Nilüfer

City Health Profile

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ADATRC	:	Alcohol and Drug Addicts Treatment and Research Center
EHS Station	:	Emergency Healthcare Services Station
FHS	:	Family Healthcare Center
BDMP	:	Bursa Disaster Management Plan
CCIB	:	Chamber of Commerce and Industry of Bursa
BMTA	:	Bursa Mass Transportation Agency
WSAB	:	Water and Sewerage Administration of Bursa
CO_2	:	Carbon Dioxide
COVID-19	:	Coronavirus Disease 2019
ADATCCA	:	Alcohol and Drug Addiction Treatment Center for Children and Adolescents
WHO	:	World Health Organization
CI	:	Confidence Interval
FAB	:	Fecal Occult Blood
IHC	:	Immigrant Health Center
GDP	:	Gross Domestic Product
ha	:	Hectare
HPV	:	Human Papillomavirus
ISCO-08	:	International Standard Classification of Occupations
SRUC	:	Statistical Region Units Classification
SRUC-2	:	Grouping where Turkiye is divided and examined under 26 sub-regions.
HDE	:	Human Development Index
HDI-D	:	Human Development Index-Districts
DDH	:	District Directorate of Health
TEI	:	Turkish Employment Institution
Neig.	:	Neighborhood
MMG	:	Mammography
MCAC	:	Marmara Clean Air Center
NO2	:	Nitrogen Dioxide
O_3	:	Ozone
OECD	:	Organization for Economic Co-operation and Development
PM_{10}	:	Particles smaller than 10 microns formed as a result of impurities in the air
$PM_{2.5}$	:	Particles smaller than 2.5 microns formed as a result of impurities in the air
PPM	:	Parts Per Million
MoH	:	The Ministry of Health
SEDR	:	Socio-Economic Development Ranking
SSI	:	Social Security Institution
WC	:	Healthy life Center
SO_2	:	Sulphur Dioxide
TGNA	:	Turkish Grand National Assembly
CMHC	:	Community Mental Health Center
TURKSTAT	:	Turkish Statistics Institution

Message of the Mayor

Just as well-being for a person is a concept covering both physical and emotional, environmental, and social factors, the concept of a healthy city is also a definition dependent on many factors.

The health of the people living in a city is directly related to the health level of that city. Therefore, local governments are responsible for the health of the people in their city at the most basic level.

The cleaner and healthier the water you drink, the air you breathe, and the soil you eat, the healthier you are. The more the city you live in is at peace with nature, the more it is protected from electromagnetic field pollution and noise, the more it can meet the most basic needs of its citizens, and the healthier it is if it provides a basis for solidarity, participation, social and cultural satisfaction.

In Nilüfer, we monitor the city's air and water and share risky situations with the public. We measure the noise and electromagnetic field pollution situations in the city and try to inform our citizens. We strive to increase the rate of green space per person to create a healthy city environment, and we attach significant importance to environmental health and cleaning services. We strive to promote the use of bicycles in the city by building bicycle tracks within a healthy city approach and to instill environmental awareness in new generations by providing environmental and energy education to children. We attach significant importance to renewable energy and energy efficiency and take steps to benefit from solar energy in our public buildings. As a municipality signing the Agreement of Mayors on Adaptation to Climate Change, our efforts to combat climate change and reduce carbon emissions in our city continue.

While we try to do our part for a sustainable ecosystem, we try to create awareness among our citizens in Nilüfer by determining a theme every year and by conducting various activities through themes such as "the Agriculture Year", "the Food Year" and "Climate Year". This is because, the issues such as the production of healthy food, its fair distribution and climate adaptation cannot be considered separately from the "healthy city" concept.

A healthy city is also a concept that includes increasing the life quality of the people living in it. Because of this, it is not enough to provide only physical services, it is necessary to meet the social and cultural needs of the people living in the city. Nilüfer is a city that is assertive, especially in meeting the social and cultural needs of its citizens, and it also has an exemplary structure in ensuring the participation of citizens in decisions about the city. Creating a healthy future for everyone is only possible with the participation of those living in the city in this effort. Therefore, the citizens of Nilüfer have the opportunity to participate in the decisions taken about the city by establishing Neighborhood Committees in Nilüfer

City Health Profile of Nilüfer is a scientific study that determines the status of the factors affecting public health in Nilüfer and will guide us in our future studies. Millions of thanks to those who contributed…

Turgay ERDEM

The Mayor of Nilüfer Municipality

Preparation Process of the City Health Profile of Nilüfer

Consequences of population growth and urbanization in cities such as transportation, waste, excessive urbanization, poverty, and inequality make it equally difficult to establish health in the city. The cities we live in are also growing and developing with us (citizens), in this sense, we must accept that cities are alive, and we must be aware that it is the duty of every citizen to work so that our cities grow in a planned and healthy way. Within this context, local governments have a significant role in establishing health in cities, in other words, making their city a healthy one. Similar issues lead to similar results in Nilüfer, as the district that receives the most immigrants in Bursa, so we have a lot of responsibility to protect Nilüfer's health.

Putting health first on the agenda of local governments is the first condition of being a healthy city. A healthy city is not an action, but a process, and a healthy city is built on the awareness of keeping health in the primary position. The WHO Healthy Cities Network is one of the healthy cities' networks trying to put health high on the social, economic, and political agenda of city governments. WHO's healthy city approach aims to build a strong movement for public health at the local level by putting health high on the political and social agenda of cities. The approach strongly emphasizes equity, participatory governance and solidarity, cross-sectoral collaboration, and action to address the determinants of health. In other words, firstly those who govern the city must make a clear political commitment and lead it to be a healthy city. This commitment of local governments brings about keeping health in the first place in their political and social agenda, sticking to the health agenda, being aware of the process at all levels of the local government, making the necessary institutional changes and embodying a structure that will coordinate relations with networks. In addition to all these, establishing inter-sectoral partnerships is one of the indispensable issues of building a healthy city.

The Healthy Cities approach recognizes the determinants of health and the need to work collaboratively between public, private, voluntary and community sector organizations. This way of action and thinking includes involving local people in decision-making, requires political commitment and organizational and societal development, and recognizes that the process is as important as the results.

The Healthy Cities movement has been a leading driver of change for 30 years, spanning 1,400 municipalities and creating healthier city environments that support people's health and well-being. WHO provides political, strategic and technical support as well as capacity building in municipalities. The common goal is to involve local governments in political commitment, institutional change, capacity building, partnership-based planning and innovation. The Healthy Cities concept fully aligns with the Health 2020 European policy frame and the 2030 Agenda for Sustainable Development (and the Goals for Sustainable Development).

PEACE	WELFARE	PARTICIPATION	PEOPLE	PLACE	EARTH
SUSTAINABLE DEVELOPMENT	CITY DEVELOPMENT	SOCIAL DEVELOPMENT	HUMAN DEVELOPMENT	ECONOMIC GOVERNANCE	
EQUALITY GOVERNANCE			HEALTH AND WELL-BEING		

Nilüfer Municipality is a local government, a member of the WHO Healthy Cities Network and the Turkish Healthy Cities Association, and the national network in our country. As the Healthy Cities Project Office, we maintain our communication with WHO and the WDB and work to act in accordance with WHO's recommendations in all activities that directly or indirectly affect health to make Nilüfer a healthier city. As Nilüfer Municipality, besides being an active member of the Turkish Healthy Cities Association, we have taken our place among the municipalities that have been accepted to the 7th Phase (2019-2025) of the WHO European Healthy Cities Network.

As Nilüfer Municipality, we made two presentations on our COVID-19 measures, as examples of our good practice, at the 2020 Annual Business Meeting and Conference of the WHO Healthy Cities Network, the year we met with the COVID-19 pandemic that affected the entire world. The first is our Mask Production, which we conducted using local initiative to reduce the spread of the virus, and the second is the measures taken for zero cases in İnci-Taner Altınmakas Nursing Home, where the residents in the risk group are hosted. In the expression of Prof. Dr. Kayıhan Pala, Faculty Member and Public Health Specialist of Bursa Uludağ University Faculty of Medicine, Department of Public Health, we have experienced the pride of being a local government that has been appreciated in the international arena with its COVID-19 measures.

At the 2021 Annual Business Meeting and Conference of the WHO Healthy Cities Network, the activities of Nilüfer Municipality during the pandemic period were presented by the Healthy Cities Project Office in the international arena.

In 2022, when online meetings were gradually replaced by face-to-face meetings, we participated face-to-face in the 2022 Annual Business Meeting and Conference of the WHO Healthy Cities Network.

Nilüfer Municipality published its first city health profile in 2007 with Nilüfer City Health Profile, which has updated and republished its health profile after 15 years. The Nilüfer City Health Profile to be updated in each new phase of the WHO also serves as a base for the City Health Development Plan. The Healthy Cities Project Office performs the task of keeping health on the agenda of the municipality and interacts with each department. This office will reveal the projects to be done with the City Health Development Plan, and the policies to be implemented, again in line with the European policy framework Health2020 and the Sustainable Development Goals.

The city health profile, accepted as the first condition of being a healthy city and is almost an "X-ray" of the city, reveals very important findings for determining the current situation of the city. In light of the findings in the profile, it is very important to make evaluations, priority action areas, planning and work programs, that is, to have an up-to-date city health profile for the city to regain its health or stay healthy. While updating city health profile data, hundreds of official articles, sources, and data have been collected. We will continue our efforts to establish an executive committee including all the official institutions we work with for the same purpose and to establish inter-sectoral partnerships to have easier access to data in future profile studies.

I would like to express my gratitude to the healthcare personnel who work for the establishment of health and embrace their duties at the cost of their lives even during the pandemic period; I would like to thank the people of Nilüfer who are the primary decision-makers of Nilüfer, our managers and workers working for a healthier Nilüfer, and the faculty members and research assistants of Uludağ University Faculty of Medicine, Department of Public Health, supplied us with the data and everyone who contributed to the Nilüfer City Health Profile 2022.

Mehmet Can YILMAZ

Project Coordinator of Climate Change and Zero Waste Directorate Healthy Cities of Nilüfer Municipality.

Limitations of the City Health Profile of Nilüfer

The City Health Profile of Nilüfer has some limitations due to the problems experienced in data collection. Some data could not be obtained at all, and some data could only be obtained at the Bursa level, not according to Nilüfer and other districts.

While preparing the profile, some of the data that can be obtained comprehensively, as taught, were not narrowed down to overcome the limitations a bit.

In some data from various sources, inconsistencies were encountered, and in these cases, the data in question were not included in the profile.

Some data, such as death data of burial permits, are incomplete and do not cover everyone who died while living in Nilüfer, since burial permits were issued from other places as well.

It would be appropriate to read the City Health Profile of Nilüfer knowing these limitations.

The Concept of a Healthy City

The social, economic, cultural, and physical environments where people live significantly impact their health and well-being. In this context, the cities we live in have a decisive feature on our health in many respects.

Improving public health makes a broad projection of cities necessary, from how we plan, use, and develop our city spaces, to the employment opportunities and social networks established for all who live in them.

The World Health Organization defines a healthy city as "a city that continually creates and enhances physical and social environments and expands social resources to enable people to mutually support each other for fulfilling all the functions of life and reaching their highest potential"[1].

A healthy city is defined not only by the results achieved but also by the process of the city. A healthy city is defined as a city that is aware of what a healthy city is and that strives to improve health, even if it is not a city that has reached a certain level of health. Therefore, every city can be a healthy city regardless of its level of health, a city is necessary to devote itself to health and have a regulation, an organizational structure, and a procedure to achieve to become a healthy city.

Under the World Health Organization's Healthy Cities approach, a healthy city should aim to provide[2]:

1. A high-quality clean and safe physical environment and housing,
2. A stable and long-term sustainable eco-system,
3. A strong, mutually supportive, and non-abusive society
4. Public participation in and oversight of decisions that affect the lives, health, and well-being of the public,
5. Basic needs (food, water, shelter, income, security, and work) for all citizens,
6. Access to wide-range and diverse resources and experiences by providing different communication, interaction, and transmission routes,
7. A diverse, vibrant, and innovative city economy

8. Strengthening the connection with the past, with historical and biological heritage, and with other groups and individuals.
9. An attitude that is compatible with and strengthens the aforementioned qualities,
10. An Optimum level of public health and health services accessible to all and
11. A state of optimum health condition where health is highest, and disease is lowest.

City Health Profile

The City Health profile is a public health report that gathers, interprets, and analyzes important information about health and its determinants in cities. The main function of the profile is to promote actions to improve health. The City Health profile establishes the basis of the City Health plan, which then determines intervention strategies and programs to improve the health of the city population.

A City Health profile is a qualitative and quantitative description of the health of city residents and the factors affecting them. The profile identifies problems, proposes solutions, and encourages work, enabling all relevant sectors to work together to collect, analyze, interpret, and present information.

City Health profiles are considered the main product for demonstrating the adoption of a healthy city approach.

Profiles ensure that serious efforts are spent to promote health at the local level. The City Health profile also provides an effective resource as a basis for health advocacy and accountability for health.

City Health profile is about the health of the people in the city and the determinants that affect their health, especially their living conditions. For this reason, the City Health profile should be an integral part of decision-making and strategic-planning processes at the local level.

A comprehensive profile creates unique opportunities for cross-industry collaboration, community, and media engagement.

Informing the public and local decision-makers about health and its determinants in the city where they live is key to ensuring that all relevant groups of the city truly understand the ideas, questions and issues they address. The City Health profile is an ideal way to bring together a wide variety of data to provide information.

City Health profile can influence health policy in cities by;

- Informing the public, health professionals and politicians and encouraging them to take action,
- Providing a source of epidemiological information about the region,
- determining the requirements for health problems, high-risk groups, and unmet health requirements,

- Demonstrating health priorities, preferred resource allocation, and direction of health care improvement as a component of health planning; and

- Focusing on intersectoral collaboration.

A comprehensive City Health profile should;

- Summarize health information about the city,
- Define health problems in the city,
- Identify the factors affecting health in the city, including the social determinants of health,
- Define suggested fields of work for promoting health,
- Include suggestions for making health-related changes in the city,
- Contribute to determining health-related goals,
- Function as a stimulus for inter-sectoral cooperation and interaction,
- Define data requirements for city-specific health indicators,
- Provide information about the social determinants of health to the public, health and social workers and politicians in an easily understandable way,
- Make health status, health problems and determinants of health visible, and
- Cover the views of the local community on health issues in the city.

The social determinants of health are known key factors influencing health and well-being; these are the conditions we are born, grow up, live, work, and age. The social class where the individual belongs determines these conditions and is not the direct cause of the diseases but is defined as the "causes of the causes" that lead to the diseases[3].

Social determinants of health encompass many conditions, and health inequalities are affected by this.

The leading social determinants of health are as follows[4]:

- Income (and income distribution)
- Education
- Unemployment and job security
- Employment and working conditions
- Early childhood development
- Race
- Gender
- Sex
- Food safety (and hunger)
- Shelter
- Social exclusion
- Social safety network (welfare policies)
- Healthcare services
- Immigration
- Disability.

City Health Profile of Nilüfer

City Health Profile of Nilüfer was first published in March 2007. The City Health Profile of Nilüfer, updated after fifteen years, has been prepared with the scope and content adopted by WHO, in accordance with the healthy city approach of the World Health Organization (WHO), as in its first version.

It was taken care to include information, data, and additional indicators specific to Nilüfer to guide the health and social policies of the Nilüfer Municipality, as well as the WHO healthy city indicators in the profile.

Although it was aimed to compare the healthy city indicators included in the Nilüfer Health Profile with other districts of Bursa, Bursa Province and throughout Turkiye, this target could only be achieved very limitedly due to the problems related to accessing these indicators.

Indicators of a Healthy City

The World Health Organization has determined 32 basic indicators related to health and determinants of health within the scope of the healthy cities approach[5]. The purpose of healthy city indicators is explained as producing a rational policy depending on evidence-based health, determining priorities and collecting and analyzing these indicators, defining the health status of the city, creating a basis for comparisons, comparing cities and establishing a relationship between indicators.

WHO Indicators of a Healthy City

A. Health indicators

1. Death, All Causes
2. Cause of Death
3. Low Birth Weight

B. Indicators of Healthcare Services

1. City Health Education Program
2. Proportion of Fully Vaccinated Children
3. Number of Persons Per General Practitioner in Primary Health Care Services
4. Population Per Nurse
5. Population Ratio Covered by Health Insurance
6. Institutions Providing Primary Health Care in a Foreign Language
7. Health-Related Issues Addressed by the City Council Every Year

A. Environmental indicators

1. Air Pollution
2. Water Quality
3. Percentage of Total Wastewater Removal of Water Pollutants
4. Domestic Waste Collection Quality
5. Domestic Waste Treatment Quality Index
6. Relative Level of Green Areas in the City
7. Public Transportation to Green Areas
8. Abandoned industrial settlements
9. Sports and Leisure Time
10. Pedestrian Paths
11. Bicycle Paths
12. Public transport
13. Scope of Public Transport Network for the Living Area

D. Socio-Economic Indicators

1. Percentage of Population Living in Low-Standard Housing Conditions
2. Number of Homeless People
3. Unemployment Rate
4. Percentage of people earning below-average income
5. Nursery-Kindergarten Percentage for Preschool Children
6. Percentage of Live Births of Mothers Under the age of 20, in the 20-34 age group and over the age of 35
7. Miscarriage Rate According to Total Number of Live Births
8. Number of Working Disabled Persons in the Disabled Population

European Key Health Indicators

A total of 88 health indicators have been determined as key health indicators by the European Union; 9 under the title of "Demography and Socio-economic Status", 32 under the title of "Health Status", 14 under the title of "Determinants of Health", 29 under the title of "Health Services" and 4 under the title of "Health Promotion"[6].

A. Demographics and socioeconomic status

1. Population by sex/age
2. Crude Birth Rate
3. Age distribution of the mothers
4. Total fertility rate
5. Population projections
6. Population by the level of education
7. Population by occupation
8. Total unemployment
9. (a). Population below the poverty line
9. (b). Income inequality

B. Health Status
1. Life Expectancy at Birth and Life Expectancy by Educational Status
2. Infant mortality rate
3. Perinatal mortality
4. Disease-specific mortality
5. Drug-related deaths
6. Smoking-related deaths
7. Alcohol-related deaths
8. Excessive death due to heat waves
9. Incidence of selected infectious diseases
10. HIV/AIDS
11. Cancer incidence
12. (a). Diabetes: incidence reported by patients
12. (b). Diabetes: incidence according to records
13. Dementia
14. (a). Depression: incidence reported by patients
14. (b). Depression: incidence according to records
15. Acute myocardial infarction
16. Stroke
17. (a). Asthma: incidence reported by patients
17. (b). Asthma: incidence according to records
18. (a). Chronic obstructive pulmonary disease (COPD): incidence reported by patients

18. (b). Chronic obstructive pulmonary disease (COPD): incidence according to records
19. Low birth weight
20. (a). Injuries: home, leisure, school: incidence reported by patients
20. (b). Injuries: home, leisure, school: incidence according to records
21. (a). Injuries: traffic: incidence reported by patients
21. (b). Injuries: traffic: incidence according to records
22. Accidents at work
23. Suicide attempts
24. Perceived health
25. Frequency of chronic diseases
26. Long-term physical activity restrictions
27. Physical and sensory functional limitations
28. General musculoskeletal pain
29. Psychological distress
30. State of psychological well-being
31. (a). Expected Life Expectancy at Birth: Healthy Life Years (HLY) - after 2004
31. (b). Expected Life Expectancy at Birth: Healthy Life Years (HLY) - before 2004
32. Life Expected at Birth, others.

C. Determinants of Health

1. Body Mass Index
2. Blood Pressure
3. Regular smokers
4. Smoking pregnant women

5. Total (recorded + unrecorded) alcohol consumption.
6. Dangerous alcohol consumption
7. Use of illegal drugs
8. Fruit consumption
9. Vegetable consumption
10. Nursing
11. Physical activity
12. Work-related health risks regarding 53 professions.
13. Social support
14. PM (particulate matter) exposure

D. Healthcare services

1. Vaccination coverage in children
2. The influenza vaccination rate in the elderly
3. Breast cancer screening
4. Cervical cancer screening
5. Colon cancer screening
6. Timing of first prenatal visits among pregnant women
7. Hospital beds
8. General practitioners (Population per family doctor)
9. Practice nurses
10. Mobility of health professionals
11. Medical technologies: MRI units and CT scanners
12. Number of patients discharged from hospitals.
13. Number of hospitalized days
14. Hospitalized day cases (patients and day cases) as a percentage of the total patient population, selected diagnoses
15. The average length of stay in the hospital.
16. General practitioner use
17. Selected outpatient clinic visits
18. Selected surgeries

19. Drug use
20. Patient mobility
21. Insurance coverage
22. (a). Expenditure on healthcare services as a percentage of GDP
22. (b). Expenditure on healthcare services by Purchasing Power Parity
23. Survival rates, cancer
24. The 30-day death rate in acute myocardial infarction (AMI) and stroke
25. Equality of access to health services
26. Waiting times for selected surgeries

27. Surgical wound infections
28. Cancer treatment quality
29. Diabetes control

E. Health promotion

1. Environmental smoking exposure policies
2. Healthy eating policies
3. Policies and practices related to healthy lifestyles
4. Integrated programs in the city, including the workplace, schools, hospital

City Health Indicators Across Turkiye

There are 75 indicators in total in the book "City Health Indicators in Turkiye" prepared by Uludağ University Faculty of Medicine, Department of Public Health and published by the Turkish Healthy Cities Association in 2013[7].

While preparing the book, a total of 265 indicators, defined as "City Health Indicators" used in the WHO Health and determinants of health indicators, TAS Objective Evaluation Criteria of Community Level Quality of Life and also the Ministry of Public Works and Settlement City Indicators Guide, to create appropriate City Health indicators for Turkiye, were taken into consideration, after excluding matches and those outside the scope of healthy cities. Then the remaining 107 indicators were re-evaluated, and the book was published with a total of 75 indicators, 32 indicators for which data could not be obtained.

As a result, City Health Indicators across Turkiye have been classified under six main headings as "Demography", "Education", "Socioeconomic Status", "Health and Healthcare Services", "Environment", "Transportation" and "Culture and Art".

City Health Indicators Across Turkiye ;

A. Demographic

1. Crude Birth Rate
2. Crude Death Rate
3. Population Density
4. Annual Population Growth Rate
5. Net Immigration Rate of Provinces
6. Teen Dependency Rate
7. Elderly Dependency Rate

8. Crude Marriage Rate
9. Crude Divorce Rate
10. Average First Marriage Age – Female
11. Average First Marriage Age – Male
12. Average Household Size

B. Education

1. Illiterate Population Percentage - Total
2. Illiterate Population Percentage - Female
3. Illiterate Population Percentage - Male
4. Primary School Enrollment Rate – Total
5. Primary School Enrollment Rate – Female
6. Primary School Enrollment Rate – Male
7. The proportion of Graduates from College and Above - Total
8. The proportion of Graduates from College and Above - Female
9. The proportion of Graduates from College and Above - Male
10. Number of Students per School at Primary Education Level
11. Number of Students per Teacher at Primary Education Level
12. Number of Students per Classroom at Primary Education Level
13. Number of Students per School at Secondary Education Level
14. Number of Students per Teacher at Secondary Education Level
15. Number of Students per Classroom at Secondary Education Level

C. Socio-Economical Status

1. Percentage of Persons Covered by Social Security
2. Unemployment Rate
3. Rate of Participation in Labor Force
4. Percentage of Households with Toilets outside the Residence

5. Percentage of Households Not Having a Toilet Inside or Outside the Residence
6. Percentage of Households with Kitchens outside the Residence
7. Percentage of Households Without a Kitchen
8. Percentage of Households with Bathrooms outside the Residence
9. The proportion of Households Without Bathrooms
10. The proportion of Households with Mains Water Outside the Residence
11. The proportion of Households Without Mains Water
12. Percentage of Tenant Households
13. The proportion of Household Owners
14. Average Number of Rooms
15. Proportion of Women in Municipal Council Members
16. Persons Employed in the Service Sector by Economic Activities
17. Persons Employed in the Industrial Sector by Economic Activities
18. Persons Employed in the Agricultural Sector by Economic Activities
19. Residential Electricity Consumption Per Person

D. Health and Health Services

1. Infant Mortality Rate
2. Life Expected At Birth - Female
3. Life Expected At Birth - Male
4. Mortality Rate from Circulatory System Diseases
5. Cancer Mortality Rate

6. Mortality Rate from Respiratory System Diseases
7. Crude Suicide Rate
8. Disabled Rates
9. The proportion of Mothers Who Give Birth Under 20 Years Old
10. The proportion of Mothers Who Give Birth Over 35 Years Old
11. Number of Hospital Beds Per Hundred Thousand People
12. Total Number of Physicians Per Hundred Thousand People
13. Number of General Practitioners Per Hundred Thousand People
14. Number of Specialist Physicians per Hundred Thousand People
15. Total Number of Nurses Per Hundred Thousand Persons

E. Environment

1. SO2 Concentration Averages
2. PM10 Concentration Averages
3. The proportion of the Population Served with Drinking and Potable Water Network
4. The proportion of the Population Served with Drinking and Potable Water Treatment Plant

5. The proportion of Waste Disposal through Regular Storage and Composting
6. The proportion of the Population Served with Sewerage Network
7. The proportion of the Population Served with Wastewater Treatment Plant
8. The proportion of the Population Provided with Waste Services to the Total Population

F. Transportation

1. Number of Deaths in Traffic Accidents per Million Vehicles
2. Number of Injured in Traffic Accidents per Million Vehicles
3. Number of Deaths in Traffic Accidents per Million Population
4. Number of Injured in Traffic Accidents per Million Population

G. Culture and Art

1. Number of Movie Theater Seats Per Thousand People
2. Number of Theatre Seats Per Thousand People

General Information About Nilüfer

Nilüfer was established in 1987 with the Metropolitan Central District status with the transition of Bursa Province to Metropolitan status. Today it is a city established on a 50,757-ha area, with a 518,382 total population in 64 neighborhoods as of 2021. It is adjacent to Osmangazi at the east, Karacabey at the west, Mudanya at the north, Orhaneli and Mustafakemalpaşa at the south.

The population of the district by year is listed in the following.

The Population of the Center (1990): 36,897
Total District Population (2013): 358,265
Total District Population (2014): 375,474
Total District Population (2015): 397,303
Total District Population (2016): 415,818
Total District Population (2017): 424,909
Total District Population (2018): 441,299
Total District Population (2019): 465,956
Total District Population (2020): 484,832
Total District Population (2021): 518,382
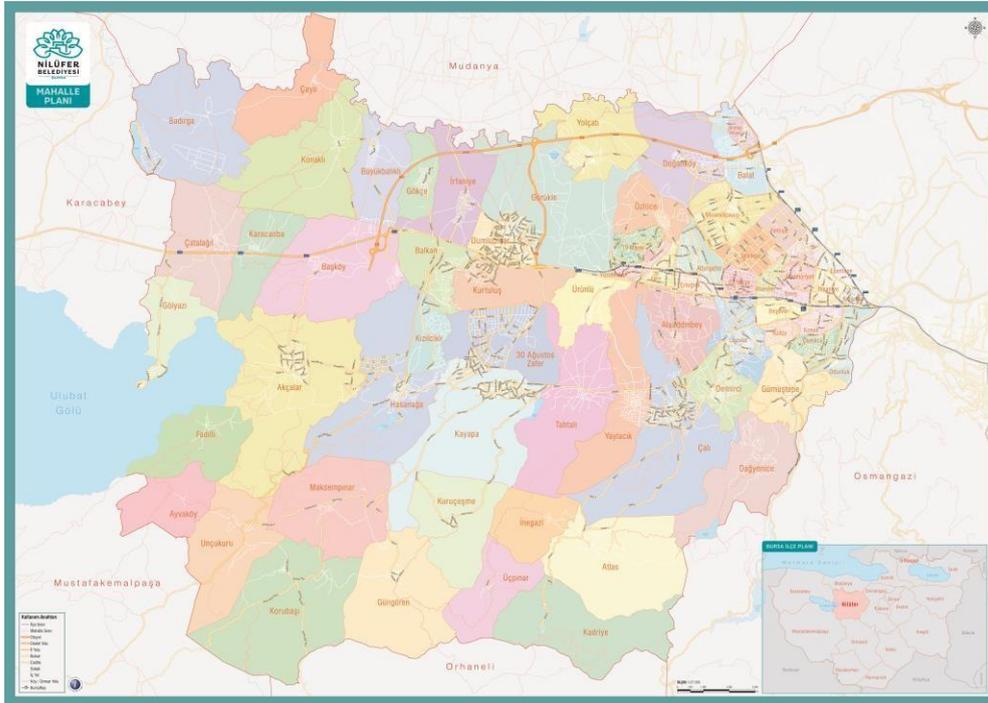
Figure 1: Regional Distribution of Neighborhoods within the Borders of Nilüfer Municipality

1. Health Status

1.1 Population

Information on the population of Nilüfer was from TURKSTAT Address-Based Registration System and evaluated according to years.

