

MAP OF FOOD DESERT AND FOOD SWAMPS FOR TOURISTS

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Abstract: Food and beverage options play a critical role in shaping the experiences of tourists. When visiting a destination, tourists utilize both establishments catering specifically to travelers and those serving local residents for their food and beverage needs. Food desert and food swamp maps can serve as valuable tools to improve travel planning and visitor satisfaction by providing insight into the availability and quality of food options in a given area. For this reason, in this study, the locations of food businesses in Eskişehir city center and the attributes of the products they sell were determined and the businesses were classified. And food desert and food swamp maps were created with the data obtained. The maps were shown to tourists, and colors and symbols were developed in line with user comments. This study will provide theoretical contribution to food desert and food swamp and food maps in terms of gastronomy tourism, and it is expected to have a practical contribution to the use of maps in gastronomy tourism.

Key words: Food deserts, Food swamps, Tourism, Sustainability, Urban Planning, Regional Development, Gastronomy Tourism

INTRODUCTION

Food is a fundamental need of vital importance for all living things. Currently, the food system faces many food security and sustainability challenges. Food systems refer to the complete network of participants and interconnected value-added processes involved in producing, collecting, processing, distributing, consuming, and discarding food products derived from agriculture, forestry, or fisheries. These systems are also integrated into broader economic, social, and environmental contexts (FAO, 2018). The global population is projected to exceed 10 billion by 2050, leading to increased demand for food and more pressure on limited resources (www.futureoffood.ox.ac.uk/food-system-challenges).

Food environments are defined as the physical, economic, political and socio-cultural contexts in which consumers interact with food systems. Two key dimensions of the

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food environment are identified as availability and physical accessibility. Availability refers to the supply of food, while physical accessibility refers to the location of food retail outlets and the ease of reaching that location, taking into account distance, travel time and/or cost (Penchansky and Thomas, 1981). These dimensions directly affect individuals' food choices and eating habits.

The concepts of food deserts and food swamps have been used in the literature to describe food availability and physical access in specific areas: The concept of food deserts describes areas whose inhabitants do not have physical access to healthy food (Beaumont et al.,1995). In other words, the US Department of Agriculture (USDA) defines a food desert as ‘a low-income census region where a significant proportion or all of its residents have low access to a supermarket or a large grocery store’. The concept of food swamps refers to areas with ‘excessive’ access to unhealthy foods. Food swamps are areas with an abundance of foods with high energy density and minimal nutritional value. They are associated with areas such as fast-food joints in the city and street vendors selling unhealthy food. (Hager et. al., 2017). According to another definition, a food swamp is an area where fast food, junk food outlets, grocery stores and liquor stores outnumber healthy food options.

Food is also an important element of tourism destination marketing strategies. It has a significant impact on tourists' destination choices (Yang et. al., 2024). The main objective of this study is to determine the quality of food establishments in terms of food security and to promote access to healthy food. The specific objective is to improve the food security of tourists through maps of food environments. The importance of this study is that it focuses on improving tourists' travel experiences by mapping and creating food environments in terms of gastronomy tourism. These maps are made available to tourists in terms of travel planning and increasing their travel satisfaction. It also aims to make theoretical contributions to gastronomy tourism.

METHODOLOGY

The purpose of the study, several goals were set to guide the research process and ensure its comprehensive realization. The first goal of the study is to mark the locations of food establishments in Eskişehir city center and group them. Then, using this data, we create food desert and swamp maps that emphasize the importance of food and beverage options for tourists. Another goal is to use the food environments maps in Eskişehir to determine tourists' views on these maps.

Research Design

In the research, field studies were conducted to determine the characteristics of food enterprises and maps of food deserts and swamps were drawn. Spatial modeling of the data obtained from field studies and mapped with ArcGIS program. Spatialization of data modeling is one of the quantitative research methods. Then, in order to develop the maps obtained, the interview technique, one of the qualitative research techniques, was applied to the tourists and the data obtained were evaluated by descriptive analysis. Descriptive analysis is one of the qualitative research methods. Therefore, mixed method was used in this study.

Study Area

The study area is Eskişehir, an important destination in terms of urban tourism in Turkey (See Fig.1). As a city of science, culture and arts, Eskişehir welcomed approximately 1 million 200 thousand visitors in 2023. (www.sehirgazetesi.com.tr/eskisehirin-2023-raporu-aciklandi-sayisi-1-milyonu-gecti). In 2020, in accommodation facilities with tourism business certificate in Eskişehir 363,554 domestic tourists and 16,751 foreign tourists stayed (EBB, 2020). Eskişehir also has a considerable student population in terms of having three state universities (Ateş and Tunçel, 2023). Accordingly, it is seen that Eskişehir is an important destination in terms of tourism. In the field study, food businesses were marked in areas frequently preferred by tourists and students in Eskişehir.

