

A Systematic Literature Review on Sustainable Restaurants: The Case of Turkey

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Abstract

The negative environmental impact of restaurants has received a lot of attention from academics in the last decade. After the entry of the Michelin Guide in Turkey, which is a developing country, sustainability as a concept in the restaurant sector started to implement activities related to becoming a sustainable restaurant in the last two years. The current literature review aims to synthesise research that addresses sustainability issues in the Turkish restaurants. The systematic literature review method was used to identify and totally 32 research articles were evaluated. The research profile which identifies the timeline of publications, journals, cities studied, methods used, and stakeholders discussed in these studies. The results showed that the research generally addressed green restaurants rather than sustainable restaurants and was conducted from 2015 onwards. The qualitative content analysis of the identified studies resulted in different subtitles: sustainability indicators, stakeholders and their roles, practices in green restaurants. For each subtitle, research gaps were summarised, and potential future research questions were suggested. Based on the results of the review, a research framework for understanding the ecosystem of the restaurant sector in Turkey was developed.

Keywords: systematic literature review, sustainable restaurant, green restaurant, Turkish restaurant sector, sustainable development of the restaurants.

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Introduction

The growth of the population and the complexity of the global economy have led to increased consumption of energy, natural resources, and food, putting pressure on the environment. However, this has also raised awareness of the impact on the planet, leading to the emergence of the concept of sustainability. The United Nations (UN) World Commission on Environment and Development defined

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sustainability in the Brundtland report of 1987 as “*transferring present resources to future generations without harming them*”. The report emphasized the need to transition to a new period of economic growth by ensuring social and environmental sustainability (UN, 1987). It is widely acknowledged that current economic growth trends may not be sustainable in the long term; therefore, to achieve sustainability (Gibson, 2006), it is necessary to develop a response based on social, environmental, and economic data. It is crucial to consider these areas collectively rather than separately, as environmental deterioration has direct social and economic consequences that affect both present and future generations (Gibson, 2013). In 2015, the UN General Assembly presented the “*Transforming Our World: 2030 for Sustainable Development*” agenda, which is based on five core values: “*people, planet, prosperity, peace, and partnership*”. The agenda includes 17 sustainable development goals (SDGs) aimed at improving our planet and extending its lifespan (UN, 2015). Within the framework of the SDGs, the agenda aims to monitor the controlled use of natural resources and promote conservation efforts. It also aims to create employment opportunities in local and rural areas while increasing the use of locally and culturally representative products.

Sustainability refers to a set of conditions that are maintained over time. Sustainable development, as defined by McConnell (2011), is the process by which a business achieves sustainability. It is an innovative approach for restaurants that can attract consumers and increase their loyalty, as well as attract tourists and travel agents (Maynard et al., 2020). Over the past few years, there have been a few studies published that provide an overview of sustainability issues in the food service and catering sector. (Takacs & Borrion, 2020; Arun et al., 2021; Apak & Gürbüz, 2022; Munir, 2022; Madanaguli et al., 2022). Takacs and Borrion (2020) focused on sustainable menu design and planning, considering the impact of catering supply chains and operations using life cycle-based approaches. Arun et al. (2021) examined green restaurants and consumer adaptation and behaviour towards them. They found that consumer perceptions of green initiatives were driven by health and environmental awareness. Madanaguli et al. (2022) examined the conversion of restaurants to green establishments and the role of stakeholders in enabling or hindering their participation. Apak and Gürbüz (2022) focused on sustainability indicators implemented by restaurants and found that environmental sustainability was the most applied, followed by social sustainability. Economic sustainability was driven by both and could be a tool for rural development. All published reviews suggest that research on sustainability in the restaurant or food service sector has become an important topic in academic circles in the last decade. This paper presents a systematic literature review of sustainable restaurant issues in Turkey. The increased awareness of sustainability in the country is largely attributed to the recognition of sustainable restaurants by the Michelin Guide in the last two years. It is important to note that this paper only focuses on Turkey as a geographical area to assess the current situation of sustainability in restaurants.

The research questions serve as a guide to identify the review and determine whether sustainable restaurants are feasible in our country with limited capital or whether they are simply idealistic and inequitable in our society. RQ1: What is the

research profile of studies related to sustainable restaurants in Turkey? RQ2. Who are the stakeholders responsible for the sustainable development of restaurants? RQ3. What are the indicators of sustainability in restaurants? RQ4. What are the activities in the restaurants to implement the sustainability practices? This study can also contribute to identify the emerging sustainability issues, challenges, knowledge gaps and opportunities for future research for the sustainable development of Turkish restaurants by identifying the questions addressed.

Literature review

Restaurants are significant establishments in the tourism and hospitality industry, despite not being directly involved in production or manufacturing. Therefore, it is important to consider the sustainability of the sources (Kızıldemir & Kaderoğlu, 2021; Apak & Gürbüz, 2022). Restaurants can play an important role in addressing global climate change and contributing to sustainable goals in line with Agenda 2030 by preparing meals using high-quality and seasonal agricultural products, improving energy and water efficiency in their operations, adopting a zero-waste philosophy, reducing unnecessary food waste, and using environmentally friendly alternatives to plastics and chemicals. It is important to acknowledge the tourism sector's dependence on natural and cultural resources and to recognize them as key stakeholders. Therefore, measures must be taken to ensure sustainability. According to the World Tourism Organization (WTO) database, 1286 million tourists travelled internationally in 2023, with 285 million in the first three months of 2024 (UNWTO, 2024). Although the COVID-19 pandemic has significantly impacted the tourism industry, rapid economic growth is still expected by 2030. The contribution of the tourism sector to sustainable development goals has become a popular research topic (Rasoolimanesh et al., 2020). It is worth noting that the contribution of food and beverage establishments in the tourism sector has also gained significance (Maynard et al., 2020; Madaganuli et al., 2022).

When formulating policies for economic, social, and environmental development plans, countries prioritize long-term development goals through determined strategies. Turkey has prepared and implemented 12 development plans since 1963, with the Turkish Grand National Assembly passing the Twelfth Development Plan in October 2023. The plan covers the years 2024-2028 and outlines its main areas of focus as a strong economy, competitive production with green and digital transformation, qualified people, strong families, healthy society, disaster-resilient life, sustainable environment, and democratic good governance based on justice. It was developed after analysing current global trends (Presidency of the Republic of Turkey, Presidency of Strategy and Budget Directorate, 2023). Tourism is a crucial economic driver in our country. The development plans have taken into account sustainable tourism in the ninth development plan, a thematic tourism approach and gastronomy tourism in the tenth development plan, and the protection-development balance in the eleventh development plan. Figure 1 provides a summary of the tourism development plans implemented to date.