1.1.1 Distribution of Population by Age Groups and Gender

According to TURKSTAT 2021 data[8], the population of Nilüfer is 518,382. The distribution of the population by age groups and sex are presented in Table 1, and the distribution by age groups in neighborhoods is presented in Table 2.

Table 1. Distribution of Population by Age Groups and Gender (2021)[8]

Age Group	Female		Male		Total	
	Number	%	Number	%	Number	%
0-4	14,977	2.9	15,893	3.1	30,870	6.0
5-9	17,928	3.5	18,710	3.6	36,638	7.1
10-14	17,478	3.4	18,380	3.5	35,858	6.9
15-19	16,418	3.2	17,468	3.4	33,886	6.5
20-24	21,660	4.2	19,599	3.8	41,259	8.0
25-29	22,590	4.4	19,767	3.8	42,357	8.2
30-34	22,637	4.4	20,960	4.0	43,597	8.4
35-39	23,891	4.6	22,674	4.4	46,565	9.0
40-44	24,069	4.6	23,406	4.5	47,475	9.2
45-49	19,567	3.8	19,727	3.8	39,294	7.6
50-54	15,689	3.0	16,101	3.1	31,790	6.1
55-59	13,618	2.6	13,751	2.7	27,369	5.3
60-64	10,813	2.1	10,477	2.0	21,290	4.1
65-69	8,710	1.7	8,407	1.6	17,117	3.3
70-74	5,821	1.1	5,157	1.0	10,978	2.1
75-79	3,484	0.7	2,811	0.5	6,295	1.2
80-84	1,998	0.4	1,437	0.3	3,435	0.7
85-89	1,093	0.2	598	0.1	1,691	0.3
90+	470	0.1	148	0.0	618	0.1
Total	262,911	50.7	255,471	49.3	518,382	100

The share of men and women in the entire population in Nilüfer is close to each other and women are 1.4% more than men. Children in the 0-14 age group make up 20% of the population in the district while 7.7% of the population is 65 years and older (Table 1).

Table 2. Distribution of Population in Neighborhoods by Age Groups (2021)[8]

Name of Neighborhood	0-14		15-65		65+		Total
	Number	*%	Number	%ı	Number	%ı	
Ürünlü	244	18.3	927	69.5	163	12.2	1,334
Odunluk	1,653	24.1	4,796	69.9	415	6.0	6,864
Alaaddinbey	151	16.5	644	70.4	120	13.1	915
Özlüce	772	23.0	2,353	70.2	228	6.8	3,353
Ertuğrul	3,159	24.9	8,971	70.6	578	4.5	12,708
Çamlıca	3,844	21.7	12,508	70.6	1,372	7.7	17,724
Kültür	3,098	23.7	9,091	69.5	891	6.8	13,080
Gümüştepe	216	15.9	958	70.4	186	13.7	1,360
Demirci	3,418	24.0	10,049	70.4	798	5.6	14,265
Konak	4,847	19.5	17,302	69.7	2,688	10.8	24,837
Üçevler	6,442	25.1	17,912	69.8	1,290	5.0	25,644
Ahmet Yesevi	1,998	24.7	5,592	69.0	511	6.3	8,101
Balat	3,696	18.3	15,730	77.8	789	3.9	20,215
Minareliçavuş	1,159	23.6	3,341	68.1	407	8.3	4,907
Fethiye	4,543	21.2	15,216	71.0	1,665	7.8	21,424
Karaman	2,018	18.0	7,654	68.3	1,540	13.7	11,212
İhsaniye	5,186	18.0	20,029	69.4	3,632	12.6	28,847
Işıktepe	908	23.5	2,649	68.4	313	8.1	3,870
Esentepe	2,428	18.5	9,186	70.1	1,492	11.4	13,106
Cumhuriyet	3,162	19.0	11,531	69.3	1,951	11.7	16,644
Ataevler	2,701	18.4	10,333	70.4	1,651	11.2	14,685
Barış	2,495	18.6	9,435	70.2	1,503	11.2	13,433
Altınşehir	4,159	22.0	13,426	71.0	1,334	7.1	18,919
Beşevler	4,480	19.1	16,926	72.3	2,014	8.6	23,420
Akçalar	2,023	24.5	5,624	68.0	624	7.5	8,271
Çalı	4,173	24.8	11,758	70.0	863	5.1	16,794
Gölyazı	161	12.4	886	68.4	248	19.2	1,295
Görükle	2,083	6.3	30,393	91.2	845	2.5	33,321
Dumlupınar	3,779	14.9	20,576	81.4	924	3.7	25,279
Kurtuluş	1,489	21.4	5,004	71.9	464	6.7	6,957
İrfaniye	224	19.6	751	65.8	166	14.5	1,141
Balkan	1,959	15.7	8,877	71.3	1,612	12.9	12,448
Hasanağa	276	17.5	1,081	68.6	219	13.9	1,576
Kızılcıklı	1,990	24.8	5,654	70.3	394	4.9	8,038
30 Ağustos Zafer	1,795	24.9	5,188	72.1	213	3.0	7,196
Kayapa	460	19.4	1,672	70.6	237	10.0	2,369
Yüzüncüyıl	4,092	21.4	13,437	70.4	1,559	8.2	19,088
23 Nisan	4,448	23.9	13,393	71.9	791	4.2	18,632
29 Ekim	3,528	24.0	10,323	70.2	863	5.9	14,714
19 Mayıs	732	19.9	2,589	70.5	353	9.6	3,674
Doğanköy	550	25.2	1,492	68.3	142	6.5	2,184
Güngören	85	16.7	321	63.1	103	20.2	509
Konaklı	202	18.4	706	64.2	192	17.5	1,100
Tahtalı	247	20.3	799	65.8	169	13.9	1,215
Yaylacık	409	19.8	1,382	66.9	274	13.3	2,065
Yolçatı	1,260	26.0	3,252	67.2	328	6.8	4,840
Total	**102,742**	**20.0**	**371,717**	**72.4**	**39,114**	**7.6**	**513.573†**

* Line percentage

† Since, Atlas, Ayvaköy, Badırga, Başköy, Büyükbalıklı, Çatalağıl, Çaylı, Dağyenice, Fadıllı, Gökçe, İnegazi, Kadriye, Karacaoba, Korubaşı, Kuruçeşme, Makşempınarı, Unçukuru and Üçpınar neighborhoods are not included in the TURKSTAT data, the total population is 4,809 lower than the total population of Nilüfer.

When the data in Table 2 are evaluated, it is seen that 72.4% of the population of Nilüfer consists of the 15-64 age group and 20.0% is the 0-14 age group. Yolçatı Neighborhood has the youngest population with the 0-14 age group at 26.0%, and Güngören Neighborhood has the oldest population with a population aged 65 and over at 20.2%. Neighborhoods with the highest population over 65 are Güngören, Gölyazı and Konaklı, while the neighborhoods with the highest concentration of young people are Yolçatı, Doğanköy and Üçevler.

1.1.2 Population Pyramid

The population pyramid is also called the "age pyramid" or the "age and gender pyramid". It is a graphical representation of the distribution of the population by various age groups and genders. Population pyramids show parameters such as the demographic transition stage of a society, its level of development, life expectancy, and dependency levels[9].
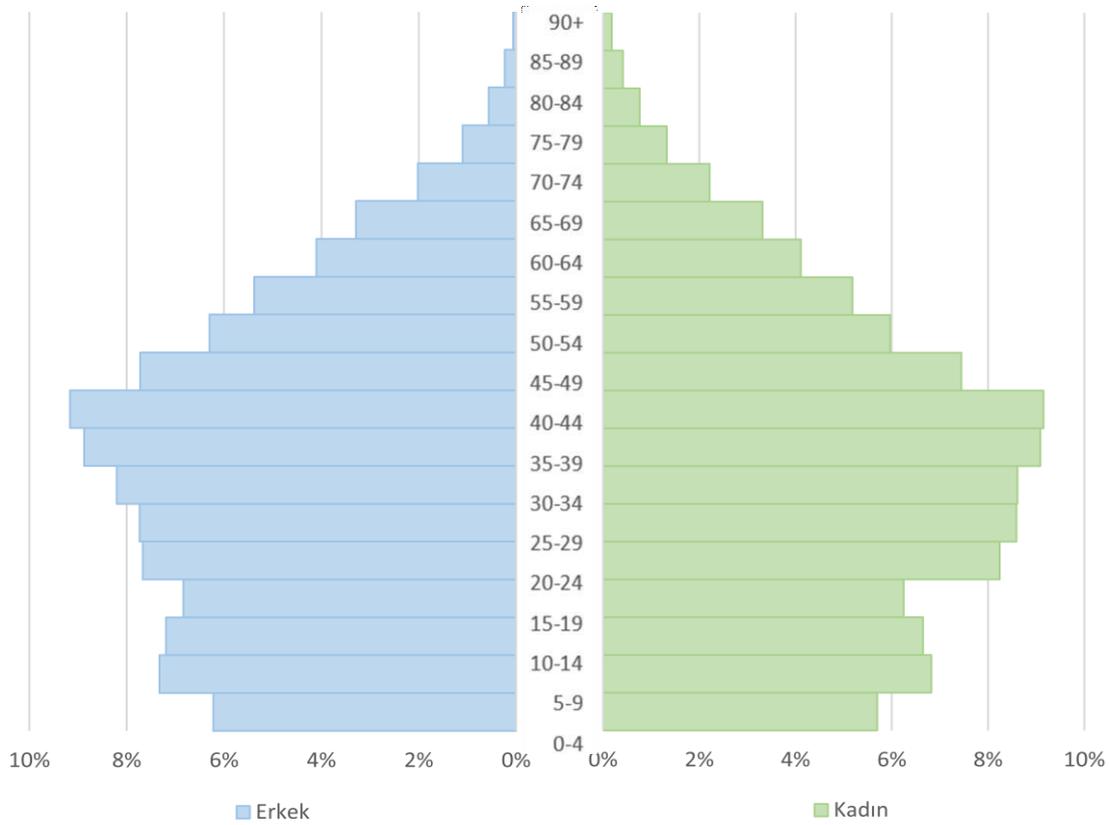
Figure 2: Nilüfer Population Pyramid (2021)[10]

When the population pyramid of Nilüfer in Figure 2 is considered, it is seen that the population in the 0-4 age group has decreased, and children are less than adults. Even though the group between 0-15 years of age is still higher than the group over the age of 65, if the same trends in terms of births and deaths continue, it can be said that the group over 65 will surpass the group between 0-15 years of age in the next 20 years.

It is seen that the birth rate has decreased in Nilüfer, and the life expectancy is long. If the population's future trend remains the same, planning should be done in the district in this respect, considering the conditions such as chronic disease burden, cancer burden, and the need for care of the elderly population that may increase in the society.

1.1.3 Population Density

Population density is the ratio between (total) population and surface (land) area[11]. Population density can be calculated in individuals per square meter, hectare, or square kilometer. It is important in several fields including ecosystem studies, human health and epidemiology, and the planning of infrastructure services[12].

Table 3. Distribution of Population Density by Neighborhoods in the City of Nilüfer (2021)[13]

Neighborhoods	Population	Acreage (ha)	Population Density (person/ha)
19 Mayıs Neig.	3,674	232	15.8
23 Nisan Neig.	18,632	152	122.6
29 Ekim Neig.	14,714	136	108.2
30 Ağustos Zafer Neig.	7,196	977	7.4
Ahmet Yesevi Neig.	8.101	99	81.8
Akçalar Neig.	8.271	2594	3.2
Alaaddinbey Neig.	915	692	1.3
Altınşehir Neig.	18.919	282	67.1
Ataevler Neig.	14.685	106	138.5
Atlas Neig.	387	1701	0.2
Ayvaköy Neig.	157	686	0.2
Badırga Neig.	330	1693	0.2
Balat Neig.	20.215	430	47.0
Balkan Neig.	12.448	568	21.9
Barış Neig.	13.433	87	154.4
Başköy Neig.	267	1699	0.2
Beşevler Neig.	23.420	162	144.6
Büyükbalıklı Neig.	462	770	0.6
Çalı Neig.	16.794	2052	8.2
Çamlıca Neig.	17.724	191	92.8
Çatalağıl Neig.	176	1127	0.2
Çaylı Neig.	318	915	0.3
Cumhuriyet Neig.	16.644	115	144.7
Dağyenice Neig.	364	1111	0.3
Demirci Neig.	14,265	510	28.0
Doğanköy Neig.	2,184	925	2.4
Dumlupınar Neig.	25,279	328	77.1
Ertuğrul Neig.	12,708	129	98.5
Esentepe Neig.	13,106	84	156.0
Fadıllı Neig.	384	879	0.4
Fethiye Neig.	21,424	344	62.3
Gökçe Neig.	445	394	1.1
Gölyazı Neig.	1,295	612	2.1
Görükle Neig.	33,321	2120	15.7
Gümüştepe Neig.	1,360	686	2.0
Güngören Neig.	509	1543	0.3
Hasanağa Neig.	1,576	1892	0.8
Ihsaniye Neig.	28,847	149	193.6
İnegazi Neig.	138	658	0.2
İrfaniye Neig.	1,141	857	1.3

Neighborhoods (continuing)	Population	Acreage (ha)	Population Density (person/ha)
Işıktepe Neig.	3,870	280	13.8
Kadriye Neig.	102	1440	0.1
Karacaoba Neig.	289	714	0.4
Karaman Neig.	11,212	64	175.2
Kayapa Neig.	2,369	2007	1.2
Kızılcıklı Neig.	8,038	376	21.4
Konaklı Neig.	1,100	1693	0.6
Konak Neig.	24,837	158	157.2
Korubaşı Neig.	298	2097	0.1
Kültür Neig.	13,080	120	109.0
Kurtuluş Neig.	6.957	679	10.2
Kuruçeşme Neig.	77	1112	0.1
Makşempınarı Neig.	263	1444	0.2
Minareliçavuş Neig.	4.907	537	9.1
Odunluk Neig.	6.864	256	26.8
Özlüce Neig.	3.353	477	7.0
Tahtalı Neig.	1.215	1500	0.8
Üçevler Neig.	25.644	493	52.0
Üçpınar Neig.	84	745	0.1
Unçukuru Neig.	251	1222	0.2
Ürünlü Neig.	1.334	483	2.8
Yaylacık Neig.	2.065	1165	1.8
Yolçatı Neig.	4.840	883	5.5
Yüzüncüyıl Neig.	19.088	124	153.9

According to the data of the Nilüfer Municipality Plan and Project Directorate, the population density distribution according to the neighborhoods is presented in Table 3. The neighborhoods Nilüfer with the highest population density are respectively; İhsaniye (193.6), Karaman (175.2), Konak (157.2), Esentepe (156.0) and Barış (154.4) neighborhoods. The neighborhoods Nilüfer with the lowest population density are Kuruçeşme (0.1), Kadriye (0.1), Üçpınar (0.1) and Korubaşı (0.1) neighborhoods.

1.1.4 Population growth

Population growth is the annual average rate of change in population for a particular country, region, or geographic area during a specific period, and expresses the ratio between the annual growth in population and the total population in that year[14].

Rapid population growth, especially in areas with ecological problems, poor, lack of access to resources, and production and consumption imbalances can cause various problems in economic, social, and environmental areas[15]. Therefore, the population growth trend is a factor that should be considered when planning and regulating the regions.

Table 4. Population and Population Growth Rates of Turkiye, Bursa and Its Districts[16]

	Population			Population Growth Rate (per Thousand)	
	2010	2020	2021	2010-2021 Total	2020
Büyükorhan	12.743	9.485	9.321	-351.3	-17.4
Gemlik	100.927	115.404	118.037	173.5	22.6
Gürsu	57.942	96.985	99.278	587.8	23.4
Harmancık	7.894	6.145	6.016	-284.3	-21.2
İnegöl	221.116	281.384	286.848	286.6	19.2
İznik	44.314	44.102	44.050	-15.9	-1.2
Karacabey	79.229	84.666	84.241	66.5	-5.0

Keles	14.641	11.499	11.246	-304.1	-22.3
Kestel	48.198	70.865	72.439	417.6	22.0
Mudanya	71.671	102.523	105.308	423.4	26.8
Mustafakemalpaşa	101.412	101.820	101.407	-3.9	-4.1
Nilüfer	298.911	484.832	518.382	605.3	66.9
Orhaneli	23.530	19.055	18.786	-244.6	-14.2
Orhangazi	75.228	80.118	80.216	65.5	1.2
Osmangazi	778,526	881,459	884,451	144.1	3.4
Yenişehir	51,514	54,315	54,485	57.9	3.1
Yıldırım	617,699	657,176	653,307	80.0	-5.9
Bursa	**2,605,495**	**3,101,833**	**3,147,818**	**210.4**	**14.7**

In 2010-2021, the district with the highest population growth in Bursa districts was Nilüfer with 605.3 per thousand, followed by Gürsu with 587.8 per thousand in the second place. The population growth in Bursa during the same period was 210.4 per thousand. The district with the lowest population growth rate was Büyükorhan with -351.3 per thousand. In terms of annual population growth rates in 2020, Nilüfer ranks first with an increase of 66.9 per thousand, followed by Mudanya with 26.8 per thousand and Gürsu with 23.4 per thousand (Table 4).
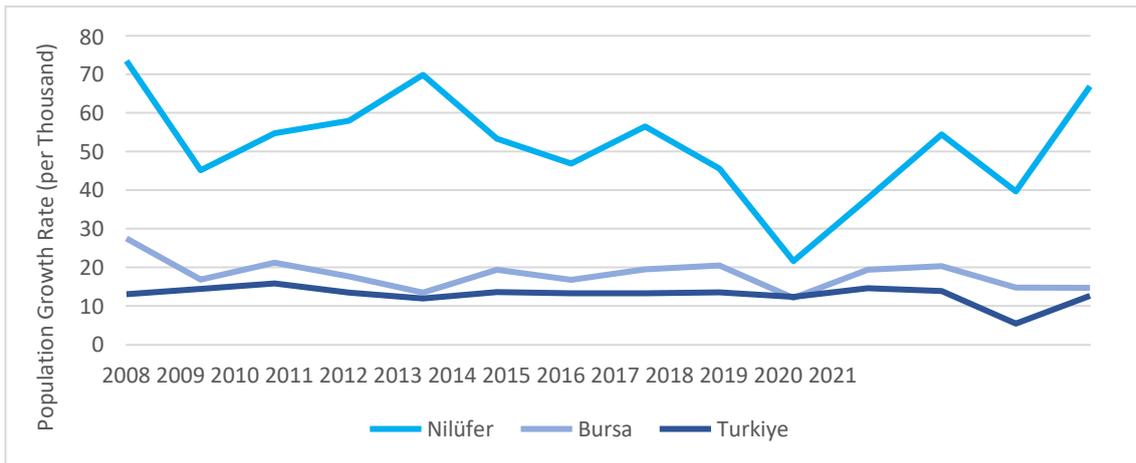
Figure 3: Population Growth Rates by year[16]

When Nilüfer and Bursa are compared in terms of population growth rates by year, it is seen that the population has increased in Bursa, Turkiye and Nilüfer since 2008, and the population growth rate in Nilüfer is higher than Bursa and Turkiye in all these years (Figure 3).

1.1.5 Dependent Population

The dependency ratio is calculated by dividing the child (0-14 years old) and elderly (65 years old and above) population by the working-age population (15-64 years old). Dependency rates show the potential effects of changes in age structures on social and economic development and trends in the need for social support[17].

Table 5. Dependent Population Rates by Districts (%) (2021)[8]

	Young Dependency Rate (%)	Elderly Dependency Rate (%)	Total Dependency Rate (%)
Büyükorhan	19.9	47.3	67.2
Gemlik	27.3	17.1	44.4
Gürsu	37.3	9.7	47.0
Harmancık	18.3	44.9	63.3

İnegöl	35.7	12.0	47.7
İznik	24.5	23.8	48.3
Karacabey	29.5	20.9	50.4
Keles	16.5	50.8	67.2
Kestel	31.4	14.2	45.6
Mudanya	23.1	23.8	46.8
Mustafakemalpaşa	27.0	23.1	50.0
Nilüfer	27.6	10.7	38.3
Orhaneli	23.5	37.3	60.8
Orhangazi	28.7	17.7	46.5
Osmangazi	30.7	13.1	43.8
Yenişehir	28.8	23.0	51.8
Yıldırım	33.7	12.9	46.6
Bursa	**30.6**	**14.3**	**44.9**
Turkiye	**33.0**	**14.4**	**47.4**

According to TURKSTAT data, the total dependency ratio is 44.9% in Bursa and 47.4% in Turkiye in 2021. According to this, the rate of dependent population in Nilüfer is lower than in Bursa and Turkiye. Nilüfer is the district with the lowest total dependency ratio in Bursa. The district with the highest youth dependency among Bursa districts is Gürsu with 37.3%. Keles is the district with the highest elderly dependency at 50.8% and the highest total dependency with Büyükorhan at 67.2% (Table 5).

Table 6. Distribution of Population by Age Groups, Elderly Population and Dependency Rates in Nilüfer[8]

Year	Total	0-14	15-64	65+	Population over the age of 65 (%)	Dependency Rates (%)		
						Total Dependency Rate (%)	Teen Dependency Rate	Elderly Dependency Rate
2010	298,911	63,489	219,394	16,028	5.4	36.2	28.9	7.3
2011	316,753	66,893	232,741	17,119	5.4	36.1	28.7	7.4
2012	339,667	70,978	250,095	18,594	5.5	35.8	28.4	7.4
2013	358,265	74,982	262,959	20,324	5.7	36.2	28.5	7.7
2014	375,474	79,255	274,068	22,151	5.9	37.0	28.9	8.1
2015	397,303	83,378	289,231	24,694	6.2	37.4	28.8	8.5
2016	415,818	86,930	302,285	26,603	6.4	37.6	28.8	8.8
2017	424,909	88,845	307,602	28,462	6.7	38.1	28.9	9.3
2018	441,299	92,557	318,197	30,545	6.9	38.7	29.1	9.6
2019	465,956	96,168	335,930	33,858	7.3	38.7	28.6	10.1
2020	480,006	99,043	344,856	36,107	7.5	39.2	28.7	10.5
2021	518,382	103,366	374,882	40,134	7.7	38.3	27.6	10.7

If evaluated according to years, a significant increase is observed in the ratio of the elderly population and the elderly dependency ratio compared to the young dependency ratio in Nilüfer (Table 6). The population in Nilüfer is getting older.

Table 7. Dependent Population Rates by Neighborhoods (%) (2021)[8]

Name of Neighborhood	Teen Dependency Rate (%)	Elderly Dependency Rate (%)	Total Dependency Rate (%)
19 Mayıs	28.3	13.6	41.9
23 Nisan	33.2	5.9	39.1
29 Ekim	34.2	8.4	42.5
30 Ağustos Zafer	34.6	4.1	38.7
Ahmet Yesevi	35.7	9.1	44.9
Akçalar	36.0	11.1	47.1
Alaaddinbey	23.4	18.6	42.1
Altınşehir	31.0	9.9	40.9
Ataevler	26.1	16.0	42.1
Balat	23.5	5.0	28.5
Balkan	22.1	18.2	40.2
Barış	26.4	15.9	42.4
Beşevler	26.5	11.9	38.4
Cumhuriyet	27.4	16.9	44.3
Çalı	35.5	7.3	42.8
Çamlıca	30.7	11.0	41.7
Demirci	34.0	7.9	42.0
Doğanköy	36.9	9.5	46.4
Dumlupınar	18.4	4.5	22.9
Ertuğrul	35.2	6.4	41.7
Esentepe	26.4	16.2	42.7
Fethiye	29.9	10.9	40.8
Gölyazı	18.2	28.0	46.2
Görükle	6.9	2.8	9.6
Gümüştepe	22.5	19.4	42.0
Güngören	26.5	32.1	58.6
Hasanağa	25.5	20.3	45.8
Işıktepe	34.3	11.8	46.1
İhsaniye	25.9	18.1	44.0
İrfaniye	29.8	22.1	51.9
Karaman	26.4	20.1	46.5
Kayapa	27.5	14.2	41.7
Kızılcıklı	35.2	7.0	42.2
Konak	28.0	15.5	43.5
Konaklı	28.6	27.2	55.8
Kurtuluş	29.8	9.3	39.0
Kültür	34.1	9.8	43.9
Minareliçavuş	34.7	12.2	46.9
Odunluk	34.5	8.7	43.1
Özlüce	32.8	9.7	42.5
Tahtalı	30.9	21.2	52.1
Üçevler	36.0	7.2	43.2
Ürünlü	26.3	17.6	43.9
Yaylacık	29.6	19.8	49.4
Yolçatı	38.7	10.1	48.8
Yüzüncüyıl	30.5	11.6	42.1
Overall Total of Neighborhoods*	**27.6**	**10.5**	**38.2**

Considering the dependent population information according to the neighborhoods in Table 7, it is seen that the highest dependent population is in Güngören Neighborhood with 58.6%, and the lowest dependent population is in Görükle Neighborhood with 9.6%. The highest number of young dependent population is in Yolçatı Neighborhood with 38.7%, and the elderly dependent population is in Güngören Neighborhood with 32.1%.

Reproductive health services, pediatric health services, immunization and monitoring of growth and development are the services that should be prioritized in the neighborhoods of Yolçatı (38.7%), Doğanköy (36.9%), Akçalar (36.0), Üçevler (36.0%) and Ahmet Yesevi (35.7%) where the young dependent population is the highest. Preventive measures against chronic diseases health services, cancer screening services, immunization services and care services for related groups should be given priority in the neighborhoods of Güngören (32.1%), Gölyazı (28.0%), Konaklı (27.2%), İrfaniye (22.1%) and Tahtalı (21.2%), where the elderly dependent population is the highest.

1.1.6 Marital Status

Marital status is the status of each individual concerning the marriage laws or customs of the country[18]. Marital status is used to determine a person's official status before the law.

Table 8. Distribution of Individuals over the Age of 15 by Marital Status (2021) [19]

	Female			Male			Total		
	Nilüfer	Bursa	Turkiye	Nilüfer	Bursa	Turkiye	Nilüfer	Bursa	Turkiye
Never Married (%)	24.8	20.6	24.0	29.7	29.2	32.1	27.2	24.9	28.0
Married (%)	62.3	64.2	61.4	65.0	65.1	62.4	63.6	64.6	61.9
Widowed (%)	6.0	5.1	5.0	4.2	3.9	3.9	5.1	4.5	4.4
Divorced (%)	6.9	10.1	9.6	1.1	1.8	1.7	4.0	6.0	5.6

The distribution of marital status of the population at the age of 15 and over according to TURKSTAT data is presented in Table 8. According to this, the rate of divorced individuals in Nilüfer is less than in Bursa and Turkiye, and the rate of individuals who have never been married is higher than in Bursa and less than in Turkiye. It is seen that the rate of widowed in Nilüfer is higher than in Bursa and Turkiye.

