Osmaniye Korkut Ata Üniversitesi
İktisadi ve İdari Bilimler Fakültesi Dergisi
Cilt: 9, Sayı: 1, Haziran 2025, ss. 55-69

Osmaniye Korkut Ata University
Journal of Economics and Administrative Sciences
Vol: 9, Issue: 1, June 2025, pp. 55-69

GREEN HOSPITAL CONCEPT IN BIBLIOGRAPHY ARCHITECTURE: CREATING VISUAL ANALYSIS USING VOSVIEWER

Geliş Tarihi: 23.01.2025
Kabul Tarihi: 14.05.2025
Makale Türü: Araştırma Makalesi

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Abstract

This study examined the development of the green hospital concept in the literature using the bibliographic analysis method through the Web of Science database. Although the highest number of publications on the subject was in 2023, a significant decrease of 62.5% was observed in 2024. The United State of America stands out as the country with the highest number of publications and co-authorship strength, whereas Türkiye, despite having four publications, has no international collaborations. According to the keyword analysis, terms such as “green hospital,” “climate change,” “environment,” and “sustainability healthcare” are the most prominent. Furthermore, the journal with the highest number of publications was found to be the *International Journal of Healthcare Management*, while the most cited journal was the *American Journal of Kidney Disease*. The study results indicate that the green hospital concept is strongly related to the United Nations' “Good Health and Well-Being” goal.

Keywords: Green Hospital, Sustainable Healthcare, Carbon Footprint, Vosviewer, Mapping

Jel Codes: Q54, Q56.

BİBLİYOGRAFİK MİMARİDE YEŞİL HASTANE KONSEPTİ: VOSVIEWER KULLANILARAK GÖRSEL ANALİZ OLUŞTURMA

Özet

Bu çalışma, yeşil hastane konseptinin literatürdeki gelişimini Web of Science veri tabanı aracılığıyla bibliyografik analiz yöntemiyle incelemiştir. Konuyla ilgili en fazla yayının 2023 yılında yapılmış olmasına rağmen, 2024'te %62,5 oranında ciddi bir azalma gözlemlenmiştir. Amerika Birleşik Devletleri’nin, en fazla yayına ve ortak yazarlık bağlantı gücüne sahip ülke olarak öne çıkarken, Türkiye’nin dört yayınla hiç uluslararası iş birliğinin olmadığı saptanmıştır. Anahtar kelime analizine göre, “green hospital”, “climate change”, “environment” ve “sustainability healthcare” gibi kavramların ön planda olduğu anlaşılmıştır. Ayrıca, en çok makale yayınlayan derginin “International Journal of Healthcare Management”, en fazla atıf alan derginin ise “American Journal of Kidney Disease” olduğu bulunmuştur. Çalışma sonuçları, yeşil hastane konseptinin Birleşmiş Milletler'in “İyi Sağlık ve İyi Yaşam” hedefiyle güçlü bir ilişki içinde olduğunu göstermektedir.

Anahtar Kelimeler: Yeşil Hastane, Sürdürülebilir Sağlık Hizmeti, Karbon Ayak İzi, Vosviewer, Haritalama

JEL Kodları: Q54, Q56.

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1. INTRODUCTION

The advancements in science and technology have made human life easier in recent years; however, they have also triggered various problems such as the depletion of natural resources and pollution of soil, air, and water. If the human population and consumption rates continue to increase at this pace, there is growing concern that future generations may not have the same living standards. One of the sources of this concern is rapid urbanization and the problems it brings along (Hoşgör et al., 2023).

With the acceleration of urbanization, energy consumption has increased rapidly, leading to significant carbon emissions, severe air pollution, and a sharp rise in extreme weather events (Ding et al., 2024). Globally, the construction sector consumes 40% of total energy and contributes to 30–50% of energy-related greenhouse gas emissions (Movahed et al., 2021).

The healthcare sector is also a part of this issue, which affects all industries (Bajwa et al., 2025). In particular, fully equipped healthcare facilities have a significant share in greenhouse gas emissions that contribute to climate change. The healthcare sector is responsible for approximately 4.6% of global greenhouse gas emissions. According to Cohen et al. (2025), if the healthcare sector were considered a country, it would rank as the fifth largest greenhouse gas emitter globally.

Hospitals are complex and multidimensional organizational structures that provide healthcare services to people, encompassing various sociocultural and demographic characteristics (Hoşgör and G. Hoşgör, 2019). Operating 24 hours a day, 7 days a week, hospitals generate five million tons of solid waste annually and require large amounts of water. In addition, hospitals must continuously pump clean air to reduce infections. This makes hospitals the second largest energy-consuming sector in the country, after the food service sector (Johnson, 2010).

Hospitals that provide emergency, outpatient, and inpatient care are institutions that deliver individual healthcare services. In addition to high energy consumption and greenhouse gas emissions, hospitals generate various types of waste, including medical, non-medical, liquid, and gas waste. Improper sorting and incineration of these wastes can lead to serious environmental issues (Koçyiğit et al., 2023). However, hospitals are known to be responsible not only for improving public health but also for minimizing the negative impacts of environmental harm. All these areas of responsibility have paved the way for the emergence of the concept of "Green Hospital."

The concept of "Green Hospital," rooted in green theory (Kara, 2024), emerged from the application of the "green building" concept to healthcare institutions. According to the United States Environmental Protection Agency, a Green Building is the practice of creating and using environmentally responsible structures. This concept means that all buildings should not harm the environment during their construction and operation processes, and they should be sustainable enough to serve their functions for many years to come (Febianti et al., 2024).

Green hospitals, also known as environmentally friendly, ecological, sustainable, smart, or intelligent hospitals (Hoşgör, 2014; Konakoğlu and K. Açıcı, 2021; Berniak-Woźny and Rataj, 2023; Silva et al., 2024; Perdana et al., 2025), are sustainable structures that take responsibility for improving health while reducing environmental impacts. A green hospital recognizes the relationship between human health and the environment and demonstrates this understanding in its management, strategy, and operational processes (Shaabani et al., 2020).

A green hospital is a healthcare institution that considers the environment as an integral part of quality services. These hospitals are built with high-quality materials and incorporate

features such as strategic location, water and energy efficiency, and practices to reduce air pollution. Additionally, they maintain high indoor quality standards, offer healthy meals, and provide a green environment. They adopt practices such as the use of green products, creating a non-toxic environment, implementing green cleaning methods, and reducing waste. Furthermore, they contribute to patients' healing processes with therapeutic gardens (Azmal et al., 2014). To achieve such sustainable goals, healthcare institutions adopt various green building performance assessment methods such as BREEAM, LEED, and WELL (Zhan et al., 2022).

Despite having numerous advantages, green hospitals also have certain disadvantages. When the existing literature is examined, it is seen that there are studies that include the strengths and weaknesses of green hospitals as well as their opportunities and threats (Aslan et al., 2014; Thomas et al., 2023; Silva et al., 2024; Miura et al., 2024). In line with these studies, the SWOT analysis of green hospitals presented in Figure 1 has been created by the author.

