

Figure 12. The leading institutions with over eight publications on ecotourism and local community interaction

An analysis of the main institutions and countries funding studies on this topic shows that the European Commission in Belgium stands out as the leading supporter, having funded 11 publications. This suggests that the European Union prioritizes research on ecotourism and local community involvement. Additionally, institutions based in the United States also play a significant role. Specifically, funding from three U.S. organizations has contributed to 17 publications overall. This indicates that U.S. institutions are influential global players in ecotourism projects (Figure 13).

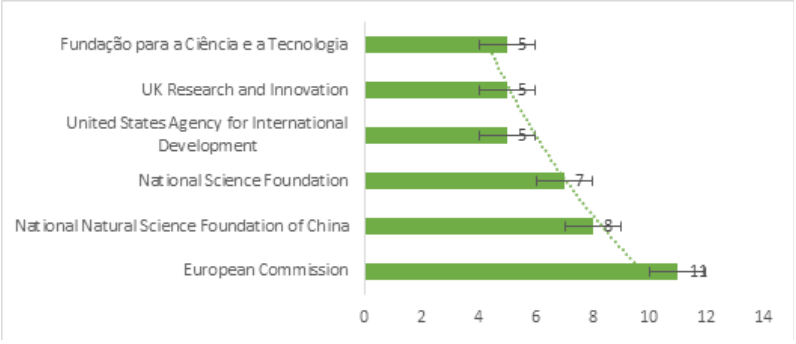

Figure 13. Key institutions and countries funding ecotourism and community interaction studies

2.6 Keyword analysis

Table 1 presents the twenty-five most common keywords related to ecotourism and local community interaction. Figure 14 shows a word cloud analysis of these keywords. In the figure, the size and boldness of each word represent the frequency with which it occurs in the literature. The analysis found that the ten most frequently used keywords were 'ecotourism', 'tourism development', 'sustainable development', 'tourism', 'sustainability', 'conservation', 'biodiversity', 'local participation', 'sustainable tourism', and 'protected area'. These results suggest that the literature on ecotourism and local community interaction mainly emphasizes themes such as sustainability, conservation, development, and participation, highlighting the field's key conceptual focal areas.

Table 1. Key terms frequently used in the relevant subject area

Keyword	Word Frequency	Keyword	Word Frequency
Ecotourism	664	Perception	65
Tourism Development	189	Eco-tourism	65
Sustainable Development	170	Environmental Protection	60
Tourism	132	National Park	56
Sustainability	120	Tourist Destination	54
Conservation	117	Conservation Management	51
Biodiversity	103	Protected Areas	46
Local Participation	93	Stakeholder	45
Sustainable Tourism	90	Local Population	40
Protected Area	87	Community Development	39
Ecology	82	Local People	38
Tourism Management	71	China	38
Nature Conservation	68		

Figure 14. Word cloud analysis of keywords associated with ecotourism and local community interaction

Figure 15 shows the results of a keyword co-occurrence analysis conducted with VOSviewer software, based on data from the Scopus database. This analysis visualizes the most frequently used concepts in the field, the clusters formed by these concepts, and their connections. According to the findings, the most prominent keywords in the publications are 'ecotourism' (link strength: 290; occurrences: 245), 'conservation' (link strength: 104; occurrences: 55), and 'sustainable tourism' (link strength: 82; occurrences: 76). Examining the clusters shows that the blue cluster includes conservation-related concepts such as biodiversity and national parks. The red cluster encompasses socially oriented concepts related to local participation, such as tourism, participation, and quality of life. The green cluster focuses on sustainability and rural development, while the yellow cluster emphasizes cultural heritage. The purple cluster focuses on environmental protection and tourism development, while the orange cluster emphasizes sustainable development. These results demonstrate that literature on ecotourism and local community interaction has a multidimensional structure, with research evolving at the intersection of environmental, social, economic, and cultural factors (Figure 15).

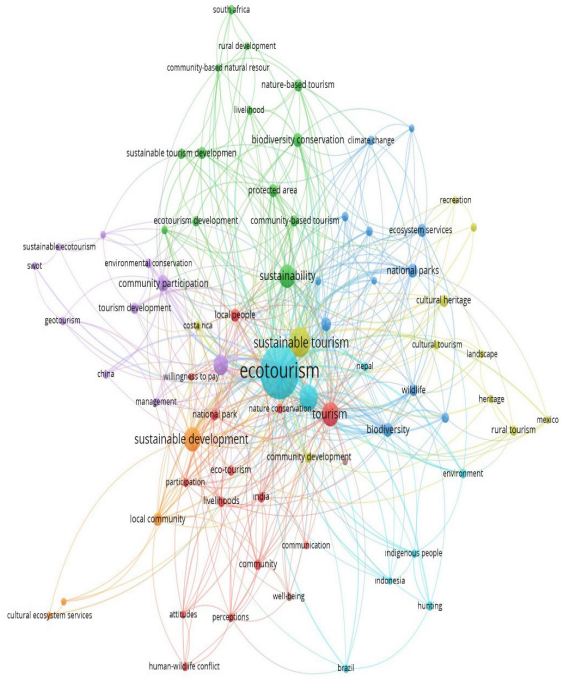

Figure 15. Keyword co-occurrence analysis of studies on ecotourism and local community interaction

2.7 Citation analysis

Table 2 shows the twenty most frequently cited articles on ecotourism and local community interactions, organized by title, author, and year of publication. The findings indicate that the most influential publications in this area are mainly published in tourism-focused journals such as Tourism Management, Annals of Tourism Research, and the Journal of Sustainable Tourism. Moreover, journals that address environmental, ecological, and conservation themes, like Environmental Conservation, Biodiversity and Conservation, Conservation Biology, Ecological Economics, and Society and Natural Resources, have also played a significant role in advancing the field.

Tourism Management has become the most influential journal in this research area, with three highly cited papers published in 1999 (892 citations), 2010 (295 citations), and 1999 (169 citations), totaling 1,356 citations. Annals of Tourism Research ranks second, with articles published in 2002 (368 citations), 2011 (263 citations), 2006 (180 citations), and 1996 (191 citations) that have received significant academic attention (Table 2).

Analyzing article titles shows that those combining theoretical frameworks and practical applications tend to attract more citations. Specifically, research on biodiversity, local participation, and community-based approaches has had a significant impact on the literature. This suggests that the topic of ecotourism — specifically, local community interaction — is approached from both theoretical and practical perspectives, resonating widely within the academic community. The most frequently cited study in this field is Regina Scheyvens's 1999 article, "Ecotourism and the Empowerment of Local Communities." Its prominence underscores that community empowerment and participation are key themes in ecotourism research. Additionally, the high citation numbers underscore the ongoing academic interest in this area and its growing importance as a preferred research focus (Table 2).