According to TURKSTAT data, the distribution of individuals at the age of 15 and over in Turkiye, Bursa and the districts of Bursa in 2021 by marital status is shown in Figures 4 and 5. Considering the distribution of women's marital status, Nilüfer, the district with the highest rate of never-married women at 24.8%, Gürsu with the highest rate of married women at 67.0%, Keles with the highest rate of divorced women at 22.4%, Mudanya with the highest rate of widowed women at 7.9% (Figure 4). Considering the distribution of men's marital status, Yıldırım is the district with the highest rate of never-married men at 30.9%, Orhaneli is the district with the highest rate of married men at 71.3%, Harmancık is the district with the highest rate of divorced men at 6.0% and Gemlik with the highest rate of widowed men at 5.8% (Figure 5).
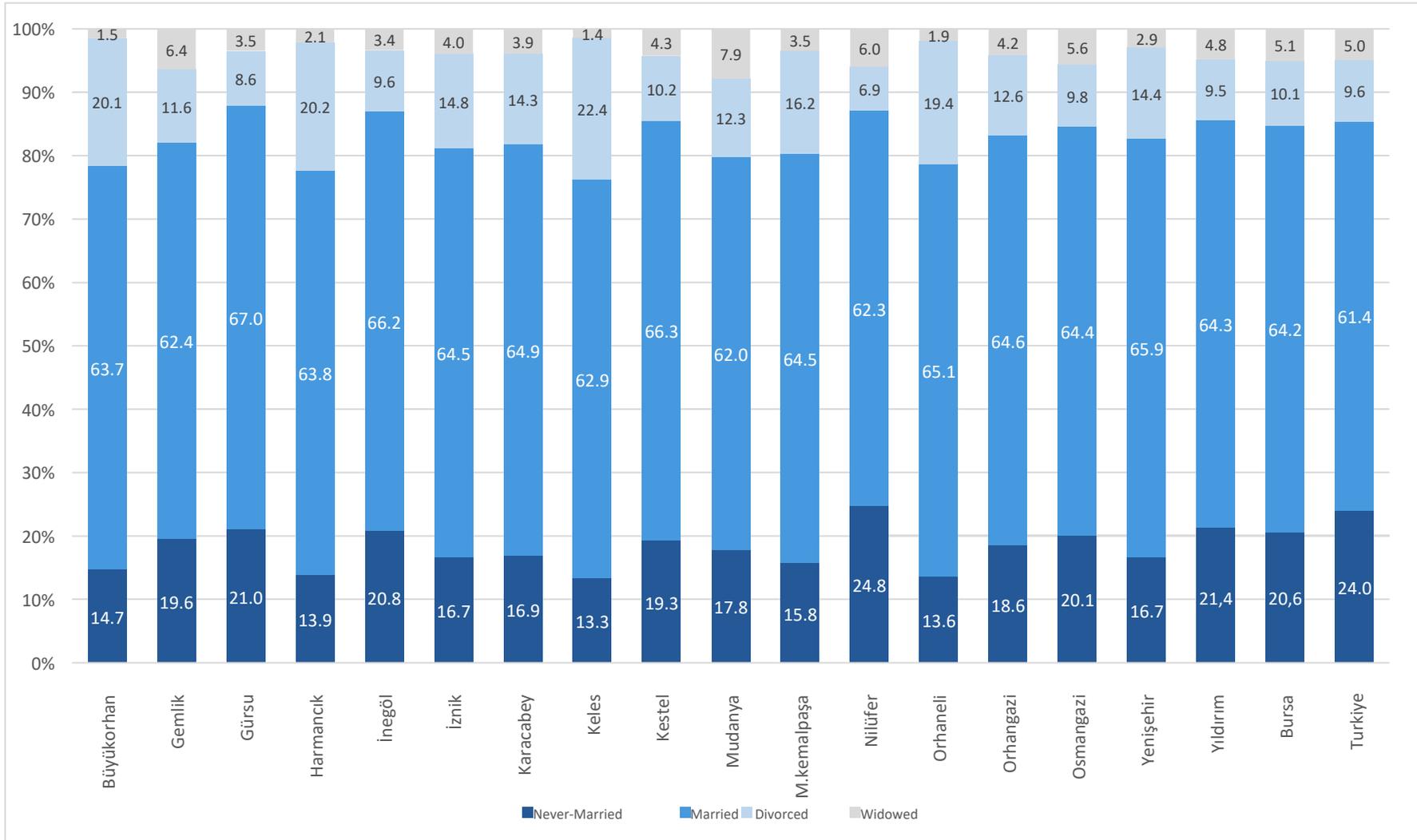
Figure 4: Distribution of Women over the Age of 15 by Marital Status (2021)[19]
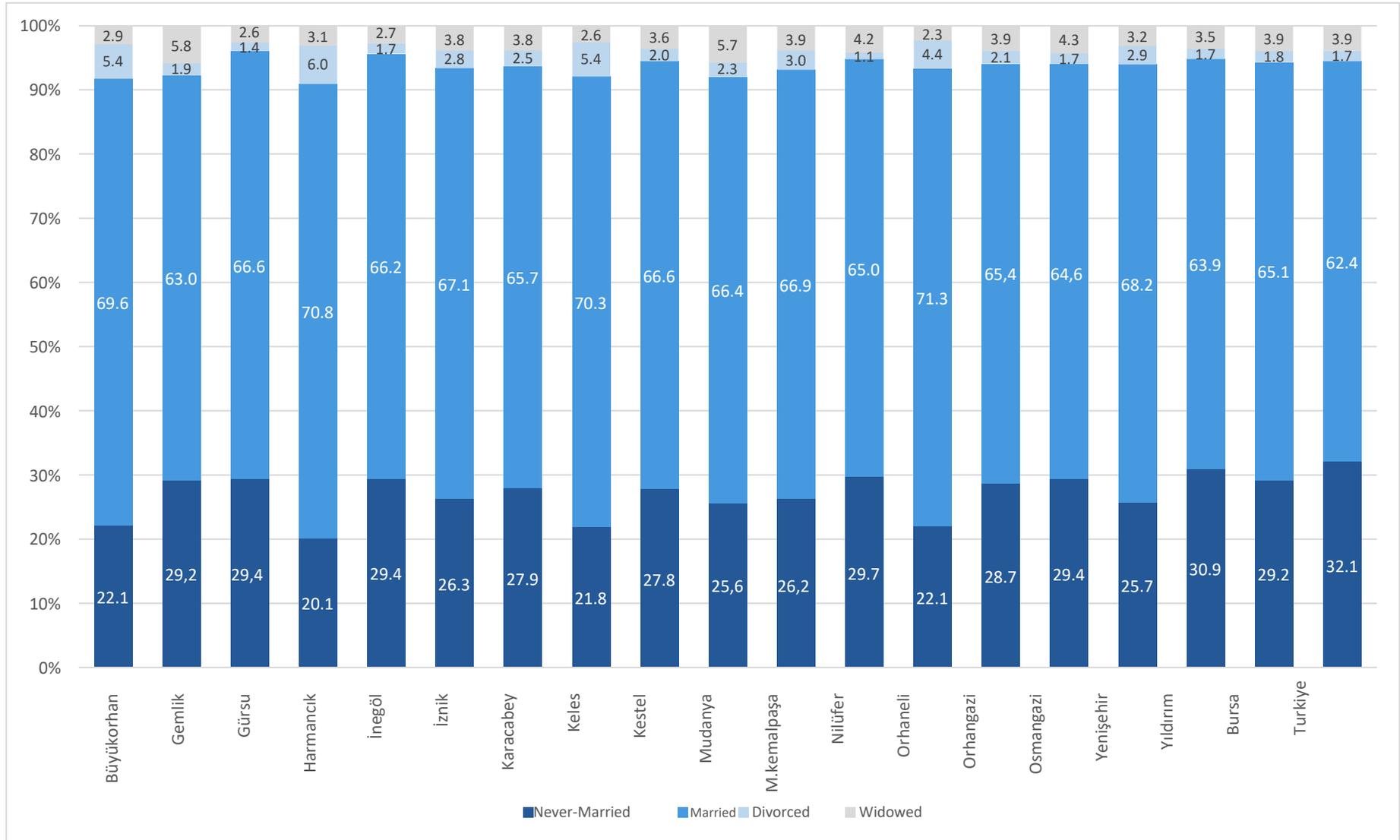
Figure 5: Distribution of Men over the Age of 15 by Marital Status (2021)[19]

Table 9. Distribution of Population over the age of 15 in Nilüfer by Marital Status (2021)[19]

Marital Status	Female		Male		Total
	Number	*%	Number	%	Number
Never Married	51,399	46.7	58,766	53.3	110,165
Married	129,259	50.1	128,550	49.9	257,809
Widowed	12,475	60.1	8,276	39.9	20,751
Divorced	14,216	87.1	2,111	12.9	16,327
Total	207,349	51.2	197,703	48.8	405,052

According to TURKSTAT data, the number of married people over the age of 15 in Nilüfer is 257,809 (62.3%), the number of individuals who have never been married is 110,165 (24.8%), the number of divorced people is 16,327 (6.9%) and the number of widowed is 20,751 (6%). ,0). 46.7% of never-married individuals, 50.1% of married individuals, 60.1% of widowed and 87.1% of divorced individuals are women (Table 9).

1.1.7   Immigration

According to TURKSTAT data in 2012-2019, if the numbers of immigration received and given are considered (Table 10), it is seen that the population of Nilüfer has increased by 52,479 people due to immigration. In 2019, the net population of 17,889 people increased with immigration. Nilüfer City has been the district with the highest population growth in terms of both net immigration in 2019 and net immigration between 2012-2019.

Table 10. Immigration Numbers of Districts by year[20]

	2012	2013	2014	2015	2016	2017	2018	2019	2012-2019
Büyükorhan	-322	113	48	-107	-28	19	53	-353	-577
Gemlik	264	317	910	999	742	1,393	726	792	6,143
Gürsu	722	994	1,167	1,151	1,017	812	-141	-60	5,662
Harmancık	-164	-25	-35	-51	40	14	162	-146	-205
İnegöl	1,267	1,823	2,427	2,416	1,524	1,798	355	829	12,439
İznik	-880	-26	-112	-111	69	174	670	-30	-246
Karacabey	-543	294	90	134	684	643	259	298	1,859
Keles	-396	-6	-6	8	35	6	450	-307	-216
Kestel	-62	399	409	381	532	922	2,825	1,748	7,154
Mudanya	-111	431	804	629	805	741	3,304	3,174	9,777
M.Kemalpaşa	-1,132	-138	-198	115	23	130	437	-21	-784
Nilüfer	5,660	2,924	2,235	6,069	5,196	3,387	9,119	17,889	52,479
Orhaneli	-653	-72	-46	-276	-104	98	31	-168	-1,190
Orhangazi	-964	196	147	176	169	389	-206	8	-85
Osmangazi	2,477	4,126	4,659	5,214	5,382	6,721	-5,631	15	22,963
Yenişehir	-338	48	112	12	352	113	229	4	532
Yıldırım	1,391	2,376	3,079	2,936	4,208	3,854	-11,788	-6,432	-376
Bursa	6,216	13,774	15,690	19,695	20,646	21,214	854	17,240	6,216

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* Line Percentage
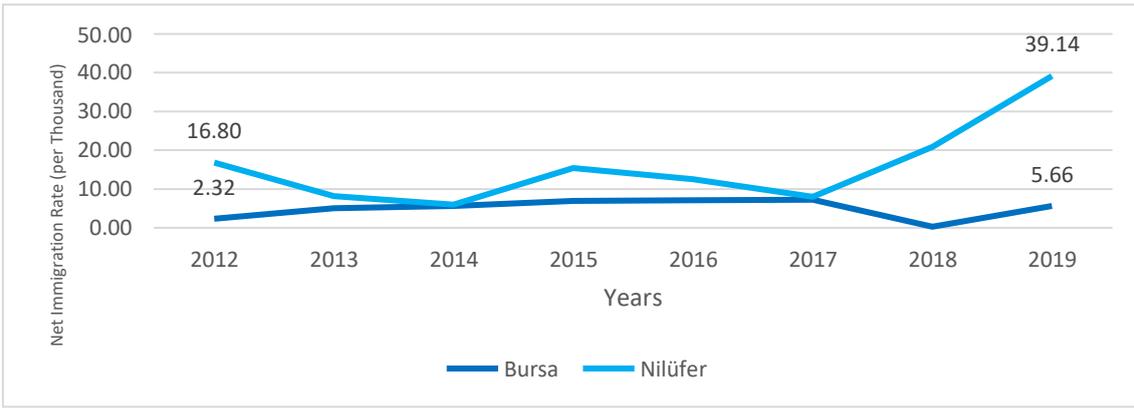
Figure 6: Comparison of Net Immigration Rates of Bursa Province and Nilüfer by Year[20]

When we take a look at the net immigration rates by year (Figure 6) it is seen that the net immigration rate in Nilüfer, which was 16.80 per thousand in 2012, increased to 39.14 in 2019, and it exceeds the total rate of Bursa province in all these years in terms of net migration rate.

1.2 Births

1.2.1 Crude Birth Rate

The crude birth rate is the number of live births per mid-year population per year in a specific geographic area[21]. It provides an idea about the population growth of a region, the age distribution, and the stage of the demographic transformation.
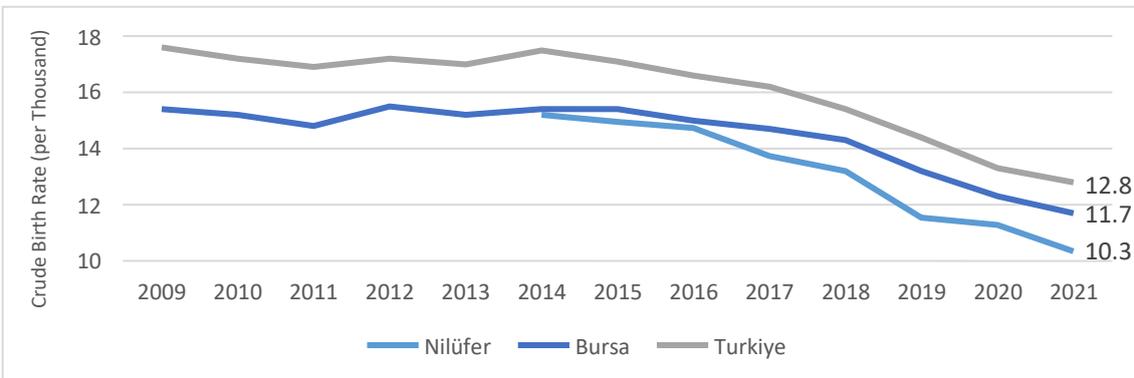
Figure 7: Crude Birth Rate (per Thousand) in Nilüfer, Bursa and Turkiye by year[22]*

According to TURKSTAT data, information on the crude birth rate of Nilüfer, Bursa and Turkiye is given in Figure 7. According to this, the crude birth rate of Nilüfer, Bursa and Turkiye has decreased over the years. Nilüfer has the lowest birth rate among them.

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*The crude birth rate in Nilüfer was obtained by dividing the TURKSTAT Birth Statistics - Number of Births by Districts by the TURKSTAT Address-Based Population Registration System Population data. Crude birth rates in Bursa and Turkiye were of TURKSTAT Birth Statistics - Crude Birth Rate (per Thousand) data.
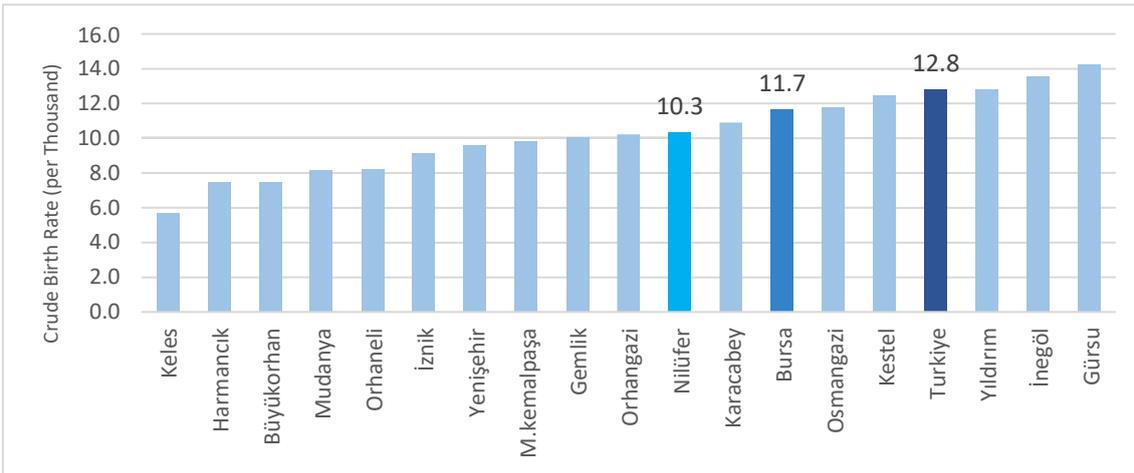
Figure 8: Crude Birth Rate by District (2021)[22*]

According to TURKSTAT data, Keles is the district with the lowest crude birth rate, while Gürsu is the district with the highest rate (Figure 8). Nilüfer is the 7th highest district in terms of crude birth rate.

1.2.2 Fertility

Fertility has been evaluated as the ratio of child-women, defined as the number of children in the 0-4 age group, per 1000 women of reproductive age, between the ages of 15-49. This simple measure is not an exact measure of fertility, but rather a measure of population structure[23].
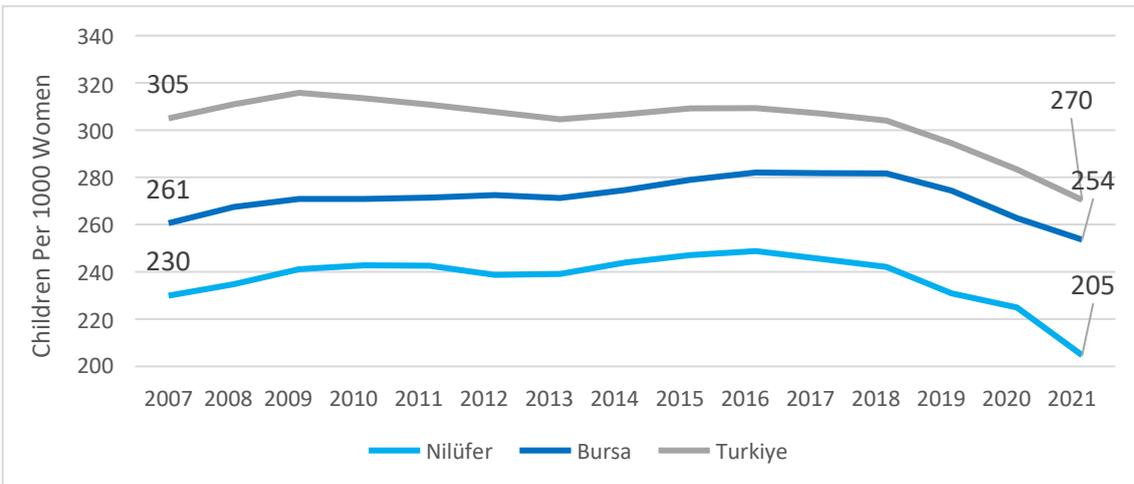
Figure 9: Child/Woman Ratio by year[8]

It has been observed that the rate of child-women has decreased in Nilüfer since 2007 and has been lower than Bursa and Turkiye in general throughout this term (Figure 9).

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*The crude birth rate in Nilüfer was obtained by dividing the TURKSTAT Birth Statistics - Number of Births by Districts by the TURKSTAT Address-Based Population Registration System Population data. Crude birth rates in Bursa and Turkiye were of TURKSTAT Birth Statistics - Crude Birth Rate (per Thousand) data.
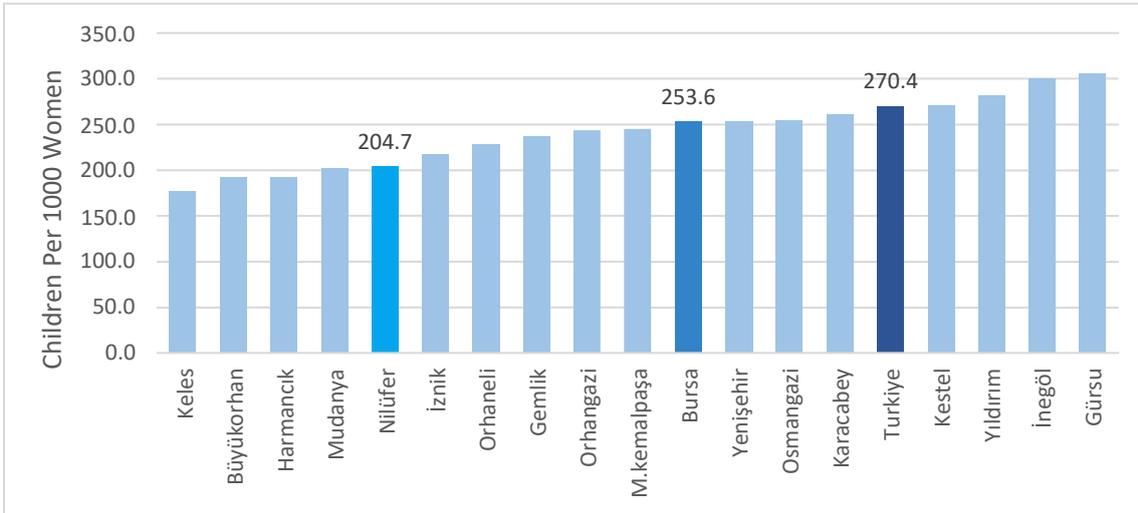
Figure 10: Child/Woman Ratio by Districts (2021)[8]

When other districts are evaluated, it is seen that Keles has the lowest and Gürsu has the highest child-woman ratio. On the other hand, Nilüfer is the 5th district with the lowest child-woman ratio among Bursa districts (Figure 10).

1.2.3   Total Fertility Rate

The total fertility rate is the average number of children a hypothetical cohort of women will have at the end of their reproductive period over their entire lifetime. It is expressed as children per woman. It is calculated by summing the age-specific fertility rates of women between the ages of 15 and 49 and multiplying the result by 5[24].
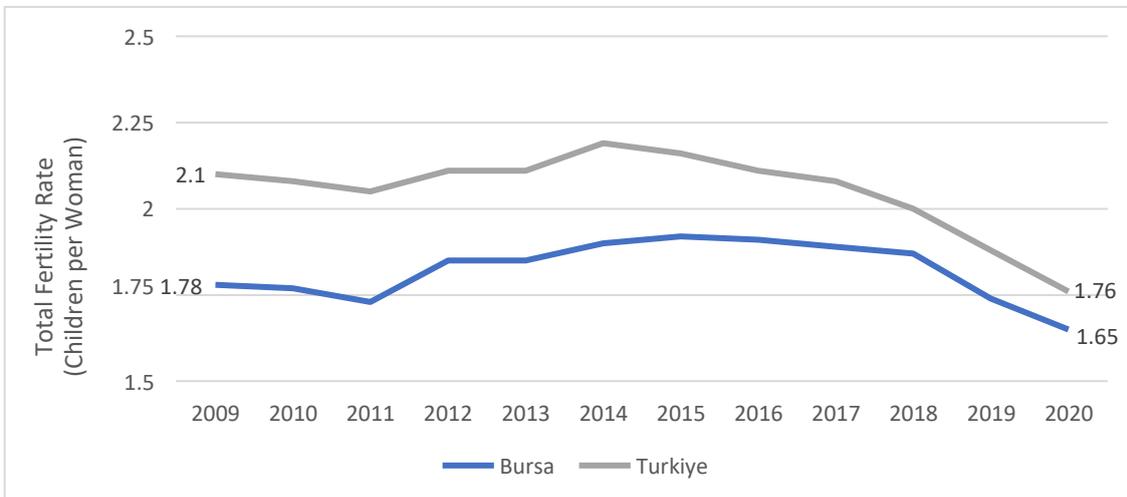
Figure 11: Total Fertility Rate (Child Per Woman) in Bursa and Turkiye According to TURKSTAT Data[25]

Since there is no data on the number of births or birth rates or total fertility rate of women in Nilüfer, only Bursa and Turkiye data can be evaluated in this respect (Figure 11). The number of children expected from a woman at the end of her reproductive age in Bursa is lower than in Turkiye.

1.2.4 Stillbirths

According to the definition of the Ministry of Health, stillbirth is a pregnancy that does not end in live birth at or after the 22nd week of pregnancy, or with a birth weight of 500 grams or more[26]. According to the definition of the World Health Organization, stillbirth is a stillborn baby after 28 weeks of pregnancy[27]. The stillbirth rate is an indicator that shows how many of 1000 births result in stillborn[27]. It should be noted that due to differences in definitions, the data calculated by Turkish official institutions are calculated according to the first definition, but international comparisons are calculated according to the second definition. As a result, it is expected that the national accounts of official institutions in Turkiye will be higher than the calculations of international organizations.

Figure 12 shows the change in the stillbirth rate in Nilüfer according to the rates calculated using the stillbirth data given by the Bursa Provincial Health Directorate with the warning "…data can be listed according to the address where the death occurred..." and the birth data of Nilüfer of TURKSTAT.
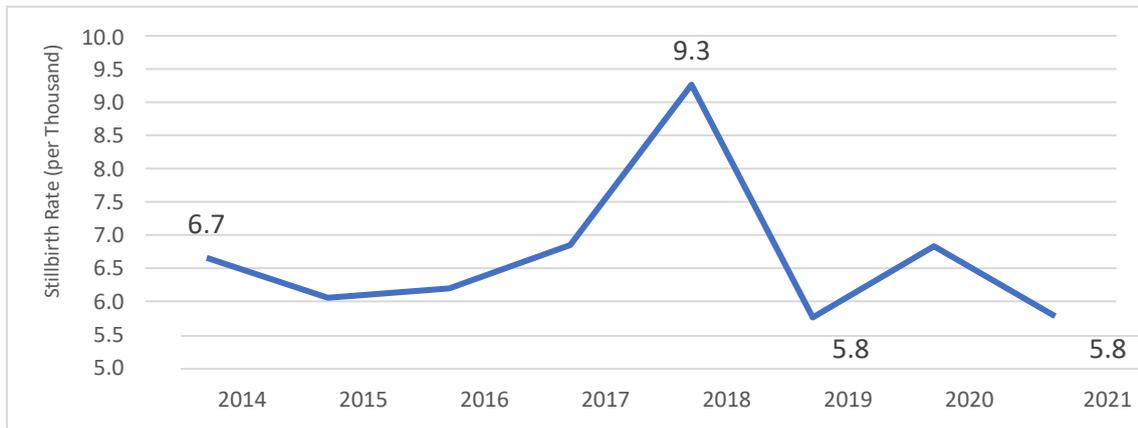
Figure 12: Variation of Stillbirth Rates in Nilüfer by year[28]

In 2018 PHS, which is the most recent data for Turkiye, it is reported that approximately 80 out of every 100 pregnancies in the last 5 years were live births, 13 of them spontaneous abortions, 6 of them induced abortions and 1 of them stillbirth[29]. According to the data in PHS, it can be estimated that Turkiye's stillbirth rate is approximately 12.5 per thousand. Compared to this value, the stillbirth rate (Figure 12) may be lower in Nilüfer.

According to the World Health Organization, Turkiye's stillbirth rate in 2019 is 4.43 per thousand (CI: 4.27 - 4.61) and ranks 50th among 196 countries[30]. Figure 13 shows the change in the stillbirth rate in Turkiye over the years in line with the WHO data.
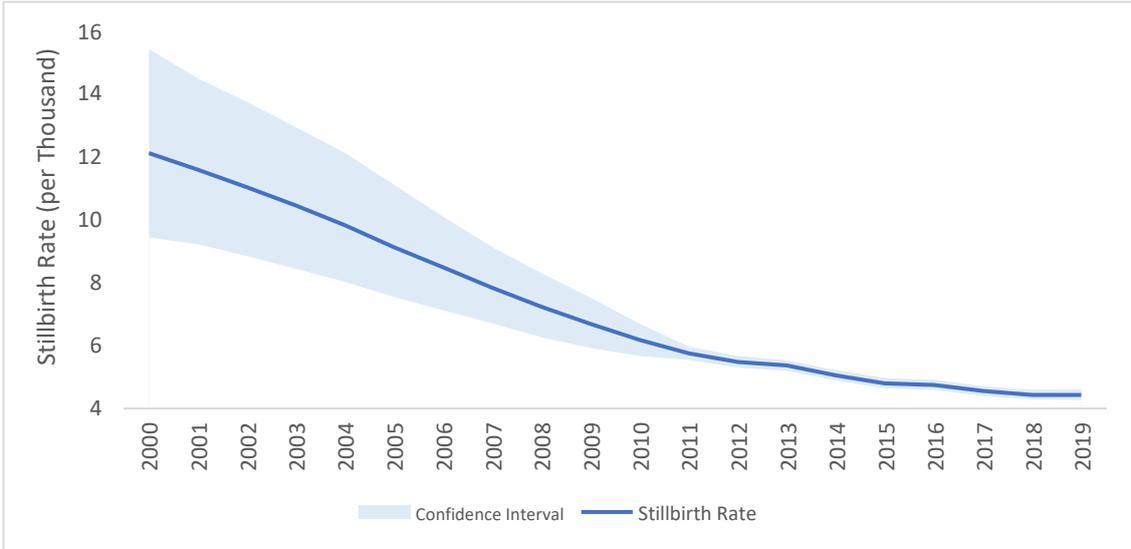
Figure 13: Variation of Stillbirth Rates in Turkiye According to WHO Estimates by year[30]

The stillbirth rate, which is estimated at 12.5 per thousand according to PHS, is 4.4330 according to WHO estimates (Figure 13). This is due to the definition differences in the stillbirth calculation mentioned at the beginning. According to WHO estimates, it is seen that the stillbirth rate has decreased over the years in Turkiye. Considering that the stillbirth rate in Nilüfer is lower than the stillbirth rate in Turkiye according to PHS data, it can be estimated that if the cut-off point for the stillbirth rate in Nilüfer is on the 28th week, it will be lower than 4.43 per thousand.