STRENGTHS	WEAKNESSES
Reduced environmental impact and carbon footprint	High initial investment and implementation costs
Enhanced patient wellbeing through better air and water quality	Complexity in integrating sustainable technologies
Longterm cost savings through energyefficient technologies	Need for specialized staff training and expertise
Positive public perception and increased brand value	Possible resistance from staff due to changes in routine
Compliance with environmental regulations and standards	Longer payback periods for green investments
Innovative use of renewable energy sources	Limited availability of eco-friendly materials and equipment
OPPORTUNITIES	**THREATS**
Advancements in green technology and materials	Rapid changes in sustainability standards requiring frequent updates
Government incentives and tax benefits for sustainability	Potential disruptions in green supply chains
Rising consumer demand for environmentally responsible healthcare	Competition from nongreen hospitals offering lower costs
Potential for partnerships with ecofriendly organizations	Economic downturns affecting investment in sustainability
Development of smart hospital systems for sustainability tracking	Natural disasters impacting green infrastructure durability

Figure 1. SWOT analysis for green hospitals

The United States of America is one of the leading countries in the implementation of green hospitals. According to Kamath et al. (2019), only one of these hospitals is “Providence Newberg Medical Center” in the state of Oregon. This green hospital meets all of its energy needs from renewable sources such as geothermal, hydroelectric, and wind energy. Its ventilation system continuously brings in fresh air from outside, improving indoor air quality. Another green hospital, located in Florida, is the "West Kendall Baptist Hospital." This hospital has been constructed using environmentally friendly building materials such as wood certified by the Forest Stewardship Council and low-emission paint. These materials were sourced

locally whenever possible, and construction debris was recycled. Water usage has been reduced by 20% through the implementation of dual-flush toilets and other water-saving measures.

Compared to the USA and many other countries, it can be said that green hospital practices in Turkey are still in their infancy. Currently, there are three hospitals in Turkey that hold green hospital certification. The first of these is Istanbul Florence Nightingale Hospital, and the second is Medistate Kavacık Hospital (Baytaş and Ç. Aydın, 2022). The third hospital is the Vehbi Koç Foundation American Hospital, which holds the "LEED EBOM Platinum" certification, an environmentally friendly building certification system. The American Hospital stands out as the first and only hospital in Turkey to receive the "LEED EBOM Platinum" certification in 2019 and as the first fully equipped hospital globally to have the largest area within this scope. As a result, it has been reported that the hospital achieved a 50% reduction in water consumption and an improvement of over 90% in energy performance (Hospital Manager, 2019).

In summary, green hospitals not only reduce environmental impacts but also contribute to the goal of leaving a healthier world for future generations by enhancing the sustainability of healthcare services. The aim of this study is to analyze the existing literature on the green hospital concept within a bibliographic framework and to identify academic trends, research gaps, and key focus areas through a visual mapping approach. In this context, using the bibliometric analysis tool VOSviewer, various parameters such as the global distribution of publications on the green hospital concept, keyword relationships, and citation networks will be examined to comprehensively evaluate the current state of the field.

2. MATERIALS AND METHODS

Bibliometric analysis is a widely used and reliable method for examining and analyzing large volumes of scientific data. This technique is designed to understand the connections between journal citations and to summarize the current state of a research topic from the perspective of emerging or trending subjects (Kuzior and Sira, 2022).

Bibliometrics is a statistical method that can quantitatively analyze research articles related to a specific subject using mathematical approaches (Chen et al., 2014). Furthermore, it can assess the quality of studies, analyze the core areas of research, and predict the direction of future studies. The Web of Science (WOS) online database contains nearly all significant research articles and provides built-in analytical tools to generate representative figures. Moreover, search results from WOS can be exported to software such as VOSviewer for further analysis (Yu et al., 2020).

Bibliometrics is a method that provides information about the countries, authors, collaborations, keywords, scientific disciplines, and journals of articles by using statistical and mathematical tools (Ç. Koçyiğit et al., 2022; Türkmen et al., 2024). In this study, the data used for bibliometric analysis were obtained from the Web of Science. The Visualization of Similarities (VOS) viewer, which aims to facilitate the easy creation and visualization of bibliometric maps, has been gaining popularity in bibliometric research. This method enables the efficient coverage of the literature and establishes interrelations among the selected publications.

As of the end of December 2024, a total of 96 publications were found in the Web of Science database across all fields using the keyword "Green Hospital" along with nine different OR connectors ("hospital", "green hospital", "green healthcare", "sustainable healthcare", "environment", "carbon footprint", "climate change", "waste management") (Figure 2).

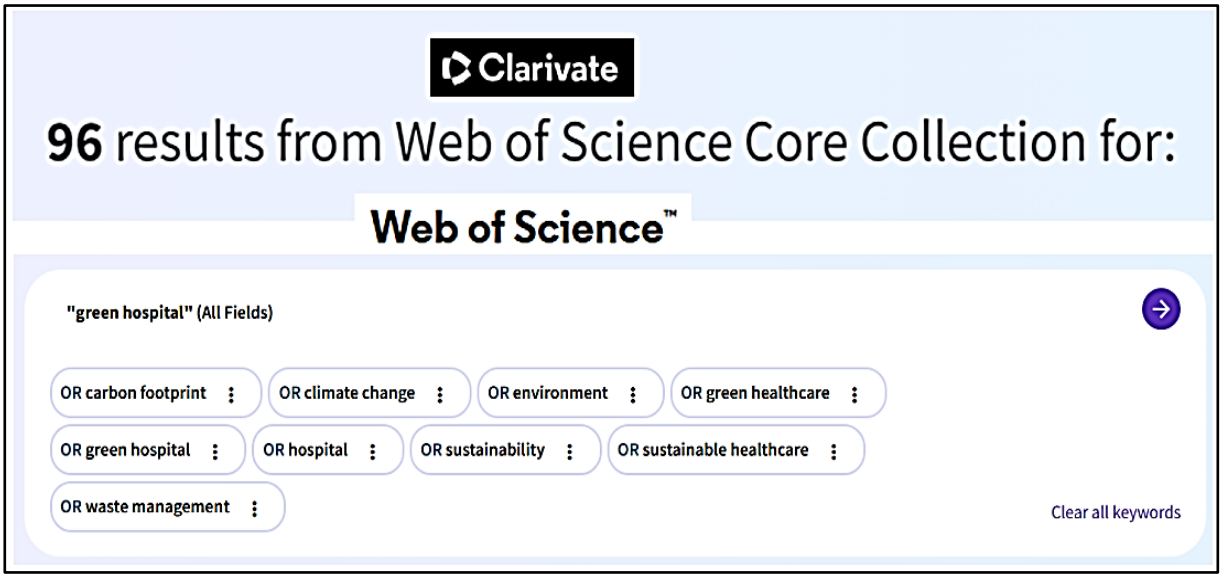

Figure 2. First screening results in all areas in WOS

The inclusion and exclusion criteria used in the study are provided in Figure 3. The first exclusion criterion is the publication year, and publications published in 2025 have not been included in this study. The second exclusion criterion is the document type. Only research articles were included in the study, and other types of publications were excluded. The final exclusion criterion pertains to the publication language. All languages other than English were excluded. After applying the inclusion and exclusion criteria, a total of 56 publications were included.