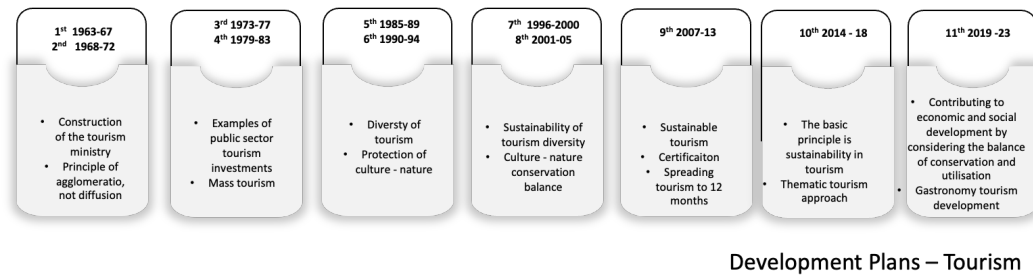


Figure 1. Turkey tourism development plans (Designated from Batuhan, 2020; Bardakoğlu 2023)

In recent decades, there has been an emphasis on the concept of sustainable tourism and efforts to implement and disseminate it. On 21.02.2023, the Ministry of Tourism and Culture launched the “Sustainable Tourism” certificate program, which is being coordinated by the Tourism Development Agency (TGA).

"Turkey is developing national sustainable tourism standards in cooperation with national and international stakeholders in order to benefit from the natural, cultural and social elements that are the supply resources of tourism by taking into account the balance of conservation and utilization and to ensure their development and global recognition without putting them at risk. The Turkish Sustainable Tourism Industry Criteria (TR-I) have been developed to ensure the sustainable growth of the Turkish tourism sector and to develop a common understanding of Turkish tourism with the participation of all tourism stakeholders. TR-I has been prepared to be applied for accommodation facilities and tour operators. In this context, TR-I incorporates globally accepted sustainable tourism criteria and criteria appropriate to Turkey's social and cultural structure." (TGA, 2023).

While there is no universally accepted definition of sustainable restaurants, the concept has gained traction due to consumers' growing desire to fulfil their social responsibility. As a result, restaurants have begun to adopt environmentally friendly practices and promote themselves as “green” or “ecological” (Apak & Gürbüz, 2022). Various non-governmental organisations (NGOs) have initiated certification or rating programmes to enhance the brand value of restaurants and promote sustainability. These programmes aim to provide objective assessments of restaurants' sustainability practices that can help consumers make informed choices. It is important to note that subjective ratings should be clearly identified as such. The ISO 14001 environmental management system is one of the oldest certification systems. It provides organisations with a framework for protecting the environment and responding to changing environmental conditions in balance with socio-economic needs. The system provides options for identifying and implementing the necessary conditions to achieve the objectives set by these organisations within their management system (ISO, 2015). ISO 14001 provides a systematic approach to environmental management, providing top management with information and options to achieve long-term success and contribute to sustainable development. In

addition to this standard, there are several non-governmental organisations that promote sustainable development in restaurants at an international level. These include the Sustainable Restaurants Association, Green Restaurants Association, Green Generation Restaurants and Sustainable Food Services (Apak & Gürbüz, 2022). In our country, online guides on the concept of sustainable restaurants have been prepared and published for the benefit of business owners (Metro, 2022).

In recent years, a collective review studies have been implemented in various contents. The extended literature indicates that the conducted reviews have generally focused on the sustainability performance generally in hospitality (Gao et al., 2016; Kim et al., 2017, 2018), cafes and restaurants (Higgins-Desbiolles et al., 2019; Rodríguez-López et al., 2020; Madanaguli et al., 2022) in different content analysis such as sustainability indicators and consumers' attitudes. This study will provide an overview of the current situation in Turkey, offering a valuable opportunity to engage in a process of conscious reflection on the topic of sustainable restaurants. It will also place the scientific progress of recent years implemented in Turkey in the wider context of the formative years through a systematic review.

Methodology

A systematic literature review (SLR) was chosen to identify and analyse the literature. This is because a comprehensive review can provide a strong foundation for advancing knowledge and accelerate the development of new theories. It can identify areas where multiple studies are taking place and highlight areas that have not yet been explored (Webster and Watson, 2002). SLR is a widely used method in the field of hospitality and tourism studies due to its reproducibility and low bias (Gomezelj Omerzel 2016; Higgins-Desbiolles et al., 2019; Madanaguli et al., 2022).

Literature reviews can present challenges in data synthesis and analysis due to the large volume of literature. If a systematic literature review is deemed necessary, it is important to establish a clear process to follow. In this study, a five-step process was planned to conduct the systematic literature review. Figure 2 is a flow diagram summarising the review process. In conducting the systematic review, three databases were selected to identify the literature: Web of Science (WOS, <https://www.webofscience.com>), Scopus (<https://www.scopus.com>) and TR index (<https://trdizin.gov.tr/>). WOS and Scopus are the two databases most widely used by researchers worldwide. TR index was also selected as it is a relatively new multidisciplinary database in both Turkish and English languages and is widely used by researchers in Turkey.

Inclusion and exclusion criteria

This review aims to include all studies that deal with sustainable restaurants in Turkey. The study analyses the real conditions of restaurants in terms of environmental, social, and economic sustainability, as well as the practices that have been implemented to achieve sustainability. It also considers the motivations of restaurant owners and managers, as well as consumer demand, in the pursuit of sustainable restaurant practices. The researcher suggests that studies related to sustainability practices in restaurants are key to the current situation in Turkey.

This review has three inclusion criteria: a) studies with affiliations from Turkey, b) studies that address three sustainability indicators (environmental, social and economic), either individually or in combination, applied to restaurants located in Turkey, and c) studies across all years covered in the searched database before 03.01.2024. Exclusion criteria were defined as follows: non-peer-reviewed literature, such as book chapters, conference proceedings, dissertations or non-peer-reviewed articles, and articles not related to restaurants outside Turkey.

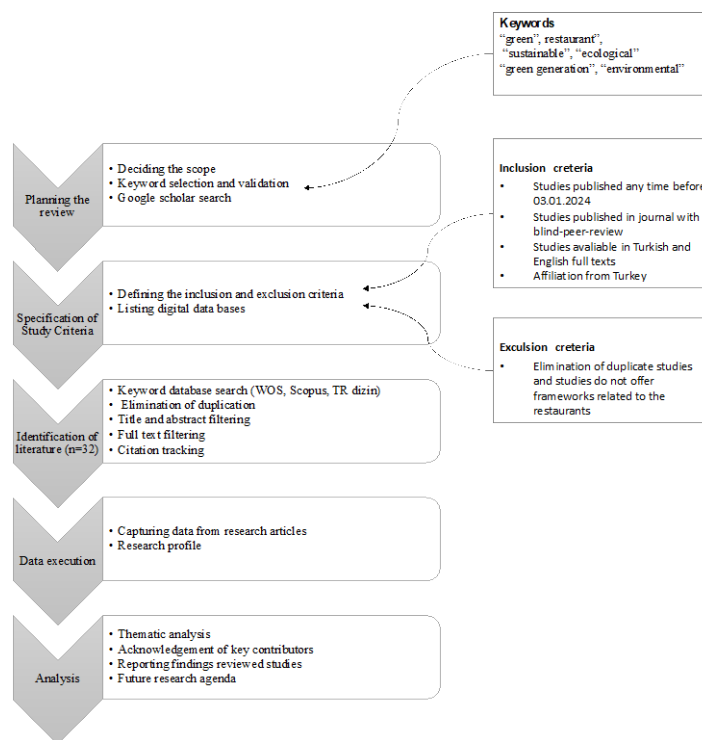


Figure 2: Systematic review flow diagram (adopted from Higgins-Desbiolles et al., 2019; Khanra et al., 2020, Madanaguli et al., 2022)

Identification of keywords and literature:

The systematic review approach involves searching the literature through a database using specific keywords (Gomezelj Omerzel, 2016). In this case, the keywords “sustainable” and “restaurant” were used in a Google Scholar search of titles, abstracts, and keywords. The relevant research results from Google Scholar were investigated. The review focused exclusively on sustainable restaurants in Turkey, disregarding keywords such as “hospitality”, “tourism”, “food”, and “gastronomy”. The final list of keywords included “green”, “restaurant”, “sustainable”, “green generation”, “ecological”, and “environmental”.

