Evolution and Analysis of the Turkish Diet Patterns -- Different Time Periods, Income-different People, and the Incidence of Chronic Diseases

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Abstract. Dietary patterns and eating habits can have a great influence on the overall health of specific regions. By looking back to the history of Turkey and how the dietary patterns evolve in Turkish people, it is easier to discuss the nutrition status of the Turkish people in the current period, understand the culture in Turkey, and can better evaluate what to be done to improve the overall diet quality and prevent chronic diseases. The Turkish diet is mostly similar throughout the whole country, but there are unique characteristics for each region. When analysing the evolution of the Turkish diet, it is easier to split into three time periods, which are the Seljuks (11-13th centuries), the Ottomans (the end of the 13th centuries-1922), and the modern Republic of Turkey (1923-now). Moreover, the analysis of Turkey's Dietary guidelines provides an insight into the shortcomings of the current Turkish diet and the recommendations for people to improve overall health. The unhealthy, mal-nutritious, and unbalanced diet may increase the death rate by causing many chronic diseases, such as cardiovascular diseases and cancer. The difference in daily nutrition intake between the wealthiest and poorest people of Turkey is also important to see the dietary culture in Turkey.

Keywords: Turkey; Dietary; Income; Chronic Disease.

1. Introduction

Food is one of the chief requirements of all living things. But eating food is more than just for survival and satiety; It has evolved to be a smelter of unique cultures, traditions, and humanity. From the long-standing history, people in different regions use meals to close the distance from friends, feel each other's emotions, and relax from work and chaos. Since the variations of foods in different countries, eating habits are now considered a cultural factor. Thus, the different cultures vary in their eating habits and food types.

Turkey has a unique geographic position; It lies partly in Asia, and partly in Europe. The special location would have an influence on the dietary patterns it produces. In Turkish society, the flavors, quality, and kinds of food are distinctive from other societies. The cultures may interact with each other or themselves, therefore, the eating habits have been changing from generation to generation. Turkish cuisine varies from different regions and is fused with adjacent countries like Greece, Lebanon, Bulgaria, and so on. The history of modern Turkey starts from the defeat of the Ottomans Empire in World War I (1914-1918), but before that, ancient Turks have already developed a mature eating pattern for more than 900 years. The changes from past to modern were also obviously presented in the history.

The dietary pattern of modern Turkey is a way to examine the strength and weaknesses of the current Turkish diet. By comparing the differences in eating habits over time and hierarchy, more research can be done to evaluate the health status of Turkish people in modern society. As a result, improve the overall health of the Turkish population and aim to prevent chronic diseases. Moreover, studying food can be an important approach to study and understand a culture and the people. The motivations behind what food Turkish people choose for special occasions are also worth researching

include what people choose to eat is directly linked to their health. A study using online surveys (n=141) shows different motivations play different roles in people's food choices on occasions. For all eating occasions, liking seems to be the most important consideration. Some other motivations include natural concerns for breakfast, need and hunger for the afternoon snacks, and sociability, social norms, and variety are more typical for lunch.

The objective of this paper is to summarize and discuss the diet of Turkey from the 11th century to the current (21st century). This paper will be roughly divided into three parts: The Seljuks (11-13th centuries), the Ottomans (end of the 13th century to 1922), and the Modern Republic of Turkey (1923 to now). In the current period, we will discuss more specifically the current Dietary Guidelines of Turkey, the influence of the Turkish diet on death, and the difference in dietary patterns between the wealthiest and poorest people of Turkey.

2. The Evolution of Turkish Diet Patterns from Past to Modern

2.1 Dietary Patterns in Ancient Turkey

The evolution and Turkish cuisines and gastronomy can be viewed mainly from three periods. The Seljuks (1000 years ago: 11-13th centuries), Ottomans (started at the end of the 13th century, ended in 1922), and the modern Republic of Turkey (founded in 1923). The time before the Seljuk period is usually considered ancient Turkey [10]. In ancient Turkey, the eating pattern of the Turkish people was shaped based on their region and beliefs. Eating was more than just surviving; food and drinks have an important position in their faith. Animal dairy is an indispensable part of the diet because ancient Turks were involved in different kinds of livestock farming and drinking the milk from the livestock is an easy and convenient way to obtain an incredible amount of nutrients [1]. People also found portraits of camels, cattle, sheep, and goats drawn on the rocks in Turkish tribes, which might be an indication of Turkish mythology.