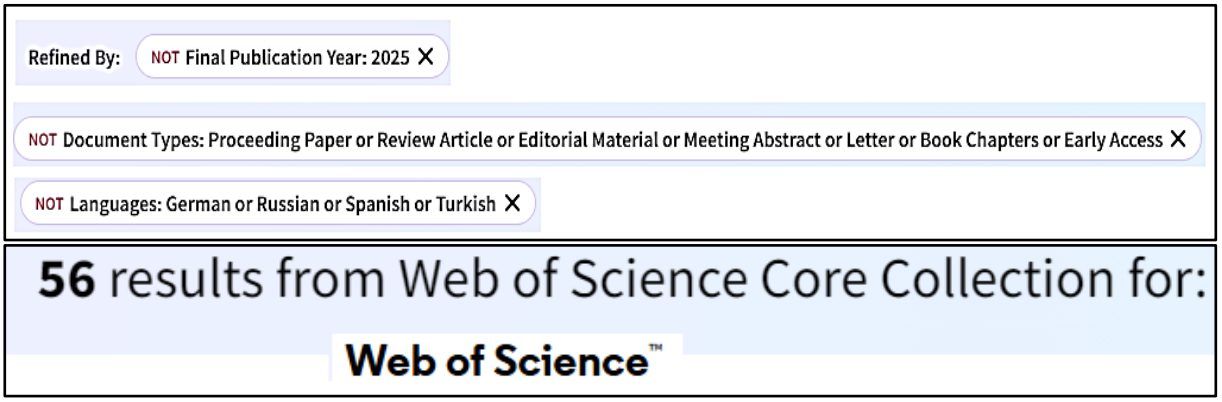

Figure 3. Screening results after ınclusion and exclusion criteria were applied

The results obtained were processed and visualized using the VOSviewer (Version 1.6.20 for Microsoft Windows Systems) program to analyze trends in bibliometric form, and the data were downloaded in CSV format for further processing. VOSviewer enables the creation of country maps based on networks (co-citation), generates keyword maps based on shared networks, and creates maps with multiple elements (Moral-Muñoz et al., 2020). Data mining, mapping, and grouping of articles retrieved from the database can be done using VOSviewer software (Oyewola and Dada, 2022). In the bibliometric analysis, the articles included in the research were examined in terms of "year, country, university, journal, author, citation, and keyword." Microsoft Excel 2016 was used to create Figures 4, 12, and 13. The data in this study were obtained from the Web of Science database and are publicly available secondary data. Therefore, ethical approval is not required for the study.

3. RESULTS

As of January 17, 2025, there are 56 articles on the topic of green hospitals in the Web of Science database. There has been an increase in the number of scientific publications related to green hospitals in recent years. The first publication on the topic was identified as being written in 1987 (f: 1). The highest number of articles on green hospitals was published in 2023 (f: 8), while a noticeable decrease in the number of articles was observed in 2024 (f: 5) compared to the previous year (Figure 4).

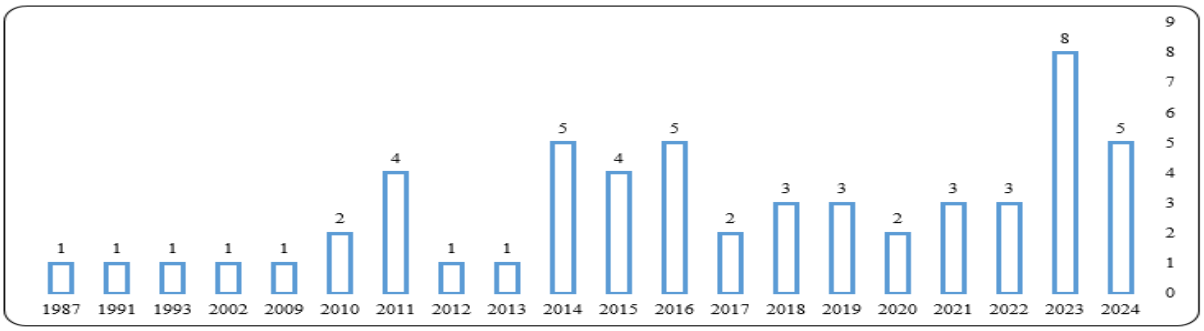

Figure 4: Distribution of articles about green hospital by year (1987-2024)

The co-authorship network map based on countries for the 56 data sets related to green hospitals is provided in Figure 4. To determine the co-authorship network among countries, the minimum threshold for a country's number of publications was set to one, and the citation count was set to zero. In this context, although 12 countries met the threshold, a total of 28 countries were evaluated to map those that were not connected. The analysis revealed that the USA has the highest number of publications (f: 20) and the strongest connection (f: 6) regarding green hospitals. Countries that have co-authorship connections with the USA are Greece, Spain, Canada, Germany, Australia, and Malaysia. Despite Turkey having four publications on the topic, it was found to have no international co-authorship connections (Figure 5).

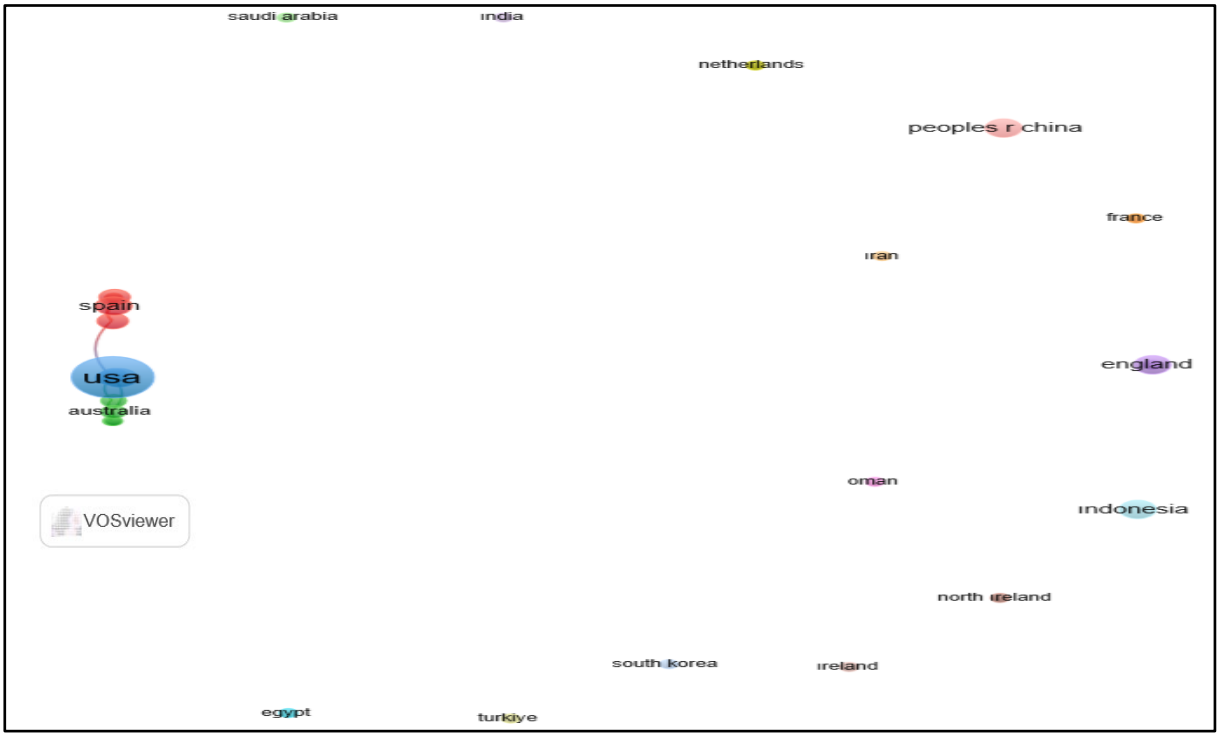

Figure 5. Distribution of countries that published the most articles about green hospital

The general visualization of the citation distributions of authors publishing articles on green hospitals is shown in Figure 6. In this study, authors with at least one publication and nine citations were included for evaluation, and 148 out of 261 authors who met these criteria were mapped. The mapping resulted in the formation of 24 different author clusters. In this context, the cluster with the highest co-authorship (connection) strength was identified as the first cluster, consisting of 14 authors. The author at the top of the first cluster was found to be Oldston, with a co-authorship connection strength of 13. Other authors in the same cluster with a connection strength of 12 were Abe, Chen, Costanzo, Gioia, Holt, Kain, Mathews, Nakayama, Sharma, Su, Teyton, Unanue, and Wan.