A literature search was conducted in the research databases WOS, Scopus and TR Index after the keywords were selected. The search yielded 1665 studies from WOS, 1470 studies from Scopus, and 45 studies from the TR Index database. We limited the results to studies with affiliations from Turkey. We listed 20 studies from Scopus and 18 studies from WOS. A total of 83 articles were identified for further review of their abstracts and titles. After eliminating duplicates and studies not related to the main theme, which was strictly limited to sustainability practices in restaurants located in Turkey, 30 studies remained. The full text of each paper was reviewed, and studies not focused on restaurants were eliminated. Manual forward and reverse citation tracking were then performed to ensure that no research studies were missed. 2 more studies were found.

Results and discussion

The findings were organised into four research variables to facilitate an exploration of how the subject of sustainable restaurants has been studied, understood, and developed over the years in Turkey according to the subject area, research methods used, geographical focus and sustainability indicators (Higgins-Desbiolles et al., 2019). The main objective the overview of the selected studies was to implement a descriptive analysis that focus on the defined content analysis in the field of the restaurant sector that addresses the sustainability. With the descriptive analysis growing contributions on this topic through the years is highlighted.

The results were summarized with content analysis in Table 1 providing the following characteristics of each study: 1) author(s) and year published, 2) research design including subject theme, geographical studying area, method, and research perspective 3) sustainability indicators (environmental, social, and economic).

Table 1: Literature addressing the sustainability in restaurants located in Turkey. (Higgins-Desbiolles et al., 2019)

Author(s)	Year	Subject Theme	Study Area	Research Method	Research Perspective	Sustainability Indicator
Sünnetçioğlu & Yılmaz	2015	Sustainable Restaurants	Izmir	Qualitative methods Interview	Restaurants (n=15) Managers (n=11) Owner (n=4)	Environmental Social
Dogan, Nebioglu & Demirag	2015	Green practices, Restaurants	Antalya	Quantitative methods Descriptive statistics t-test	Restaurant managers (n=98)	Environmental
Özer & Akbaba	2016	Social responsibility, Brand, Chain restaurants	İstanbul	Quantitative methods Survey ANOVA	Customer (n=400)	Social
Aydın & Erdoğan	2016	Corporate social responsibility, Consumer loyalty, Restaurant	Eskişehir	Quantitative methods Survey Factor analysis	Customer (n=499)	Social
Çetinoğlu, Mesci & Mesci	2017	Sustainable Tourism, Green generation restaurant	Akcakoca	Case analysis	Restaurant (n=1)	Environmental

Kurnaz & Özdoğan	2017	Green restaurants, Service quality	İstanbul	Quantitative methods Survey GRSERV model	Customer (n=390)	Environmental
Tüver & Güzel	2017	Green generation, Green restaurant	İstanbul	Qualitative methods Content analysis	Customer (n=150)	Environmental
Temizkan, Temizkan & Sever	2017	Green kitchen, Green kitchen quality	Bursa	Quantitative methods Survey ANOVA	Restaurant (n=21) Customer (n=386)	Environmental
Yazıcıoğlu, Özata & Yarış	2018	Green restaurants	Ankara	Qualitative methods Interview	Restaurant (n=30)	Environmental
Yazıcıoğlu & Aydın	2018	Green restaurants, Green practices	İstanbul	Qualitative methods Interview	Restaurant (n=12)	Environmental
Kurnaz & Özdoğan	2018	Green restaurants, Green practices	İstanbul	Qualitative methods Interview	Restaurant (n=8)	Environmental
Cankül	2019	Green restaurants	Eskişehir	Quantitative methods Descriptive statistics	Restaurant (n=21)	Environmental
Özkoç, Arslan, Kendir & Erdoğan	2019	Green kitchen; G- Kitchqual	Nevşehir	Quantitative methods Survey Descriptive statistics	Restaurant (n=49) Customer (n=414)	Environmental
Büyükşalvarcı and Çınarlı	2019	Green practices, Green restaurants	Konya	Qualitative methods Case study design	Restaurant (n=6) Manager /owner	Environmental

Şahingöz & Güleç	2019	Sustainability, Green restaurants	İstanbul	Qualitative methods Case study design	Restaurant (n=1)	Environmental
Pekküçükşen & Yiğit	2019	Green generation restaurant movement, sustainable development	İstanbul	Qualitative methods Case study design	Restaurant (n=3)	Environmental
İpar, Babaç & Kök	2020	Green generation restaurant	İstanbul	Qualitative methods Content analysis	Restaurant (n=6) Customer comments	Environmental
Taş & Olum	2020	Green restaurants			Conceptual	Environmental
Ozturk & Akoglu	2020	Restaurant	İzmir	Quantitative methods Descriptive statistics	Employee (n=25)	Environmental
Gunden, Atis, & Salali	2020	consumer perception, consumer segmentation, environmentally friendly consumption	İzmir	Quantitative methods Survey Factor analysis	Customer (n=385)	Environmental Social
Kızılcık & Akyürek	2021	Green restaurants, Customers,	Turkey	Qualitative methods Content analysis	Customer (n=150)	Environmental

Kızıldemir & Kaderoğlu	2021	Menu design, Sustainability			Conceptual	Environmental
Güleç & Ünlüönen	2022	Green restaurants	Ankara	Qualitative methods Case study design	Kitchen manager (n=14)	Environmental
Hilaloğulları, Akdağ & Üzülmöz	2022	Green generation restaurant	İstanbul	Quantitative methods Survey Factor analysis	Customer (n=376)	Environmental Social
Yarış & Yazıcıoğlu	2022	Restaurant managers, Eco-friendly practice	Ankara - İstanbul	Quantitative methods Survey Factor analysis	Restaurant managers (n=399)	Social
Çalhan	2022	Green innovation, sustainable innovation			Conceptual	Environmental
Akay & Yılmaz	2023	Sustainable restaurant, Sustainability practices, Chain Food and Beverage Businesses	İstanbul	Qualitative methods Content analysis	Restaurant manager (n=10)	Environmental

Oğuz &Sever	2023	Green Cuisine Preference Intention	Turkey	Quantitative methods Survey Structural equation modeling	Customer (n=446)	Environmental Social
Keşkekci & Gencer	2023	Sustainability, Green Restaurant	Review		Conceptual	Environmental
Çokadar & Işık	2023	Green kitchen, Food and beverage businesses	Gaziantep	Quantitative methods Survey Factor analysis	Employee (n=205)	Environmental
Eren & Uslu & Aydın	2023	Green Restaurant; perceived service quality; GRSERV; green restaurant image	İstanbul	Quantitative methods Survey Factor analysis	Customer (n=356)	Environmental

Research profile

The review was conducted to evaluate the sustainability studies addressing the restaurants located in Turkey in Turkish and English languages. The resulted literatures indicated that the sustainable restaurants studies were mainly published in *Journal of Tourism and Gastronomy Studies* with 6 searches. Mostly the studies were published in tourism and social sciences journals in TR indexes. The journals where the studies were published are presented in Figure 3.