1.1.1 Family Planning

The information on how many people in Nilüfer benefit from or need family planning services could not be reached within the scope of family planning.

Nilüfer Municipality continued women's health education programs from 2019 to the beginning of the pandemic in 2020. This program, in cooperation with the Turkish Family Health and Planning Foundation (TFHP), after completing the "trainer training" of sociologists and psychologists working in the Nilüfer Municipality Equality Unit, was implemented to ensure that women have access to accurate information on basic sexual health issues, to encourage them to take a role in preventive health behaviors, to improve their position in the family and society, and to improve their quality of life.

During this series of seminars, women from both rural and city have been provided information on Reproductive Organs and Pregnancy, Cleaning and Nutrition, Safe Motherhood, Problems and Diseases Specific to Women, Contraceptive Methods, Sex Education in Childhood and Adolescence and Women's Rights (Table 11).

Table 11. Places of Training and Number of Participants in the Women's Health Seminar Program

2019		2020	
Place	**Number of Attendants**	**Place**	**Number of Attendants**
Bizim Ev Disabled Social Life and Support Center	30	İrfaniye Neighborhood	45
Balkan Neighborhood	5	Işıktepe Neighborhood	50
Büyükbalıklı Neighborhood	11	Hasanağa Neighborhood	60
Hasanağa Neighborhood	11	30 Ağustos Zafer Neighborhood	7
Işıktepe Neighborhood	70	Ürünlü Neighborhood	80
Konaklı Neighborhood	16	Yolçatı Neighborhood	12
Kurtuluş Neighborhood	23	Büyükbalıklı Neighborhood	79
Minareliçavuş Neighborhood	53	Çaylı Neighborhood	41
		Minareliçavuş Neighborhood	14

1.2 *Deaths*

1.2.1 Causes of Death

Information on the Causes of Death is important for showing the diseases and health conditions that need to be intervened first in society.

Although the information on the causes of death in Nilüfer could not be obtained, information on the causes of death in Bursa and Turkiye is given in Figure 14, according to the information of TSI[31]. According to this information, the first three causes of death in Bursa are circulatory system diseases, malignant and benign neoplasms, and respiratory system diseases, respectively. All of the deaths due to all these three reasons have increased in Bursa over the years. The first three causes of death in Turkiye are respectively seen as circulatory system diseases, malignant and benign neoplasms, and deaths due to other causes.

According to the Institute for Health Metrics and Evaluation (IHME) studies, the 3 most common causes of death in countries with medium-low, medium, and medium-high development index worldwide are respectively cardiovascular diseases, neoplasms, and chronic respiratory system diseases[32]. In this context, Bursa is similar to the world and countries with a level of development close to Turkiye regarding causes of death.

Figure 14: Distribution of Deaths in Turkiye and Bursa by year and Causes According to TURKSTAT Data[31]

Turkiye

Year	Circulatory System Diseases	Benign and Malicious Tumors	Respiratory System Diseases	Endocrine Diseases	Nervous System and Sense Organ Diseases	Other Causes
2011	38,8%	21,6%	10.1%	3,7%	4,1%	15,5%
2012	37,9%	21,6%	9.7%	4,3%	4,1%	16,4%
2013	39,6%	21,2%	9.8%	4,1%	5,7%	14,1%
2014	40,0%	20,3%	10.6%	4,3%	5,3%	14,4%
2015	40,1%	19,9%	11.0%	4,8%	4,8%	14,4%
2016	39,5%	19,4%	11.7%	5,1%	4,8%	14,5%
2017	39,5%	19,3%	11.8%	4,9%	5,1%	14,7%
2018	38,7%	19,7%	12.5%	5,0%	4,7%	14,6%
2019	39,1%	19,5%	13.7%	4,9%	3,9%	14,3%

Bursa

Year	Circulatory System Diseases	Benign and Malicious Tumors	Respiratory System Diseases	Endocrine Diseases	Nervous System and Sense Organ Diseases	External Injuries and Poisonings	Other Causes
2011	42,9	21,2	8,5	5,5%	4,1%	3,5%	14,4
2012	39,6	23,9	8,0	5,6%	4,7%	3,7%	14,5
2013	43,4	22,8	8,6	5,1%	4,5%	4,7%	11,0
2014	45,9	21,5	10,0	3,0%	4,4%	4,5%	10,7
2015	45,7	20,8	10,6	3,4%	4,5%	4,6%	10,4
2016	44,7	20,6	10,7	3,3%	4,8%	5,1%	10,8
2017	44,9	21,5	11,0	2,5%	5,4%	4,7%	9,9
2018	43,9	22,1	12,1	2,6%	5,0%	4,5%	9,9%
2019	44,7	21,4	12,8	2,1%	5,4%	4,1%	9,5

Legend:
- ■ Deaths Due to Other Causes
- ■ Deaths Due to External Injuries and Poisonings
- ■ Deaths Due to Nervous System and Sense Organ Diseases
- ■ Deaths Due to Endocrine Diseases
- ■ Deaths Due to Respiratory System Diseases
- ■ Deaths Due to Benign and Malicious Tumors
- ■ Deaths Due to Circulatory System Diseases

1.2.2 Crude Death Rate

The crude death rate represents the number of deaths per 1000 people per year over the mid-year estimated population. The crude death rate is an indicator of the general health status of a geographic region or population but is not suitable for comparing populations or areas with major differences in age distribution[33].
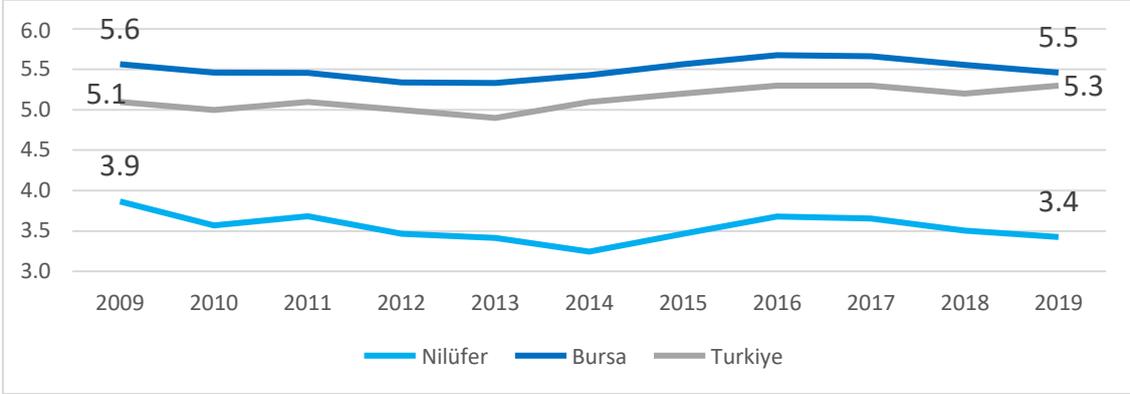
Figure 15: Crude Death Rate of Bursa and Nilüfer by year (Per Thousand)[34*]

According to TURKSTAT data (Figure 15), if the crude death rates of Bursa and Nilüfer from 2009 to 2019 are compared, it is seen that there is a decrease in crude death rates at the end of 10 years in both Bursa province and Nilüfer. The crude death rate of Nilüfer is lower than both Turkiye and Bursa for 10 years.
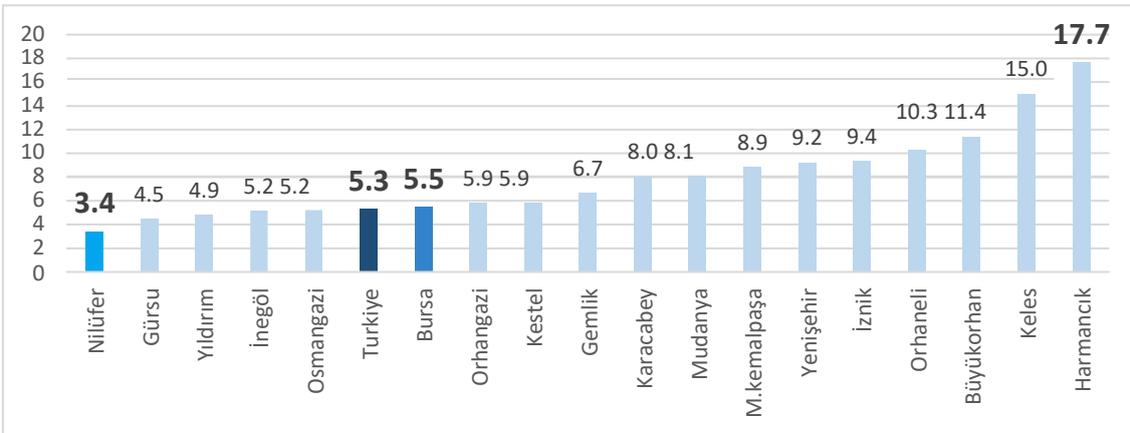
Figure 16: Crude Death Rate of Bursa and Its Districts (Per Thousand) (2019)[34*]

According to TURKSTAT data, if the crude death rates of Turkiye, Bursa and its districts are compared for 2019 (Figure 16), Nilüfer has a lower crude death rate than both Turkiye and Bursa average, and Nilüfer has the lowest crude death rate among the districts. It is seen that there are great differences in crude death rates between districts.

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*Crude Death Rates of Districts; TURKSTAT Death Statistics - Obtained by dividing the Number of Births by Districts in accordance with the Population data of the TURKSTAT Address-Based Population Registration System. Crude birth rates in Bursa and Turkiye were of TURKSTAT Birth Statistics - Crude Birth Rate (per Thousand) data.

While Nilüfer has the lowest crude death rate at 3.4 per thousand, Harmancık has the highest rate at 17.7 per thousand. It is considered that this situation is due to the differences in distributing the elderly population among the districts (Keles and Harmancık districts with the highest elderly dependency ratio), socio-economic inequalities and inequalities in health services. Deductions about deaths are limited to what is stated since standard death rates or information to calculate death rates which can provide a more convenient and more detailed evaluation of death rates of districts cannot be obtained.

The data on the individuals who were provided burial services by the Nilüfer Municipality is another data source that can be used in the evaluation of deaths, and since the information about the years 2020 and 2021 was not shared in the TURKSTAT data, it was used as an alternative source for the evaluation of the deaths in these years. Since this data covers the burial service provided by Nilüfer Municipality, it excludes deaths within the district who do not benefit from this service. Therefore, the number of deaths from this source is lower compared to the data of TURKSTAT (347, 284, 359, 344, 240, 363, 266, 361, and 327 deaths each year, respectively, since 2011).
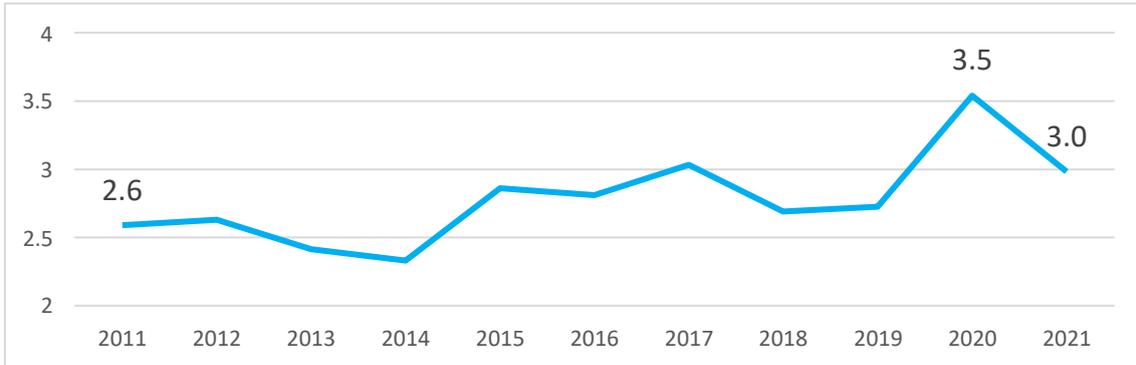
Figure 17: Crude Death Rate of Nilüfer by year According to Nilüfer Municipality Burial Data (Per Thousand)[35]*

According to the burial data of Nilüfer Municipality, deaths by year are shown in Figure 17. Accordingly, it is seen that the crude death rate (Figure 17) obtained is lower than the overall mortality rate in Bursa (Figure 15). It is possible to think that the significant increase in the death rate in 2020 is due to COVID-19. The death rate in 2021 is also seen to be higher than in 2019.

According to the burial data of Nilüfer Municipality, the calculations of the crude death rates of the neighborhoods by year are presented in Table 12.

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*The rude death rate calculated according to burial data is calculated by dividing the burial data of Nilüfer Municipality Social Support Services Directorate and the Nilüfer population data of the TURKSTAT Address-Based Population Registration System.

Table 12. Crude Death Rate of Neighborhoods According to Burial Data of Nilüfer Municipality (per Thousand)[35*]

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
19 Mayıs Neig.	-	-	0.0	0.7	1.1	3.1	3.4	5.3	3.4	8.4	7.1
23 Nisan Neig.	-	-	0.0	0.8	1.3	1.0	1.1	1.0	1.1	1.6	1.5
29 Ekim Neig.	-	-	0.1	1.1	1.5	1.3	1.6	1.6	1.6	2.1	2.0
30 Ağustos Zafer Neig.	11.6	6.5	3.2	0.8	0.0	2.6	3.0	0.0	1.7	0.8	1.1
Ahmet Yesevi Neig.	2.5	0.5	1.0	1.6	1.3	2.4	1.3	1.7	1.2	2.4	2.0
Akçalar Neig.	6.7	5.2	4.5	5.9	5.6	7.3	6.1	5.4	3.1	4.5	3.1
Alaaddinbey Neig.	1.3	5.4	4.1	10.6	9.4	7.6	8.7	3.8	3.6	7.0	8.7
Altınşehir Neig.	2.1	1.4	1.9	1.7	1.6	2.0	1.9	1.6	2.2	2.0	2.3
Ataevler Neig.	3.2	3.4	3.3	3.0	3.1	4.0	5.1	2.9	2.4	3.5	3.5
Atlas Neig.	0.0	0.0	3.2	0.0	3.6	14.7	7.0	13.0	2.5	5.0	12.9
Ayvaköy Neig.	0.0	0.0	0.0	13.2	6.5	22.2	14.9	14.2	6.7	13.4	6.4
Badırga Neig.	0.0	0.0	2.7	8.4	0.0	14.5	2.9	8.8	15.0	11.6	9.1
Balat Neig.	1.5	1.9	1.4	0.4	1.2	1.3	1.2	1.1	1.1	1.7	1.0
Balkan Neig.	0.0	0.0	1.5	2.2	4.9	4.6	7.4	3.8	5.3	5.9	4.5
Barış Neig.	1.9	2.6	2.2	1.9	2.9	3.0	3.0	4.0	3.6	3.7	2.5
Başköy Neig.	3.4	7.3	3.8	7.1	22.7	4.0	17.1	14.6	15.0	22.4	11.2
Beşevler Neig.	3.0	2.4	2.3	2.0	2.5	2.8	3.2	2.2	3.0	3.9	3.5
Büyükbalıklı Neig.	6.4	0.0	6.2	12.5	2.3	2.2	4.4	4.3	6.6	12.9	8.7
Cumhuriyet Neig.	2.5	2.9	1.6	2.6	2.6	3.3	3.3	2.7	3.4	4.4	4.1
Çalı Neig.	4.1	3.8	4.7	5.0	2.2	3.8	3.5	2.7	3.9	4.5	3.2
Çamlıca Neig.	1.5	1.4	2.1	2.2	1.9	1.9	2.5	1.8	2.5	2.5	2.7
Çatalağıl Neig.	0.0	0.0	0.0	0.0	14.8	5.2	29.7	14.4	25.3	19.9	51.1
Çaylı Neig.	0.0	0.0	0.0	8.6	11.4	0.0	3.0	14.7	12.3	9.4	12.6
Dağyenice Neig.	0.0	0.0	3.6	7.1	17.7	0.0	3.3	6.3	0.0	15.0	2.7
Demirci Neig.	3.7	4.2	1.9	1.5	2.4	3.3	1.8	2.3	1.5	3.0	2.6
Doğanköy Neig.	0.0	0.0	0.5	3.1	4.1	1.5	1.9	2.4	3.4	4.7	4.6
Dumlupınar Neig.	1.0	0.5	1.4	1.2	1.0	1.4	1.7	1.2	1.3	2.5	1.6
Ertuğrul Neig.	1.1	1.2	3.4	1.2	1.8	0.9	1.6	0.9	1.2	1.7	1.7
Esentepe Neig.	2.9	3.1	2.5	1.8	3.5	3.7	4.1	1.9	3.3	3.7	3.7
Fadıllı Neig.	0.0	0.0	2.4	0.0	14.9	5.1	7.6	25.2	23.3	12.9	18.2
Fethiye Neig.	2.5	2.9	2.6	2.3	2.7	3.2	2.3	2.7	2.4	4.2	3.0
Gökçe Neig.	0.0	6.6	4.3	4.3	4.5	4.3	8.8	2.2	2.3	4.5	4.5
Gölyazı Neig.	7.8	7.8	7.3	8.2	11.1	13.4	12.2	8.7	11.7	9.0	10.0
Görükle Neig.	5.2	4.8	3.4	3.2	1.8	1.5	2.0	1.7	1.5	2.1	1.4
Gümüştepe Neig.	7.1	5.6	11.9	5.6	4.0	5.5	6.4	2.4	8.2	7.2	9.6
Güngören Neig.	0.0	0.0	1.9	1.9	11.8	3.9	7.9	13.7	7.9	5.9	3.9
Hasanağa Neig.	16.4	13.9	10.1	11.3	16.0	7.7	12.3	13.5	12.4	13.8	13.3
Işıktepe Neig.	3.4	3.7	4.8	2.0	5.5	3.0	3.7	3.7	3.7	3.9	4.1
Ihsaniye Neig.	2.9	3.1	2.6	3.0	3.7	3.7	3.8	4.2	3.7	5.0	4.5
İnegazi Neig.	0.0	0.0	0.0	0.0	8.0	0.0	16.4	7.3	12.4	13.4	14.5
İrfaniye Neig.	0.8	3.4	6.0	8.5	6.8	8.7	9.7	8.8	8.7	6.9	11.4
Kadriye Neig.	0.0	0.0	0.0	9.1	0.0	10.1	10.8	22.7	36.1	34.1	9.8
Karacaoba Neig.	0.0	0.0	4.0	4.0	16.3	3.9	7.7	9.7	3.4	10.2	27.7
Karaman Neig.	3.4	4.2	3.3	3.2	5.4	3.5	4.6	5.3	4.1	5.9	5.3
Kayapa Neig.	2.4	4.8	10.2	5.4	10.6	5.9	6.9	9.3	3.8	8.5	5.1
Kızılcıklı Neig.	0.0	0.0	0.2	0.8	0.5	0.2	0.7	0.8	1.4	1.6	1.6
Konak Neig.	2.1	2.1	2.2	2.2	1.8	2.7	3.0	2.5	2.8	3.6	3.0
Konaklı Neig.	0.0	0.0	0.9	4.6	5.4	6.2	6.3	6.2	11.5	6.3	5.5
Korubaşı Neig.	0.0	0.0	0.0	3.4	7.0	10.7	11.0	10.5	3.5	35.7	10.1
Kurtulus Neig.	2.2	1.5	7.1	2.0	3.3	1.2	3.0	3.2	2.1	3.5	3.0
Kuruçeşme Neig.	0.0	0.0	0.0	0.0	13.7	0.0	40.0	44.0	35.7	12.8	13.0
Kültür Neig.	1.4	1.5	1.1	1.3	1.4	2.1	1.9	1.9	1.7	2.2	2.1
Makşempınarı Neig.	4.7	4.7	0.0	0.0	0.0	4.1	15.9	11.0	15.0	15.0	22.8
Minareliçavuş Neig.	2.4	2.9	3.1	3.0	13.9	3.6	3.1	4.6	2.4	2.2	3.5
Odunluk Neig.	1.4	1.6	3.2	1.3	3.1	1.9	2.2	0.7	2.5	2.5	1.9
Özlüce Neig.	7.0	11.1	5.9	8.5	9.0	9.3	10.5	7.1	5.5	4.6	2.7
Tahtalı Neig.	0.0	2.5	0.0	4.1	3.2	9.0	5.7	10.6	4.1	12.4	9.1
Unçukuru Neig.	0.0	0.0	0.0	8.3	12.4	16.1	4.3	8.3	3.9	19.4	19.9
Üçevler Neig.	2.2	1.5	1.1	1.2	1.7	2.0	2.5	2.3	2.0	2.5	2.4
Üçpınar Neig.	0.0	0.0	0.0	13.3	14.3	13.3	28.2	12.3	0.0	11.8	11.9
Ürünlü Neig.	5.1	4.6	3.6	3.5	5.4	8.1	6.6	5.0	4.1	8.6	5.2
Yaylacık Neig.	0.0	1.4	1.9	2.3	6.7	7.6	7.6	3.9	8.2	10.0	6.8
Yolçatı Neig.	0.3	0.3	0.6	2.5	4.0	3.8	3.6	3.0	4.4	5.1	4.8
Yüzüncüyıl Neig.	1.2	1.7	1.5	1.1	1.6	1.7	2.3	2.3	2.1	2.9	1.9
Overall Total	2.6	2.6	2.4	2.3	2.9	2.8	3.0	2.7	2.7	3.5	3.0

*Crude death rate calculated according to burial data is calculated by dividing the burial data of Nilüfer Municipality Social Support Services Directorate and the Nilüfer population data of the TURKSTAT Address-Based Population Registration System.

Çatalağıl (51,1), Karacaoba (27,7), Makşempınarı (22,8), Unçukuru (19,9), Fadıllı (18,2), İnegazi (14.5), Hasanağa (13.3), Kuruçeşme Neighborhoods (13,0), Atlas (12,9), Çaylı (12,6) are the 10 neighborhoods with the highest crude death rate in 2021. Balat (1.0), August 30 Victory (1.1), Görükle (1.4), April 23 (1.5), Dumlupınar (1.6), Kızılcıklı (1.6), Ertuğrul (1.7)), Odunluk (1.9), Yüzüncü Yıl (1.9), Ahmet Yesevi (2.0) Neighborhoods are the 10 neighborhoods with the lowest crude death rate in 2021 (Table 12). If the neighborhoods with the highest crude death rates are evaluated, it is seen that the population is elderly and rural neighborhoods. Although it is more accurate to use standardized death rates to compare death rates among neighborhoods, only crude death rates can be compared since there is no information on the ages at which deaths occurred over the years.
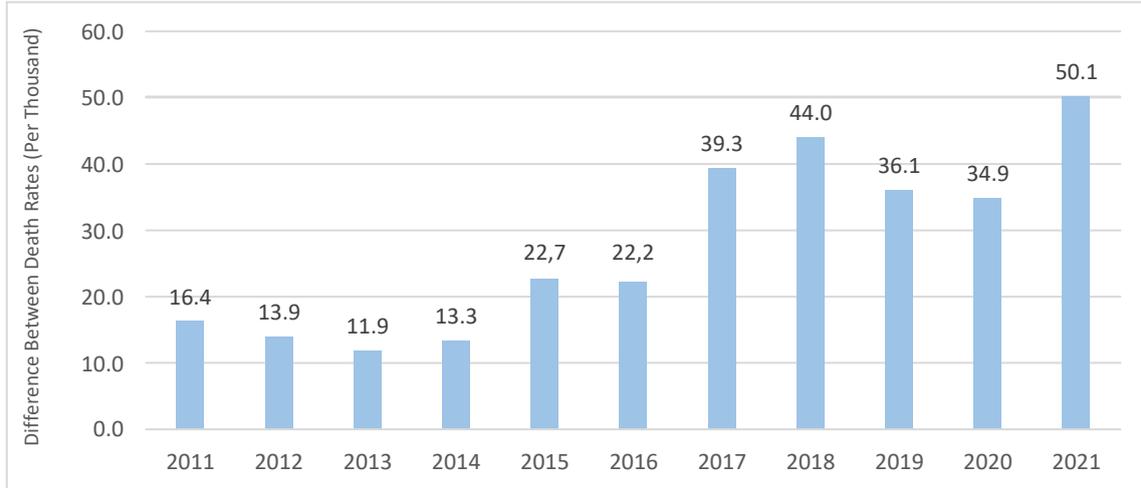
Figure 18: According to Nilüfer Municipality Burial Data, the Difference Between the Neighborhood with the Lowest Death Rate and the Highest Death Rate Among the Neighborhoods of Nilüfer over the Years (per Thousand)[35*]

When the difference between the neighborhood with the highest death rate and the neighborhood with the lowest death rate is evaluated according to years, it is seen that the difference has increased over the years (Figure 18). The increase in this difference over the years may be due to reasons such as the increasing elderly population in rural neighborhoods against the decreasing young population, the migration of the young population to different neighborhoods, the concentration of health services in the city and inequalities between neighborhoods.

1.2.3 Deaths by Sex

The sex-specific death rate is calculated by dividing the deaths of any biological sex by the population of that sex. It is a rough indication of whether there is a difference between the sexes in terms of deaths.

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* The difference between the highest and lowest crude death rates by neighborhoods was calculated by dividing the burial data of the Nilüfer Municipality Social Support Services Directorate and the Nilüfer population data of the TURKSTAT Address Based Population Registration System.
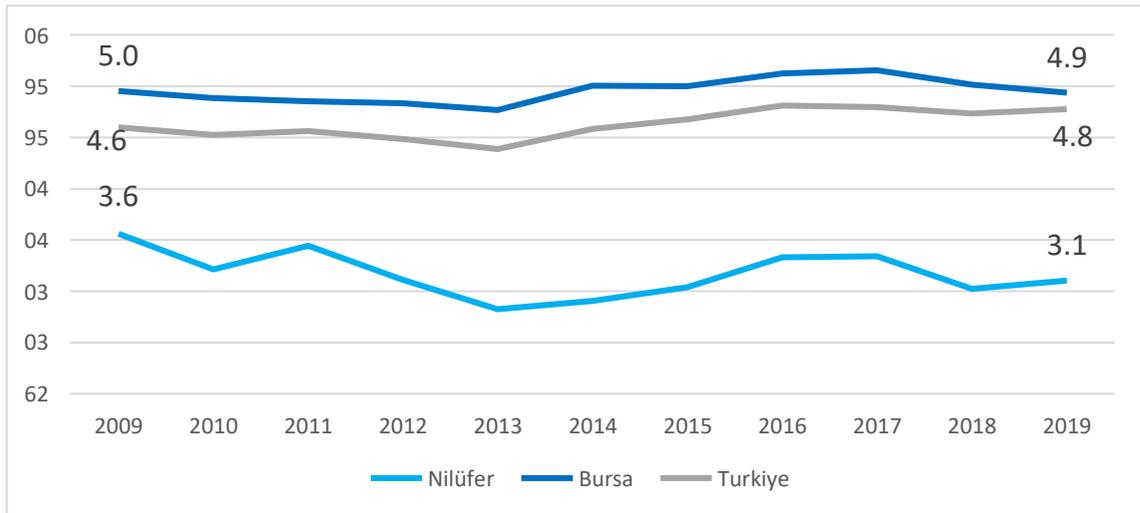
Figure 19: Female Sex-Specific Death Rate in Bursa and Nilüfer by year （Thousand)[36*]

Similar to the crude death rate, when female sex-specific deaths from 2009 to 2019 are compared, it is seen that the death rate in Bursa and Turkiye is higher than in Nilüfer during the 10-year period (Figure 19). At the end of 10 years, there was a decrease in death rates in both Bursa province and Nilüfer.
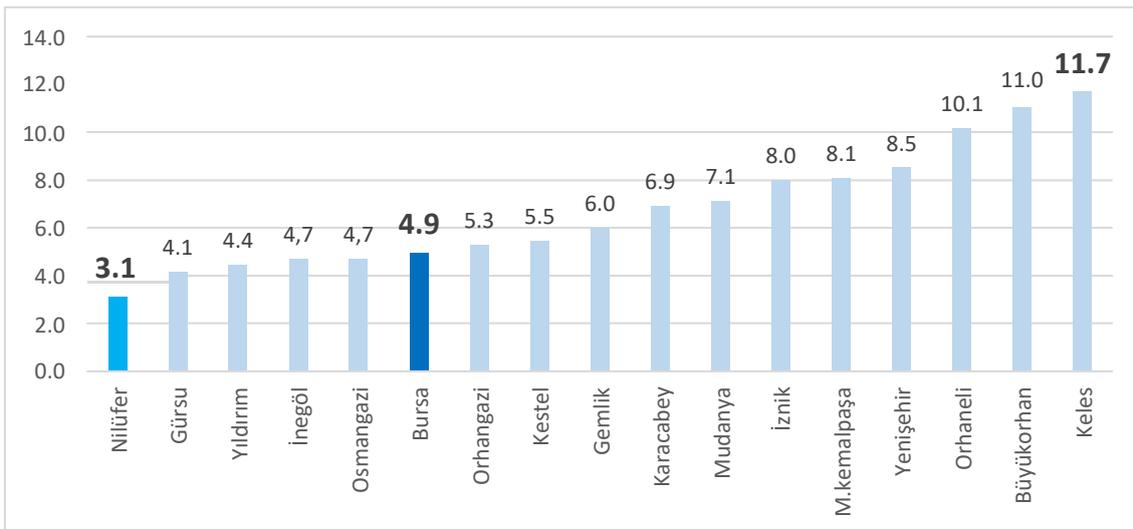
Figure 20: Female Sex-Specific Death Rate of Bursa and its Districts (Per Thousand) (2019)[36*]

Similar to the crude death rates, there are differences between districts and Nilüfer has the lowest female sex-specific death rate among districts (Figure 20).