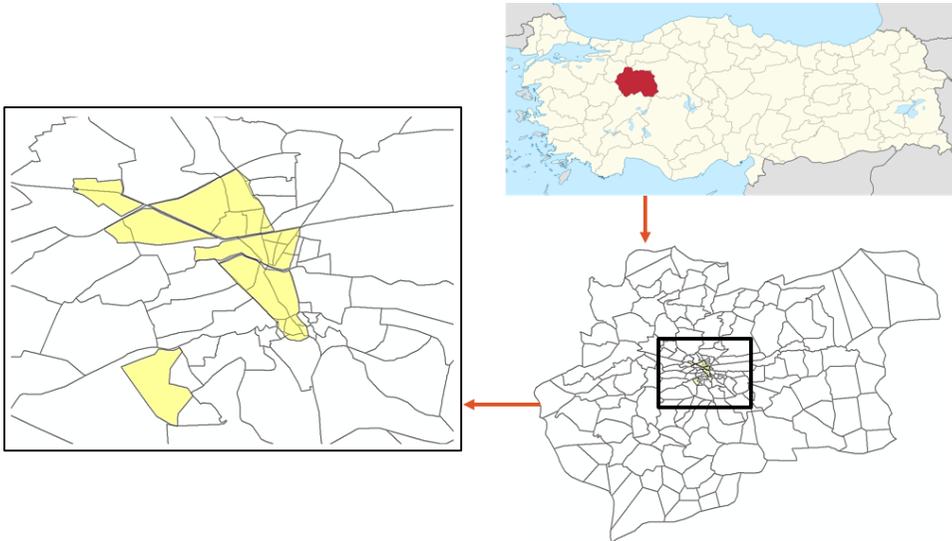
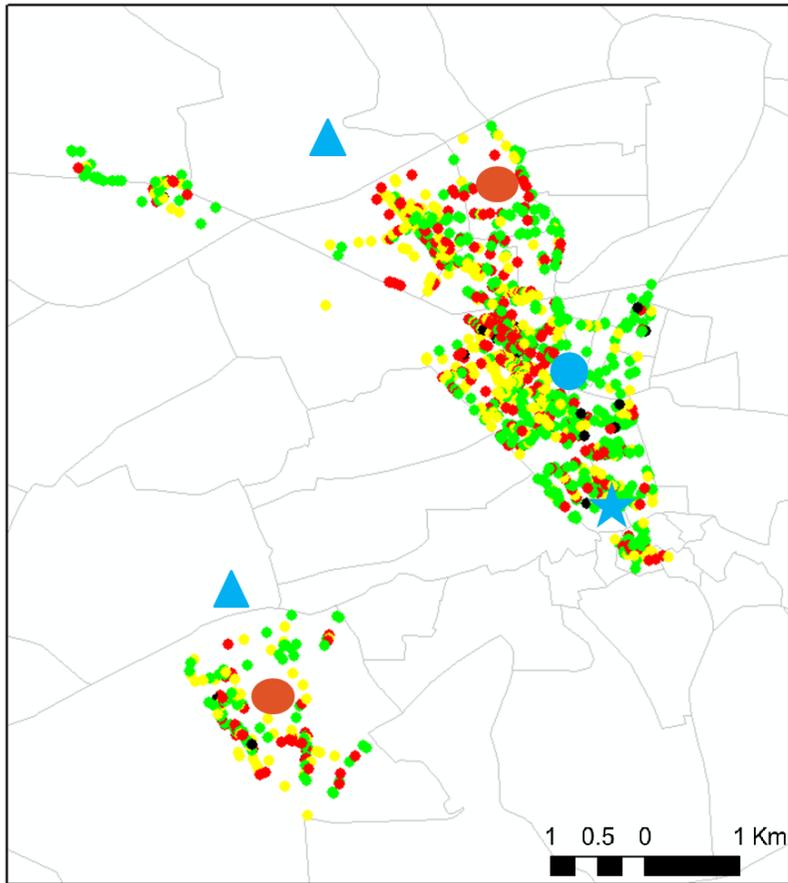