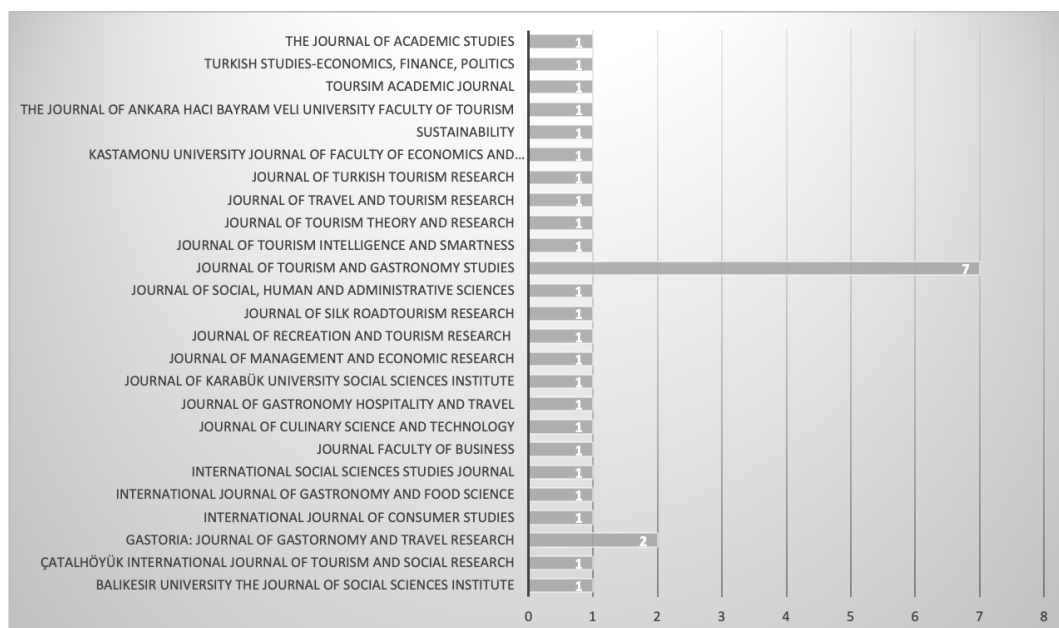


Figure 3. The journals containing the articles in sustainability of restaurants located in Turkey.

Source: Author’s calculations

Totally 61 authors contributed to the 32 studies with some of them were represented more than two or more studies. The literature review results indicate that research on sustainable restaurants began in 2015, a year after the Green Generation Restaurant movement started. Figure 4 shows the distribution chart of studies conducted up to the date of the systematic literature review.

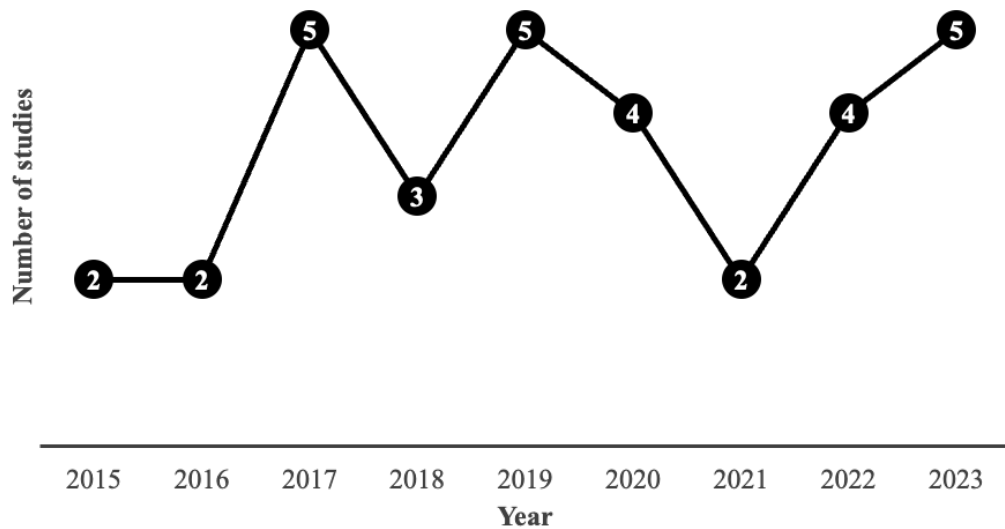


Figure 4: Publications across the years.

Source: Author's calculations

The studies were classified and investigated based on the methods, research perspectives, geographical location, and sustainability indicators used. Environmental sustainability (n=28, 87.5%) was the most studied dimension, followed by social responsibility (n=3; 9.4%). Few studies examined both environmental and social sustainability indicators together. The aim of the study was to identify restaurants located within the borders of Turkey, without taking into account any potential affiliation between the researchers and the restaurant's location. The evaluation revealed that Istanbul (38%) was the most commonly studied location in Turkey, followed by Ankara and Izmir (10%), Eskişehir (7%). The remaining study areas were Gaziantep, Alanya, Konya, Bursa, Mersin, and Akçakoca (Figure 5). The review shows that the study area covered the larger cities in Turkey. Furthermore, as green generation restaurants have emerged in Istanbul, most of the studies on green restaurants were conducted in Istanbul.



Figure 5: The geographical places that the publications studied. (Created by author)

Research methods categories adapted from Higgins-Desbiolles (2019) includes quantitative, qualitative or both used in the papers were studied. It is observed that both the qualitative (n=13, 40.6%) and quantitative methods (n=14, 43.8%) were used in the studies. The qualitative methods including mostly interviews (61.5%) and case studies (38.5%). Quantitative methods applying surveys with factor analysis (58 %) and the remaining studies included descriptive statistic results. The section titled “Research Perspective” refers to the data collected from three categories: restaurant managers/owners, employees, and consumers. The review shows that the majority of the data was obtained from restaurant owners/managers (40.6%), followed by consumers (37.5%) and employees (6.3%).

Sustainability indicators

Since the publication of the Brundtland Report, the food and beverage sector has made efforts to promote sustainability. Sustainability is a process that involves the use of natural, social, cultural, and scientific resources while preserving them for future generations (Ozturk & Akoğlu, 2020). This concept has been adapted to various disciplines to reflect the intersection of three dimensions: economic, ecological, and social (Higgins-Desbiolles et al., 2019). In the context of the tourism and hospitality sector, the dimensions are often represented as intersecting with the three dimensions of the economy, ecology, and society. For sustainable development, there is a strong correlation between the environmental resource consumption habits of consumers (Mowforth & Munt 2016; Streimikiene et al., 2021).