2.2 Seljuks: 1000years Ago: 11-13th Centuries

The Seljuks of Anatolia were usually considered the richest and the most inventive periods in Turkish culture. The Seljuks period runs between the 11-13th centuries, which was about 1000 years ago. The main food groups in the Seljuks period are carbohydrates and dairy. People consumed muffins, thin dough, bread, buttermilk, and molasses. But there isn't a lot of consumption of meat on records. Sour yogurt and other sour foods were also dominant among Turks in the 11th century. Scientists believe that other than using fermentation as a way of preserving food, it also indicates the special place sour foods have in the Turkish cuisines, which has an influence on the characteristics of Turkish cuisines even after the 11th century. Turks also value the use of stew and soups. Throwing a variety of vegetables into a pot and making them into a stew or soup was widely common in ancient times, and even today. The development of agriculture gave the Turkish people more sources of plant nutrients. They cultivated carbohydrates like wheat, barley, maize, corn, rice, and vetch, also apples, grapes, watermelon, melon, and berries, which provided more varieties to their diet. Other than the consumption of food from plant origins, Turkish people also incorporated dairy products such as milk, buttermilk, cheese, and koumiss into daily cuisines. Turkish people also consume animal meat. Horses and sheep were the main sources of animal protein for Turkish people that were living in the deserts [1].

Seljuks usually had two meals a day. The first meal was in the midmorning, and the second meal was in the evening. Most people would also eat a small part of food at sunrise, which was like breakfast. A meal usually consisted of soup, cheese, and bread. Coffee was served at the end. Turkish people gathered with their parents and closest friends during Ramadan, and they enjoyed and cherished the time of this welcoming and kind gathering. Sherbets were also a common type of beverage and dessert during the Anatolian Seljuk and Principalities period. Sherbets were usually prepared from a variety of seasonal fruits and honey, sometimes sugar. Also, wine was widely consumed during this period. "Sirkencubin" was a special drink found during this period. It was made

from barley or wheat and then mixed up with vinegar and honey. But because of religious reasons, this beverage was prohibited [2].

Konya was the capital city of the Seljuk Empire, as well as one of the most important cities in the history of Turkey. Hence, the analysis of the eating patterns of Konya could have a significant implication on the evolution of the Turkish diet. Konya's cuisine has an important standing in Turkish history, and even today, many people in Turkey still enjoy making and eating Konya's cuisine. Some typical dishes from Konya includes: Trotting soup, pide with meat (bread with meat), phyllo dish, tutmac soup, stew, hosmerim dessert, slurry, syrup, sausage, bacon, yogurt, buttermilk, cheese, boza (sweet beverage), and kavut (Halvah). People also loved the use of pots, skewers, and stews. Simmering in low heat was a typical practice of cooking that is still widely used in modern Turkish society [4].

2.3 Ottomans: Starts at the End of the 13th Century, Ends in 1922

Ottoman cuisine can be defined as the cuisine of the Ottoman Empire and it has a combination of different cuisines like the Caucasus, the Middle East, Turkey, Greece, and the Balkans. Ottoman cuisines are still consumed in many places of Turkey nowadays, and some people still consider Turkish Cuisine as Ottoman Cuisine. The most outstanding characteristic of Ottoman cuisine may be the fusion of different cuisines and the high variety of food types. They were influenced by many cuisines like Central Asian, Iranian, Arab, and Anatolian roots, and they made their own cuisine by combining them and infused with their own likes. The Ottomans cuisine included seven kinds of cuisine from other countries, which were Hungarian, Greek, Albanian, Romanian, Bulgarian, Serbian, and Bosnian cuisine. Many researchers love to define this phenomenon as a typical feature of culinary history called "mutual exchange and enrichment". The Ottoman Empire spanned three continents, representing a wide range of climate zones, which allowed the cuisine of the Ottoman Palace to include a rich diversity of special regional foods. For example, the Ottoman Palace loved to use clarified butter as the cooking oil, and they loved to thicken the soup with a mixture of egg and flour [11]. The rest of Ottoman cuisine also consisted of spices, seafood, pickles, and stuffed dishes.