Fig. 1. Study Area

Mapping food swamps and food deserts

Data on food and beverage establishments were collected from 6 densely populated areas in Eskişehir (see Fig. 1). Fieldwork was conducted in the designated areas at various times between December 2023 and October 2024 and 1357 food establishments were marked on My Google Maps. Of these, 22 were excluded due to insufficient information about them. The marked establishments were then classified as healthy, unhealthy and neutral. This classification scale was developed from the classification scale of Sushil et. al. (2017). According to the classification, fast-food, takeaway, confectionary categories were categorized as unhealthy; local restaurant, supermarket, fruit-vegetable, farmers market, fish and meat, bakery, dairy and juice bars were categorized as healthy; and cafes and specialist store were categorized as a combination of healthy and unhealthy foods. The businesses coded according to this classification were shown on the map and spatial modeling was performed (see Fig. 2).



Legend

- | | |
|----------------------------------|---------------------|
| ● Healthy Food Environments | ▲ University |
| ● Food Swamps | ★ Touristic Area |
| ● Healthy and Unhealthy Together | ● Local Market Area |
| ● Missing | ● Student Area |



Fig. 2. Food Environments Map in Eskişehir

Sample and Data Collection

During the data collection phase, 10 different tourists were interviewed. An interview is defined as the activity of expressing the feelings and thoughts of the individuals participating in the research on a certain subject (Yıldırım and Şimşek, 2008). All of the interviewed tourists are domestic travelers to Eskişehir. The gender distribution of the participants is equal. In terms of age ranges, 60% are between 20 and 39 years old and 40% are 40 years old and above. Primary travel purposes include culture, science, arts, entertainment, and family vacations. The cities where tourists come

from cover different regions of Turkey (Istanbul, Izmir, Ankara, Bursa, Konya, Kütahya). This suggests that Eskişehir's geographically central location and strong transportation infrastructure play an important role in the flow of domestic tourists.

This reflects the attractiveness of Eskişehir as a multifaceted destination for a variety of interests. During the interviews, tourists were asked the following two questions:

1. How do you choose the food and beverages while traveling or how do you choose their places?

2. If you saw food deserts and swamps on a food environment map, how much would that map affect your choice of destination?

Analysis of qualitative data

Tourists' responses were evaluated by descriptive analysis. Descriptive analysis is one of the qualitative research techniques. Descriptive analysis is generally used to process data that do not require detailed parsing of the qualitative data set. Situations such as describing the demographic characteristics and different qualities of research participants, describing the general characteristics of a city, summarizing a person's life story are descriptive analysis (Miles & Huberman, 1994). The aim of descriptive analysis is to transfer the data collected as a result of interviews and observations to the reader in an organized and interpreted manner. To support the findings in the text, some quotations were made from the participants' responses. These quotes are given as Tourist 1 (T1, T2...).

FINDINGS

According to the data, it was determined that there is no food desert in the study area. However, it was revealed that there are quite a lot of food swamp areas. A total of 345 (26%) businesses selling unhealthy food were identified in the study area (see Fig. 2.)

In the first question, participants were asked about the factors that influence their choice of places to eat and drink while traveling. The responses and prominent analyses are as follows. The descriptive analysis of the responses provided by tourists revealed several significant findings regarding their preferences and considerations for food choices during travel. A dominant theme was the concern about access to healthy food, indicating that the availability of fresh and nutritious options is a critical factor influencing their decisions. The data also highlighted that food choices are a central element in travel planning, particularly for those traveling with families, where practicality, cheapness, and convenience are prioritized alongside diverse and accessible options. Some of the responses given by the participants are as follows;

T1: *“Usually price and location are important for me. I prefer places that are cheap and provide fast service. Since I usually travel a lot when I travel, I choose practical places.”*

T3: *“I pay a lot of attention to healthy eating. When traveling, I look for restaurants that serve healthy and fresh food. My favorite places are usually those that serve fresh vegetables and fruits.”*

T7: *“I look for places in my destination where I can eat quickly. I usually have a busy travel schedule and prefer time-saving options.”*

T10: *“I usually eat near the center and tourist areas. I don't like to travel long distances, so I prefer restaurants close to the area I am in.”*

Another key finding was the emphasis on cultural and gastronomic experiences, as many tourists expressed a desire to engage with local and authentic culinary traditions, suggesting that food is not merely sustenance but also a cultural exploration.