Table 2. The top twenty most cited articles on ecotourism and local community interaction

Article title	Author(s)	Journal	Number of citations
Ecotourism and the empowerment of local communities	Scheyvens, (1999)	Tourism Management	892

Is community-based ecotourism a good use of funds for biodiversity conservation?	Kiss, (2004)	Trends in Ecology and Evolution	521
Towards a synthesized critique of neoliberal biodiversity conservation	Büscher et al., (2012)	Capitalism Nature Socialism	510
The importance of dry woodlands and forests in rural livelihoods and poverty alleviation in South Africa	Shackleton et al., (2007)	Forest Policy and Economics	376
Sustainable tourism and the question of the commons	Briassoulis, (2002)	Annals of Tourism Research	368
Impact of tourism development upon environmental sustainability: a suggested framework for sustainable ecotourism	Baloch et al., (2023)	Environmental Science and Pollution Research	363
In pursuit of ecotourism	Goodwin, (1996)	Biodiversity and Conservation	303
Community-based tourism ventures, benefits and challenges: Khama Rhino Sanctuary Trust, Central District, Botswana	Sebele, (2010)	Tourism Management	295
Local attitudes towards conservation and tourism around Komodo National Park, Indonesia	Walpole and Goodwin, (2001)	Environmental Conservation,	284
Linkages among biodiversity, livelihood, and tourism	Nyaupane and Poudel, (2011)	Annals of Tourism Research	263
Ecotourism's support of biodiversity conservation/	Bookbinder et al., (1998)	Conservation Biology	234

Making tourism work for the poor: Strategies and challenges in southern Africa	Ashley and Roe, (2002)	Development Southern Africa	225
Payments for biodiversity conservation in the context of weak institutions: Comparison of three programs from Cambodia	Clements et al., (2010)	Ecological Economics	224
Community participation in ecotourism benefits: The link to conservation practices and perspectives	Stem et al., (2003)	Society and Natural Resources	221
Local attitudes toward community-based conservation policy and programmes in Nepal: A case study in the Makalu-Barun Conservation Area	Mehta and Kellert, (1998)	Environmental Conservation	209
Can ecotourism deliver real economic, social, and environmental benefits? A study of the Osa Peninsula, Costa Rica	Hunt et al., (2015)	Journal of Sustainable Tourism	196
An evaluation of ecotourism in Amazonas, Brazil	Wallace and Pierce, (1996)	Annals of Tourism Research	191
A systematic test of an enterprise strategy for community-based biodiversity conservation	Salafsky et al., (2001)	Conservation Biology	188
Community decisionmaking: Participation in development	Li, (2006)	Annals of Tourism Research	180
Evaluating ecotourism: The case of North Sulawesi, Indonesia	Ross and Wall, (1999)	Tourism Management	169

An analysis of the temporal distribution of the twenty most-cited articles shows that the period from 1996 to 2006 was the field's formative phase, during which pioneering studies were produced. These studies amassed a total of 3,984 citations, exerting the greatest influence on the literature. The period after 2007 received 2,227 citations, marking a phase when interdisciplinary approaches, particularly those related to sustainability, climate change, and environmental impacts, became more prominent. The most influential year was 1999, with 1,061 citations from just two articles. Furthermore, in recent years, an increasing number of studies have been cited at an accelerating pace. For example, Baloch et al., 's (2023) article has quickly gained citations, demonstrating ongoing academic interest in ecotourism and its continued reinterpretation and exploration within contemporary contexts (Figure 16).

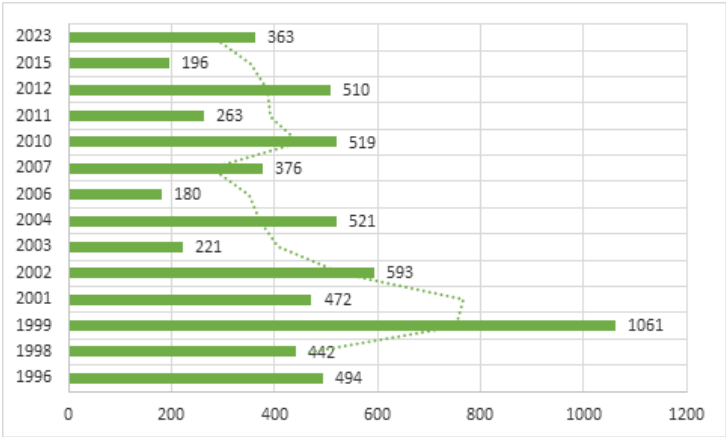

Figure 16. Distribution of the twenty most cited articles on ecotourism and local community interaction by year

CONCLUSION

This study provides an overview of the quantitative development, key contributors, and research areas of ecotourism-local community interaction studies indexed in the Scopus database from 1992 to 2025. The findings were assessed in terms of publication trends, disciplinary distribution, publication types, sources, languages, countries, authors, and institutions. Additionally, VOSviewer was used to visualize keyword co-occurrence analyses, author collaborations, and international linkages.

Analyzing the dataset, which comprises 1,039 studies, reveals a significant increase in research output related to ecotourism and local community interaction, especially over the past decade. Studies from the last ten years account for 62.8% of all publications. While only three studies

were published in 1992, this number rose to 80 publications in 2024. 2021 was the most productive year, with 88 publications, clearly indicating the growing academic importance and global attention given to this field.

At the country level, the United States (147 publications) and Indonesia (127 publications) were the most productive contributors. Together, Asian countries accounted for 357 publications (34.36%), while North American countries contributed 238 publications (22.91%), representing significant portions of the literature. In the international collaboration network, the United States, the United Kingdom, India, China, Indonesia, and South Africa held key positions, showing high levels of connectivity. This pattern suggests that research on ecotourism and local community interaction has evolved into an inherently interdisciplinary and globally collaborative field.

At the institutional level, the top institutions contributing to this research were the Chinese Academy of Sciences, the University of Florida, Texas A&M University, the University of Johannesburg, and IPB University (Bogor Agricultural). Regarding authorship, Stronza and Saarinen were the most prolific scholars, each with five publications. In the collaboration network, Chapin, Colin A., Gupta, Nishikant, and Gogarten, Jan F. played central roles, facilitating knowledge exchange and co-authorship.

Analyzing the distribution of journals shows that the most influential publications in the field are the Journal of Sustainable Tourism and Sustainability (Switzerland). Additionally, journals focusing on conservation, ecology, and management have made significant contributions to the field. These findings suggest that the literature on ecotourism and local community interaction is examined not only from a tourism perspective but also from environmental, economic, and social aspects.