The literature does not offer a widely accepted definition of a sustainable restaurant (Higgins-Desbiolles et al., 2019; Apak & Gürbüz, 2022). However, Lorenzini (1994) defined a green restaurant as an environmentally friendly

establishment that operates with the aim of reducing its impact on the environment. The SLR revealed that the food and beverage sector in Turkey, the restaurants prefer to use the term “green restaurant” instead of “sustainable restaurant” to reflect their sustainability practices. The restaurant industry has adopted audits and certifications, primarily focused on environmental sustainability, due to the long-standing history of the green restaurant definition (Pekküçükşen & Yiğit, 2019; Hilaloğulları et al., 2022). Non-governmental organizations in various countries have begun implementing sustainable practices in restaurants other than the quality systems. In the USA, the Green Restaurant Association (GRA) was established in 1990 and is the oldest certification program for restaurants. Similarly, certification programs for restaurants have been implemented by the Green Table Network (GTN) in Canada, the Sustainable Restaurant Association (SRA) in the UK, and Green Table Australia (GTA) (Kurnaz & Özdoğan, 2017; Akdağ, & Şimşek, 2019; Keşkekci & Gencer, 2023). The studies indicate that the ISO 14000 International Environmental Quality system and the Hazard Analysis and Critical Control Point system (HACCP) are the two most recognized certification systems in the restaurant sector in Turkey (Özkoç et al., 2019; Güleç & Ünlüönen, 2022). However, it should be noted that these standards cannot be generalized solely to the food and beverage sector, even though they can be used to develop environmentally friendly companies in any type of sector (Maynard et al. 2020). One notable topic among the studies was the “The Green Generation Restaurant” movement. This project aims to reduce waste in the food and beverage sector by promoting conscious consumption and recycling. It was initiated by WWF-Turkey and Boğaziçi University in cooperation with Tourism Restaurant Investors and Gastronomy Enterprises Association (TURYID) and Beşiktaş Municipality. In 2014, two member restaurants were chosen as pilot studies for the implementation of the certificate program (Hilaloğulları et al., 2022).

The “Green Generation Restaurant” movement is a project that emerged and was implemented by environmentally conscious individuals with the aim of reducing waste and carbon footprint, without commercial concern. (Pekküçükşen & Yiğit, 2019). The spread of green restaurant practices is largely due to environmentally conscious business managers and customers. For this reason, food and beverage businesses should priorities environmental awareness and carry out green practices with internal motivation, fulfilling their responsibility to give back to nature what they have taken, rather than solely for legal compliance, commercial gain, or to improve their business image (Kurnaz & Özdoğan, 2018). Operators must maintain their commitment to the environment regardless of economic conditions or legal loopholes (Şahingöz & Güleç, 2019). The importance of social responsibility and environmental protection should not be limited to periods of economic growth.

The certification program for environmental sustainability was established with a total of 95 criteria covering energy and water efficiency, waste management, chemical usage, sustainable food, sustainable interior design elements, education, and communication (Tüver & Güzel, 2017; Akdağ & Şimşek, 2017; Şahingöz & Güleç, 2019; İpar, Babaç & Kök, 2020; Hilaloğulları, Akdağ & Üzülmöz, 2022).

However, the certification program was short-lived due to the lack of interest from restaurants. In three years, only in total 12 restaurants were certified (Yazıcıoğlu & Aydın, 2018, Pekküçükşen & Yiğit, 2019).

The investment that companies make in the training and development of their employees is seen as socially responsible behaviour and social responsibility innovation. In addition, as consumers' awareness of social responsibility has grown, so has their understanding of consumption and consumers expect companies to be socially responsible in their production and operations and to be sensitive to social issues (Özer & Akbaba, 2016). It is therefore important to meet customer needs and ensure satisfaction. Corporate social responsibility refers to businesses creating social added value as a result of their social and environmental concerns, adopting innovative practices that take social and environmental factors into account in their business operations, and voluntarily interacting with their stakeholders (Cankül, 2019). As a result of the research, restaurants working with animal shelters to dispose of leftover food and ingredients emerged as the most implemented social responsibility initiative (Çetinoğlu, Mesci & Mesci, 2017; Güleç & Ünlüönen, 2022, Akay & Yılmaz, 2023). According to the literature review, to achieve the green restaurant concept and become sustainable, the training of employees is generally implemented by the restaurants as long as the tools such as notes on the menu, napkins or designed posters are used to create awareness and knowledge among the customers (Güleç & Ünlüönen, 2022).

Key stakeholders and their roles

Freeman (1984) examines an organisation from both a production and a management perspective to identify stakeholders who are affected by the organisation's success. These stakeholders can be classified as either internal or external and have an interest in the organisation (Madanaguli et al., 2022). The review of the relevant literature on sustainability in Turkish restaurants revealed that there are five key stakeholders that drive or implement the sustainability practices in the restaurants. The owner or manager with the employees of the restaurants are the internal stakeholders while the customers or consumers, policy makers, NGOs and researchers are the external stakeholders.

Internal stakeholders: managers, employees

The systematic literature review revealed that early research on sustainability and sustainable development in the restaurant industry primarily focused on the perspectives of restaurant owners or managers. The researchers were already aware of the crucial role played by restaurant managers as decision-makers or entrepreneurs in the success of the restaurant. The development and implementation of innovations in restaurant businesses, as well as the creation of value judgments on customers, depend on the decisions made by restaurant managers (Cankül, 2019, Yarış & Yazıcıoğlu, 2022). The concept of sustainability in the restaurant industry generally emphasizes longevity, highlighting the

importance of remaining in the market for an extended period (Sünnetçioğlu and Yılmaz, 2015). During the interview, researchers observed that restaurant managers in the İzmir district lacked knowledge about sustainability practices. After learning about sustainability practices and NGOs in other countries that focus on the sustainability of the food and beverage industry, the managers agreed to initiate sustainable entrepreneurship by expressing their desire to participate in government-supported certifications. A comparison study between restaurant managers in Roma and Alanya districts highlights that Turkish restaurant managers prioritize green practices in the following order: selective collection of solid residues, reducing environmentally harmful products, water, and energy efficiency, and educating restaurant employees on environmental policies and practices (Doğan, Nebioğlu & Demirağ, 2015). Restaurant managers have revealed that the concept of sustainability in the food and beverage sector is still new to customers and has not yet received much attention from managers (Yazıcıoğlu, Özata & Yarış, 2018; Yarış & Yazıcıoğlu, 2022). Managers who decide to establish a green restaurant are perceived to take financial risks and make an environmentally friendly business. This is considered a good investment for the future, which will gain customer recognition and have a long life in the sector (Çetinoğlu, Mesci & Mesci, 2017). Restaurant managers must consider the company's resources and prioritize the implementation of green practices to maximize customer satisfaction. Objective research has shown that customers respond positively to environmentally friendly practices. When developing a green image, it is important to consider green practices with environmental dimensions (Eren, Uslu & Aydın, 2023).