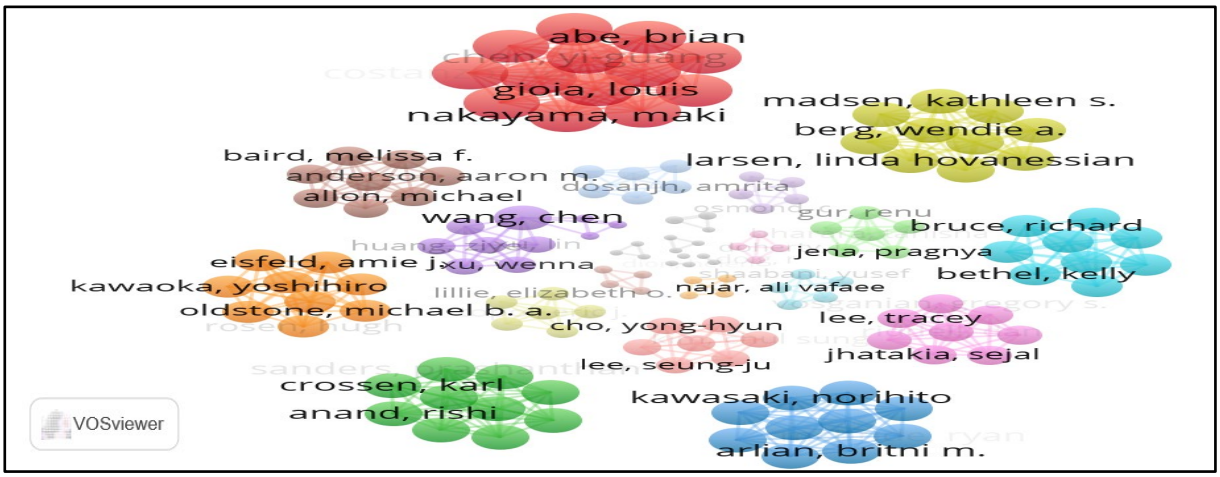

Figure 6. Distribution of collective publishing power of authors who published articles about green hospital

When examining the groups clustered based on citation counts of authors from outside Turkey, it was determined that the authors with the highest number of citations (f: 129) are Cavallari, Limdi, Beasley, Crowley, Baird, Anderson, and Allon (Figure 7).

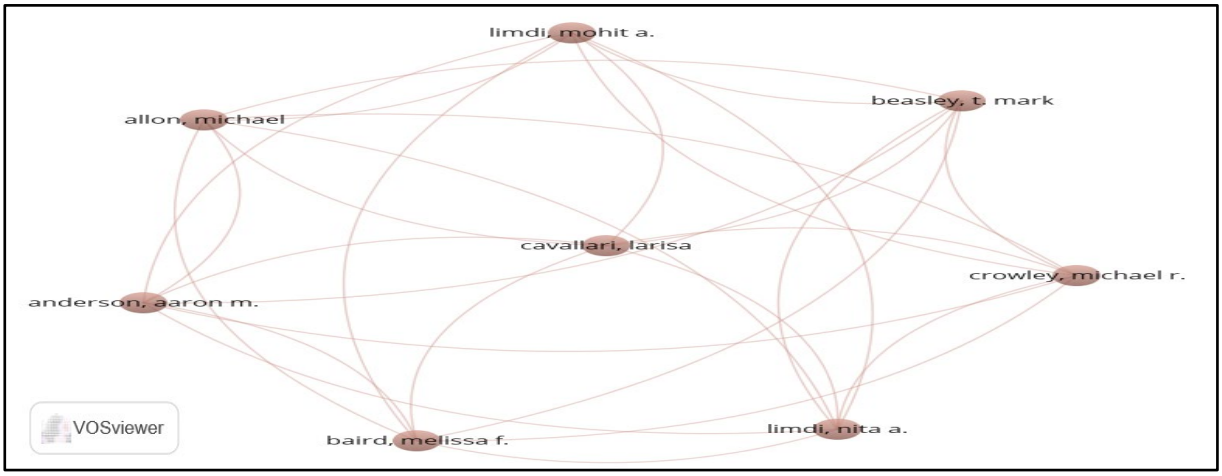

Figure 7. Distribution of foreign authors with the most citations about green hospital

When analyzing the groups of authors in Turkey based on citation counts, it was determined that the authors in the first group with the highest number of citations (f: 9) are Beldek, Aldemir, Hoşkara, and Camgöz-Akdağ. The second group, with the highest number of citations (f: 7), includes Üçüncü, Beyhun, Topbaş, Can, Çankaya, Karakullukçu, and Kolaylı (Figure 8).

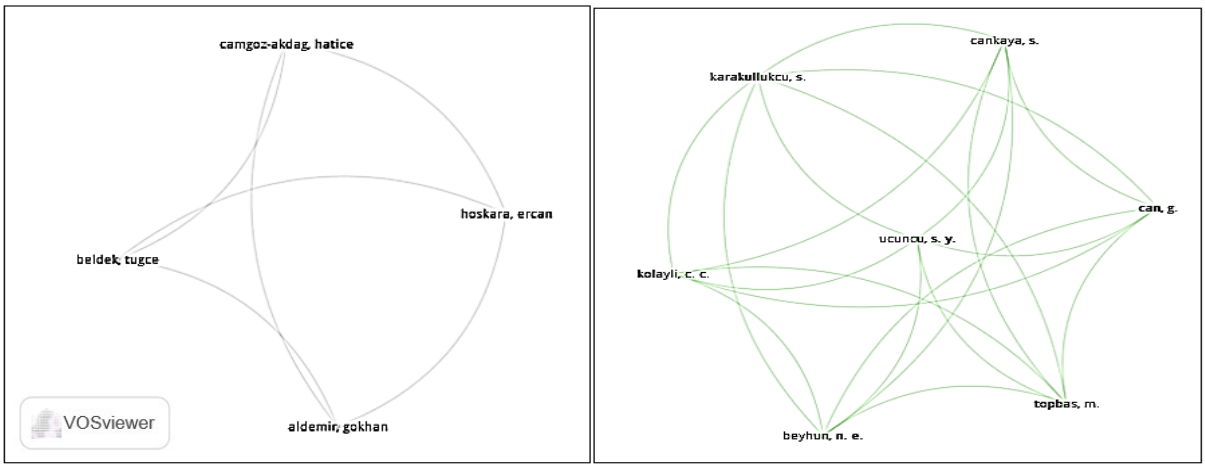

Figure 8. Distribution of Turkish authors with the most citations about green hospital

In the articles published on green hospitals, a total of 188 different keywords with at least one match were used. The most frequently used keyword was identified as "green hospital" (f: 19). Other commonly used keywords include "climate change" (f: 5), "environment" (f: 4), "hospital" (f: 4), "green healthcare" (f: 3), "carbon footprint" (f: 3), "sustainability" (f: 3), "sustainable healthcare" (f: 3), and "waste management" (f: 3) (Figure 9).