The Ottomans mostly ruled Topkapi Palace in Istanbul. The cuisine of Istanbul consisted of a variety of elements from cuisines all over the world as well, which allowed the Ottoman cuisines to grow rich and diverse. During this period, people had a balanced diet involving different varieties of foods. The foods that are rich in fiber, antioxidants, and unsaturated fat, were widely consumed. If we imagine their food patterns as a pyramid, and the food that was consumed most frequently was on the base, while the food that was the least consumed was on the peak, the Ottomans' pyramid would have grains, fruits, and vegetables on the base. Followed by legumes, olive oil, low-fat cheese, and yogurt, which were also consumed on a daily basis. They also consume meat, but it was not as often; even though there was an increase compared to the Seljuk Period. The meat was chosen due to the seasonal availability, but there was also a preference for chicken, rabbit, and turkey rather than beef. They generally consumed white meat more than red meat. Fish and eggs were eaten a few times a week, while beef or red meat were only eaten at celebrations and festivals, which might be once a couple of months [11].

2.4 Modern Republic of Turkey: Founded in 1923

Foreign eating patterns made some impact on the cuisine of Turkey during the Republic period. Because of globalization, all kinds of food and spices in the world entered all cuisines. Recently, fast food has become famous and welcomed in Turkey, which causes the nutritional balance disruption and the increasing of obese young generation here [1]. In addition, since both men and women need to work outside, people further prefer readymade foods rather than handmade foods. Many studies showed that Turkish adolescents are more and more westernized compared to their parents, and they have increased consumption of fast-food restaurants. However, the warnings from their parents and teachers about the health risks of eating fast food regularly seemed to help with their health awareness and the reduced consumption of fast food [25,26].

Nowadays, Food in Turkey also varies between different regions. Regions like the Mediterranean, Eastern Anatolia, Black Sea, Marmara, South eastern Anatolia, and Aegean regions, all have their individual food customs. For example, the Black Sea Region has a mixture of corn as their food wealth representation. In the Mediterranean region of Turkey, vegetables and olive oil-based dishes are prevalent. The traditional Mediterranean cuisine is based on olive oil, vegetables, fruit, dairy, seafood, grains (especially wheat), and spices [1]. And for Aegean cuisine, we have a long list of herbs available, which are used in Turkish cuisine. Turkish food also includes soup, which can be divided into three assemblies: floury, grain, and strained-grind soups. Meatballs are a common way of cooking meat, which is made by round beef and various ingredients, prepared with bulgur in the Mediterranean, southeast, and east regions [4].

The motivations of specific food and beverage choices for different eating occasions in a typical diet of the Turkish people are different. Different motivators play several roles in food choices for people in Turkey [1]. Culture is a significant factor among the food choice factors, like biology, sociology, physiology, economics, marketing, and consumer science. Culture can significantly shape people's dietary patterns. [16,17]. In the experiment from Chambers, Delores, et al., the Need and Hunger, Liking, and Convenience became the most important motivations for the Turkish people [3].