According to the citation analysis, the top-cited article is 'Ecotourism and the Empowerment of Local Communities' by Regina Scheyvens (1999). The journal Tourism Management was the most frequently cited source, and 1999 was noted as the most impactful year, with two articles receiving a combined total of 1,061 citations. Keyword analysis identified key concepts like ecotourism, sustainability, nature conservation, biodiversity, local participation, rural development, cultural heritage, and tourism development and management. This highlights that the field mainly revolves around themes of sustainability and community participation.

Overall, the study highlights the growing importance and interdisciplinary nature of research on ecotourism and local community interaction, as well as the increasing global collaborations in this field. Further research is recommended to explore local community participation and

engagement within the sustainability framework more thoroughly. The findings of this research are expected to contribute to the academic literature and raise awareness of the need for ecotourism practices that are more inclusive, sustainable, and beneficial to local communities.

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Chapter 3

TYPES OF TOURISM AND THEIR CLASSIFICATION

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1. INTRODUCTION

Since the second half of the 20th century, the concept of tourism has largely been synonymous with a vacation experience focused on sun, sand, and sea, primarily in coastal regions during the summer months. However, over the past 30-40 years, changes in individuals' interests, expectations, and lifestyles have led to the development and diversification of alternative forms of tourism (Figure 1).

This profound transformation in the tourism sector is not limited to changes in consumer preferences; it is also a direct reflection of macro-level dynamics such as globalization, digitalization, and increasing environmental awareness. The ease of access to information through digital platforms has accelerated the shift of tourists away from traditional package tours toward more authentic, personalized, and locally based experiences. This shift is prompting destination management to develop new strategies based on environmental sustainability, social cohesion, and economic inclusivity.

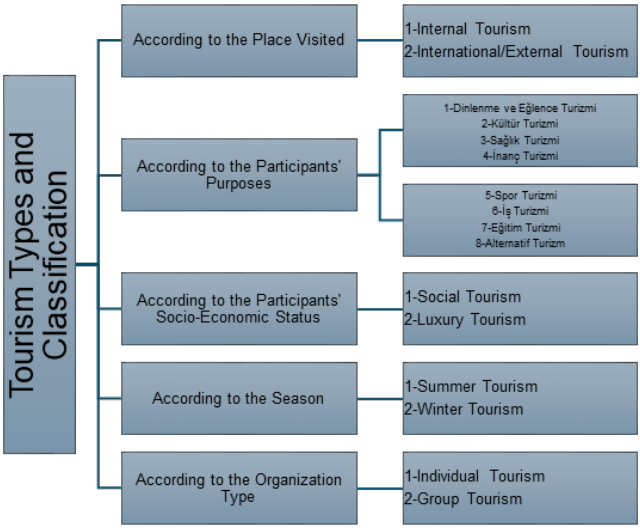

Figure 1. Types and classification of tourism

2. Types of Tourism

According to the Place Visited:

Tourism activities can take place both within national borders (Domestic Tourism) and in foreign countries (International Tourism), depending on the preferences of participants. As a result of this basic dis-

tinction made according to the geographical location visited by travelers, tourism is examined in the literature under two main headings: "Domestic Tourism" and "Foreign Tourism."

Domestic Tourism: This encompasses all travel and accommodation activities undertaken by a country's resident population within the geographical borders of the country in which they reside. By its very nature, this mobility does not generate international currency flows. However, Domestic Tourism enables citizens to interact directly with their country's economic dynamics, social fabric, and cultural diversity, allowing them to share in the national added value created by tourism (Table 1) (Kozak, 2012; Irmak, 2008; Çoban, 2015).

Period	Visitor Count
January–April 2024	12,678,959 visitors
January–May 2024	17,809,078 visitors
July 2024 (one month)	7,333,812 foreign visitors
January–July 2024	28,978,471 foreign visitors
January–October 2024 (10 months)	47,306,764 foreign visitors
2024 (full year)	52,629,283 foreign visitors; 62,269,890 total visitors

Table. 1. The distribution of the number of tourists visiting Turkey in 2024 by seasons (Anonymous 2025)

Foreign Tourism (International Tourism): Outbound tourism encompasses travel and participation in tourist activities undertaken by individuals residing in a country outside their national borders. When considered from the perspective of incoming tourists, this international mobility generates significant foreign exchange inflows into the country, creating a positive impact on the balance of payments. Furthermore, Outbound Tourism serves as a factor that deepens participants' knowledge of global geography, political structures, different cultural fabrics, and natural diversity (Meb Yeğitek; Çoban, 2015).

2. According to the Participants' Goals: The classification based on participants' travel purposes constitutes the most comprehensive distinction in tourism literature and primarily includes the following types:

Cultural Tourism: This refers to all travel and accommodation activities undertaken by tourists with the aim of discovering various cultures, historical heritage, and traces of civilization outside their own societies. Cultural tourism allows participants to experience cultural differences and examine the remains of ancient civilizations in situ. From the per-

spective of the tourism industry, this type of tourism supports the preservation of a country's national and cultural values, while also positioning itself as an important alternative form of tourism thanks to its potential for generating sustainable income (Meydan Uygur and Baykan, 2007; Garda and Temizel, 2016; Öztürk and Yazıcıoğlu, 2002).

Hunting Tourism: It is a specific type of tourism that involves offering wildlife resources to both local and international hunters within the framework of controlled and legal regulations. The primary purpose of this activity is to contribute to the country's overall tourism and national economy through the recreational and tourist use of these natural resources. Hunting tourism consists of a series of activities guided by specific principles and regulations that enable individuals with a hunter profile to fulfill their hunting instincts. This sector meets various psychological and social needs of today's people, such as escaping from a monotonous lifestyle and returning to nature. Turkey has high potential for the development of hunting tourism thanks to its rich geographical structure, endemic vegetation, and wildlife diversity (Ulusoy, 2015).

Highland Tourism: This type of tourism arises from the exploitation of the natural, cultural, and climatic attractions of high-altitude plateaus for tourist purposes. The primary motivation behind this type of tourism is to offer individuals an opportunity to return to the natural environment and relax, as an escape from the monotony and stress of urban life. Highland tourism enables participants to escape city life and engage in recreational activities in ecological areas (Figure. 2) (Doğaner, 2019).

Figure 2. A view from Kadıralak Plateau in Trabzon.

Health Tourism: It is a tourism segment that facilitates the development of healthcare facilities by leveraging the potential of individuals traveling for medical care, rehabilitation, and recovery purposes. The growing aging population in developed countries and the rise in medical care costs are directing individuals seeking treatment toward more affordable or higher-quality services in international markets. In this process, interest in alternative medicine options is growing alongside conventional treatments (Kozak etc. 2014). Health Tourism is an integrated service model that aims to provide patients and their companions with both specialized medical services and comfort and recreational support during their travels.