T2: *“I like to taste local food. This is one of the best ways to experience the culture where I am traveling. I prefer local restaurants and avoid chain restaurants.”*

T8: *“I pay a lot of attention to food quality. I am interested in places with organic or local production. I try to avoid fast food style restaurants that have been around for a long time.”*

T9: *“I pay attention to which cuisines are served. I like to try new cuisines. Discovering the food of different cultures is one of the best parts of traveling.”*

Furthermore, the demand for **hygienic and reputable establishments**, as evidenced by reliance on reviews and popularity, underscores the importance of trust and safety in dining decisions. **Dietary restrictions**, including specific allergies or lifestyle-based preferences, were also frequently mentioned, reflecting an increasing awareness and demand for inclusive food options. Some of the responses given by the participants are as follows;

T4: *“If I am traveling with family, I look for places that offer menus suitable for children. So I look for places that are both cozy and family-friendly. Hygiene is also an important criterion.”*

T6: *“I am a vegetarian, so when traveling I choose restaurants that offer plant-based menus. It can sometimes be difficult to find such restaurants, so I do my research.”*

These findings collectively suggest that tourists prioritize a combination of health, cultural enrichment, and practical convenience when making food-related choices, which can have broader implications for tourism strategies and destination management practices.

Another question asked to the participants during the interview was about the impact of food environment maps on their food and beverage choice preferences. For this

purpose, the food environment map was created according to the data in the study area. During the interview, tourists' opinions were asked according to this map. The answers given by the participants to this question are as follows. The responses to the question about how a food swamp or food desert map might influence travel decisions reveal diverse perspectives among tourists, shaped by individual priorities and lifestyles. Several respondents emphasized the importance of healthy and local food options, with some indicating that they would actively avoid destinations characterized as food swamps or deserts. These individuals view food as a significant aspect of their travel experience, particularly those with dietary restrictions or a strong interest in cultural and gastronomic exploration. Some of the responses given by the participants are as follows;

T2: "If I see that a place is a food swamp, it would be negative for me. I want to try local and healthy food, so this kind of map would definitely affect my preferences."

T6: "Being vegetarian, this kind of map would definitely influence my choices. I would cross a place off my travel list if it didn't have healthy options."

T8: "I would avoid a place with a food swamp or desert. It is very important to me that the place I am traveling to has places that serve local and quality food."

On the other hand, some tourists indicated that such a map would have minimal or no impact on their decisions. This group includes those who prioritize practicality and convenience, cultural and activity-based attractions over food, or the availability of general food options in popular tourist areas. For families traveling with children, access to a variety of family-friendly and nutritious food options is a key consideration, as a food desert could deter them from certain areas. Some of the responses given by the participants are as follows;

T4: "If I am traveling with children, I want to have good food options. If there is a place like a food desert, it might put us away from that area. We choose a place where we can find comfortable food."

T5: "Honestly, I wouldn't be too bothered by a food desert area. I am more interested in cultural activities and tourist attractions. Food comes second."

T7: "It wouldn't affect me much. When I travel, I usually look for places that are practical. If I can find a quick meal, even if it's unhealthy, it's convenient for me."

T10: "Looking at the map would be interesting to me, but it wouldn't change my travel plans. I usually go to tourist areas anyway and find all kinds of food options."

Overall, the responses suggest that while food considerations are pivotal for some, others prioritize practicality, convenience, or other aspects of the travel experience. This variation underscores the need for tailored strategies in destination planning and tourism marketing, addressing diverse tourist expectations.

CONCLUSION

This study highlights food's multifaceted role in shaping tourist preferences and travel decisions. Healthy and fresh food options are particularly critical for health-conscious travelers, while those seeking local and cultural experiences view food as an integral part of their journey. Convenience and practicality emerge as key factors for tourists focused on time management and easy access to meals, while family-friendly choices are essential for those traveling with children.

For many tourists, access to healthy food significantly influences destination selection, with food swamp and desert maps acting as a decisive factor for those prioritizing nutrition. However, knowledge of such maps has a limited impact on others, as they prioritize convenience, cultural attractions, or overall practicality over specific food-related concerns. At the same time, food diversity remains a valuable component for tourists seeking immersive cultural experiences.

No food deserts were found in the study area. However, there is a significant presence of food swamps. The presence of such unhealthy food establishments in important tourist areas can negatively affect the image of destinations. Another methodological consideration is the need for a variety of scales for categorizing food establishments, especially when cultural differences are taken into account in such studies.

Developing a more culturally congruent framework will increase the accuracy and applicability of such tools, resulting in greater benefits for both tourists and destination planners.

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