3. Morden Turkish Diet, Recommendation, and Disease

3.1 Dietary Guidelines for Turkey

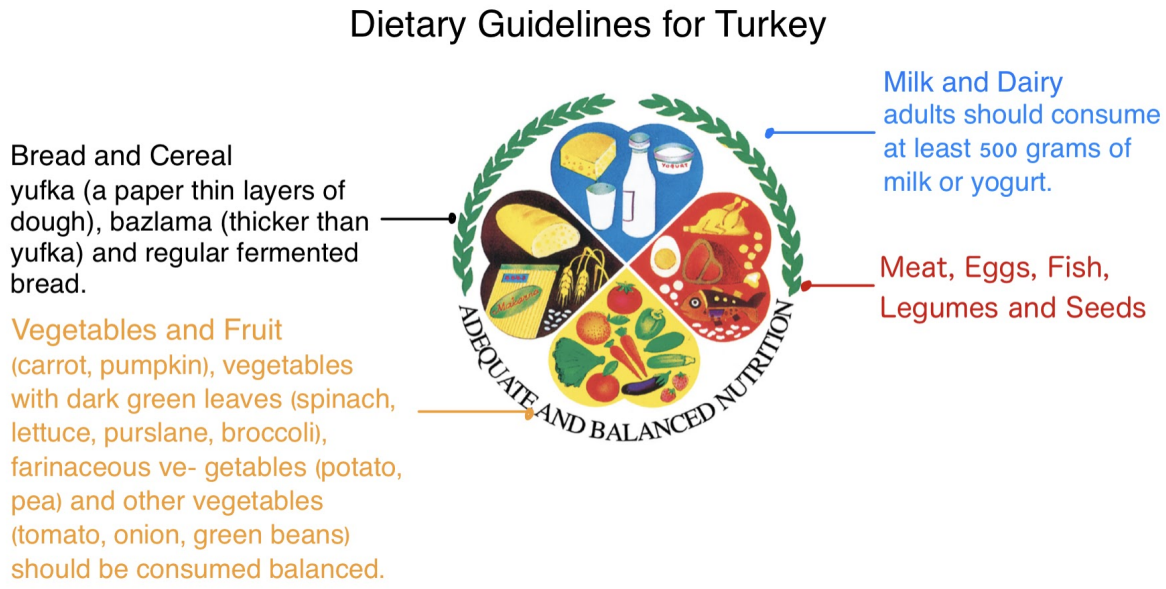

Figure 1. Turkey's food guide is a four-leaf clover divided into four basic food groups: milk and dairy; meat, eggs, fish, legumes and seeds; vegetables and fruit; and bread and cereal

Figure 1 shows Turkey's food guide, a four-leaf clover. In the upper leaf, milk and milk products (yogurt and cheese) have been shown. Since Turkish people rarely consume these products, it is chosen as the upper leaf to claim that milk and milk products are important. The second group (right leaf of clover) includes meat, eggs, and legumes. In the third group (bottom leaf of clover) vegetables and fruits take part. The fourth group is (left leaf of clover) the bread and cereals [8].

In the Dietary Guideline, it is asking that a diet containing all food groups and adequate energy should be consumed to protect the appropriate combination of weight and body composition. The food should be high in variety and high carbohydrates. Daily consumption of saturated fat (including butter, margarine, and animal fat) should be decreased. The guideline also asks people to avoid over-consume salt and sugar but increase the consumption of wholegrain cereals and leguminous seeds.

Fruits and vegetables should be consumed daily with five or more servings. Make sure to prepare and store the foods correctly to avoid contamination. People need to keep a lifelong diet including healthy nutritional rules instead of a short diet. A healthy diet does not mean skipping meals. Guideline asks people not to skip meals or try to be hungry for a long period. In addition, people should do exercise and intake plenty of fluid before and during exercise. For babies during their first 6 months, only breast milk can be given to a baby and other complementary food should be started in an adequate type and quantity after the first 6 months [8].

3.2 The Relationship between Dietary Patterns and Disease

The Mediterranean diet, like the Turkey Dietary, is recognized as one of the healthiest dietary patterns around the world because of its combination of foods rich mainly in antioxidants and anti-inflammatory nutrients. Many studies have displayed a significant and inverted relationship between a high level of Mediterranean diet adherence and some chronic diseases (such as diabetes, cardiovascular diseases, etc.) and cancer [15].