Religious Tourism: It refers to the tourist mobility undertaken by individuals motivated by visiting places, artifacts, and events considered sacred by their own religion or universally revered. The relationship between tourism and faith has always been close and intertwined throughout history. Although not considered the beginning of modern tourism, large-scale religious journeys such as pilgrimages are recognized as one of the earliest examples of mass mobility. The fundamental elements that fuel faith-based tourism are cultural attractions such as religious structures, festivals, and traditional religious ceremonies (Figure 3) (Henderson, 2002).

Figure 3. A-Ayasofya Mosque (URL-1), B- A church in Paris (The Dome Church at Les Invalides)

Sports Tourism: This is a tourism segment that encompasses the travel and accommodation activities undertaken by individuals and groups participating in national and international sporting events as active participants (athletes), passive participants (spectators), or event staff. Although it had limited popularity in the past, there has been a significant increase in the number of people participating in these activities, particularly in recent years, with the rapid spread of new sports disciplines such as alternative and adventure sports (TÜRSAB, 2015).

Business Tourism: Throughout human history, the need for individuals to come together has led to the organization of meetings for various purposes, such as exchanging ideas, decision-making processes, sharing information, and consultation. Today, these meetings are categorized under different terms, such as seminars, symposiums, conferences, and congresses. Congress Tourism is a specialized type of tourism that encompasses all travel, accommodation, and related support services for the purpose of holding such corporate or professional meetings (Zengin,1999).

Cave Tourism: With the development of the tourism sector, tourist activities in Turkey have begun to be carried out in different periods of the year and in various geographical regions, moving away from seasonal concentration. As a result of this trend towards sectoral diversification and expansion, the importance of alternative types of tourism such as Cave Tourism has increased. According to data from the Ministry of Culture and Tourism, Turkey has approximately 40,000 cave reserves. The fact that a significant portion of this great potential remains undiscovered or untapped for tourism indicates that Cave Tourism has high potential for future development and growth (Figure 4) (Table 2) (TÜRSAB, 2014; Kozak etc. 2014).

Caves Open to Tourism			
Cave Name	City	Feature	Length/Depth
Ballıca Cave	Tokat	On UNESCO Tentative List, multi-story, has walking platforms.	~680 m
Karain Cave	Antalya	One of Turkey's largest natural caves, historical settlement area.	~35 m depth
Oylat Cave	Bursa	Rich in stalactites and stalagmites, easily accessible.	~665 m length
Dim Cave	Antalya	Illuminated, strong touristic infrastructure.	~360 m length
Dupnisa Cave	Kırklareli	Thrace's only cave opened to tourism.	3.200 m system, 450 m open
Deepest Caves			
Peynirlikönü Cave (EGMA Pit)	Mersin / Anamur	Turkey's deepest cave.	1.429 m depth
Morca Sinkhole	Mersin	One of the world's deepest caves.	1.276 m
Çukurpınar Sinkhole	Antalya	In the Taurus Mountains, there is difficult access.	1.196 m
Longest Caves			
Pınargözü Cave	Isparta	Turkey's longest cave (exploration is ongoing).	16.500 m+
Kocain Cave	Antalya	Famous for its width and ceiling height.	633 m

İnsuyu Cave	Burdur	Turkey's first cave opened to tourism (1965).	597 m (section open to tourism)
Geologically Important Karst Caves			
Narlıkuyu (Heaven-Hell)	Mersin	Famous for its collapse sinkhole structures (obruks).	70 m (depth - Hell pit)
Tınaztepe Cave	Konya	Karst structure and has an underground stream.	~1.580 m length
Çal Cave	Trabzon	The world's 2nd longest cave (according to some sources).	~8.000 m (exploration continues)
Karaca Cave	Gümüşhane	Very rich in stalactite and stalagmite diversity, open to tourism and illuminated.	~256 m length, 18 m depth

Table 2. Some caves in Turkey and their characteristics (Aydın, 2021; Güner, 2014; MTA, 2019; TÜMAF, 2022; Soykan, 2007; Atalay, 2010).

Figure 4. Gümüşhane Karaca Cave and Trabzon Çal Cave

Educational Tourism: This is a specialized type of tourism where the primary motivation for travel is participation in an educational program or learning activity aimed at developing academic or professional skills. This includes activities such as intensive language schools, specialized courses, professional development seminars, and other short- or long-term certificate programs. Educational Tourism allows individuals to combine their social and cultural experience with academic purposes (Smith and Jones, 2022).

Ecotourism: Ecotourism, which is also associated with the concept of soft tourism, emerged within the philosophy of sustainable tourism and has become an increasingly popular segment, especially in recent years. First introduced into the literature in the 1990s, Ecotourism is an alternative and substitute model developed in response to the environmental and socio-cultural impacts of conventional mass tourism. This approach, which integrates rural and cultural tourism elements, is considered the most suitable form of tourism that can be developed in areas with natural and cultural sensitivity. Ecotourism plays a critical instrumental role in ensuring sustainable development as a response to the environmental and social degradation caused by mass tourism (Arslan, 2005; Orhan and Karahan, 2010).

Examples of ecotourism in different regions of Turkey are shown in Figure 5.

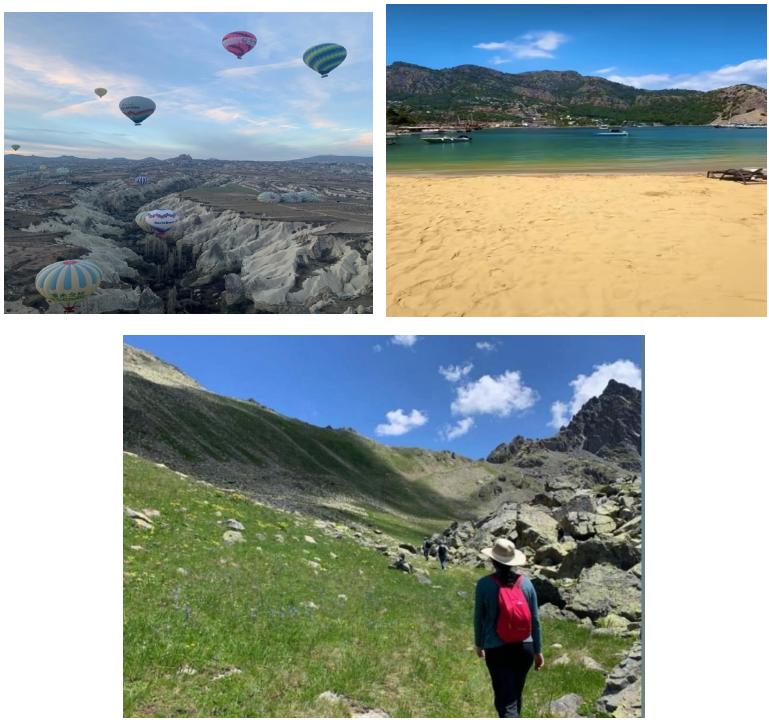

Figure 5. Turkey's prominent ecotourism areas include Cappadocia (Nevşehir), Akyaka and Gökova Bay (Muğla), and the Kaçkar Mountains (Rize, Artvin).