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*Bursa's sex-specific death rate is obtained by dividing deaths in female sex by TURKSTAT Bursa female population. Sex-specific death rates for districts are obtained by dividing deaths in female sex of TURKSTAT - Number of Deaths by Districts by TURKSTAT district female populations.
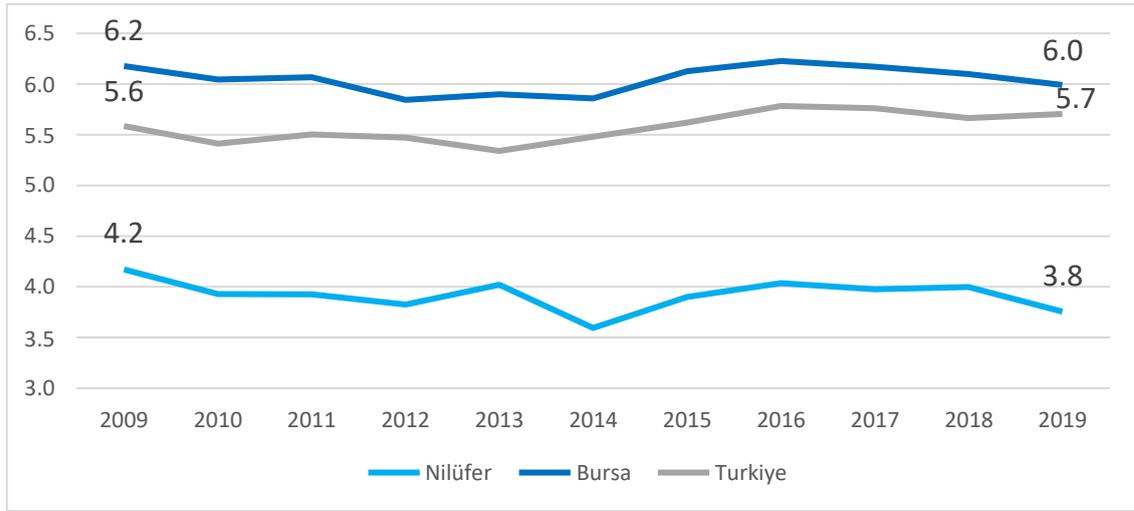
Figure 21: Male Sex-Specific Death Rate in Bursa and Nilüfer by year (per Thousand)[36*]

For men, there is a similar pattern to the death rates of both women and the entire population, and within 10 years Nilüfer has been consistently below the average of Bursa and Turkiye, and at the end of 10 years there has been a decrease in death rates (Figure 21).
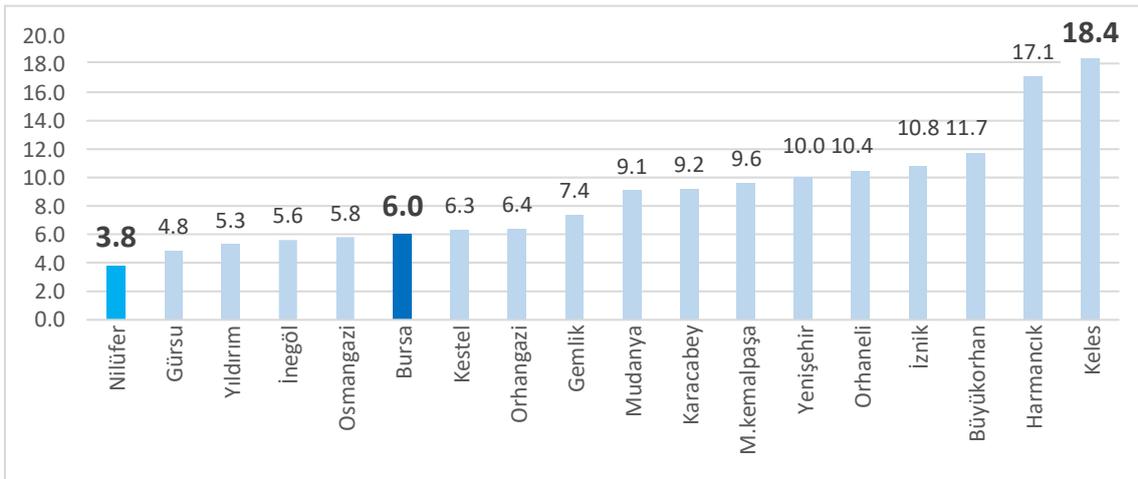
Figure 22: Male Sex-Specific Death Rate of Bursa and its Districts (Per Thousand) (2019)[36]

It is seen that there are more significant differences between the districts in the death rates of men compared to women. Nilüfer has the lowest male sex-specific death rate among the districts of Bursa (Figure 22).

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*Bursa's sex-specific death rate is obtained by dividing deaths in the male sex by Bursa male population registered by TURKSTAT. Sex-specific death rates for districts are obtained by dividing TURKSTAT - Number of Deaths by Districts with the male deaths by TURKSTAT district male populations.
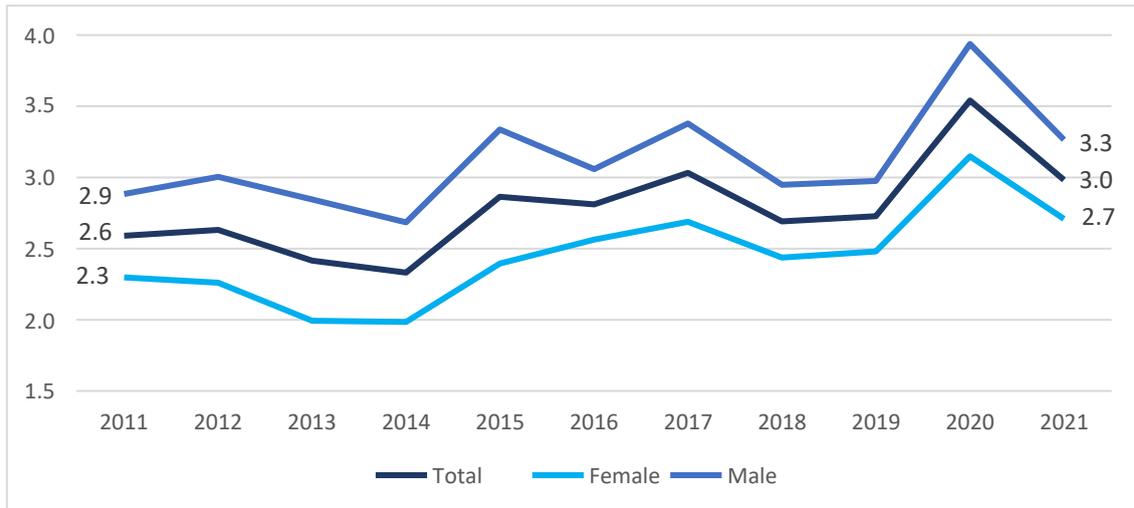
Figure 23: Crude and Sex-Specific Death Rates (Per Thousand) According to Burial Data of Nilüfer[35]*

According to burial data, the death rate for both men and women is lower than the data of TURKSTAT. The death rate of females is lower than that of males, as in the data of TURKSTAT. When the change over the years is evaluated, it is seen that the sex-specific death rates in Nilüfer increased significantly in 2020, similar to the crude death rate, and were higher in 2021 than in 2019 (Figure 23).

1.2.1 Excess Deaths

Excess death is an indicator that indicates an unusual increase in death in a given population that deviates from the normal in a given period[37]. Since different testing strategies of countries include deaths of COVID-19 cases that could not be detected due to many reasons such as false negatives, non-testing, and deaths due to other causes indirectly affected by COVID-19, the excess death calculations for that period are more important for understanding the impact of the pandemic on deaths more properly.

Official data on deaths provided by TURKSTAT can be obtained up to 2019. It is not possible to evaluate the effects of the COVID-19 pandemic on deaths based on TURKSTAT data, which started at the end of 2019 and has shaken the whole world since 2020 since data for these years have not been published.

Since Nilüfer Municipality burial data includes deaths related to the years 2020 and 2021, excess deaths could be calculated based on these data. Calculations of excess deaths calculated for the years 2020 and 2021 are presented in Table 13.

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*Sex-specific death rates calculated according to burial data are calculated by dividing the female and male burial data of the Nilüfer Municipality Social Support Services Directorate and the Nilüfer male and female population data from the TURKSTAT Address Based Population Registration System.

Age Group	Number of Deaths			P Score (%)*		Excess Deaths†		Excess Death Rate (per Thousand)‡	
	2015-2019 Average	2020	2021	2020	2021	2020	2021	2020	2021
0-14	8.6	2	4	23.3	46.5	-6,6 (CI: -7,9 - -5,3)	-4,6 (CI: -5,9 - -3,3)	-0.07	-0.04
15-44	43.8	54	52	123.3	118.7	10,2 (CI: 8,6 - 11,8)	8,2 (CI: 6,6 - 9,8)	0.04	0.03
45-64	200	232	251	116.0	125.5	32,0 (CI: 25,9 - 38,1)	51 (CI: 44,9 - 57,1)	0.28	0.43
65+	950.8	1426	1238	150.0	130.2	475,2 (CI: 456,1 - 494,3)	287,2 (CI: 268,1 - 306,3)	12.80	7.16
Deaths in Nilüfer	1210	1716	1546	141.8	127.8	506,0 (CI: 486,2 - 525,8)	336,0 (CI: 316,2 - 355,8)	1.04	0.65

When the excess deaths in Nilüfer are calculated (Table 13), it was estimated that there were 506.0 excess deaths in 2020 (CI: 486.2 - 525.8). When the excess deaths calculated for 2020 are considered, both the rough calculation of the excess deaths occurring at the age of 0-14 and the negative confidence interval show that deaths in this age group are less than normal. It was observed that in all other age groups, excess deaths occurred in 2020, and the highest number of deaths was for the ages 65 and over. It was calculated that there were 336.0 excess deaths in 2021 (CI: 316.2 - 355.8). Similar to 2020, it was seen that there were fewer deaths in the 0-14 age group compared to the average of 5 years, and there were excess deaths in all other age groups, and the excess deaths were mostly seen for the ages 65 and over. Considering the P scores calculated by dividing the number of deaths and the 5-year average, it can be seen that the deaths increased in both years and increased by 1.4 and 1.3 times, respectively.

Age Range	Excess deaths of 2020†	Excess deaths of 2021†
0-14	-3,2 (CI: -2,5 - -3,9)	-2,2 (CI: -2,9 - -1,5)
15-44	6,0 (CI: 5,4 - 6,6)	7,0 (CI: 6,4 - 7,6)
45-64	10,6 (CI: 6,3 - 14,9)	29,6 (CI: 25,3 - 33,9)
65+	212,4 (CI: 223,0 - 201,8)	135,4 (CI: 124,8 - 146,0)
Nilüfer All Ages	224,8 (CI: 212,5 - 237,1)	168,8 (CI: 156,6 - 181,1)

When the excess deaths in women in Nilüfer are calculated (Table 14), it is seen that there were 224.8 (CI:212.5 - 237.1) excess deaths in 2020. When the excess deaths calculated for 2020 are evaluated, it is seen that the deaths at the age of 0-14 are lower compared to the average of 2015-2019.

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*P score is excess death as a percentage difference between the reported and predicted number of deaths.[194] It was calculated with this formula P score = [(Reported Deaths – Expected Deaths)/Expected Deaths] X 100. "Expected Deaths" in this account are calculated as the average of deaths that occurred in the 5 years preceding the pandemic.
†Excess deaths were calculated by subtracting the average of deaths in the years 2015-2019 from the deaths in the years 2020 and 2021. The confidence interval was calculated by taking the alpha 0.5 through the Excel and using the standard deviation of the deaths in the years 2015-2019.
‡ Excess death rate was calculated by dividing the calculated excess deaths by the TURKSTAT Nilüfer population.

It was observed that in all other age groups, excess deaths occurred in 2020, and the highest number of deaths was for the ages 65 and over. It was calculated that there were 168.8 (CI: 156.6 - 181.1) excess deaths in 2021. In 2021, similar changes were seen in deaths in age groups.

Table 15. According to Nilüfer Municipality Burial Data, Excess deaths in Nilüfer in 2020 and 2021 Compared to the Last 5 Years (2015-2019)(2015-2019) Before the Pandemic - Men[35]

Age Range	Excess deaths in 2020*	Excess deaths in 2021*
0-14	-3,0 (CI: -3,8 - -2,2)	-2,0 (CI: -2,8 - -1,2)
15-44	4,2 (CI: 2,1 - 6,3)	1,2 (CI: -0,9 - 3,3)
45-64	21,4 (CI: 17,8 - 25,0)	21,4 (CI: 17,8 - 25,0)
65+	262,2 (CI: 253,5 - 272,1)	151,8 (CI: 142,5 - 161,1)
Nilüfer All Ages	281,2 (CI: 271,3 - 291,1)	167,2 (CI: 157,3 - 177,1)

When the excess deaths in men in Nilüfer are calculated (Table 15), it is seen that there were 281.2 (CI:271,3 - 291,1) excess deaths in 2020. When the excess deaths calculated for 2020 are evaluated, it is seen that the deaths in the 0-14 age group are lower compared to the 5-year average. It was observed that in all other age groups, excess deaths occurred in 2020, and the highest number of deaths was for the ages 65 and over. It was calculated that there were 167.2 (CI: 157.3 - 177.1) excess deaths in 2021. As can be seen from the fact that the deaths in the 0-14 age group were lower than the average in 2021 and the confidence interval calculated for the 15-44 age group was 0, the deaths in this age group were not found to be significantly different from the average of 2015-2019. Excess death was calculated in other age groups, and it was seen that it was more in the 65 and over age group.

Data from many countries[38–41] and studies for some provinces in Turkiye[42–44] show that deaths have increased during the COVID-19 pandemic. In a study conducted on the death records of Bursa Metropolitan Municipality[44], it is seen that there were 20,771 deaths in Bursa in 2020 and the crude death rate was 6.7. Excess deaths calculated according to the 2015-2019 average were found to be 5390 (95% CI: 4525-6256). According to the same study, it has been calculated that the death rate for women in Bursa in 2020 is 5.4 per thousand and this rate was 7.6 per thousand for men. Compared to the 2015-2019 average, it was calculated that there were 2041 (95% CI: 1677-2425) deaths in females and 3355 (95% CI: 2966-3797) deaths in males. In this study, it was observed that similar to Nilüfer, the age of 65 years and over had the highest number of excess deaths, and deaths in the 0-14 age group decreased.

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*Excess deaths were calculated by subtracting the average of deaths in the years 2015-2019 from the deaths in the years 2020 and 2021. The confidence interval was calculated by taking the alpha 0.5 through Excel and using the standard deviation of the deaths in the years 2015-2019.

1.2.2 Infant Mortality

According to the data of the Bursa Provincial Health Directorate[45], the comparison of infant deaths in Nilüfer with Bursa and Turkiye is given in Figure 24.
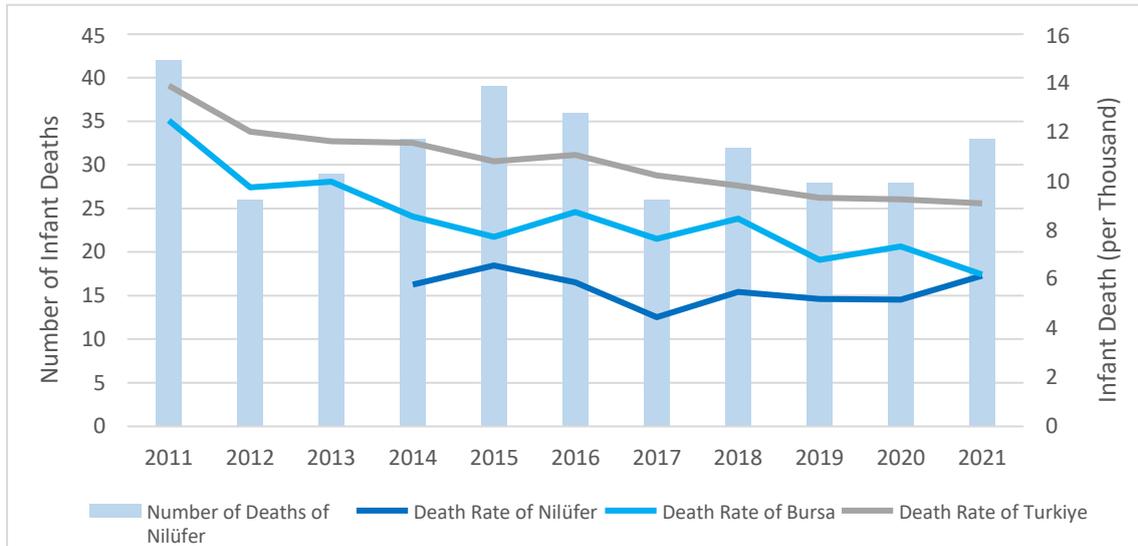
Figure 24: The Number of Infant Deaths and the Change of Infant Mortality Rate by year in Nilüfer According to Provincial Health Directorate Data, Comparison with Bursa and Turkiye TURKSTAT Data[45*]

The infant mortality rate in Nilüfer is lower than in Turkiye in 2021, but it has reached the same level as Bursa. It is observed that the infant mortality rate in Nilüfer has been increasing since 2017 and has increased from 4.5 per thousand to 6.2 per thousand in 2021 (Figure 24). It is also striking that this situation is different from Turkiye and Bursa. Infant deaths in Nilüfer should be examined in detail, their causes should be revealed, and maternal and child health services and women's health service indicators should be reviewed over the years.

Detection and intervention of the factors that cause the increasing infant mortality rate in Nilüfer is an important initiative to prevent the increasing deaths in the future.

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* Infant mortality data were provided by Bursa Provincial Health Directorate in the Death Notification System (DNS) with the note, "…data can be listed according to the address where the death occurred…". The infant mortality rate in Nilüfer was calculated by dividing the infant mortality data of the Provincial Health Directorate by the number of births in TURKSTAT. Bursa and Turkiye infant mortality rates are taken from the TURKSTAT Death Statistics - Infant Mortality Rate (per thousand) database.

1.2.3   Deaths of Children Under the Age of 5

The comparison of deaths of children under the age of five with deaths in Turkiye and Bursa according to Nilüfer Burial Service data is shown in Figure 25.
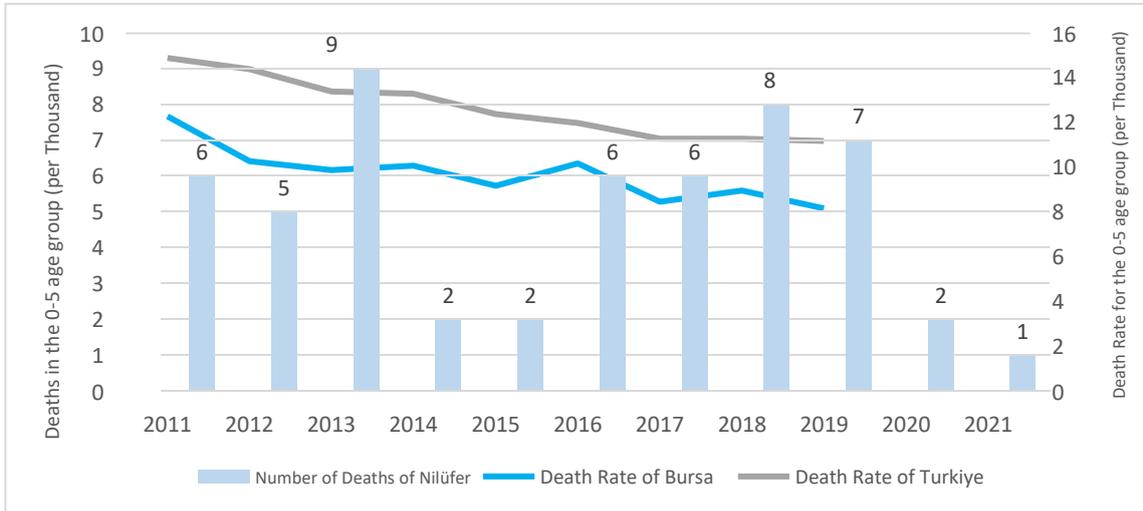
Figure 25: Comparison of the Number of 0-5 Years Child Mortality and 0-5 Years Mortality Rate (Bursa and Turkiye) in Nilüfer According to the Burial Data of Nilüfer with the TURKSTAT Data[46*]

As can be seen in Figure 25, the number of deaths between 0-5 years of age is missing in the Nilüfer burial data. It is understood that infant deaths (Figure 24) included in the data of the Provincial Health Directorate are not included in the Nilüfer burial data. It is not possible to evaluate the death rate of the 0-5 years of age group in Nilüfer since the number of deaths in children under the age of 5 cannot be from another source. A decrease is observed in the death rate of children under the age of 5 between 2011 and 2019 in Bursa.

1.2.4   Premature Deaths

In the burial data of Nilüfer Municipality, child deaths are observed to be significantly less, therefore, information on premature deaths that should be carefully evaluated is shown in Figure 26. Those who died before the age of 65 were considered premature death.

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*The death rate under 5 years of age for Nilüfer was calculated by using the number of deaths in the 0-5 age group and the number of births of Nilüfer of the TURKSTAT Birth Statistics - Number of Births by Districts data, the death rate in the 0-5 age group for Bursa and Turkiye has been of the TURKSTAT Death Statistics - Death Rate for the 0-5 Age Group (per Thousand) database.
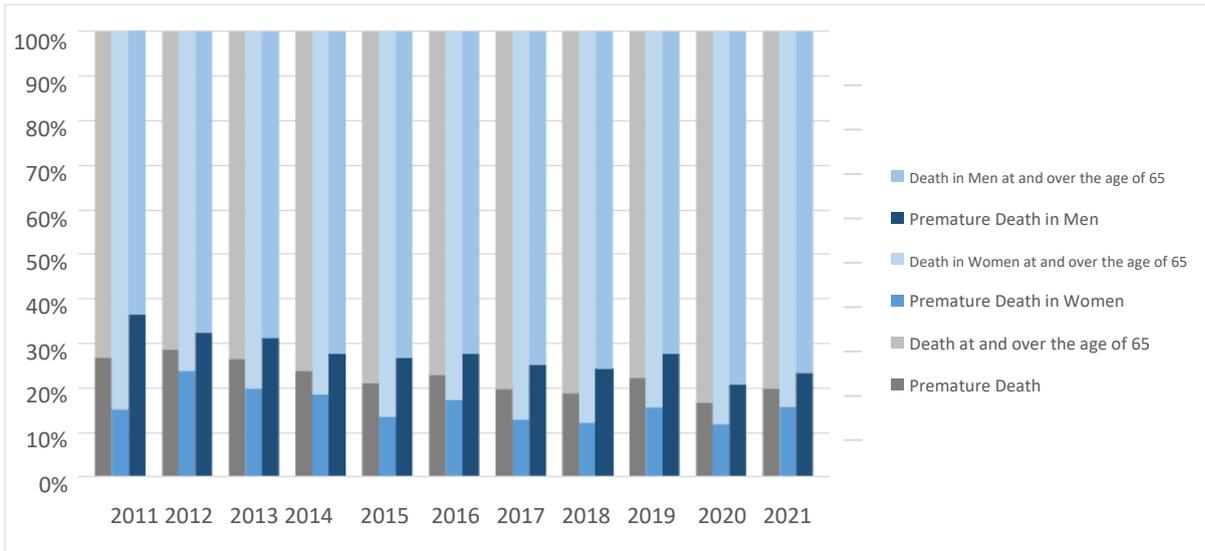
Figure 26: According to Nilüfer Municipality Burial Data, the Share of Premature Deaths and Deaths Over 65 (%)[46]

If the ages at which deaths are occur is taken into consideration, 19.9% of deaths in 2021, 15.7% of female deaths, and 23.4% of male deaths occur before the age of 65 (premature death). If it is considered over the years, it is seen that the rate of premature deaths decreased both in all deaths and in genders (Figure 26).
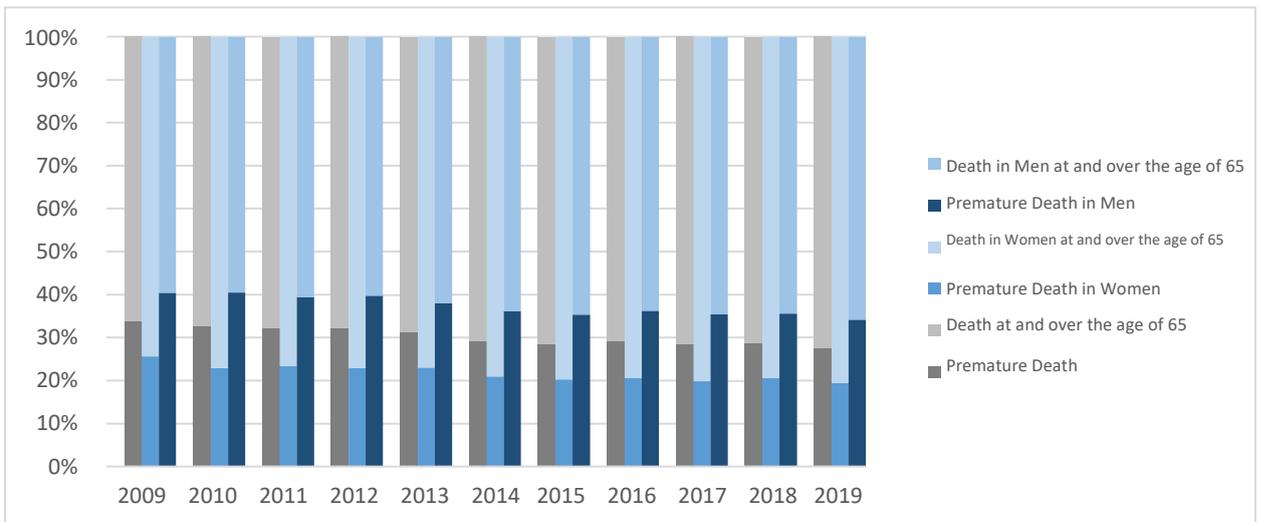
Figure 27: Share of Early Deaths and Deaths Over 65 Years in Deaths in Bursa According to TURKSTAT Data (%)[31]

Information on the premature death rates in Bursa, calculated using TURKSTAT data, is shown in Figure 27. If it is evaluated according to this information,

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* It is seen in the Burial data of Nilüfer Municipality that deaths during childhood are significantly less, therefore it is thought that the calculated premature deaths may be less than the actual ones.