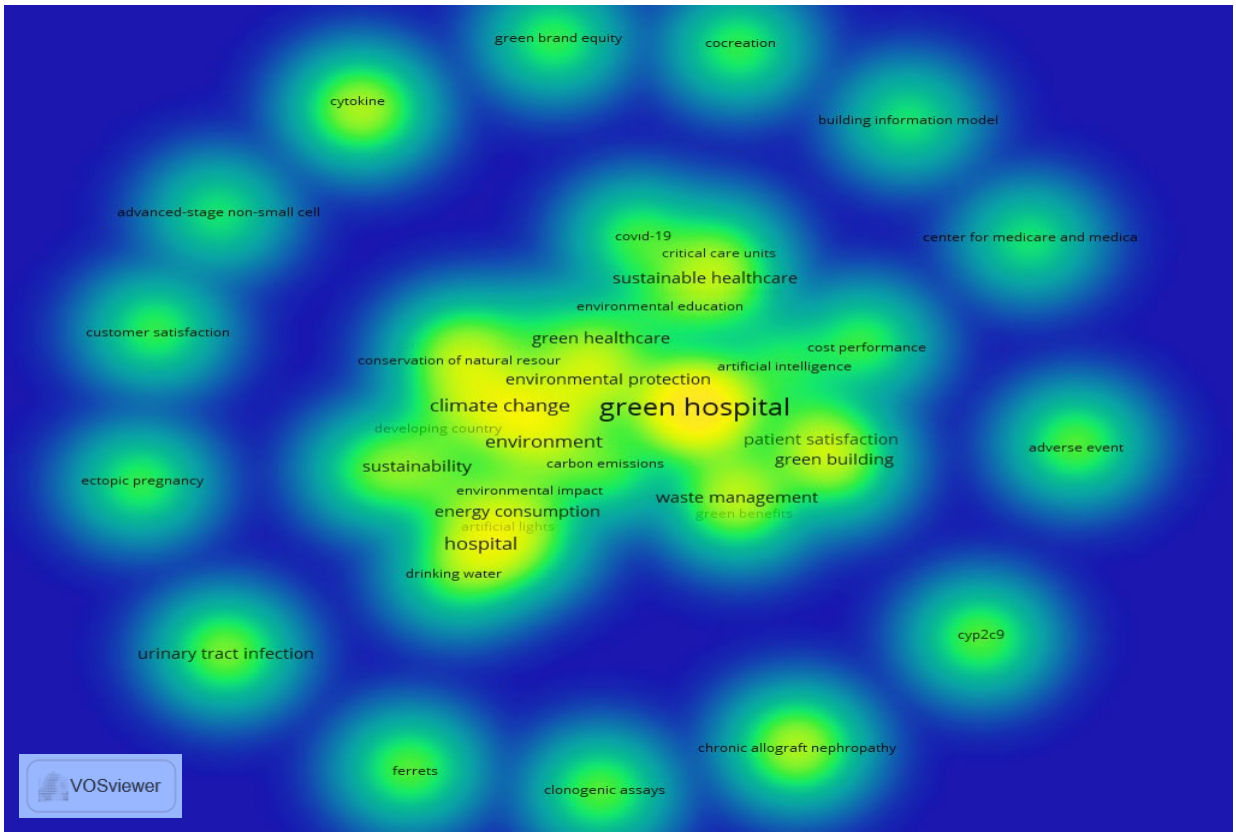

Figure 9. Distribution of the most used keywords in publications about green hospital

The journals that have published the highest number of articles on the topic of green hospitals were found to be the *International Journal of Healthcare Management* (f: 2), *Journal of Cleaner Production* (f: 2), *Journal of Environmental Protection and Ecology* (f: 2), *Journal of Green Building* (f: 2), and *Sustainability* (f: 2) (Figure 10).

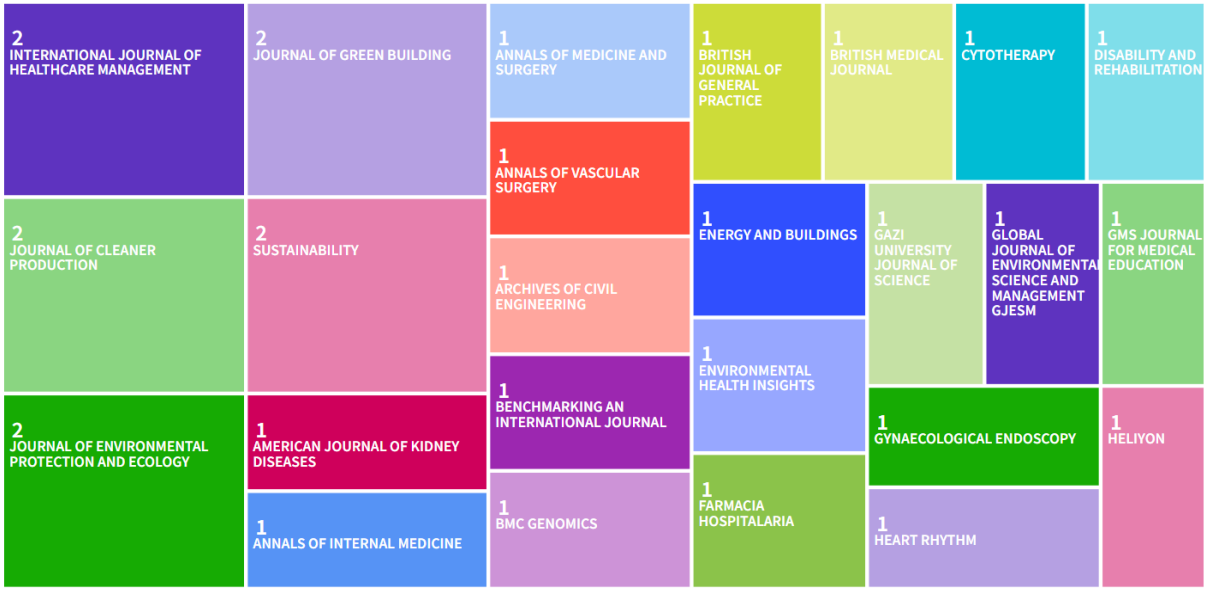

Figure 10. Distribution of journals that publish the most articles on green hospital

Nine journals were identified as having received the highest number of citations (≥50) on the topic of green hospitals. In terms of citation counts, these journals are ranked as follows: *American Journal of Kidney Disease* (f: 129), *Radiology* (f: 128), *Annals of Internal Medicine* (f: 116), *Journal of Cleaner Production* (f: 111), *Journal of Oncology* (f: 88), *Energy and Buildings* (f: 56), *Journal of Infection and Chemotherapy* (f: 54), *British Journal of Medical* (f: 52), and *Journal of Biological Chemistry* (f: 50) (Figure 11).