Agrotourism (Agricultural Tourism): This is a specific tourism segment where individuals' primary motivation is to experience agricultural activities and interact with rural life by visiting an agricultural business or staying on a farm. This type of tourism offers tourists the opportuni-

ty to participate directly in plant and animal production processes, taste local products, and experience the unique atmosphere of farm life. Agrotourism is also considered a multifunctional tool that supports rural development, creates an additional source of income for farm owners, and raises agricultural awareness (Jones and Lee, 2023).

3. According to the Socio-Economic Status of Participants:

Participation in tourist activities is determined by consumers' income level, which influences both the frequency of their participation in tourist activities and the quality of services and experiences they demand at destinations. In this context, when tourism demand is classified according to income criteria, it is divided into two categories: "Social Tourism" and "Luxury Tourism."

Social Tourism: Social Tourism is a type of tourism that aims to provide low-income individuals and groups with access to tourism activities through various public incentives and special arrangements. The main target audience for this type of tourism consists of four main segments: low-income households, retirees (seniors), disadvantaged groups (people with disabilities), and young people. However, for an individual to be considered under Social Tourism, it is not sufficient to belong to one of the target groups; the essential condition is that the person has a need for social support due to their economic disadvantage (Çoban, 2015; Bıçkı, 2013).

Luxury Tourism: Luxury Tourism, undertaken by a target audience with high income levels, is a form of tourism based on expectations of superior comfort, quality, and unique experiences. Individuals in this group prefer luxury accommodation facilities and high-priced tourism services. These tourists, who generally use their own or specially assigned vehicles for transportation, participate in differentiated and exclusive activities within the range of activities, such as golf, horse riding, games of chance, hunting tourism, and cruises. At the heart of the Luxury Tourism model is maintaining the highest quality standards and ensuring high customer satisfaction (Tunç and Saç, 1998; Irmak, 2008; Çoban, 2015).

4. According to the Season:

Tourism activities vary depending on the travel periods of participants throughout the year and climatic conditions. In this context, tourism types are classified into two main categories based on seasonal criteria.

Summer Tourism: This is the type of tourism that is generally concentrated in the warm seasons of the year and has the largest volume. The key factors that increase tourist motivation are sunbathing, beach and coastal activities, and water sports. The vitality and volume of this type of tourism is directly related to the variety and adequacy of accommodation units and entertainment and recreational activities at the destinations (Tunç and Saç 1998).

Winter Tourism: This type of tourism emerges during the cold seasons of the year, motivated by the desire to utilize the natural resources offered by the season (snow cover, glaciers). Activities directly related to snow, primarily skiing and winter sports, constitute the main attractions of this tourism. The sustainability of winter tourism is closely related to the accommodation capacity in the region, the quality of services offered, and all activities that support the economic cycle created during the travel period (Figure 6) (Albayrak, 2013; Çoban, 2015; Çimen and Kılıç 2003; Irmak, 2008).

Figure 6. Summer tourism (Kaputaş Beach), Winter tourism (Mount Erciyes) (URL-2)

5. Based on Arrangement Type:

Participation in tourism activities can take place either individually or in organized groups, depending on the preferences of the individuals. Accordingly, tourism movements can be categorized under two main headings based on the number of participants and the structure of the organization:

Individual Tourism: Individual tourism is a segment that is growing

in popularity due to increased accessibility and flexibility in the travel industry. The development of modern transportation and accommodation systems, combined with individuals' desire for global information and exploration, is strengthening demand for this type of tourism. From a consumer behavior perspective, economic affordability is one of the key determinants of travel preferences. It has been observed that participation in individual tourism is concentrated among young and middle-aged individuals with high spending potential and financial freedom

(Kozak and Bahçe, 2009; Çoban, 2015; Kozak etc. 2000; Tunç and Saç, 1998; Irmak, 2008).

Mass (Group) Tourism: Group tourism refers to the participation of different groups of individuals in tourism together. This category includes tourist activities organized by groups with common characteristics, such as various non-governmental organizations and student groups, consisting of between eleven and sixteen people. This type of tourism accounts for 70% of tourism movements worldwide. These classifications form the basis for understanding the diversity of the tourism sector and determining marketing strategies (Küçükaslan, 2007; Kozak, 2012).

Conclusions and Recommendations

Analyzing tourism activity monthly using numerical data will enable a more accurate interpretation of visitor numbers according to season and, consequently, contribute to more strategic tourism planning.

Turkey's climate, which experiences all four seasons, its location surrounded by seas on three sides, its rich biological diversity, and its largely preserved authentic cultural heritage make the country a significant potential destination for ecotourism. Therefore, Turkey's strengths in ecotourism should be evaluated, sustainable tourism strategies should be developed, and the competitive advantage in this field should be turned into an opportunity against other countries in the Mediterranean basin.

Analyzing quantitative data sets on a monthly or even weekly basis clearly reveals not only seasonal fluctuations but also changes in the supply and demand balance. Such detailed analyses enable faster and more flexible decision-making in destination management, while also allowing for the optimization of capacity utilization and the efficient allocation of resources during times of crisis. This systematic monitoring process, carried out at the micro level, will provide macro-level stability in the tourism sector and form the basis for long-term, science-based policy de-

velopment.

Turkey's unique biogeographical diversity and cultural distinctiveness place it in a more advantageous position compared to destinations in the Mediterranean basin that remain tied to a sun-sea-sand tourism model, as well as in relation to growing niche tourism demands on a global scale. Effectively harnessing this potential requires sustainable tourism policies that not only generate economic returns but also consider the carrying capacity of natural ecosystems and ensure the active participation of local communities in the process. This holistic and forward-looking approach will reduce the risk of environmental damage while strengthening Turkey's long-term competitive advantage.

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Chapter 4

INVESTİGATİON OF THE CONTRİBUTİONS OF COLORFUL AND FRAGRANT PLANTS TO PSYCHOLOGİCAL WELL-BEİNG İN MENTAL HEALTH CENTERS

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1. Introduction

Horticultural therapy is known to help individuals with mental, physical, and psychological problems reduce their pain, stress, and anxiety, while also preventing deterioration, developing new skills, and regaining lost abilities. Activities performed in gardens promote social interaction, communication skills, language development, intellectual and emotional maturity, as well as self-care and occupational abilities.