To prevent chronic disease, the suggested diet will be the combining assumption of vitamins-rich fruits, fiber-rich vegetables, a low intake of meat, and a balanced intake of milk, dairy, and alcohol [19]. The Mediterranean diet (MD), which includes all these dietary patterns, emerges as the best diet pattern able to display an ideal healthy diet. Thus, MD is examined to be one of the main dietary patterns that can provide beneficial effects on longevity and improve cardiovascular system functions to prevent many cardiac diseases or to contain their progression [20,21]. A lot of studies show that MD significantly causes the reducing risk of different kinds of cancer [19]. For example, the incidence of breast cancer decreased by 6% in case of high MD adherence measured with arMED (adapted relative Mediterranean diet excluding alcohol) [22]. Different from MD, the Western dietary pattern has been consistently correlated with an increased risk of colorectal cancer [23].

3.3 The Difference in Eating Habits between Poorest and Wealthiest People in Turkey

Table 1. Calories daily intake per capita at the household by income size [6]

Income Size	**1- Poorest**		**2**		**3**		**4- Highest**		**Average**	
Foods	**Calorie Intake Per Capita (calories/day)**	**%**	**Calorie Intake Per Capita (calories/day)**	**%**	**Calorie Intake Per Capita (calories/day)**	**%**	**Calorie Intake Per Capita (calories/day)**	**%**	**Calorie Intake Per Capita (calories/day)**	**%**
Cereals and floury foods	1875	56.41	2121	56.47	1789	52.15	1828	50.19	1916	54.45
Meat, poultry, fish, and other meat products	**118**	3.55	155	4.13	172	5.01	**245**	6.73	162	4.6
Milk and Dairy Foods	186	5.6	222	5.91	192	5.6	213	5.85	202	5.74
Oil and Fats	641	19.28	638	16.99	602	17.55	707	19.41	646	18.36
Fruits	**155**	4.66	202	5..38	255	7.43	**228**	6.26	199	5.66
Vegetables	44	1.32	52	1..38	50	1.46	59	1.62	50	1.42
Other Foods*	305	9.18	366	9.74	372	10.84	361	9.91	343	9.75
Total	3324	100	3756	93.24	3431	100	3642	100	3519	100

*Other foods include the food products such as sugar, honey, halva, tea, tomato paste, water, cook
Source: authors' calculations.

There is not a big difference between people in different income groups. Table 1 shows that the 1st income group (poorest) in the surveyed region had a daily intake of 3324 cal, whereas the 4th income group (wealthiest) had an intake of 3642 cal. The wealthiest and the poorest people show similar calories daily intake. However, the amounts of calories taken in from meat and meat products (3.55%) and fruit groups (4.66%) of food for the poorest group are slightly lower than that of the wealthiest group (6.73%) and (6.26%). The similarity between the two different income groups is because of the social solidarity mechanisms, inter-neighbor solidarity in rural areas in Turkey, and rather a self-consumption-oriented agricultural production. These allow the households living at the low-income level to get access to enough daily calories [6].

4. Conclusion

It is clear to see that the dietary pattern of Turkey has evolved in the past 1000 years, from Sejulks to the Modern Republic of Turkey. The diet shifts from a more natural and whole-food-based diet to a diet with an increased number of sugary beverages and other ultra-processed food. More focus was made on the seasonal produce, occasionally hunted wild game, homemade dairy products. Now there are chain fast food restaurants available throughout the country, and more and more people, especially adolescents, have a more westernized diet. Our research shows that the Turkish diet generally follows the Mediterranean diet pattern which is usually considered as one of the healthiest diets. Studies indicate a potential beneficial effect of using the Mediterranean Diet to prevent many chronic diseases, like cardiovascular diseases, type 2 diabetes, and cancer. There isn't a huge difference in the dietary pattern of the poorest population and the wealthiest population in Turkey, while the 1st income group (poorest) has a slightly higher daily calorie consumption (about 300 kcal), compared to the 4th income group (wealthiest). The analysis of how Turkish dietary pattern evolves and how it contributes to chronic diseases and death represent promising areas for continued work in improving national health and citizen awareness. However, there are some limitations to this study, as there isn't enough data collected to see the current eating patterns in different regions. For future studies in this area, more specific variable-control experiments are helpful and needed.

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