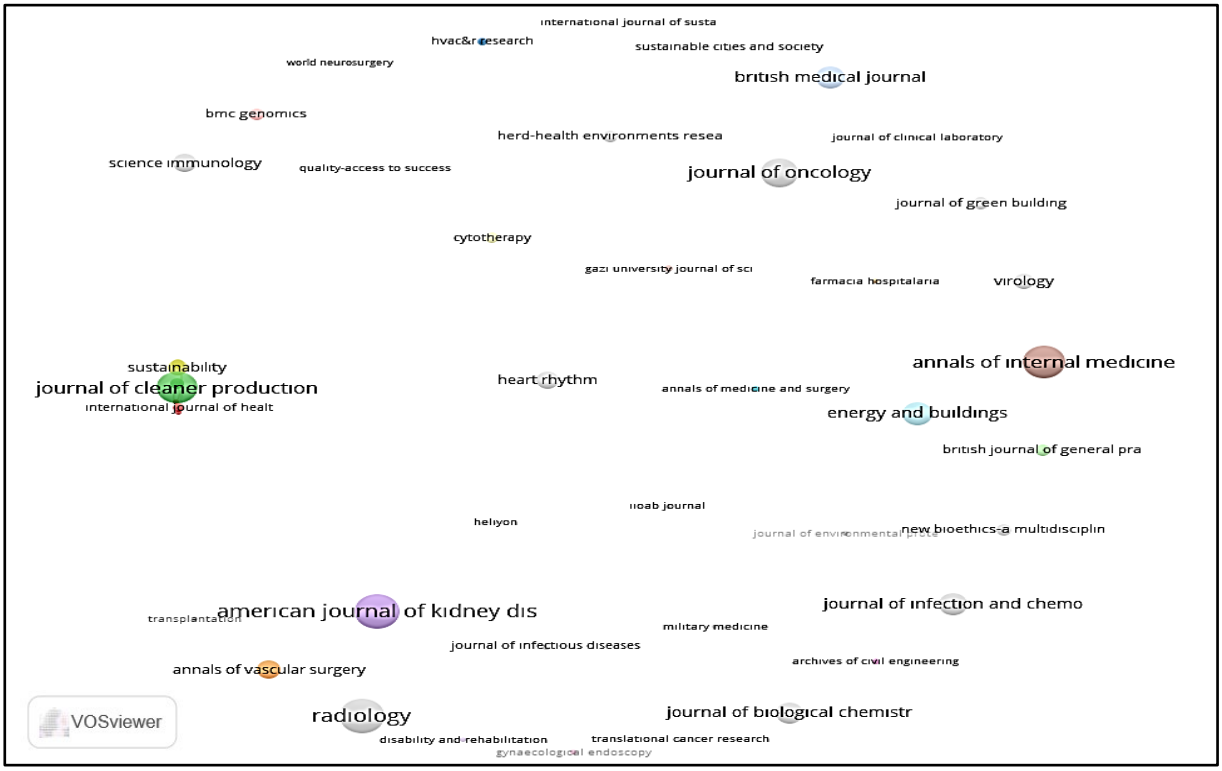

Figure 11. Distribution of the most cited journals on green hospital

It was determined that the articles written on the subject of green hospitals were published under the roof of 30 different publishing organizations. Among these, the publisher

with the most articles was “Elsevier” (f: 13). Other publishers with the most articles on the subject were “Taylor & Francis” (f: 8), “Wiley” (f: 3), “College Publication” (f: 2), “Emerald Group Publishing” (f: 2), “Mdpi” (f: 2), “Sage” (f: 2) and “Scibulcom Ltd” (f: 2) (Figure 12).

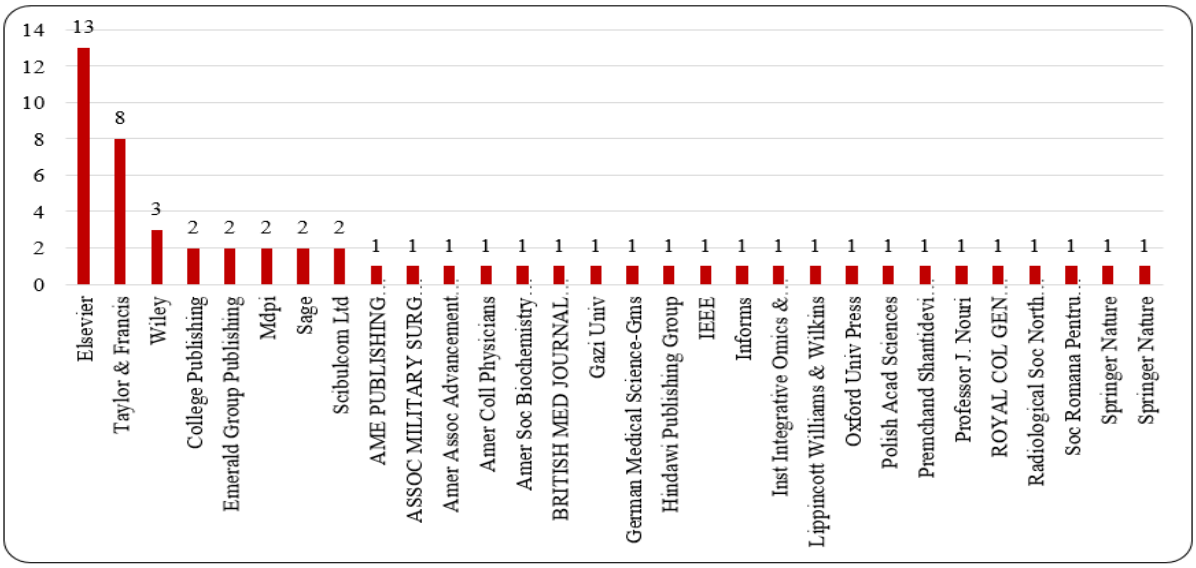

Figure 12. Distribution of publishing groups with the most articles about the green hospital

When the relationship between the articles written on the subject of green hospitals and the United Nations Sustainable Development Goals is examined, it is understood that 69.6% are closely related to the goals of “Good Health and Well Being” (f: 39), 25% to “Climate Action” (f: 14), 17.9% to “Life Below Water” (f: 10), 14.3% to “Sustainable Cities and Communities” (f: 8), 10.7% to “Affordable and Clean Energy” (f: 6), 7.1% to “Life on Land” (f: 4) and 5.4% to “Responsible Consuption and Production” (f: 3) (Figure 13).