The therapeutic use of plants has been considered within the context of modern hospital design approaches developed in the 20th century and, in the 21st century, as part of the patient-centered "healing hospital" model. Research has demonstrated that the design principles characterizing this approach are compatible with the typology of the 21st-century health campus. However, the absence of any scientific study or guideline in the national architectural literature regarding the design of such health campuses is noteworthy.

The design approach for healing gardens can be interpreted as an attempt to reduce the harmful impacts of urban components on human health by providing restorative spaces that distance individuals from environmental stressors. This study, which examines the contributions of colorful and fragrant plants to psychological recovery in mental health centers in Niğde, aims to highlight the importance of gardens for mental well-being.

The main purpose of this research is to examine, through expert evaluation, the psychological and emotional effects of aromatic plants of different colors and scents to be planted in the garden of the Community Mental Health Center. The study investigates whether the visual and olfactory stimuli provided by these plants lead to positive changes in patients' moods and behaviors.

The general scope of the study also includes identifying changes in patients' symptoms, behaviors, and attitudes—thus providing insights into both the physical and psychological effects of plants on patients. The study focuses particularly on individuals diagnosed with schizophrenia, atypical psychosis, and bipolar disorder, determining how their behaviors and attitudes change during the flowering periods of the selected plants. Moreover, information is provided on plant species that should be preferred in the gardens of healthcare institutions.

In the material and method section, the effects of 'Ageratum sp. (Floss flower), Mirabilis jalapa (Four o'clock flower), Tagetes erecta (Marigold), Ocimum basilicum L. (Basil), and Dahlia variabilis (Dahlia)'

planted in the Community Mental Health Center in Niğde are discussed. The literature review provides comprehensive information on the morphological, physiological, and chemical properties of colorful and fragrant plant species found in various studies. The potential effects of these plants on human psychology—particularly in relation to schizophrenia, atypical psychosis, and bipolar disorder—are examined to determine whether they exhibit therapeutic, calming, or stimulating influences. In the findings section of the study, information obtained from on-site observations and survey studies is presented. In the conclusion and recommendations section, the contributions of colorful and fragrant plants located in the garden of the Community Mental Health Center in Niğde, which falls within the scope of the research, to individuals' psychological recovery processes are discussed. It is stated that sensory stimulation provided by plants can help reduce stress, support emotional balance, and improve overall mood in patients. In light of all this information, conclusions and recommendations were developed based on the data collected and analyzed during the research process.

2. Previous Studies

Throughout history, colors have occupied an important place in human life not only as an aesthetic element but also through their psychological and physiological effects. Colors influence people's moods, behavior, and perception, transforming into a design tool that enhances environmental comfort in architecture and landscape design. It has been reported that vivid and warm colors evoke feelings of energy, enthusiasm, and dynamism, whereas cool colors provide tranquility, serenity, and calmness (Manav, 2015). Accordingly, colors are emphasized not merely as visual components in spatial arrangements but also as instruments that help achieve emotional balance (Sözen, 2003).

Studies on the psychological effects of color have revealed that color preferences are closely related to an individual's emotional state. While red represents strength and passion, green symbolizes peace, balance, and naturalness. The color blue generally produces a calming effect and reinforces the sense of security (Çağan, 2005; Ustaoğlu, 2007). The effects of these colors on spatial perception particularly shape user experience in landscape design. Due to the soothing influence of green tones, their frequent use in hospital gardens, school campuses, and public open spaces demonstrates that the psychological dimension of color has been effec-

tively incorporated into design disciplines (Manav, 2015).

Since ancient times, the therapeutic properties of colors have been recognized. This practice, known as *chromotherapy*, originated in Egyptian and Greek civilizations as a method of using light and color for physical and mental healing. The Egyptians believed that specific colors affected the body's energy centers and created treatment chambers illuminated with colored light (Gürgan, 2013). Today, color therapy continues to be used in alternative medicine to regulate energy flow through primary colors such as red, blue, and yellow (Avery, 2004). It has been noted that blue and violet tones are utilized in the treatment of migraines and stress, whereas red light stimulates movement and vitality (Gürel, 2000).

2.1.2 The Effects of Scents on Mood

Fragrance is known to be as influential as color on human psychology and spatial perception. Scent, by stimulating the brain's limbic system, triggers emotional responses and serves as a powerful sensory component. Fragrant plants evoke feelings of peace, happiness, and serenity; therefore, they fulfill not only an aesthetic but also an emotional function in landscape design (Lacey, 1995). The varying intensity of plant fragrances between day and night is significant in creating time-based sensory experiences in gardens. For instance, *Jasminum spp.* (jasmine), *Lonicera sp.* (honeysuckle), and *Mirabilis jalapa L.* (four o'clock flower) emit stronger fragrances in the evening, offering users sensory diversity and enriching the garden's atmosphere (Lacey, 1995; Rawlings, 1998).

Purple basil (*Ocimum basilicum*) is one of the distinctive species that can be utilized in both fragrant and visual design contexts. The deep purple coloration of its leaves and flowers results from the accumulation of anthocyanin pigments (Prinsi et al., 2019). More than 85 volatile compounds have been identified in this plant, among which 1,8-cineole and linalool are particularly prominent (Gurkan et al., 2023). The antioxidant, antimicrobial, and anti-inflammatory properties of purple basil enhance its aesthetic and therapeutic potential (Purple Basil Review, 2022). Therefore, purple basil can be considered a suitable species for healing gardens, contributing both visually and olfactorily.

Starflower species (e.g., *Ipheion uniflorum* / spring starflower) also hold potential for adding sensory richness to landscape design. The flowers of *Ipheion uniflorum* possess a star-shaped form, and some varieties emit a light, pleasant fragrance (Sassone et al., 2022). Studies on *Trientalis europaea* (European starflower) have shown that the flower's morphology varies depending on habitat conditions in natural populations (Tikhodeev & Tikhodeeva, 2001).

In the study *Neuroprotective Potential of Aromatic Herbs: Rosemary, Sage, and Lavender* by Faridzadeh et al. (2022), the effects of aromatic plants—particularly lavender, sage, and rosemary—on neurological disorders were examined in detail. The findings indicated that these plants, through their antioxidant, anti-inflammatory, and neuroprotective compounds, contribute to the protection of nerve cells against free radical damage and support cognitive functions. Moreover, inhalation of their essential oils was found to reduce stress levels and alleviate symptoms of anxiety and depression. The study demonstrated that aromatic plants not only provide sensory relaxation but also promote psychological recovery at the biochemical level. These results suggest that incorporating species such as lavender, sage, and rosemary into healing garden designs may offer both physiological and psychological benefits (Faridzadeh et al., 2022).