Based on the literature reviewed, it is important for restaurant employees to be aware and qualified in terms of attracting customers' attention with quality, stability in environmentally oriented production and green practices. There is a fact that restaurant employees are in direct contact with customers means that they are responsible to them (Cankül, 2019). It is believed that providing employees with short-term training on specific days will help them to listen attentively and without distraction (Akdağ & Şimşek, 2019). On the other hand, one of the findings of the research was that due to the high staff turnover in restaurants, it was very difficult to ensure continuity and the sustainability of staff training (Çetinoğlu, Mesci & Mesci, 2017).

It has also been found that the kitchen staff's evaluation of green kitchen practices is very positive and that there are differences according to age, education, and work experience variables (Çokadar & Işık, 2023). Culinary staff's perspective on local food in the context of food and beverage companies' sustainable food perceptions showed a tendency to use local food in the restaurant menu. Culinary staff were well aware of the customer demand for fresh, seasonal and high-quality food in the restaurant selection (Ozturk & Akoglu, 2020). Özkoç et al. (2019) found that sustainable food is supported by managers in his research in Nevşehir hotel restaurants. Local products have an important place in green hotel restaurants within the framework of sustainable food, and all kitchen managers also stated that they support the supply of local products along with energy and water efficiency in their operations (Güleç & Ünlüönen, 2022). In addition to the fact that the main

reasons for kitchen managers to adopt sustainability principles are food sustainability and economic concerns, the proposition of creating brand perception was also a notable point. In addition to the fact that there is no legal obligation in the area of sustainability in our country, the adoption of sustainability by the brands of food and beverage chains that serve in different locations and appeal to a wide audience seems to be an important factor in raising awareness and attracting attention (Akay & Yılmaz, 2023).

External stakeholders: customers, government and policy, NGOs and researchers

The literature review revealed that customers, policymakers, researchers, and NGOs as a partner organization were the four different types of the external stakeholders. The customers' interests in the healthy food and environment increased the demand towards environmentally sensitive services (Kurnaz & Özdoğan, 2017). The study also indicated that the consumer segmentation based on the food-related behaviours could be divided into two classes as positive and negative perceivers of green values (Gunden, Atis & Salali, 2019). Kurnaz and Özdoğan's (2018) study found that restaurant managers reported a lack of customers knowledge regarding sustainability practices, despite serving a diverse range of customers including elite, middle and senior managers, plaza employees, students, and white-collar workers which is along with the findings by Çetinoğlu, Mesci and Mesci (2017).

Tüver and Güzel (2017) analysed customer satisfaction with green restaurants based on comments posted on TripAdvisor. The attributes commented on in the green restaurants were food, atmosphere, place, staff, service quality, and price, rather than ecological elements, reflecting the focus of these restaurants on customer experience rather than environmental sustainability. İpar et al. (2020) conducted a similar study to investigate consumer awareness of environmentally friendly restaurants based on comments posted on the TripAdvisor website. The study revealed that consumers did not use the term “green restaurant”, but instead focused on aspects such as service quality, interior design, food safety, menu content and taste, and price. Lighting was mentioned as an interior design element, but its energy efficiency was not considered.

The food and beverage sector has prioritized environmentally focused production due to growing consumer concern and awareness about environmental pollution. It has been observed that customers tend to favor environmentally friendly restaurants (Özer & Akbaba, 2016; Akdağ & Şimşek, 2019, Oğuz & Sever, 2023). The research discovered that customer satisfaction has a positive and significant impact on behavioral intention. A contented customer at green restaurants is more likely to return, speak positively about the restaurant, and recommend it (Hilaloğulları, Akdağ & Üzülmez, 2022, Eren, Uslu & Aydın, 2023).

The studies reviewed showed that there was no government-sponsored policy specific to the restaurant sector. Therefore, the studies indicated that there

must be a policy published by the government and it must be mandatory in the restaurant sector. So that the restaurants would be more interested in becoming a sustainable restaurant (Şahingöz & Güleç, 2019). It has been also suggested to the policy makers to encourage green kitchen practices and increase the technical and theoretical knowledge of kitchen staff about green kitchens through training (Çokadar & Işık, 2023).

The researchers focusing on the measurement of green practices developed measurement models to determine the relationship between customers and green restaurants, focusing on either kitchen practices (Temizkan, Temizkan & Sever, 2017) or service quality (Kurnaz & Özdoğan, 2017; Özkoç et al., 2019). Conceptual articles on the innovative actions and practices of the green restaurant concept have also been featured in the literature (Cankül, 2019; Pekküçükşen & Yiğit, 2019; Taş & Olum, 2020; Kızıldemir & Kaderoğlu, 2021; Çalhan, 2022; Keşkekci & Gençer, 2023).

Practices in green restaurants

Restaurants that take initiatives in the field of sustainability have generally been evaluated under the title of “Green Restaurants” in our country. The physical attractiveness, menu diversity, appearance and atmosphere of green restaurants are defined as the characteristics that distinguish them from other restaurants with the aim of becoming a pioneer in the field and becoming an international chain (Kurnaz & Özdoğan, 2018). Therefore, the restaurants initiate the sustainability practices in different areas, which are classified under the titles of 1) waste management, 2) use of renewable energy sources, 3) use of water and energy; 4) sustainable building and interior design, 5) sustainable furniture, 6) environmentally friendly chemical use, 7) sustainable food, 8) education and communication (Doğan, Nebioğlu & Demirağ, 2015; Çetinoğlu, Mesci & Mesci, 2017; Büyükşalvarcı & Çınarlı, 2019; Şahingöz & Güleç, 2019; Özkoç et al., 2019). Studies conducted on certified green restaurants showed that those who lacked sufficient information about the financial benefits of green practices, such as reduced energy, water, and waste costs, avoided investing in them due to a focus on revenue, costs and profit. Restaurant owners and managers considered increasing menu prices after implementing these practices due to concerns about rising costs, and they also believed that customers would not be willing to pay more for the green restaurants (Yazıcıoğlu & Aydın, 2018). Kurnaz and Özdoğan (2017) stated in their study that customers most value environmentally friendly materials used in restaurant menus, quality ventilation, reliable food service, responsive green restaurant employees who can answer questions about sustainable food and beverages, and services that support environmental protection.

In studies conducted in Turkey, energy and water conservation, waste management and sustainable food issues stood out as the most researched topics (Temizkan, Temizkan & Sever, 2017; Özkoç et al., 2019, Kansu & Gencer; 2023). Although there were not many studies on interior design-based elements such as sustainable construction and furniture, it was found that restaurants were reluctant

to invest too much as they usually operated in rented buildings (Kurnaz & Özdoğan, 2018). Therefore, in this systematic literature review, energy, water, food, and waste were examined in more detail and discussed under the subtitles.

Energy and water efficiency

Studies have shown that restaurants consume approximately three (Sünnetçioğlu & Yılmaz, 2015) to five times (Yazıcıoğlu & Aydın, 2018) more energy than a commercial building of similar size. Therefore, it is important to ensure the sustainability of resources in order to protect the environment through the efficient use of resources (Taş & Olum, 2020). The efficiency of energy use has been classified and analysed under the titles of lighting, heating and cooling (Yazıcıoğlu, Özata & Yarış, 2018, Akay & Yılmaz, 2023) and renewable energy sources (Kurnaz & Özdoğan, 2018). In restaurants, most of the energy is used for heating and cooling activities. Due to the strong and pungent odours emitted from restaurant kitchen activities, there was a constant need for fresh air and direct heat in restaurants (Çalhan, 2022). In order to reduce the energy consumption of restaurant lighting, energy savings are achieved by switching to mercury-free lighting, which emits less greenhouse gases and has a long lifespan. Restaurants mainly preferred to use solar energy systems as a renewable energy source for energy management and cost reduction (Kurnaz & Özdoğan, 2018).