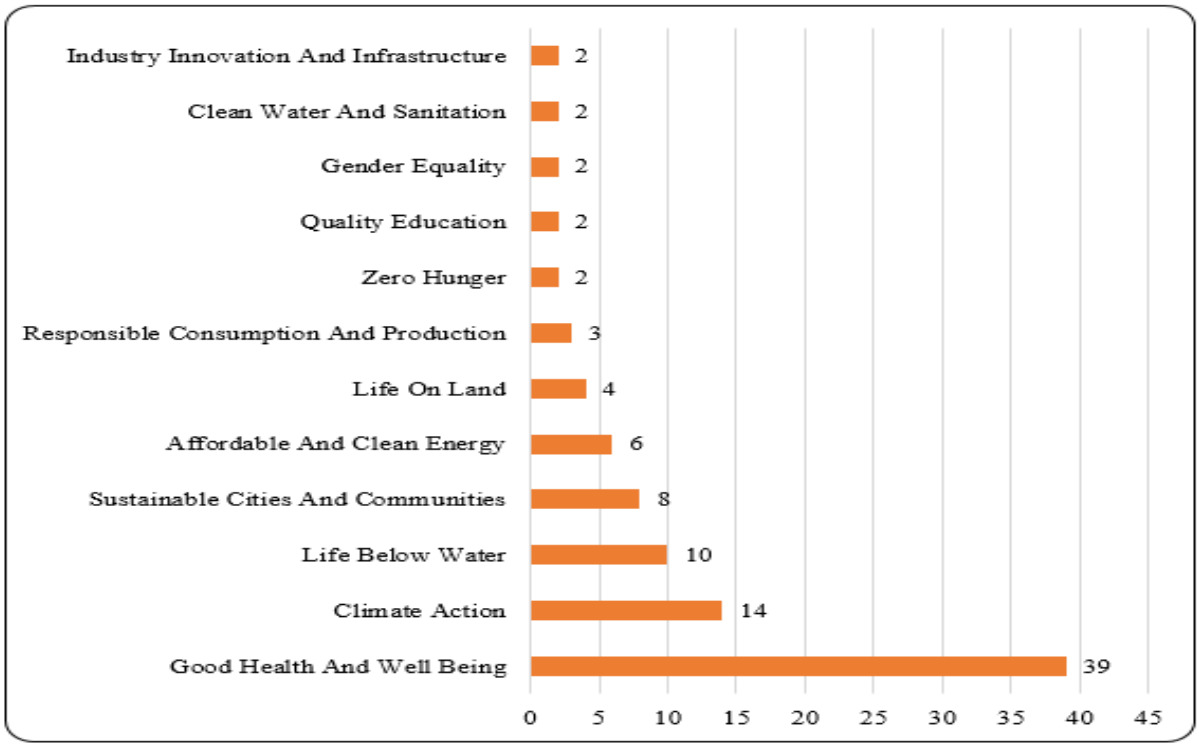

Figure 13. Distribution of sustainable development goals in publications related to green hospital

4. CONCLUSION, DISCUSSION AND RECOMMENDATIONS

In this study, the existing literature on the green hospital concept is examined within a bibliographic framework, aiming to explore academic trends, research gaps, and key focal points in this field using visual mapping methods. For this purpose, the Web of Science database and the WOSviewer program as a visual mapping method have been used.

As a result of the research, 56 English language research articles published between 1987-2024 were included in the study. It was concluded that the year in which the most articles were written on the subject of green hospitals was 2023, and this rate decreased by 62.5% in 2024. The integration of the concept of green hospitals with broader sustainable health systems or new concepts such as smart hospitals may have caused a decrease in academic interest in this specific topic. In addition, it can be said that the following factors are effective in this decrease: the changing priorities of the health sector after the pandemic, the saturation of research trends on the subject, the decrease in funds for sustainable hospital projects, and the popularity of relatively more current topics such as artificial intelligence, digital health, and data analytics. Therefore, it is obvious that more empirical research is needed to determine the reasons for this decrease.

The research results showed that the country with the highest number of publications and co-authorship-based connections on the subject of green hospitals is the USA. Although Turkey has four publications on the subject, it has been understood that there is no international co-publication connection. This situation reveals that Turkey's academic contribution to green hospitals is limited and that it is not sufficiently integrated into the global scientific network.

The mapping results revealed that the author with the highest co-authorship (connection) power on the green hospital topic was Oldston; the researchers with the highest citations were Cavallari, Limdi, Beasley, Crowley, Limdi, Baird, Anderson, and Allon. In Turkey, the researchers with the highest citations were Beldek, Aldemir, Hoşkara, and Camgöz-Akdağ. In general, it can be said that Turkish authors who have publications on the green hospital topic have great deficiencies in terms of publishing collaborations with researchers from different countries of the world. In addition, it was concluded that there was a difference of nearly 15 times between the citation rates of Turkish and foreign researchers who have the most publications on the green hospital topic. Unfortunately, these rates show that the studies of foreign researchers on the green hospital topic provide much more academic impact and visibility compared to researchers in Turkey.

As a result of the study, heat maps showed that the most frequently used keywords on the subject are “green hospital”, “climate change”, “environment”, “hospital”, “green healthcare”, “carbon footprint”, “sustainability”, “sustainability healthcare”, “waste management”. These results show that issues such as sustainability, environmental impacts and waste management are at the forefront in research on green hospitals. The frequent use of keywords such as “green hospital”, “sustainability” and “carbon footprint” reveals that academic studies focus on environmentally friendly healthcare services and their impacts on climate change. This shows that environmental sustainability is becoming increasingly important in the healthcare sector and that research is being shaped in this direction.

The journal that publishes the most articles on the subject of green hospitals is the “International Journal of Healthcare Management”; the most cited journal is the “American Journal of Kidney Disease”. This situation shows that the subject of green hospitals is generally published in journals focused on health management and sustainability, but more clinically focused journals can also increase the academic value and impact of studies in this field. In

addition, these results can be interpreted as the green hospital concept is beginning to be accepted in different disciplines and its integration into clinical practices is increasing.

It was concluded that Elsevier is the publishing group that hosts the most articles on the subject. The fact that Elsevier is the publishing group that hosts the most articles on the subject indicates that most of the research on topics such as green hospitals is concentrated in fields such as medicine, health management and environmental sustainability, and that Elsevier has a strong publishing network in these fields. This shows that Elsevier serves as an important platform for disseminating and sharing academic contributions in this field.

It has been concluded that more than half of the articles written on the topic of green hospitals are closely related to the United Nations' Sustainable Development Goal of "Good Health and Well Being." These findings can be interpreted as indicating a conscious focus on sustainability and public health in the healthcare sector.

Based on the findings of this study, the following recommendations can be made:

- The lack of international co-authorship connections in Turkey requires the establishment of more international collaborations and project partnerships among researchers. In this context, encouraging participation in international conferences and supporting joint research projects can contribute to the increase of international cooperation.

- The reasons for the decline in the number of publications on green hospitals in 2024 should be analyzed in detail, and new research incentives should be created to ensure the sustainability of academic interest in this field.

- Future research should focus on in-depth examinations of themes such as "green hospital," "climate change," and "sustainability healthcare," which are frequently used as key terms.

- By examining the works of the researchers with the highest citations in Turkey, effective academic writing and publication strategies should be developed to increase citation impact.

- It is recommended to develop feasible projects in collaboration with healthcare institutions and conduct joint efforts with policymakers to ensure the practical application of academic studies on the green hospital concept.

- It has been determined that the majority of the articles are published by specific journals and publishers, therefore, it is recommended to expand the academic impact by publishing in a variety of journals and with different publishers. All these recommendations could contribute to creating a broader academic and practical impact for green hospital research in Turkey.

REFERENCES

Ahmad, S., Verma, T., & Kamal, M. A. (2024). Emerging Trends in Green Healthcare Building Design of Saudi Arabia: A Sustainable Approach. *Library of Progress-Library Science, Information Technology & Computer*, *44*(3), 19986-20001.

Aslan, I., Çınar, O., & Özen, Ü. (2014). Developing strategies for the future of healthcare in Turkey by benchmarking and SWOT analysis. *Procedia-social and behavioral sciences*, *150*, 230-240.