2.1.3. The Role of Color and Fragrance in Healing Garden Design

In healing garden designs, the elements of color and fragrance create both visual and emotional harmony. The calming effect of green, the soothing quality of blue, and the spiritually balancing nature of purple all contribute to users' psychological relaxation (Minter, 1995; Rawlings, 1998). Among aromatic plants, lavender, sage, and rosemary stand out, while purple basil attracts attention for its strong olfactory and biological potential. Additionally, flowering plants such as starflower can enhance the sensory experience when used with appropriate species and varieties. The deliberate composition of color and scent elements in such gardens offers not only aesthetic but also therapeutic and experiential value (Rawlings, 1998; Lacey, 1995).

In *Colour in the Garden: The Importance of Colour in the Healing Process*, Saba Basha (2021) explored the role of color in promoting psychological and emotional healing in garden design. The study emphasized that

colors function not merely as aesthetic components but as factors that directly influence human psychology. Warm colors were reported to evoke feelings of energy, joy, and vitality, while cool colors induced calmness and serenity. Consistent with Minter (1995), Basha found that increasing color diversity in gardens helps balance emotional states and creates therapeutic environments. These findings support the notion that color is a fundamental component of healing gardens, contributing to psychological well-being as well as visual pleasure (Basha, 2021).

Romy Rawlings, in *Healing Gardens* (1998), argued that healing gardens should be approached not only as aesthetic landscapes but also as multidimensional design systems that support mental, emotional, and physical well-being. The author emphasized that integrating elements such as aromatherapy, color therapy, herbal healing, Feng Shui, and meditation creates a sense of balance, peace, and renewal. Rawlings also highlighted the relationship between the psychological effects of colors and the sensory stimulation provided by fragrant plants, suggesting that their combination facilitates a holistic healing experience. Her perspective underscores that plant selection in modern healing gardens should be based on psychological and sensory influences, not solely on aesthetic considerations.

In conclusion, the literature demonstrates that color and fragrance are not merely visual or auditory design components but also influential factors on human mental, emotional, and physical health. The sensory qualities of distinctive species such as purple basil and starflower should be considered, particularly in healing gardens and sensory space designs. In this way, spaces that enhance users' sensory awareness and evoke relaxation and balance can be created (Avery, 2004; Manav, 2015; Prinsi et al., 2019).

2.1.4. The Concept and History of the Healing Garden

Since antiquity, the therapeutic properties of plants have been valued in both Western and Eastern cultures; early records focus on the medicinal use of plants and aromatic herbs (Giannenas et al., 2020). Around 550 BC, the use of water in Persian gardens was designed to evoke happiness and joy, contrasting with the region's arid climate, and gardens were designed to represent paradise on earth. These gardens created special spac-

es for meditation and inner reflection, and were planned to symbolically utilize the four basic elements of nature (Fallahi et al., 2020).

Designed to support the healing of sick individuals, these spaces were designed to stimulate the senses and provide calm (Kyriakou et al., 2022). In ancient Rome, Valetudinarias, Europe's first hospitals, had large courtyards designed to provide treatment, rest, and shelter for the war wounded (Carrião et al., 2019).

In Asia, particularly in China and Japan, the therapeutic potential of gardens is intertwined with cultural traditions. In China, gardens were designed to provide peace and tranquility in accordance with the principles of Yin and Yang and Taoist philosophy. In Japan, gardens were associated with Buddhist temples and were designed for meditation, inner reflection, and spiritual connection with nature (Ding et al., 2021).

In the Middle Ages, monastery and hospital gardens in Europe, Asia, and Africa were surrounded by high walls, offering tranquility and privacy, and allowing the observation of aromatic, medicinal, and ornamental plants. These gardens strengthened the human-nature connection for both practical and therapeutic purposes (Wang and Tzortzi, 2023).

Ulrich's (1984, 1999) "Supportive Gardens Theory" emphasizes the positive effects of exposure to the natural environment on patients' physical and emotional well-being. The "Attention Restoration Theory" and Restorative Gardens concepts, developed by Kaplan and Kaplan (1989, 1995), demonstrate that mental fatigue can be alleviated through contact with nature. Cooper-Marcus and Barnes (1995, 1999) define the concept of "Healing Gardens" as planned gardens that support individual recovery.

The benefits provided by gardens can be categorized as psychological (stress reduction, relaxation, mood improvement), physical (protection of the muscle, joint, and cardiovascular system, improvement of motor coordination), and social (interaction, social inclusion, and environmental education) (Ulrich, 1999; Souter-Brown et al., 2021; Han et al., 2018).

3. Theoretical Framework

3.1 Mental Health and Environmental Interaction

Mental health is influenced by both environmental and social factors. The physical environment includes external stimuli such as pollution, noise, climate, and urban infrastructure, while the social environment encompasses interpersonal relationships, community structures, and cultural norms. These factors are determinants of the development and progression of mental disorders. For example, social deprivation, high population density, lack of green spaces, and environmental pollution can increase the risk of depression, anxiety, or psychotic disorders. Social relationships, education, and access to healthcare, however, provide positive effects on mental health. Many of these risk factors are modifiable, offer opportunities for intervention, and their interactions with concepts such as resilience are important (Kambeitz & Meyer-Lindenberg, 2025).

3.1.2 The Impact of the Natural Environment on Mental Health

Green spaces improve mental health by reducing stress, increasing social connectedness, and encouraging physical activity. They are particularly beneficial for disadvantaged groups. Research shows a positive relationship between access to green spaces and mental health; However, measurement methods and socio-demographic differences lead to inconsistencies across studies (Xian et al., 2024).

3.1.3 The Impact of Urban Green Spaces on Mental Health

Urban green spaces provide positive effects on health by encouraging physical activity. Parks and greenways offer both activity opportunities and contribute to stress reduction. The quality and maintenance of these spaces have been found to have a direct impact on activity duration and overall health. Physical activity in green spaces may also reduce the risk of heart disease (Sallis et al., 2006; Bedimo-Rung et al., 2005; Dadvand et al., 2016).

3.2 Psychological Effects of Aromatic and Scented Plants

Aromatherapy is based on the use of essential oils extracted from plants in psychological and physical therapy. It has been reported that they can be effective in the treatment of depression and mood disorders (Öz, 2020).

3.3 Community Mental Health Centers

3.3.1 Functional Features

Community mental health centers offer medication monitoring, home visits, psychoeducation, social skills training, group therapy, and occupational therapy. The goal is to enable patients to live with their families or close circle as much as possible (Ören, 2015).

3.3.2 Spatial Features

The centers include group therapy areas, occupational therapy rooms, recovery areas, libraries, skill development kitchens, sports facilities, and team collaboration rooms.