It is seen that 27.6% of the deaths in Bursa in 2019, 19.5% of the female deaths and 34.2% of the male deaths occurred before the age of 65 (premature death). If it is considered over the years, it is seen that the rate of premature deaths has decreased in both all deaths and genders, similar to Nilüfer. If Nilüfer is compared with these data, it can be seen that the share of premature deaths in all deaths is less for both sexes. While it should be kept in mind that this may be due to the deficiencies in the burial data regarding child deaths.
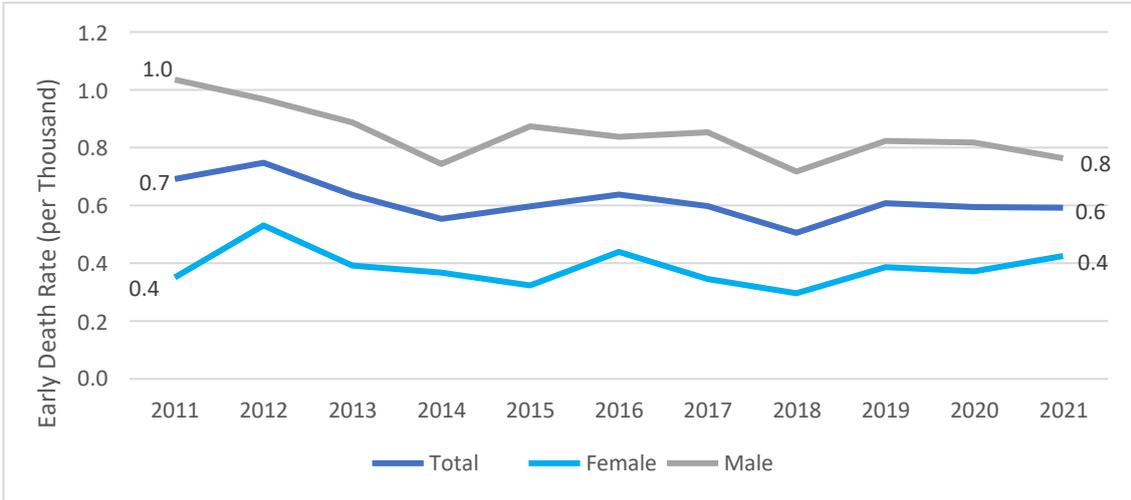
Figure 28: Early Death Rate According to Nilüfer Municipality Burial Data (Per Thousand)[46*†]

According to Nilüfer Burial data, premature death rates obtained by dividing deaths under the age of 65 by the entire population are shown in Figure 28. If the change in the premature death rate by year is considered, the increasing trend in women after 2018 draws attention.

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* It is seen in the Burial data of Nilüfer Municipality that deaths during childhood are significantly less, therefore it is thought that the calculated premature deaths may be less than the actual ones.
† Premature Death Rate: Calculated as (Death under the age of 65/Whole Population) X 1000.
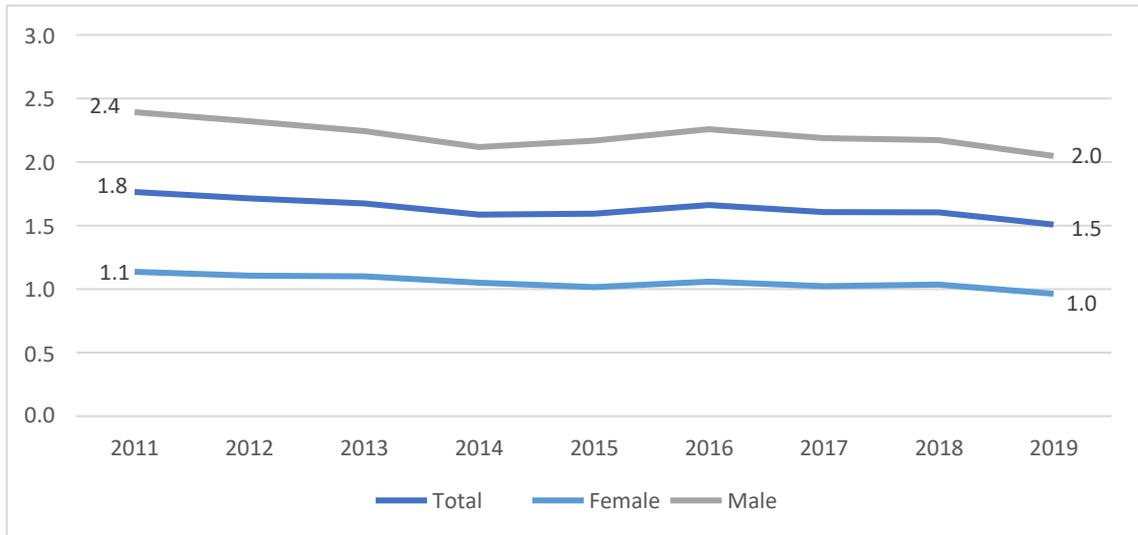
Figure 29: Premature Death Rate of Bursa (Per Thousand) According to TURKSTAT Data[31]*

If the premature death rate in Bursa is considered, it is seen that the death rates decrease in both genders (Figure 29).
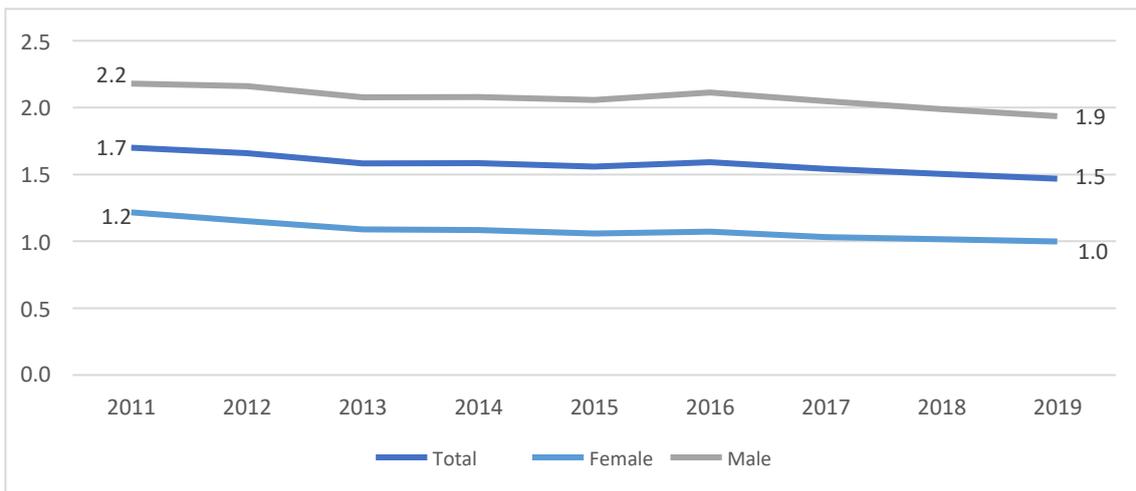
Figure 30: Premature Death Rate of Turkiye (Per Thousand) According to TURKSTAT Data[31]*

The change in premature death rates in Turkiye is similar to Bursa. It is seen that the premature death rate of Turkiye in 2019 is the same as Bursa (Figure 30).

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* Premature Death Rate: It is calculated as (Death under 65/Whole Population)*1000.

Table 16. Premature Death Rates of Neighborhoods by year (per Thousand)[46][*][†]

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
19 Mayıs Neig.	-	-	0.0	0.7	1.1	3.1	3.4	5.3	3.4	8.4	7.1
23 Nisan Neig.	-	-	0.0	0.8	1.3	1.0	1.1	1.0	1.1	1.6	1.5
29 Ekim Neig.	-	-	0.1	1.1	1.5	1.3	1.6	1.6	1.6	2.1	2.0
30 Ağustos Zafer Neig.	11.6	6.5	3.2	0.8	0.0	2.6	3.0	0.0	1.7	0.8	1.1
Ahmet Yesevi Neig.	2.5	0.5	1.0	1.6	1.3	2.4	1.3	1.7	1.2	2.4	2.0
Akçalar Neig.	6.7	5.2	4.5	5.9	5.6	7.3	6.1	5.4	3.1	4.5	3.1
Alaaddinbey Neig.	1.3	5.4	4.1	10.6	9.4	7.6	8.7	3.8	3.6	7.0	8.7
Altınşehir Neig.	2.1	1.4	1.9	1.7	1.6	2.0	1.9	1.6	2.2	2.0	2.3
Ataevler Neig.	3.2	3.4	3.3	3.0	3.1	4.0	5.1	2.9	2.4	3.5	3.5
Atlas Neig.	0.0	0.0	3.2	0.0	3.6	14.7	7.0	13.0	2.5	5.0	12.9
Ayvaköy Neig.	0.0	0.0	0.0	13.2	6.5	22.2	14.9	14.2	6.7	13.4	6.4
Badırga Neig.	0.0	0.0	2.7	8.4	0.0	14.5	2.9	8.8	15.0	11.6	9.1
Balat Neig.	1.5	1.9	1.4	0.4	1.2	1.3	1.2	1.1	1.1	1.7	1.0
Balkan Neig.	0.0	0.0	1.5	2.2	4.9	4.6	7.4	3.8	5.3	5.9	4.5
Barış Neig.	1.9	2.6	2.2	1.9	2.9	3.0	3.0	4.0	3.6	3.7	2.5
Başköy Neig.	3.4	7.3	3.8	7.1	22.7	4.0	17.1	14.6	15.0	22.4	11.2
Beşevler Neig.	3.0	2.4	2.3	2.0	2.5	2.8	3.2	2.2	3.0	3.9	3.5
Büyükbalıklı Neig.	6.4	0.0	6.2	12.5	2.3	2.2	4.4	4.3	6.6	12.9	8.7
Cumhuriyet Neig.	2.5	2.9	1.6	2.6	2.6	3.3	3.3	2.7	3.4	4.4	4.1
Çalı Neig.	4.1	3.8	4.7	5.0	2.2	3.8	3.5	2.7	3.9	4.5	3.2
Çamlıca Neig.	1.5	1.4	2.1	2.2	1.9	1.9	2.5	1.8	2.5	2.5	2.7
Çatalağıl Neig.	0.0	0.0	0.0	0.0	14.8	5.2	29.7	14.4	25.3	19.9	51.1
Çaylı Neig.	0.0	0.0	0.0	8.6	11.4	0.0	3.0	14.7	12.3	9.4	12.6
Dağyenice Neig.	0.0	0.0	3.6	7.1	17.7	0.0	3.3	6.3	0.0	15.0	2.7
Demirci Neig.	3.7	4.2	1.9	1.5	2.4	3.3	1.8	2.3	1.5	3.0	2.6
Doğanköy Neig.	0.0	0.0	0.5	3.1	4.1	1.5	1.9	2.4	3.4	4.7	4.6
Dumlupınar Neig.	1.0	0.5	1.4	1.2	1.0	1.4	1.7	1.2	1.3	2.5	1.6
Ertuğrul Neig.	1.1	1.2	3.4	1.2	1.8	0.9	1.6	0.9	1.2	1.7	1.7
Esentepe Neig.	2.9	3.1	2.5	1.8	3.5	3.7	4.1	1.9	3.3	3.7	3.7
Fadıllı Neig.	0.0	0.0	2.4	0.0	14.9	5.1	7.6	25.2	23.3	12.9	18.2
Fethiye Neig.	2.5	2.9	2.6	2.3	2.7	3.2	2.3	2.7	2.4	4.2	3.0
Gökçe Neig.	0.0	6.6	4.3	4.3	4.5	4.3	8.8	2.2	2.3	4.5	4.5
Gölyazı Neig.	7.8	7.8	7.3	8.2	11.1	13.4	12.2	8.7	11.7	9.0	10.0
Görükle Neig.	5.2	4.8	3.4	3.2	1.8	1.5	2.0	1.7	1.5	2.1	1.4
Gümüştepe Neig.	7.1	5.6	11.9	5.6	4.0	5.5	6.4	2.4	8.2	7.2	9.6
Güngören Neig.	0.0	0.0	1.9	1.9	11.8	3.9	7.9	13.7	7.9	5.9	3.9
Hasanağa Neig.	16.4	13.9	10.1	11.3	16.0	7.7	12.3	13.5	12.4	13.8	13.3
Işıktepe Neig.	3.4	3.7	4.8	2.0	5.5	3.0	3.7	3.7	3.7	3.9	4.1
Ihsaniye Neig.	2.9	3.1	2.6	3.0	3.7	3.7	3.8	4.2	3.7	5.0	4.5
İnegazi Neig.	0.0	0.0	0.0	0.0	8.0	0.0	16.4	7.3	12.4	13.4	14.5
İrfaniye Neig.	0.8	3.4	6.0	8.5	6.8	8.7	9.7	8.8	8.7	6.9	11.4
Kadriye Neig.	0.0	0.0	0.0	9.1	0.0	10.1	10.8	22.7	36.1	34.1	9.8
Karacaoba Neig.	0.0	0.0	4.0	4.0	16.3	3.9	7.7	9.7	3.4	10.2	27.7
Karaman Neig.	3.4	4.2	3.3	3.2	5.4	3.5	4.6	5.3	4.1	5.9	5.3
Kayapa Neig.	2.4	4.8	10.2	5.4	10.6	5.9	6.9	9.3	3.8	8.5	5.1
Kızılcıklı Neig.	0.0	0.0	0.2	0.8	0.5	0.2	0.7	0.8	1.4	1.6	1.6
Konak Neig.	2.1	2.1	2.2	2.2	1.8	2.7	3.0	2.5	2.8	3.6	3.0
Konaklı Neig.	0.0	0.0	0.9	4.6	5.4	6.2	6.3	6.2	11.5	6.3	5.5
Korubaşı Neig.	0.0	0.0	0.0	3.4	7.0	10.7	11.0	10.5	3.5	35.7	10.1
Kurtulus Neig.	2.2	1.5	7.1	2.0	3.3	1.2	3.0	3.2	2.1	3.5	3.0
Kuruçeşme Neig.	0.0	0.0	0.0	0.0	13.7	0.0	40.0	44.0	35.7	12.8	13.0
Kültür Neig.	1.4	1.5	1.1	1.3	1.4	2.1	1.9	1.9	1.7	2.2	2.1
Makşempınarı Neig.	4.7	4.7	0.0	0.0	0.0	4.1	15.9	11.0	15.0	15.0	22.8
Minareliçavuş Neig.	2.4	2.9	3.1	3.0	13.9	3.6	3.1	4.6	2.4	2.2	3.5
Odunluk Neig.	1.4	1.6	3.2	1.3	3.1	1.9	2.2	0.7	2.5	2.5	1.9
Özlüce Neig.	7.0	11.1	5.9	8.5	9.0	9.3	10.5	7.1	5.5	4.6	2.7
Tahtalı Neig.	0.0	2.5	0.0	4.1	3.2	9.0	5.7	10.6	4.1	12.4	9.1
Unçukuru Neig.	0.0	0.0	0.0	8.3	12.4	16.1	4.3	8.3	3.9	19.4	19.9
Üçevler Neig.	2.2	1.5	1.1	1.2	1.7	2.0	2.5	2.3	2.0	2.5	2.4
Üçpınar Neig.	0.0	0.0	0.0	13.3	14.3	13.3	28.2	12.3	0.0	11.8	11.9
Ürünlü Neig.	5.1	4.6	3.6	3.5	5.4	8.1	6.6	5.0	4.1	8.6	5.2
Yaylacık Neig.	0.0	1.4	1.9	2.3	6.7	7.6	7.6	3.9	8.2	10.0	6.8
Yolçatı Neig.	0.3	0.3	0.6	2.5	4.0	3.8	3.6	3.0	4.4	5.1	4.8
Yüzüncüyıl Neig.	1.2	1.7	1.5	1.1	1.6	1.7	2.3	2.3	2.1	2.9	1.9

* It is seen in the Burial data of Nilüfer Municipality that deaths during childhood are significantly less, therefore it is thought that the calculated premature deaths may be less than the actual ones.

[†]Premature Death Rate: Calculated as (Death under the age of 65/Whole
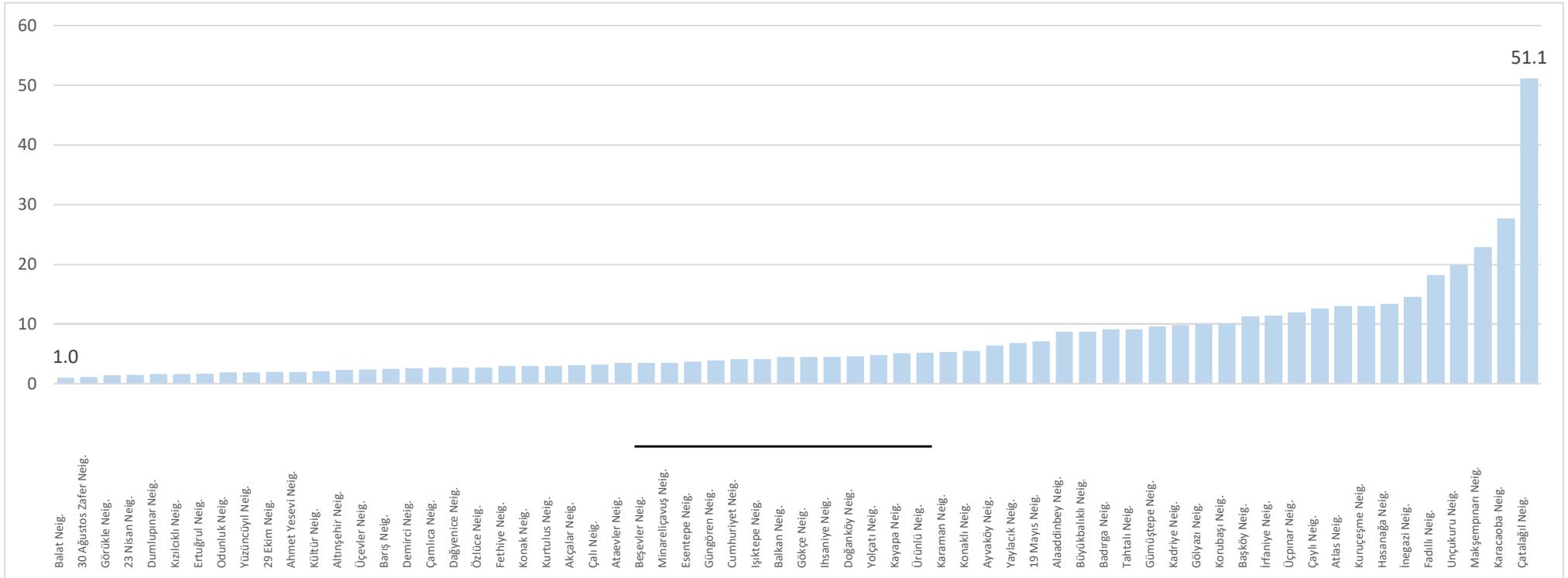
Figure 31: Early Death Rate of Neighborhoods in 2021 (Per Thousand) According to Nilüfer Municipality Burial Data[46*†]

It is observed that the early death rates of the neighborhoods of Nilüfer in 2021 are very different from each other (Table 16). Çatalağıl, Karacaoba, Makşempınarı, Unçukuru and Fadıllı are the neighborhoods with the highest premature death rates, while Balat, 30 August Zafer, Görükle, 23 Nisan and Dumlupınar are the neighborhoods with the lowest premature death rates (Figure 31). Meticulous handling of death records and identifying root causes by monitoring premature deaths may reduce avoidable deaths in the coming years.

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* It is seen in the Burial data of Nilüfer Municipality that deaths during childhood are significantly less, therefore it is thought that the calculated premature deaths may be less than the actual ones.

†Premature Death Rate: Calculated as (Death under the age of 65/Whole Population) X 1000.

1.3 *Disability*

Concepts related to disability were listed under three main headings by WHO[47] in 1981;

- Impairment, any deficiency or abnormality in the physiological, psychological, anatomical structure or functions of the person,
- Disability is a deficiency or limitation in the ability to perform any activity that results from an impairment, which an average person can achieve successfully,
- Handicap is defined as the inability to fulfill or complete a function that is normal for that individual, resulting from disability and impairment, depending on age, gender, and social and cultural factors.

The most recent study conducted by TURKSTAT across Turkiye is the "Turkiye Disability Survey" conducted in 2002[48]. In this study[49] the rate of the disabled population was defined as 12.29%. In the 2022 January issue of the Disabled and Elderly Statistics Newsletter published monthly by the Ministry of Family and Social Services of the Republic of Turkiye, the disability rates determined in the "Population and Housing Survey" conducted by TURKSTAT in 2011 are given. According to the results of the research, the rate of the population with at least one disability in people aged 3 and over was determined as 6.9%. This rate is 5.9% for men and 7.9% for women. It has been observed that the proportion of the population with at least one disability increases as the age increases[50]. Another source on the subject regarding the numbers in Turkiye is the 2019 "Population Health Survey of Turkiye" conducted by TURKSTAT [51]. According to this research, 2.1% of individuals between the ages of 2-15 have difficulty in seeing, 2.2% have difficulty in hearing, 2.0% in walking, 1.4% in learning, and 1.5% in speaking[52]. 5.8% of individuals over the age of 15 have difficulty seeing, 4.4% in hearing and 5.4% in learning. Those over the age of 15 who could not walk without any help or assisting device were 5.5%, and those who could not go up and down the stairs were 7.9%[51]. There is no publicly available database on the number of the disabled population in Turkiye, and the existing database does not include individuals who have not applied to the government for service or have not received a disability report. The number of persons with disabilities registered in the "National Disability Data System" based on Disability Health Board Reports is 2,511,950 persons, where 1,414.643 of them are male and 1.097,307 of them are female[50]. If this number is evaluated with the 2021 population of Turkiye, the rate of disabled individuals can be determined as only 0.3 per thousand. The fact that this rate is significantly lower than the TURKSTAT surveys in both 2002, 2011 and 2019 suggests that the vast majority of disabled individuals are not reported and are not registered in the "National Disability Data System".

Through all these studies, it can be estimated that there are 217,199 and 387,182 disabled people in Bursa in 2021, while there are 35,768 and 63,761 disabled individuals in Nilüfer. Finding the actual number of disabled individuals by conducting a study on this subject will be an appropriate approach to planning services for disabled individuals.

The number of wheelchairs maintained and repaired by the Social Support Services Directorate of Nilüfer Municipality is shown in Figure 32.
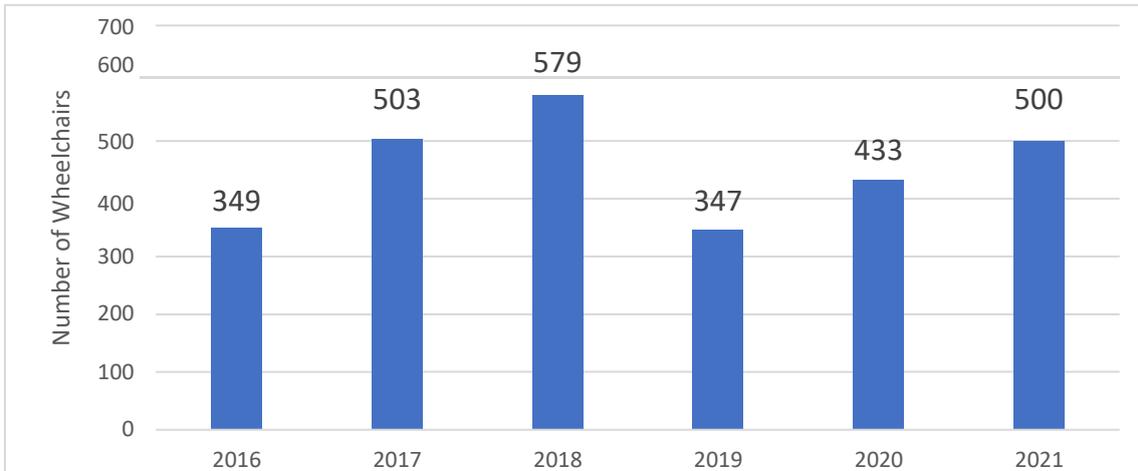
Figure 32: Number of Wheelchairs Maintained and Repaired by Nilüfer Municipality Social Support Services Directorate[53]

The number of transportation services provided to disabled citizens by the Social Support Services Directorate of Nilüfer Municipality is shown in Figure 33.
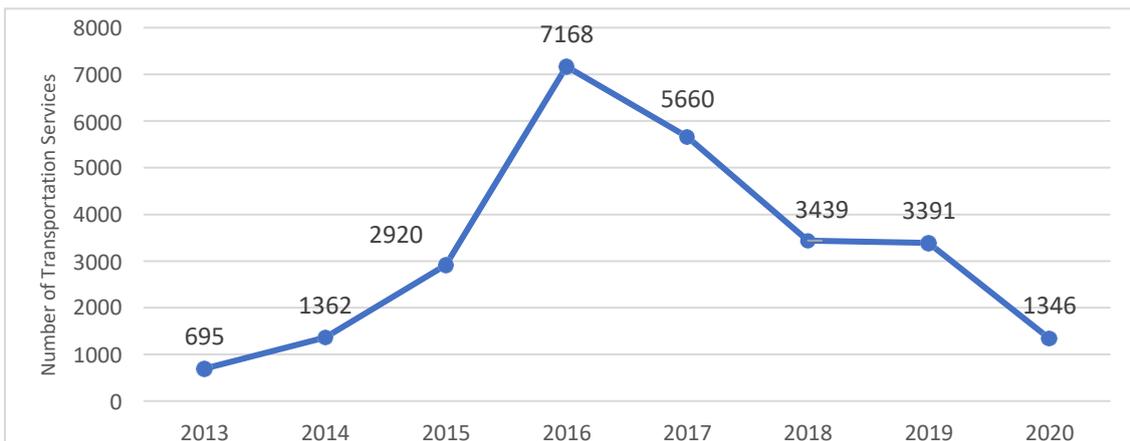
Figure 33: Number of Transportation Services Provided for Disabled Citizens[54]

The number of transportation services provided for disabled citizens decreased in 2020 since the number of transportation service requests has decreased within the curfews due to the 2020 COVID-19 pandemic. Considering the period from 2013 to 2019, although there was an increase in this service until 2016, there was a decrease after 2017 (Figure 33).
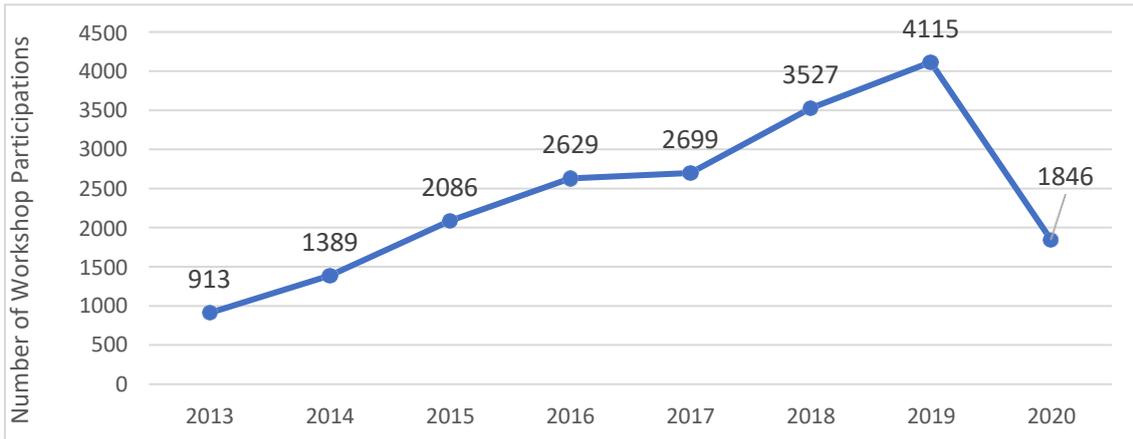
Figure 34: Participation in Workshops for Persons with Disabilities[55]

The number of participants in the workshop activities provided to disabled individuals by the Social Support Services Directorate of Nilüfer Municipality is shown in Figure 34. Due to the COVID-19 pandemic, there was a decrease in 2020 since workshops were suspended or their participation was limited due to rules for collective events. When the trend between 2013 and 2019 is taken into consideration, it can be seen that participation in workshop activities has been increasing over the years.
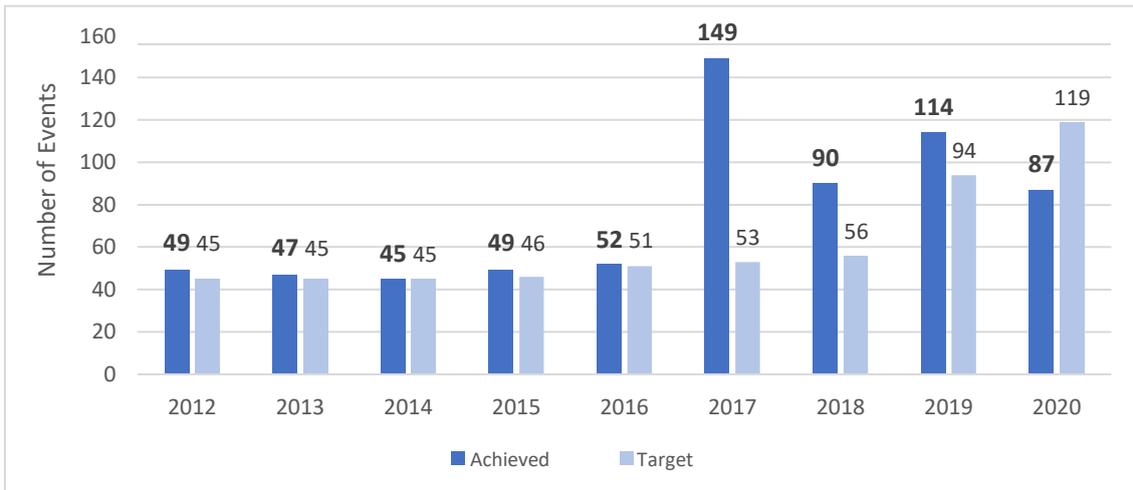
Figure 35: Number of Events for Disabled Individuals and Their Relatives[56]

The number of events organized for disabled individuals and their relatives by the Social Support Services Directorate of Nilüfer Municipality is shown in Figure 35. When the number of events is evaluated, it should be noted that the main reason for not reaching the target in 2020 is the COVID-19 pandemic. In the period from 2012 to 2020, the number of activities planned as a target each year, except for 2020, was exceeded. When the number of events that took place is considered, it is noteworthy that most events were held in 2017.
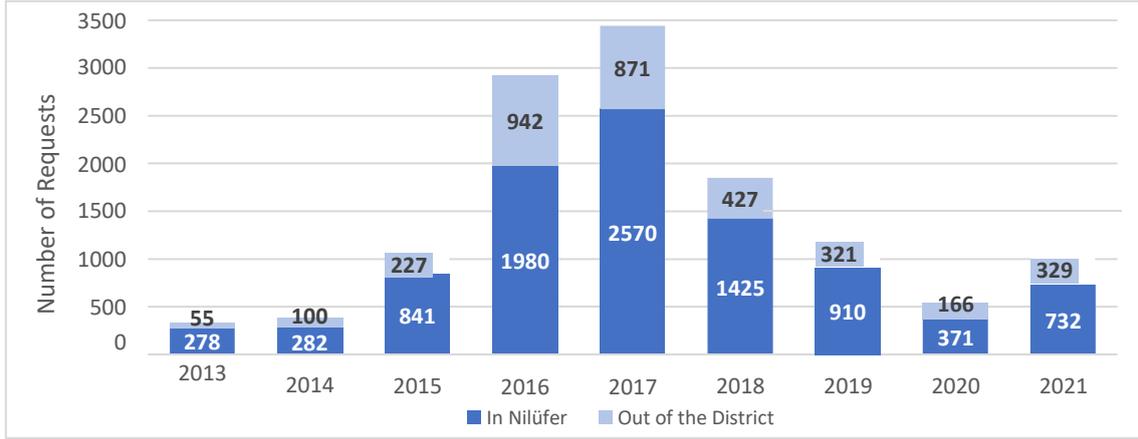
Figure 36: Number of Requests Received by the Disabled Services Department[57]

The number of requests to the disabled service department provided by the Social Support Services Directorate of Nilüfer Municipality is shown in Figure 36. When the requests to the service department for the disabled are evaluated, it is seen that there was an increase until 2017, and then there was a decrease. The low number of requests in 2020 is noteworthy as it shows that disabled people, whose support needs are expected to increase due to COVID-19, on the contrary, have fewer applications.