Çalhan (2022) stated in his study that water use in restaurants should be considered in three different areas, namely landscaping, kitchen and toilet. He stated that underground and above-ground rainwater harvesting systems can be installed in restaurant gardens and can be used for general cleaning, toilet tanks and garden irrigation. To achieve green restaurant management, the restaurants addressed different types of solutions for efficient use of energy and water and these solutions are summarised in Table 2.

Table 2: Studies addressing different types of the sustainable energy and water efficiency practices in the restaurants.

		Practices	References
Energy	Lightening	Luminaries, saving bulbs, sensor lighting	Çetinoğlu, Mesci & Mesci, 2017; Yazıcıoğlu, Özata & Yarış; 2018; Kurnaz & Özdoğan, 2018; Cankül, 2019; Çalhan, 2022, Akay & Yılmaz, 2023.
	Heating – cooling	Thermally insulated exterior, fans on the ceiling; the use of double glass and air curtain, eco-labelled equipment	Yazıcıoğlu, Özata & Yarış; 2018, Çokadar & Işık, 2023.

	Renewable or alternative energy sources	Solar energy, wind energy, geothermal energy	Çetinoğlu, Mesci & Mesci, 2017; Kurnaz & Özdoğan, 2018, Çalhan, 2022, Çokadar & Işık, 2023.
	Water	Graywater, sensor faucet, aerator, economical water valve, serving filtrated water in a jar	Yazcioğlu, Özata & Yarış; 2018; Kurnaz & Özdoğan, 2018; Şahingöz & Güleç, 2019; Çokadar & Işık, 2023.

Source: Author's summary

Waste management

Waste management in restaurants has a very broad scope due to the kitchen operations. Kitchen operations include both food and non-food waste such as food packaging, utensils or paper. Although waste management enables waste to be disposed of in an environmentally sound manner, it is an approach and practice that maximizes social and economic benefits. It is also necessary to consider the use of water and energy sources - electricity, methane or natural gas - that result in gas emissions (Çokadar & Işık, 2023). Therefore, waste management is also related to the issues of energy and water efficiency in sustainable development. In waste management, recycling, reuse or reducing are the main operational key elements to create new investments which also indicated the circular economy in the sustainability development for the business (Gonçalves & Maximo, 2023). As can be seen from the studies, restaurants have a monitoring and inspection organisation regarding the classification of the waste generated in their operations and the stages in which it is generated (Sünnetçioğlu & Yılmaz, 2015; Güleç & Ünlüönen, 2022). Although it was found that the authorised institutions do not provide much support in this regard (Büyükalvarcı & Çınarlı, 2019), it was observed that they separate the food, paper and packaging waste generated in restaurants, collect them for recycling and send them to the relevant institutions to successfully recycle paper and used oil waste (Çetinoğlu, Mesci & Mesci, 2017). In general, there was a preference for recycled products over disposable ones, and various solutions were applied to non-food products, from cutting glass bottles to making water glasses (Şahingöz & Güleç, 2019; Akay & Yılmaz, 2023).

Food-related waste is classified as pre-kitchen, where raw materials are procured, in-kitchen, which is generated by kitchen staff, and post-kitchen, which is mainly generated by customer preferences and attributes (Madanaguli et. al, 2022). The studies addressed the food-related waste management practices were summarised in Table 3.

Table 3: Studies addressing different types of the food related waste management practices in the restaurants.

Food waste generation types	Solutions	References
Pre–kitchen	Supplier chain in local region Employee training	Yazıcıoğlu & Aydın, 2018; Güleç & Ünlüöner, 2022; Akay & Yılmaz, 2023; Kansu & Gencer, 2023
In – kitchen	Composting Arranging the portion size	Sünnetçioğlu & Yılmaz, 2015; Kurnaz & Özdoğan, 2018; Pekküçükşen & Yiğit, 2019; Taş & Olum; 2020, Akay & Yılmaz, 2023
Post – kitchen	Offering smaller size in menu Selective garniture Packaging for the leftovers	Çetinoğlu, Mesci & Mesci, 2017; Yazıcıoğlu, Özata & Yarış; 2018 Şahingöz & Güleç, 2019, Pekküçükşen & Yiğit, 2019

Source: Author’s summary

Sustainable food

The concept of sustainable food is broad and involves many stakeholders, including production, processing, and supply. In addition to the lack of natural resources, the inequitable distribution of food and the causes of food waste, lack of access to healthy food also contributes to the problem of a growing obese population. The most important tool for restaurants to express their sustainable food credentials and build relationships with their customers is the restaurant menu. Menus that feature fresh, seasonal, local, or locally sourced products are at the heart of sustainable food reporting (Çetinoğlu, Mesci & Mesci; 2017; Kurnaz & Özdoğan, 2018; Büyükşalvarcı & Çınarlı, 2019; Kızıldemir & Kaderoğlu, 2021). Ozturk & Akoğlu (2020), in their study, indicated that the continuity of the local products could not be achieved due to the customers' intention towards fast food and world cuisine culture instead of Turkish cuisine. The studies also indicated that the restaurants preferred to be supplied by the companies that provide a certificate related to harvesting and processing (Yazıcıoğlu, Özata & Yarış, 2018) along with the fair agricultural production system (Aydın & Erdoğan, 2016).

Measures adapted by the researchers.

Based on the green kitchen practices, measurement models were developed to analyse the different restaurant operations to evaluate the relationship between customers and restaurants' green initiatives. Temizkan, Temizkan & Sever (2017) focused on the green kitchen quality in terms of customer expectations, quality and service quality concepts. Özkoç et al. (2019) evaluated the G-kitchen quality (G-KITCHQUAL) measurements in terms of energy and water efficiency, waste management, chemical use, sustainable food, and interior design dimensions that constitute the green kitchen practices in restaurants. Kurnaz ve Özdoğan (2017) measured the service quality of green restaurants using the GRSERV model adapted from DINESERV, and Eren, Uslu & Aydın (2023) directly used the GRSERV

model with the tangible interior design elements, energy efficient equipment, environmentally oriented services, food quality, reliability, assurance, responsiveness, and empathy towards customers.

Study implications

The literature review on sustainable restaurants in Turkey has revealed several academic implications. Systematic literature reviews have been conducted on green restaurants (Apak & Gürbüz, 2019; Arun et al., 2021; Madanaguli et al., 2022) as well as on the hospitality sector (Kim et al., 2017; Higgins-Desbiolles, et al., 2019, Oliveras-Villanueva, Lach & Perramon, 2020) and the food and beverage sector (Maynard et al., 2020; Takacs & Borrion, 2020, Carletto et al., 2023) in global research. This is the first study to focus on research on sustainable restaurants in Turkey. The research profile analysis showed the stage of sustainability practices and evaluated the growth of the intention to become a sustainable restaurant. Based on this evaluation, research gaps and future research directions were identified to call for more attention to the sustainability development of restaurants from different perspectives.