4. Materials and Methods

This study examined colorful and fragrant plants that can contribute to emotional healing at a Community and Mental Health Center (Figure 1). Purple basil (*Ocimum basilicum*), evening primrose (*Mirabilis jalapa*), and dahlia (*Dahlia variabilis*) were selected for their visual appeal and pleasant scent. These plants were chosen for their use within the space to create a therapeutic experience and sensory richness.

Figure 1. Urban location of the Niğde Community Mental Health Center (Original, 2025)

4.1. Method

This study will include individuals diagnosed with schizophrenia, bipolar disorder, and atypical psychosis participating in rehabilitation programs at the Community Mental Health Center (CMHC) affiliated with Niğde Training and Research Hospital. Patients with these diagnoses who meet the study criteria and agree to participate will be included in the study on a voluntary basis. Patients diagnosed with schizophrenia, bipolar disorder, or atypical psychosis who are under 18 years of age, illiterate, or have comorbid psychiatric disorders such as mental retardation will not be accepted into the study.

METHOD SCHEME;

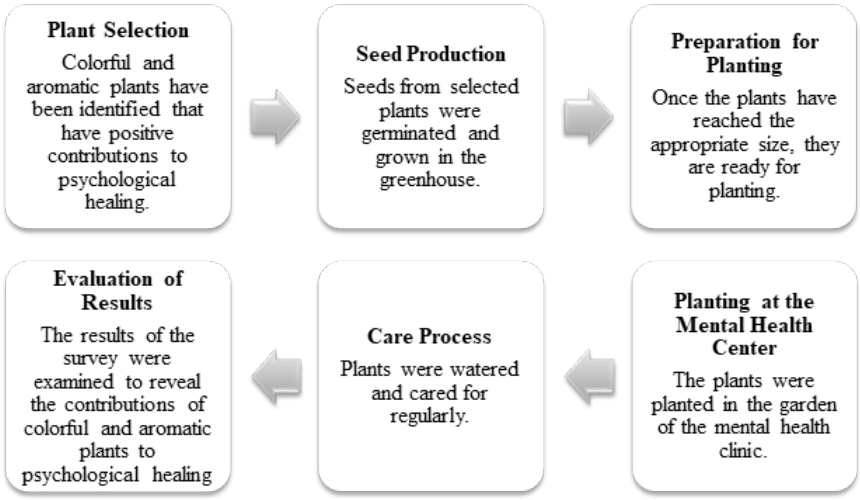

Figure 2. Research Methodology

5. Research and Findings

This research is an applied study conducted at the Niğde Community Mental Health Center. The aim of the study is to determine the contribution of colorful and aromatic plants to the psychological well-being of individuals. The research stages consist of plant selection, seed propagation, planting preparation, planting, care, and survey applications.

5.1 Plant Selection

The plants selected for the study were selected from colorful and aromatic varieties identified in the literature as contributing to psychological well-being. The following criteria were considered in plant selection:

- Distinctive color and scent characteristics,
- Providing sensory continuity with a long flowering period,
- Being culturally and aesthetically recognized and accepted by users.

Three plant species were selected based on these criteria:

***Ocimum basilicum* (Purple Basil):** It stands out with its purple leaves, high in anthocyanins. Its aromatic properties create a relaxing effect in the environment. (Figure 3). It has been stated in the literature that purple basil has effects on reducing anxiety and stress levels (Prinsi et al., 2019; Gürkan et al., 2023).ting preparation, planting, care, and survey applications.

Figure 3. Ocimum basilicum (Purple basil) (Altay, 2021)

***Mirabilis jalapa* (Evening glory):** This plant emits a strong fragrance, especially in the evening, and blooms in various colors (Figure 4). It is frequently preferred in therapeutic gardens due to its scent-producing properties that enhance sensory awareness (Rawlings, 1998).

Figure 4. Mirabilis jalapa (Evening Primrose) (Anonymous, 2025)

***Dahlia vairabilis* (Aster):** This species, notable for its brightly colored flowers, enhances visual stimulation, creating feelings of joy, vitality, and energy in the user (Figure 5). Studies on the psychological effects of colors have shown that species with warm tones, in particular, have a positive impact on mood (Manav, 2015).

Figure 5. Dahlia vairabilis (Aster) (Anonymous, 2025a)

5.2 Seed Production and Planting Preparation

Figure 6. Seed production and preparation stages for planting (Original, 2025)

Seeds of the selected plant species were germinated under controlled conditions in the nursery. Humidity and temperature levels were maintained at ideal levels during the germination phase, encouraging healthy seedling growth. Once the seedlings reached the appropriate size, they were prepared for planting. Ground preparation was completed in the garden of the Community Mental Health Center, which was selected as the planting site.

5.3 Planting and Care Process at the Mental Health Center

Seedlings were placed in the garden, considering their color, scent, and composition. Care was taken to ensure visual continuity and sensory balance in the plant placement. After planting, the plants were watered and cared for regularly, and their developmental stages were monitored weekly.

Figure 7. Plant Planting at the Community Mental Health Center (Original, 2025)

6. Discussion and Conclusion

This study was conducted at the Niğde Community Mental Health Center to examine the effects of colorful and aromatic plants on the psychological healing process. During the study, the contributions of plant species such as Ocimum basilicum (purple basil), Mirabilis jalapa (evening primrose), and Dahlia vairabilis (dahlia) to individuals' mental well-being were observed, and feedback was collected from participants via a survey. The findings support research on therapeutic landscaping and healing gardens in the literature.

The research results indicate that gardens created with colorful and aromatic plants contribute to relaxation, peace, and increased positive emotions in individuals. According to the survey results, participants expressed a strong interest in the colors orange and purple, stating that orange flowers make them feel happier, while purple basil and dahlia instill a sense of security. Additionally, some participants stated that they greatly enjoyed touching the soil and that this activity provided psychological relaxation. They also noted that the olfactory experience was lacking when flowers were not present, highlighting the holistic sensory impact of plants.

Consequently, it is believed that gardens filled with colorful and aromatic plants could be used as a supplementary therapeutic space in mental health centers. Survey data indicate that in addition to the sensory properties of plants, such as color and scent, the interaction with the soil and the reassuring nature of plants contribute to the psychological healing process. These findings further emphasize the importance of integrating a therapeutic landscape approach, based on the interaction between nature and humans, into psychiatric rehabilitation processes.

Recommendations

Mental health centers should prioritize plants with strong color and scent effects in their rehabilitation garden designs.

Species such as purple basil, evening primrose, and dahlia are recommended for their low-maintenance, long blooming periods, sensory effects, and reassuring qualities.

During garden therapies, interaction with the soil and the selection of plants that match individuals' color preferences should also be considered.

A national guide for the selection of therapeutic plant species can be prepared by repeating similar applications in different climatic regions and different user groups.

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