2. Indicators of Healthcare Services

2.1 Delivery of Healthcare Services

According to the data of the Bursa Provincial Health Directorate and Bursa Medical Chamber, the private and public health institutions in Nilüfer are presented in Table 17.

Table 17. Distribution of Institutions Providing Health Services in Nilüfer[58]

Primary Care Health Service				
Public			**Private**	
Active Family Practice Unit	121		Private Practice	247
Family Healthcare Center	35		Private Practice (Dental)	153
Community Mental Health Center	1		Private Polyclinic	7
Healthy life Center	1		Private Home Care Center	1
District Directorate of Health	1			
Home Care Unit	3			
Active Sanitarium	3			
Tuberculosis Control Dispensary	1			
Active 112 EHS Station	13			
ADATRC	1			
Second and Third Care Health Services				
Public			**Private**	
Mouth and Dental Health Center	1		Private Hospital	8
Branch Hospital	1		Private Medical Center	8
Faculty of Medicine of Uludağ University	1			
Bursa City Hospital	1			

8 of 20 private hospitals in Bursa are in Nilüfer, and if compared to the Nilüfer Health Profile prepared in 2007, it is observed that the number of private hospitals has increased from 1 to 8 (Table 17). During this course of Turkiye, it is seen that the number of private health institutions has increased in Nilüfer in parallel with the increase in the share of the private sector in the field of health[59].

The comparison of Nilüfer with Bursa province in terms of the health institutions they have is presented in Table 18.

Table 18. Comparison of Nilüfer and Bursa Province in terms of Healthcare Institutions (2020)[60]

Healthcare Institution	Nilüfer		Bursa
	Number	%	Number
ADATRC	1	100.0	1
Family Practice Unit	135	14.1	956
Active Family Practice Unit	121	14.0	862
Family Healthcare Center	35	14.6	240
Community Mental Health Center	1	20.0	5
Immigrant Health Center	0	0.0	5
Healthy life Center	1	11.1	9
District Directorate of Health	1	7.7	13
Home Care Unit	3	12.0	25
Current Sanitorium	3	2.3	132
Active Sanitarium	3	5.0	60
Tuberculosis Control Dispensary	1	14.3	7
CEDSEC	1	12.5	8
Public Health Laboratory	1	100.0	1
112 Station	13	15.9	82
Branch Hospital	1	25.0	4
Mouth and Dental Health Center (Ministry of Health)	1	50.0	2
Private Hospital	8	40.0	20
In-Vitro Fertilization Center	6	75.0	8
Genetics Diagnostic Center	1	33.3	3
Hearing Aid Center	12	20.7	58
Orthosis Prosthesis Center	1	7.7	13
Public Dialysis Center	1	10.0	10
Private Dialysis Center	1	10.0	10
Private Practice	247	60.1	411
Orthodontist Practice	153	35.0	437
Dental Prosthesis Laboratory	4	6.3	64
Private Mouth and Dental Polyclinic	56	33.1	169
Private Institution*	6	33.3	18
Private Laboratories	3	27.3	11
Private Home Care Center	1	50.0	2
Private Medical Center	8	34.8	23
Psychotechnical Evaluation Center	4	14.3	28
Overall Total	235	31.3	752

* Private institution: These are healthcare institutions that provide services such as imaging and/or radiotherapy, nuclear medicine, physical therapy, outpatient examination, diagnosis and/or treatment within the scope of the 3153 numbered Law on Radiology, Radiology and Electrical Treatment and Other Physiotherapy Institutions, which provide services apart from medical centers and health institutions.

Table 19. Hospital Bed Capacity in Nilüfer and Bursa Province (2020)[60]

		Name of the Hospital	Number of Beds	%*
Nilüfer	Public	Faculty of Medicine of Uludağ University	900	27.6
		Bursa City Hospital	1355	41.5
		Dörtçelik Pediatric Diseases Hospital	275	8.4
	Private	Private Acıbadem Hospital	133	4.1
		Private Bursa Anadolu Hospital	67	2.1
		Private Esentepe Hospital	75	2.3
		Private Jimer Hospital	56	1.7
		Private Medicabil Hospital	103	3.2
		Private Medicana Hospital	235	7.2
		Private Pembe Mavi Hospital	42	1.3
		Private Retina Eye Hospital	25	0.8
	Total		3266	100

		Number of Beds
Bursa	Total Number of Beds in Private Hospitals	1731
	Total Number of Beds in Public Hospitals	6724
	Overall Total Number of Beds in All Hospitals	8455

Bed capacities of inpatient treatment institutions in 2020 are presented in Table 19 according to Bursa Provincial Health Directorate data[60]. There are a total of 3266 beds in all inpatient treatment institutions in Nilüfer, and 77.5% of them are in public institutions and 22.5% in private health institutions. In Bursa, 37.6% of the beds in public health institutions and 42.5% of the beds in private institutions are in Nilüfer.

Table 20. Number of Palliative Beds in Ministry of Health Hospitals (2019)[61]

	Institution	Palliative Bed	
		Number	%
Nilüfer	Dörtçelik Children's Diseases Hospital Palliative Care Center	7	2.3
	Bursa City Hospital Palliative Care Center	18	6.0
Bursa	All Hospitals of the Ministry of Health	301	100

According to the Bursa Provincial Health Directorate 2019 Yearbook[61], information on the number of palliative beds in the hospitals of the Ministry of Health is presented in Table 20. There are 25 palliative beds in hospitals of the Ministry of Health in Nilüfer, these beds constitute 8.3% of the beds in Bursa. It is noteworthy that although 38.6% of all hospital beds are in Nilüfer, only 8.3% of palliative beds are in Nilüfer.

Table 21. Data on Operating Room Information[61]

			Number of Operating Rooms	Active Operating Rooms	Total Number of Operating Rooms	Number of Active Operating Tables	Total Number of Operating Tables	Number of Anesthesia Devices	Number of Monitors
Nilüfer	Public	Faculty of Medicine of Uludağ University	2	23	23	23	27	40	43
		Bursa City Hospital	4	26	49	26	49	52	36
		Dörtçelik Pediatric Diseases Hospital	1	4	4	4	4	11	11
	Private	Private Acıbadem Hospital	7	7	7	7	7	7	7
		Private Bursa Anadolu Hospital	1	5	5	5	5	5	5
		Private Esentepe Hospital	4	2	2	2	2	2	2
		Private Jimer Hospital	1	7	7	7	7	7	8
		Private Medicabil Hospital	2	7	7	7	7	7	7
		Private Medicana Hospital	8	8	8	8	8	9	12
		Private Pembe Mavi Hospital	1	3	3	3	3	3	3
		Private Retina Eye Hospital	1	2	2	2	2	2	3
	Total of Nilüfer		32	94	117	94	121	145	137
Bursa	Total Number of Public Hospitals		30	157	190	157	194	218	225
	Total Number of Private Hospitals		44	87	89	85	89	90	99
	All Hospitals		74	244	279	242	282	308	324

According to the Bursa Provincial Health Directorate 2019 Yearbook[61], data on the operating room Information of the hospitals is presented in Table 21. 43.2% of the number of operating theaters, 38.5% of active operating room rooms, 41.9% of total operating rooms, 38.8% of active operating tables, 42.9% of total operating tables, 47.1% of anesthesia devices and 42.3% of monitors of Bursa hospitals are in Nilüfer.

Table 22. Number of Active Pharmacies and Pharmaceutical Warehouses (2019)[61]

		Affiliated with the Ministry of Health			
		Number of Pharmacies (Private Hospital.)	Independent Pharmacy	All Pharmacies	Pharmaceutical Warehouse
Nilüfer	Number	8	183	191	5
	%	42.1	18.9	19.4	35.7
Bursa	Number	19	966	985	14

According to the Bursa Provincial Health Directorate 2019 Yearbook[61], the information on the pharmacies and pharmaceutical warehouses operating in Bursa and Nilüfer is shown in Table 22. According to these data, 19.4% of the pharmacies and 35.7% of the pharmaceutical warehouses of Bursa are located in Nilüfer.

Table 23. Number of Active Pharmacies and Pharmacy Employees in Bursa (2022)[62*]

	Number of Pharmacies		Number of Pharmacists		Number of Other Pharmacy Employees	
	Number	%	Number	%	Number	%
Büyükorhan	2	0.2	2	0.2	7	0.3
Gemlik	35	3.4	35	3.4	111	4.2
Gürsu	27	2.6	27	2.6	75	2.8
Harmancık	2	0.2	2	0.2	5	0.2
İnegöl	80	7.8	80	7.8	184	7.0
İznik	14	1.4	14	1.4	37	1.4
Karacabey	23	2.2	23	2.2	77	2.9
Keles	3	0.3	3	0.3	4	0.2
Kestel	20	1.9	20	1.9	40	1.5
M.Kemalpaşa	32	3.1	32	3.1	92	3.5
Mudanya	36	3.5	36	3.5	90	3.4
Nilüfer	215	20.9	215	20.9	494	18.7
Orhaneli	6	0.6	6	0.6	10	0.4
Orhangazi	22	2.1	22	2.1	61	2.3
Osmangazi	315	30.6	315	30.6	819	31.1
Yenişehir	14	1.4	14	1.4	49	1.9
Yıldırım	185	17.9	185	17.9	482	18.3
Bursa	1031	100.0	1031	100.0	2637	100.0

According to the data of the Bursa Chamber of Pharmacists, the number of active pharmacies and their employees in Bursa is presented in Table 23. According to these data, 20.9% of pharmacists and 18.7% of non-pharmacist personnel of Bursa are located in Nilüfer in 2022. It is seen that the number of pharmacies increased by 11.2% for Nilüfer compared to 2019 and increased by 4.5% for Bursa. Nilüfer is the district with the highest number of pharmacies among the districts of Bursa after Osmangazi (Table 23). It is noteworthy that although the population of Yıldırım District is higher than Nilüfer, the number of pharmacies is less.

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* The information that public pharmacists are not required to register should be considered when evaluating the data.
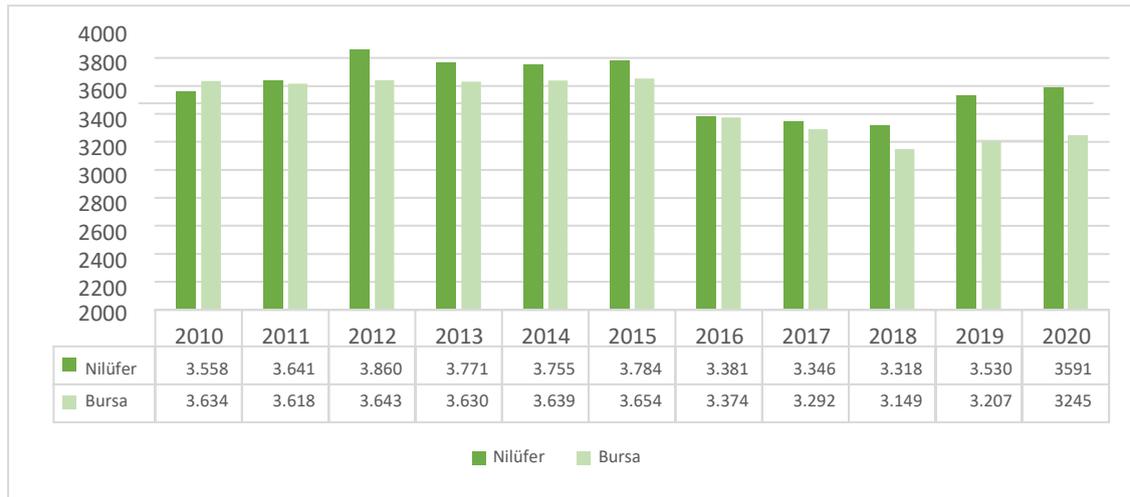
Figure 37: Population Per Family Physician in Bursa and Nilüfer by year[60]

According to the data of the Provincial Health Directorate[60], the population per family physician is shown in Figure 37. The population per family physician in Nilüfer in 2020 is 3591, which is higher than in Bursa. It is seen that the population per family physician did not get to the 2020 target of 3040 in the 2019-2023 Strategic Plan of the Ministry of Health, and it is higher than 2700, which is planned to decrease in 2023[59]. According to the Health Statistics Yearbook[63], it is seen that the population per family physician in Nilüfer in 2020 is higher than in the Eastern Marmara region (3.463) including the averages of Bursa and Turkiye (3.341). Nilüfer, which has grown rapidly over the years and received intense immigration, the number of family physicians and family healthcare units has not increased in parallel with the population increase.

Table 24. Provincial Emergency Health Station and Ambulance Distribution[61]

		Affiliated with the Ministry of Health			Affiliated to Other Parties				
		EHS Stations	112 Emergency Ambulances	Ambulances of Hospitals	University Ambulances	Municipality Ambulances	Other Public Ambulances	Private Ambulances	Total Number of Ambulances
Nilüfer	Number	12	12	1	1	2	0	8	24
	%	15.8	10.7	4.2	100.0	4.8	0.0	17.4	10.5
Bursa	Number	76	112	24	1	42	4	46	229

According to the data of the Bursa Provincial Health Directorate 2019 Yearbook[61], the distribution of EHS (Emergency Health Service) stations and ambulances throughout the province is presented in Table 24. According to the data of the Bursa Provincial Health Directorate 2019 Yearbook, there are a total of 12 EHS stations, including 1 A1, 7 A2, and 4 C-type stations in Nilüfer. 15.8% of EHS Stations, 10.7% of 112 Emergency Service ambulances and 10.5% of total ambulances of Bursa are in Nilüfer.
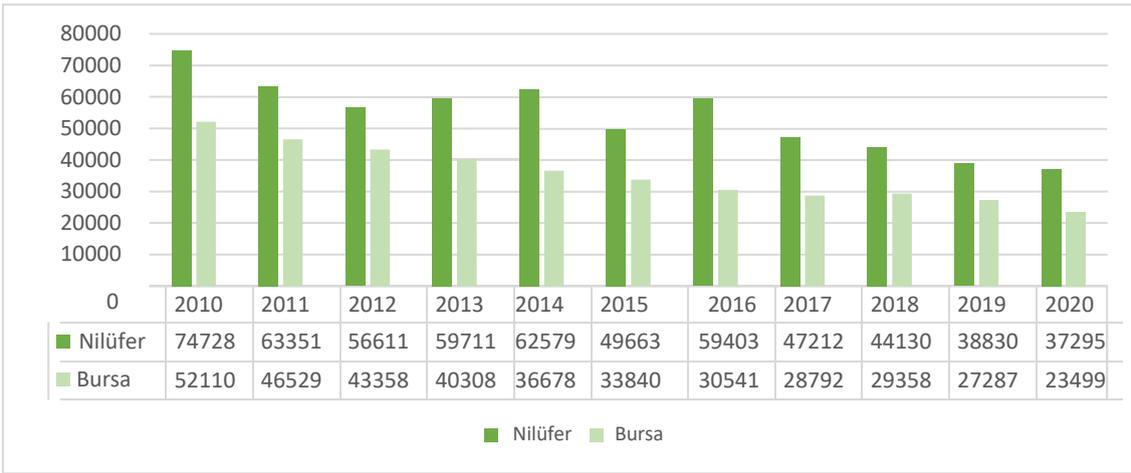
Figure 38: Number of People Per 112 Ambulances in Nilüfer and Bursa by year[60]

According to the data of Bursa Provincial Health Directorate[60], if Nilüfer and Bursa are compared regarding the number of people per 112 ambulances, it is seen that there are 37,295 people per ambulance in Nilüfer, while 23,499 people per ambulance in Bursa (Figure 38). According to the 2020 Health Statistics Yearbook, there are 14,641 people per ambulance in Turkiye and 16,911[59] people per ambulance in the Eastern Marmara Region. Concerning the number of people per ambulance, Nilüfer is in a disadvantageous position compared to Bursa province in general, the Eastern Marmara region on average and Turkiye in general. If evaluated over 10 years, although there is a decrease in the number of people per ambulance over the years, it is obvious that the Bursa average has not been reached.

Table 25. Access Time of Emergency Health Services to the Case (2019)[61]

	Access Time to the Case					
	<10:00 min.	10:01-20:00 min.	20:01-30:00 min.	30:01-60:00 min.	>60:00 min.	Total
Nilüfer	22914	9978	1039	533	184	34648
Bursa	154359	50822	6815	3655	790	216451

According to the data of the Bursa Provincial Health Directorate 2019 Yearbook[61], although 10.5% of the ambulances of Bursa are in Nilüfer, 16% of the emergency calls were served (Table 25). While the rate of emergency cases reached in less than 10 minutes for Bursa is 71.3%, this rate is 66.1% for Nilüfer (Figure 39). Nilüfer should be immediately provided ambulance support. Nilüfer should be immediately provided ambulance support.
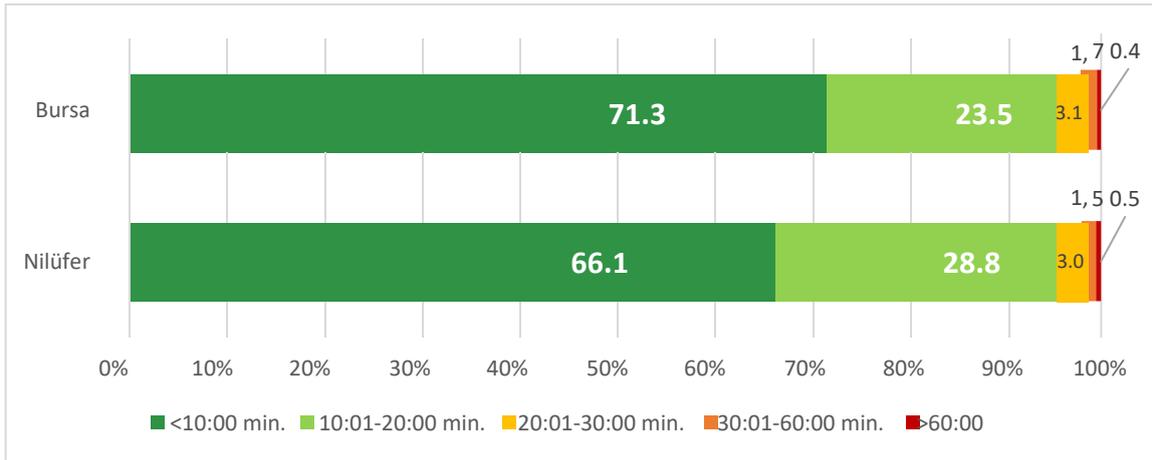
Figure 39: Access Time of Emergency Health Services to the Case (2019)[61]

If Bursa and Nilüfer are evaluated with respect to the access time of the emergency health services to the case (Figure 39), it is seen that Bursa is in a better condition compared to Nilüfer regarding the access time of the emergency service before 10 minutes. If the distribution of access after 20 minutes is evaluated, it is seen that Bursa and Nilüfer are similar.

2.2 Institutions Providing Primary Health Care in a Foreign Language

There is a total of 5 Immigrant Health Centers (IHCs) in Osmangazi, Yıldırım, İnegöl and Karacabey districts to serve the Syrian citizens registered in Bursa and who have been provided temporary identification numbers. In foreign national outpatient clinics in these IHCs, emergency health, preventive and basic health services and therapeutical health services are provided free of charge. Foreign nationals who do not have a temporary identification number are provided with a fight against infectious diseases, immunization, and emergency health services within the Temporary Protection Regulation.

According to Bursa Provincial Health Directorate Health Statistics Yearbook[61], primary health care services received from IHCs throughout the province are presented in Table 26.

Table 26. Number of Primary Health Care Services Provided in General Healthcare Directorates[61]

	Yıldırım IHC No. 1	Osmangazi IHC No. 1	Osmangazi IHC No. 2	İnegöl IHC No. 1	Karacabey IHC No. 1
Number of Polyclinics	119539	62864	38550	37111	12820
Number of Vaccinated Infants and Children	15456	12549	3308	9532	4111
Pregnancy Monitoring	366	1560	965	253	356

As there is no Immigrant Health Center in Nilüfer, Syrians with temporary protection status in the district apply to institutions in the nearest districts and some cases provided service from FHCs in the region. According to the yearbook, 47,855 applications were made to FHCs throughout the province of Bursa, and 336 (0.7%) of them provided service in Nilüfer.

Hospital		Emergency	Polyclinic	Inpatient	Number of Operations	Intensive Care	Number of Births	Number of Deaths
Bursa City Hospital		1838	9971	566	356	110	409	6
Dörtçelik Children Hospital		16653	24786	1446	226	334	0	2
Nilüfer Oral and Dental Health Hospital		0	1112	0	0	0	0	0
Total of Nilüfer	Number	18491	35869	2012	582	444	409	8
	%	8.8	13.8	13.8	6.1	48.1	7.5	7.3
Bursa Total		210552	259381	14615	9598	924	5426	109

According to Bursa Provincial Health Directorate Health Statistics Yearbook[61], statistics regarding the secondary healthcare services provided by the Ministry of Health institutions in Nilüfer are presented in Table 27. According to these data, 8.8% of all emergency admissions, 13.8% of general polyclinic admissions, 13.8% of inpatients, 6.1% of those who underwent surgery, and 48.1% of the hospitalized ones in the intensive care unit, 7.5% of births and 7.3% of deaths of Syrian patients in Bursa are handled by public institutions in Nilüfer.

Table 28. Foreigners in Nilüfer and Their Status[64]

	Female	Male	Total	0-17 Age	18-64 Age	65+ Age
With Residence Permit	4625	4991	9616	1541	7572	500
Within International Protection	106	75	181	48	132	1
Total	4731	5066	9797	1589	7704	501

Information on foreign nationals in Nilüfer is presented in Table 28. It is seen that most of the 9,797 foreigners in Nilüfer have residence permits. This number is 1.9% of the population of Nilüfer.

2.3 Health Workforce

According to the data of the Bursa Provincial Health Directorate 2019 Yearbook[61], information on the healthcare workforce is presented in Table 29.

Table 29. Distribution of Healthcare Workers in Bursa and Nilüfer (2019)[61]

	Nilüfer		Bursa
	Number	%	Number
Specialist Physician	1384	41.3	3352
Practitioner	289	18.3	1575
Assistant Physician	549	66.1	831
Nurse	2259	34.1	6616
Midwife	457	25.7	1777
Specialist Odontologist	77	52.7	146
Odontologist	274	26.0	1052
Pharmacist	233	20.9	1117
Total of the Other Healthcare Services Class	1649	30.7	5375
Total of the General Administrative Services Class	701	32.8	2,135
Total of the Technical Services Class	120	41.4	290
Total of the Auxiliary Services Class	112	14.0	800
Number of Total Workforce	11	12.4	89
Total of Religious Services Class	2	22.2	9
Lawyer	0	0.0	15
Commissioned 4/D Personnel	1,790	26.9	6,649
Overall Total	10,217	32.1	31,828

32.1% of the healthcare personnel in Bursa work in institutions in Nilüfer. While more than half of all specialist and assistant physicians in Bursa are located in Nilüfer, 18.3% of general practitioners work in the district (Table 29).

According to the information provided by Bursa Provincial Health Directorate[60], there are 513.4 physicians per hundred thousand people in Nilüfer in 2020. Of these, 55.7 (10.9%) are general practitioners, 143.1 (27.9%) are assistant physicians and 314.5 (61.3%) are specialist physicians. The number of assistants and specialist physicians is higher than the total number of physicians per capita in Bursa, as there are two institutions in Bursa province that train specialist physicians (Uludağ University Faculty of Medicine and Bursa City Hospital) and many public and private hospitals in the district.
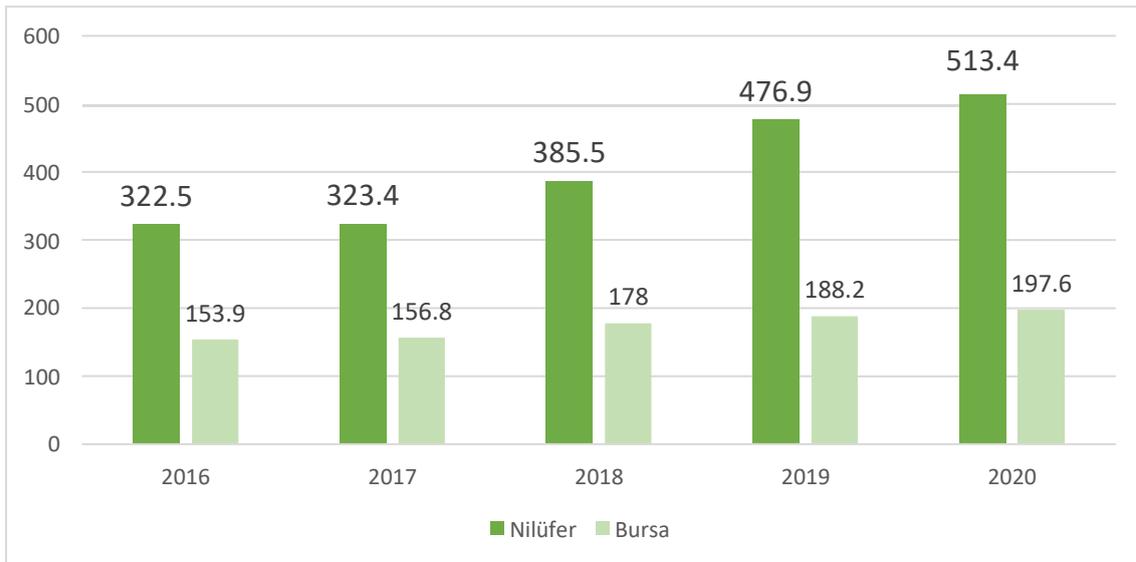
Figure 40: Total Number of Physicians Per Hundred Thousand People in Nilüfer and Bursa by year[60]

According to the data of the Provincial Health Directorate[60], the total number of physicians per person in Nilüfer is approximately 2.5 times higher than in Bursa. The total number of physicians has been increasing since 2017 (Figure 40). In terms of the number of physicians per hundred thousand people in 2020, the district of Nilüfer (476.9) outstrips the average of Turkiye (205)[59] and the average of the Eastern Marmara Region (184)[59]. Compared to the number of physicians per thousand population (3,6) in 2019, according to the OECD average of 38 countries, and the number of physicians per ten thousand (19,5*)[65] worldwide calculated according to the WHO Global Health Observatory database, the number of physicians in Nilüfer is high.