Azmal, M., Kalhor, R., Dehcheshmeh, N. F., Goharinezhad, S., Heidari, Z. A., & Farzianpour, F. (2014). Going toward green hospital by sustainable healthcare waste management: segregation, treatment and safe disposal. *Health*, *6*(19), 2632-2640.

Bajwa, B., Zhang, Z., Tuen, Y. J., Courtemanche, R., & S. Arneja, J. (2025). How Can Non-Hospital Surgical Centres Improve Their Environmental Footprint (and Reduce Costs)?. *Plastic Surgery*, 22925503241305635.

Baytaş, V., & Aydın, G. Ç. (2022). Sağlık Kurumlarında Çevreye Duyarlı Politikalar: Yeşil Hastane Örnekleri. *Ekonomi Maliye İşletme Dergisi*, *5*(2), 336-356.

Berniak-Woźny, J., & Rataj, M. (2023). Towards green and sustainable healthcare: a literature review and research agenda for green leadership in the healthcare sector. *International journal of environmental research and public health*, *20*(2), 908.

Chen, C., Dubin, R., & Kim, M. C. (2014). Emerging trends and new developments in regenerative medicine: a scientometric update (2000–2014). Expert opinion on biological therapy, 14(9), 1295-1317.

Cohen, E. S., Kringos, D. S., Kouwenberg, L. H., Weiland, N. H. S., Richie, C., Aarts, J. W., & Hehenkamp, W. J. (2025). Patient perspectives on climate friendly healthcare: an exploratory study in obstetrics and gynaecology. *Patient Education and Counseling*, *130*, 108427.

Ç. Koçyiğit, S., Çilhoroz, İ. A., Çelik, G., & Günenç, E. Ö. (2023). Bibliometric mapping of studies on green accounting in health. *Journal of Mehmet Akif Ersoy University Economics and Administrative Sciences Faculty*, *10*(2), 1627-1645.

Ding, X., Cui, Y., Chen, Z., & Zhang, H. (2024). Energy Efficiency in Biophilic Architecture: A Systematic Literature Review and Visual Analysis Using CiteSpace and VOSviewer. *Buildings*, *14*(12), 3800.

Febianti, E., Ilhami, M. A., Ekawati, R., & Setiawan, H. (2024). Bibliometric analysis of lean and green healthcare integration using Publish or Perish (PoP). *Journal Industrial Servicess*, *10*(1), 7-12.

Hospital Manager, (2019). Amerikan hastanesi Yeşil Bina Sertifikası Almaya Hak Kazandı. https://www.hospitalmanager.com.tr/amerikan-hastanesi-yesil-bina-sertifikasi-almaya-hak-kazandi/

Hoşgör, D. G., Güngördü, H., & Hoşgör, H. (2023). Sustainable consumption behavior measurement of three generations using descriptive variables. Opportunities and Challenges in Sustainability, 2(2), 71-80.

Hoşgör, H. (2014). Yeşil hastane konsepti ve Türkiye deneyimi. *Sağlık Bilimleri ve Meslekleri Dergisi*, *1*(2), 75-84.

Hoşgör, H., Gündüz Hoşgör, D. (2019). Hastaların Hastane Seçimini Etkileyen Faktörler: Sistematik Derleme (1996-2017). Hacettepe Sağlık İdaresi Dergisi, 22(2): 437-456.

Johnson, S. W. (2010). Summarizing green practices in US hospitals. *Hospital topics*, *88*(3), 75-81.

Kamath, S., Kamath, R., Kamath, L., Salins, P., Soman, B., Raj, A. L., & D'Souza, R. (2019). Engineering green hospitals: An imperative for a sustainable future. *International Journal of Civil Engineering and Technology*, *10*(2), 538-544.

Kara, M. E. (2024). Yeşil Teori. *Osmaniye Korkut Ata Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *8*(1), 20-28.

Koçyiğit, S. Ç., Çilhoroz, İ. A., Çelik, G., & Günenç, E. Ö. (2023). Bibliometric mapping of studies on green accounting in health. *Journal of Mehmet Akif Ersoy University Economics and Administrative Sciences Faculty*, *10*(2), 1627-1645.

Konakoğlu, Z. N., & K. Açıcı, F. (2021). Assessment of Green Hospital Criteria: Case of Trabzon (Yeşil Hastane Ölçütlerinin İrdelenmesi: Trabzon Örneği). *Social Mentality and Researcher Thinkers Journal (Smart Journal)*, *7*(54), 3512-3522.

Kuzior, A., & Sira, M. (2022). A bibliometric analysis of blockchain technology research using VOSviewer. *Sustainability*, *14*(13), 8206.

Miura, S. I., Nose, D., Kanamori, K., Imaizumi, S., Shimura, H., & Saku, K. (2021). Sustainable hospital management by a cross SWOT analysis in a medium-sized hospital. *Sustainability*, *13*(23), 13042.

Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de la Información*, *29*(1): 1-20.

Movahed, Y., Bakhtiari, A., Eslami, S., & Noorollahi, Y. (2021). Investigation of single-storey residential green roof contribution to buildings energy demand reduction in different climate zones of Iran. *International Journal of Green Energy*, *18*(1), 100-110.

Oyewola, D. O., & Dada, E. G. (2022). Exploring machine learning: a scientometrics approach using bibliometrix and VOSviewer. *SN Applied Sciences*, *4*(5), 143.

Perdana, A., Sedayu, A., Permana, K. A., Maulana, R., Nurfadilah, R., & Jasim, M. I. (2025). Comparative Study of Physical Design Principles in Green Hospital Concept (Case Study: Teaching Hospital). In *IOP Conference Series: Earth and Environmental Science* (Vol. 1439, No. 1, p. 012027). IOP Publishing.

Shaabani, Y., Vafaee Najar, A., Shafiee, M. N., Meraji, M., & Hooshmand, E. (2020). Designing a green hospital model: Iranian hospital. *International Journal of Healthcare Management*, *13*(sup1), 427-433.

Silva, B. V., Holm-Nielsen, J. B., Sadrizadeh, S., Teles, M. P., Kiani-Moghaddam, M., & Arabkoohsar, A. (2024). Sustainable, green, or smart? Pathways for energy-efficient healthcare buildings. *Sustainable Cities and Society*, *100*, 105013.

Thomas, A., Ma, S., Ur Rehman, A., & Usmani, Y.S. (2023). Green Operation Strategies in Healthcare for Enhanced Quality of Life. Healthcare, 11, 37.

Türkmen, İ., Emikönel, S., & Tekin, E. (2024). Teleradyoloji Alanındaki Bilimsel Yayınların Bibliyometrik ve İçerik Analizi ile İncelenmesi. *Izmir Democracy University Health Sciences Journal*, *7*(3), 272-286.

Yu, Y., Li, Y., Zhang, Z., Gu, Z., Zhong, H., Zha, Q., ... & Chen, E. (2020). A bibliometric analysis using VOSviewer of publications on COVID-19. *Annals of translational medicine*, *8*(13): 816.

Zhan, Z., Xu, W., Xu, L., Qi, X., Song, W., Wang, C., & Huang, Z. (2022). BIM-based green hospital building performance pre-evaluation: A case study. *Sustainability*, *14*(4), 2066.