Table 4: Research gaps and questions for themes in sustainable development studies in Turkish restaurants.

Themes	Gaps	Possible research questions
Role of stakeholders	<p>The role of the internal stakeholders (employees, chefs, servers) facilitating has not been addressed.</p> <p>The role of social entrepreneurships and suppliers are lacking.</p> <p>The lack of policies on sustainable restaurants has not been addressed adequately. The role of policy and government in supporting and generating the sustainable restaurant policy should be emphasized.</p>	<p>What is the role of the employees in sustainable restaurant practices? What is the correlation between customers' demographic characteristics and sustainable restaurant attributes? What are the effects of stakeholders' demographic characteristics for the sustainable restaurant development? What is the role of social entrepreneurships in the sustainable development of the restaurants? What is the role of the suppliers in the sustainable development of the restaurants? How can policymakers solely help to restaurants for sustainable development?</p>
Sustainability indicators	<p>The social and economic sustainability indicators have not been addressed.</p> <p>The role of the restaurant types has not been addressed.</p>	<p>What are the social and economic sustainable indicators in the restaurants?</p> <p>What are practices in the social and economic sustainability in the restaurants?</p> <p>How the sustainability indicators change according to the restaurant types?</p>
Green measures	<p>The role of consumers consists of lack of scales and measures.</p> <p>The scale for the different types of the restaurants</p>	<p>What are the scales of the consumers attributes or intention other than the green practices in the sustainable restaurants?</p>

	The quantitative statistical analysis has not been performed in a large number.	What are the scales of different types of the restaurant? What are the quantitative statistical methods and their scales to be implemented?
Outcomes	The outcomes of the sustainable development have not been studied.	What is the gaining or profits from the sustainable development? What are the control points or indicator elements to be measured? How the measurement or control points can be measured? What are the limits to define a practice that is adequate for the sustainable restaurant? How the measurements can be integrated into a policy?

Source: Author's summary

Another outcome is the definition and role of stakeholders in sustainable restaurant development. The study highlights the importance of restaurant managers in decision making and strategy setting, as well as their impact on employees and customers. However, it notes a lack of research on employees' understanding of sustainability and the importance of their behaviour in customer relations. The article highlights the lack of policies that focus solely on restaurants and the need to identify measurement elements. Also, the sustainable development of the restaurant only focuses on the green practices and have not considered the social and economic sustainability in the restaurant sector. The research framework for sustainable restaurants in Turkey is summarised in Figure 6 based on the findings. This summary can be useful for academic researchers and policy makers who focus on sustainability practices in restaurants.

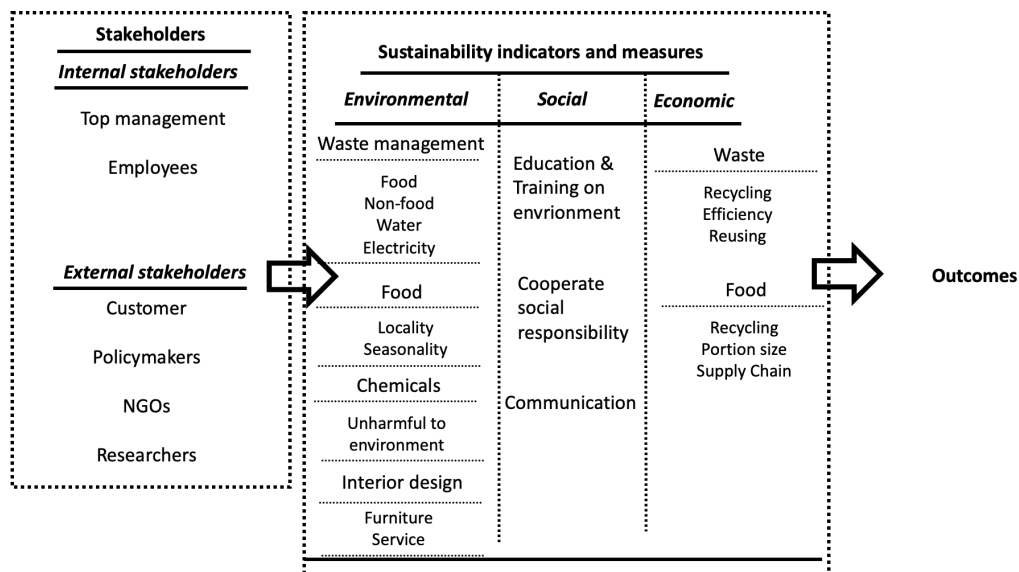


Figure 6. Sustainable restaurant research framework in Turkey. (Designated by author)

Limitations of the review and conclusion

Based on the preliminary research, this study is the first review of the sustainable restaurant located in Turkey. In order to ensure the reliability and validity of the review, the non-peer-reviewed literature was not included in the literature review. Furthermore, both Turkish and English written language were included in the study to avoid misinterpretation. Secondly, the literature review was carefully conducted to avoid the personal bias of the researcher, but there is still a possibility that it could intrude into the analysis. Finally, since the researcher's intention was to follow the understanding of sustainable restaurants in Turkey, he focused on understanding which sustainability indicators were taken into account, defining the stakeholders and their role in transforming into a sustainable restaurant, what activities were carried out in transforming the restaurants into sustainable development and how the measurements were made.

This study presents a summary and response to the research questions identified in the literature review on sustainable restaurants in Turkey. The objective of RQ1 was to define the research profile of the published studies in response to a number of variables, including year, method, theme, geographical areas, and authors. The review demonstrated that the majority of studies on sustainable restaurants have been published in recent years, with the majority of these appearing in a few journals. Furthermore, the research profile also indicated that sustainability practices are generally applied in larger cities under the banner of the green restaurant movement. This indicates that restaurants in these cities are aware of global developments and innovations and are willing to adopt them. RQ2 identified the primary stakeholders responsible for the sustainable development of restaurants, categorising them as internal and external stakeholders. The findings indicate that restaurant owners and managers are willing to implement sustainability practices in their businesses in order to support the sustainability of the earth as a planet. The findings also indicated that studies examining consumer attitudes towards sustainability in different indicators have limited impact, whereas the service quality has received greater attention among researchers. RQ3 was concerned with the nature of the sustainability indicators, which were categorised as economic, environmental, and social. Furthermore, the study aimed to identify the specific aspects of the studies that were conducted on these indicators. The findings indicated that the majority of restaurants are primarily concerned with environmental sustainability, which also indirectly contributes to economic sustainability. A paucity of studies addresses the social sustainability of restaurants, particularly in relation to their customers and employees. Finally, RQ4 sought to define the activities that restaurants undertake to sustain their sustainability in different aspects. The results demonstrated a similar outcome to that of RQ3, which was elucidated under the following headings: energy and water efficiency, waste management and food. Based on the overall findings, the gaps and the questions for the researcher who might conduct future studies were also summarised. The review also included a research framework created from the existing literature, as well as a discussion of the stakeholders in both internal and external sustainability indicators and practices done to ensure becoming a green restaurant.

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