Considering the average Bursa, it is possible to say that the high number of physicians is due to the inequalities in the distribution of private hospitals and other health institutions within the province. Compared to other districts of Bursa, private health institutions prefer to provide services in Nilüfer, since it is a district where citizens of higher socioeconomic status live.

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* World average is calculated by averaging the latest data from countries in the WHO Global Health Observatory database.
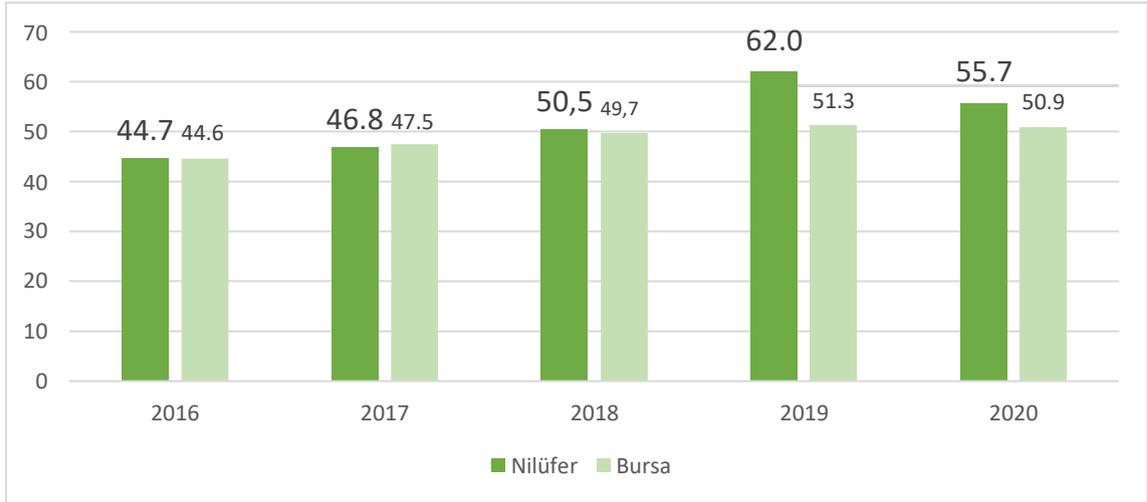
Figure 41: General Practitioners Per Hundred Thousand People in Nilüfer and Bursa by year
[60]

According to the data of Bursa Provincial Health Directorate[60], the number of general practitioners per hundred thousand people is shown in Figure 40. Although Nilüfer is in a better position than Bursa with regards to the number of general practitioners per hundred thousand people, this difference is not as significant as the number of assistants (Figure 42) and specialists (Figure 43). The number of general practitioners per hundred thousand people in Nilüfer in 2020 is lower than the Turkiye average (60)[59], and similar to the Eastern Marmara Region average (55)[59].
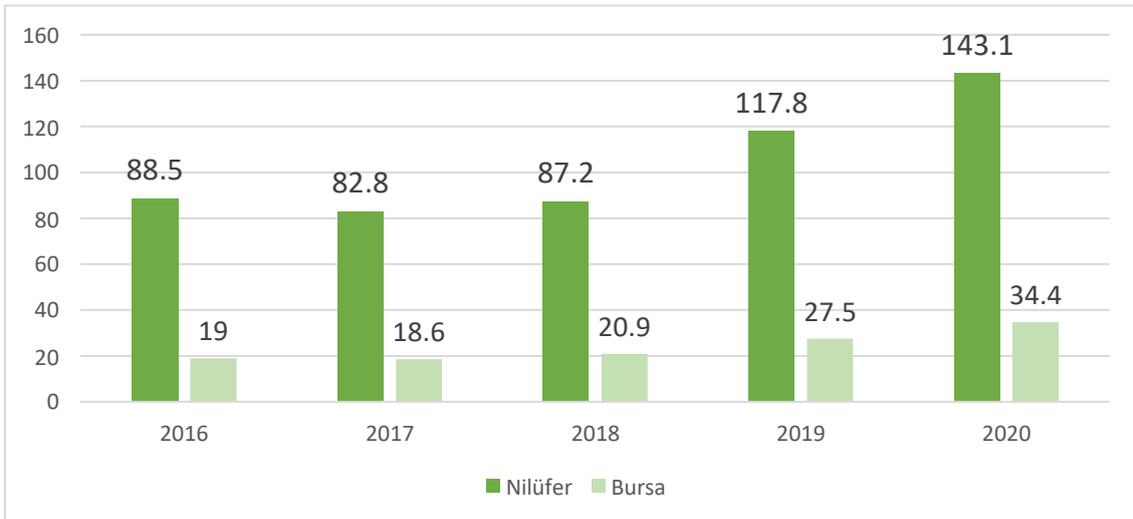
Figure 42: Number of Assistant Physicians Per Hundred Thousand People in Nilüfer and Bursa by year[60]

Since two of the hospitals providing specialized training in the province are located in the district, the number of assistant physicians per hundred thousand people in Nilüfer is 143.1, higher than Bursa (34.4) (Figure 42).
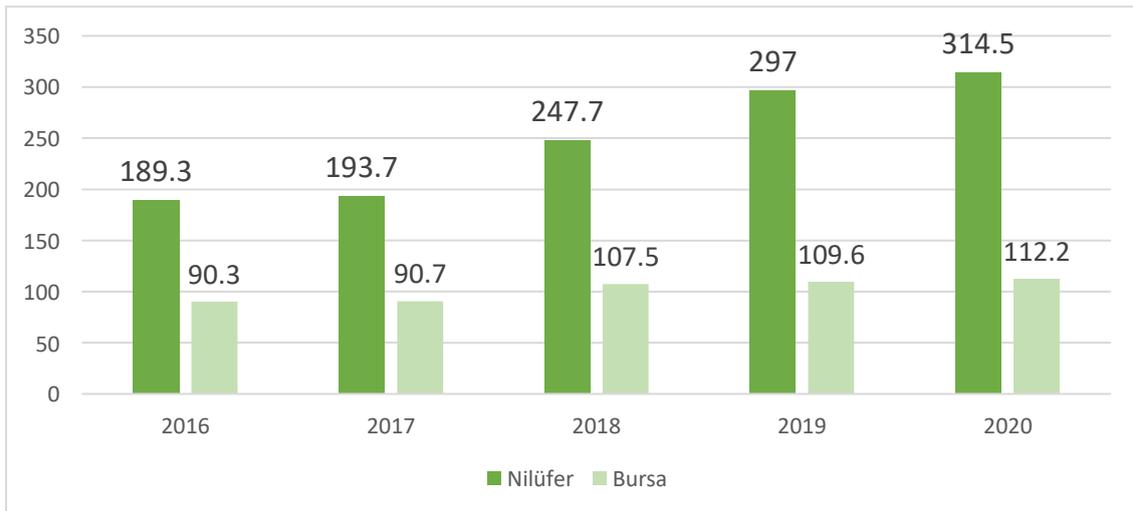
Figure 43: Number of Specialist Physicians (specialists ?) Per Hundred Thousand People in Nilüfer and Bursa by year[60]

With respect to the number of specialist physicians per hundred thousand people, Nilüfer (314.5) is above the Bursa average (112.2) (Figure 43). Nilüfer's number of specialist physicians in 2020 is higher than the averages of Turkiye (105)59 and Eastern Marmara Region (96)[59].
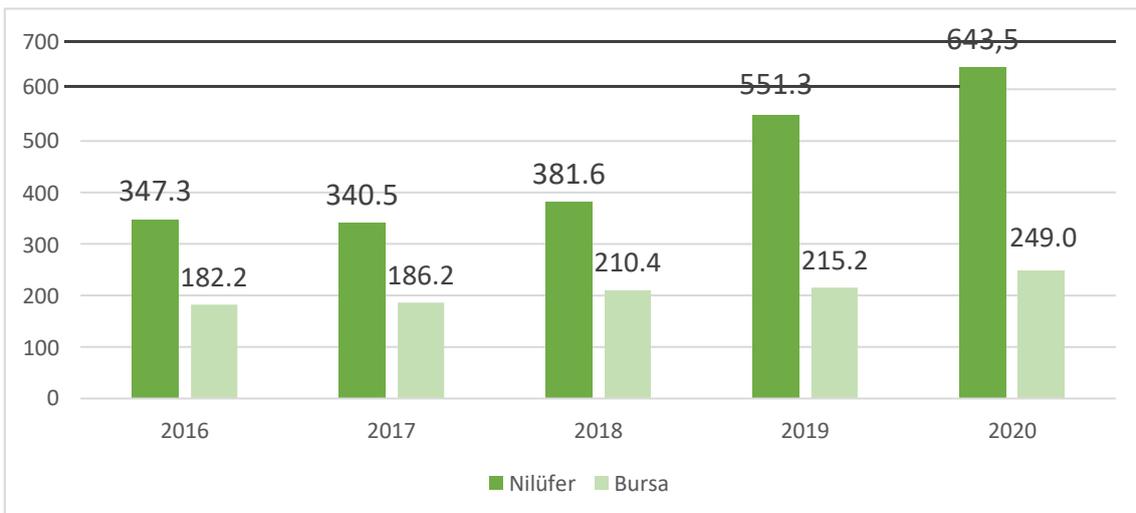
Figure 44: Number of Nurses Per Hundred Thousand Persons in Nilüfer and Bursa by year[61]

With respect to the number of nurses per hundred thousand people, Nilüfer exceeds the Bursa average (Figure 44). In terms of the number of nurses per hundred thousand people, Nilüfer also exceeds the number of nurses and midwives per capita in Turkiye (342)59 and Eastern Marmara Region (333)[59] in 2020. Although the number of nurses has been increasing since 2017, it is still below the OECD average of 38 countries (8.8 per thousand)[66], and the world average (36.9 per ten thousand)[67].

			Dentist	Orthodontics	Mouth, Tooth and	Endodontics	Pediatric Orthodontist	Periodontics	Prosthetic Tooth	Conservative Dental Treatment
Nilüfer	Public	Oral and Dental Health Polyclinics	52	0	1	0	0	1	3	0
	Private	Oral and Dental Health Polyclinics	105	13	9	2	8	2	6	1
		Orthodontist Offices	109	9	5	0	7	2	3	1
	Total of Nilüfer		**266**	**22**	**15**	**2**	**15**	**5**	**12**	**2**
Bursa	Public	Oral and Dental Health Polyclinics	254	2	4	1	1	4	8	0
	Private	Oral and Dental Health Polyclinics	393	33	15	5	10	4	8	1
		Orthodontist Offices	371	18	7	1	8	3	7	1
	All Hospitals		**1018**	**53**	**26**	**7**	**19**	**11**	**23**	**2**

According to Bursa Provincial Health Directorate 2019 Health Statistics Yearbook[61], the data of dentists and specialist physicians working in oral and dental health clinics and practices in Bursa are presented in Table 30. 26.1% of dentists, 41.5% of orthodontists, 57.7% of oral, dental, and maxillofacial surgeons, 28.6% of endodontists, 78.9% of pediatric dentists, 45.5% of periodontists, 52.2% of prosthetic dentists, and 100% of conservative dentists of Bursa are in Nilüfer.

2.4 Employee Health and Safety

The basic regulations and obligations regarding occupational health in Turkiye are defined by the 6331 numbered "Occupational Health and Safety Law", adopted in 2012: "The law is applied to all works and workplaces of the public and private sectors, to employers and employers' representatives of these workplaces, to all employees, including apprentices and interns, regardless of their field of activity."[68] and "…the purpose of the law is to regulate the duties, authorities, responsibilities, rights and obligations of employers and employees to ensure occupational health and safety at workplaces and improve existing health and safety conditions."[68]

Within the context of this law[68], employers are obliged to employ a workplace doctor and occupational safety specialist in their institutions or to acquire these services from the Joint Health and Safety Units (JHSU) to protect their employees from occupational risks and prevent risks.

The data of the workplace, employee, JHSU, active workplace physician and occupational safety specialist in Nilüfer and Bursa could not be obtained. Therefore, it is not possible to conduct any evaluation.

The number of visits to the physician is an indicator that covers both specialist and general practitioners and is used to estimate the annual number of examinations per physician.
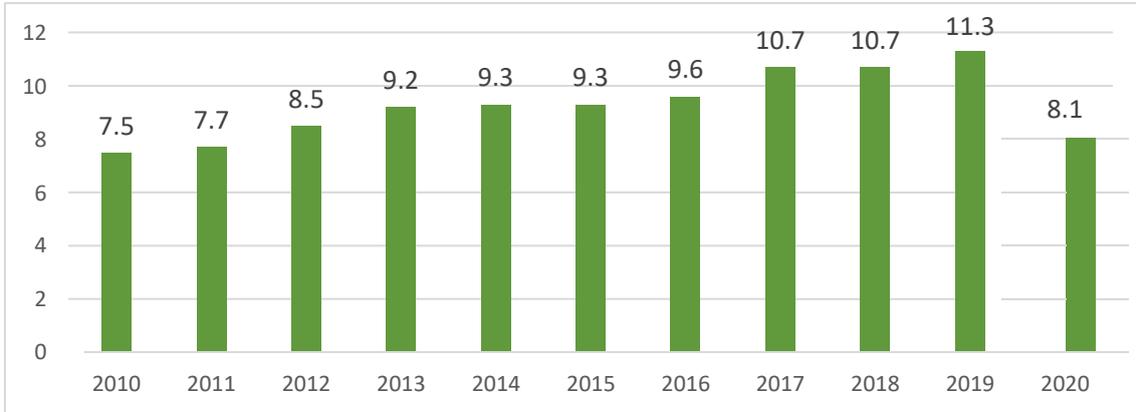
Figure 45: Total Number of Visits to a Physician in Bursa, Per Person, by year[60]

The total number of visits to a physician per person in a year in Bursa was determined as 8.1 in 2020 (Figure 45). It is seen that the number of visits in 2020 is higher than the average of Turkiye (7.2)[59] and the Eastern Marmara Region (7.5)[59]. It is seen that this number is higher than the OECD average of 34 countries (6,8)[66]. The number of visits to a physician, which was 11.3 in Bursa in 2019, was higher than the average of Turkiye (9.8)[69] and Eastern Marmara Region (9.9)[69], and it is observed that there was a decrease in visits from 2019 to 2020 in all regions.

It is seen that physician visits in Bursa in 2020 are at the lowest level since 2012. At this point, it is considered that the impact of COVID-19, which affects physician visits in the world, comes to the fore. Visits per person in 2020 also decreased in OECD countries compared to 2019, due to curfews, the suspension of non-emergency care, and the reluctance of many to visit healthcare facilities by fearing to be infected by the virus.[66]
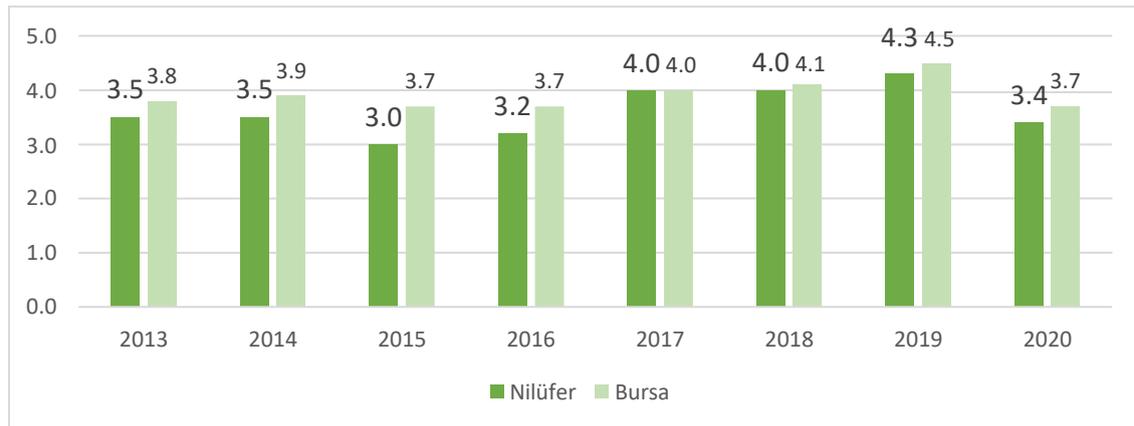
Figure 46: Total Number of Visits to Family Physicians in Nilüfer and Bursa, Per Person in Year, by year[61]

If considered in terms of the number of visits to the family physician in a year, the average number of visits in Nilüfer (3,4) is lower than the average of Bursa (3.7) (Figure 46). Compared to the number of visits per person[66] in the 2020 Health Statistics Yearbook, Nilüfer has more visits in 2020 than the averages of Turkiye (3.0) and the Eastern Marmara region (3.3).

Table 31. Healthy life Center Data (2019)[61]

Healthy life Center	Number of Persons Examined for HPV	Number of People Examined for MMG	Number of People Examined for FAB	Number of Persons Provided with Nutritional Counseling Services	Number of People Who Go to the Gym to Exercise	Number of Persons Provided with Smoking	Number of Persons Provided with Psychological Counseling Services	Number of Persons Provided with Social Support Unit Counseling	Number of Persons Provided with Smoking
Yıldırım HLC No. 1	1,307	0	222	3,160	5,609	2,085	1,332	1,028	331
Yıldırım HLC No. 2	4,876	6,449	2,141	3,826	3,773	670	1,353	1,283	876
Osmangazi HLC	6,611	10,836	3,630	9,194	4,211	871	4,073	646	618
Mudanya HLC	1,136	1,958	2,001	4,480	2,998	1,025	1,139	723	1,333
Orhangazi HLC	959	0	1,021	2,607	3,026	186	551	378	933
M.kemalpaşa HLC	1,912	2,532	2,118	3,256	5,201	747	929	596	636
Nilüfer HLC	6,489	8,281	4,890	3,224	142	688	1,896	21	0
İnegöl HLC No. 1	2,500	2,515	1,531	3,094	0	572	1,578	188	0
Karacabey HLC	143	0	208	182	0	0	0	45	0
TOTAL	24,626	32,571	17,540	29,863	19,351	4,759	11,519	3,880	4,396

According to data of Bursa Provincial Health Directorate Health Statistics Yearbook 2019[61], if the services conducted in Healthy Life Centers are considered (Table 31), the number of people examined for HPV, mammography, FAB and nutrition counseling services in Nilüfer HLCs respectively correspond to 26.4% 25.4%, 27.9% and 10.8% of the services provided in Bursa.

In our country, in accordance with the standards defined by the General Directorate of Public Health of the Ministry of Health of the Republic of Turkiye, screening through HPV or Pap-smear test within the scope of the Cervical Cancer Screening Program[70] is planned in every 5 years for women between the ages of 30-65, screening through mammography within the scope of Breast Cancer Screening Program[71] is planned every 2 years for women between the ages of 40-69 and colon cancer screening through FAB within the scope of the Colorectal Cancer Screening Program[72] is planned every 2 years for women between the ages of 50-70. Screening programs are conducted by Family Healthcare Centers, Cancer Training and Screening Centers operating under Community Health Centers, Healthy Life Centers, and hospitals. In this context, the minimum number of scans required to be conducted during the year has been calculated based on the target populations and the frequency of each screening program, using TURKSTAT data (Table 32).

Table 32. Meeting the Needs of the Screenings Performed in Healthy Life Centers
(2019)

		HPV Screening	MMG Screening	FAB Screening
Nilüfer	Number of Screening	6,489	8,281	4,890
	Target Population*	117,669	81,339	86,704
	Minimum Number of Screenings in 1 Year†	23,534	40,670	43,352
	Target Coverage Rate (%)‡	**27.6**	**20.4**	**11.3**
Bursa	Number of Screening	24,626	32,571	17,540
	Target Population*	730,690	535,672	610,439
	Minimum Number of Screenings in 1 Year†	146,138	267,836	305,220
	Target Coverage Rate (%)‡	**16.9**	**12.2**	**5.7**

According to the estimated calculation, the rate of meeting the target in 2019 in the HLCs in Nilüfer is higher than Bursa; far from meeting the targets (Table 32). Although it is known that these screenings are not only conducted in HLCs, the low rate of meeting the target in both Nilüfer and Bursa is striking.

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* Target Population has been determined from the TURKSTAT Address Based Population statistics of 2019. Since age groupings in these statistics are at 5-year intervals, the data on the number of people aged 65 years in the target population for HPV screening and 70 years in the FAB screening could not be included as they could not be found individually.

† The minimum number of screenings required in 1 year was calculated according to the year that each screening program should be performed.

      For HPV [(Target Population)/5],

      For MMG [(Target Population)/2],

      For FAB [(Target Population)/2].

‡ Target Coverage Rate was calculated with the formula (Number of Scans Performed / Minimum Scans

Table 33. 2020 Data on Community Healthy life Centers[60]

Healthy life Center	Number of Persons Examined for HPV	Number of People Examined for MMG	Number of People Examined for FAB	Number of Persons Provided with Nutritional Counseling Services	Number of People Who Go to the Gym to Exercise	Number of Persons Provided with Smoking Cessation Counseling Services	Number of Persons Provided with Psychological Counseling Services	Number of Persons Provided with Social Support Unit Counseling Service	Number of Persons Provided Child Development Counseling Service
Yıldırım HLC No. 1	564	129	75	1,370	2,551	667	670	149	219
Yıldırım HLC No. 2	1,339	2,053	417	1,000	1,207	154	427	350	359
Osmangazi HLC	924	1,213	1,074	2,542	629	309	703	315	444
Mudanya HLC	324	475	703	958	897	343	320	475	668
Orhangazi HLC	2,018	0	163	1,165	1,060	139	418	0	490
M.kemalpaşa HLC	396	752	620	1,782	1,513	0	435	492	0
Nilüfer HLC	1,673	2,336	1,111	2,017	0	183	812	6	0
İnegöl HLC No. 1	770	728	250	543	74	302	450	106	65
Karacabey HLC	135	69	130	623	0	0	309	146	0
TOTAL	8,143	7,755	4,543	12,000	7,931	2,097	4,544	2,039	2,245

HLC data for 2020[60] supplied by Bursa Provincial Health Directorate are presented in Table 33. According to these data, if the services carried out in the Healthy Life Centers are considered, the number of people examined for HPV, mammography, occult blood in the stool and the number of people provided nutritional counseling in Nilüfer HLC were respectively 20.5%, 30.1%, 24.5% and 16.8% of the services carried out in Bursa.

Table 34. Meeting the Needs of the Screenings Performed in Healthy Life Centers (2020)

		HPV Screening	MMG Screening	FAB Screening
Nilüfer	Number of Screening	1,673	2,336	1,111
	Target Population*	122,847	86,513	91,514
	Minimum Number of Screenings in 1 Year†	24,569	432,567	45,757
	Target Coverage Rate (%)‡	6.8	5.4	2.4
Bursa	Number of Screening	8,143	7,755	4,543
	Target Population*	738,653	551,077	625,682
	Minimum Number of Screenings in 1 Year†	147,731	275,539	312,841
	Target Coverage Rate (%)‡	5.5	2.8	1.5

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* Target Population has been determined from the TURKSTAT Address Based Population statistics of 2019. Since age groupings in these statistics are at 5-year intervals, the data on the number of people aged 65 years in the target population for HPV screening and 70 years in the FAB screening could not be included as they could not be found individually.

† The minimum number of screenings required in 1 year was calculated according to the year that each screening program should be performed.
   [(Target Population)/5] for HPV,
   [(Target Population)/2] for
   MMG,
   [(Target Population)/2] for FAB.

The ratio of the screenings conducted in 2020 in HLCs to meet the minimum number of screenings that should be done decreased further in both Nilüfer and Bursa compared to 2019 (Comparison of Table 34 with 32).

If it is evaluated for both years (Tables 32 and 34), although it is not expected that the number of screenings performed and the minimum number of screenings required due to the multi-centered nature of HPV, MMG and FAB screening programs are expected to coincide, the low rate of meeting the targets reveals an important problem of the health system in the healthy life centers that are at the forefront to provide screening and preventive health services.

Table 35. Community Mental Health Center Data[61]

	Nilüfer Görükle CMHC		Bursa Total of All CMHCs
	Number	%	Number
Total Number of Registered Patients	572	27.6	2,075
Occupational Therapy	1,226	29.7	4,126
Psychoeducation	165	20.8	793
Mobile House Visit	53	7.8	676

According to the data of Bursa Provincial Health Directorate 2019 Health Statistics Yearbook[61], when CMHC services are evaluated, 27.6% of the patients registered in CMHC services throughout Bursa are in Nilüfer. Although this rate exceeds 20% for occupational therapy and psycho-education services throughout the province, it is noteworthy that this rate drops to 7.8% in Nilüfer CMHC in mobile home visits (Table 35).
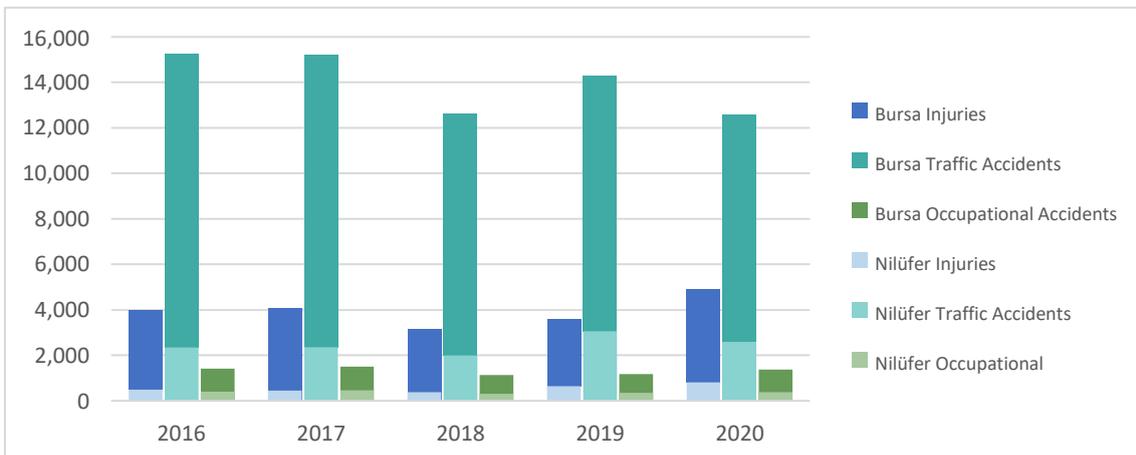
Figure 47: Distribution of 112 Ambulance Dispatches by year in Nilüfer and Bursa by Reason of Call[60]

According to the data for the reasons of 112 ambulance calls in 2020[60] of Bursa Provincial Health Directorate[60] (Figure 47), 16.5% of injuries, 20.6% of traffic accidents and 27.3% of work accidents in Bursa were in Nilüfer.

Table 36. Number of Operations in Inpatient Treatment Institutions (2019)[61]

			Conducted Operation	
			Number	%
Nilüfer	Public	Faculty of Medicine of Uludağ University	27,031	27.9
		Bursa City Hospital	18,283	18.9
	Private	Private Acıbadem Hospital	5,182	5.4
		Private Bursa Anadolu Hospital	9,929	10.3
		Private Esentepe Hospital	7,769	8.0
		Private Jimer Hospital	4,832	5.0
		Private Medicabil Hospital	8,786	9.1
		Private Medicana Hospital	9,376	9.7
		Private Pembe Mavi Hospital	3,450	3.6
		Private Retina Eye Hospital	2,082	2.2
	Total of Nilüfer		96,720	100
Bursa			Number	
	Total Number of Public Hospitals		297,136	
	Total Number of Private Hospitals		129,025	
	All Hospitals		426,161	

According to the Bursa Provincial Health Directorate 2019 Health Statistics Yearbook, the data on the number of surgeries in inpatient treatment institutions are presented in Table 36. Accordingly, a total of 96,720 surgeries were performed in Nilüfer in 2019, 46.9% of them in public hospitals and 53.1% in private hospitals. In Bursa, 22.7% of all surgeries, 15.3% of surgeries performed in public institutions, and 39.8% of surgeries performed in private institutions were in Nilüfer.

Table 37. Number of Surgery in Medical Centers [61]

		Conducted Operation	
		Number	%
Nilüfer	Private Grup Medika Medical Center	559	50.3
	Private Esteticare Medical Center	553	49.7
	Total of Nilüfer	1,112	100
Bursa	Bursa Total	9,233	

According to Bursa Provincial Health Directorate's 2019 Health Statistics Yearbook, 12.0% of surgeries performed in medical centers were in Nilüfer (Table 37).

According to the Bursa Provincial Health Directorate 2019 Health Statistics Yearbook, information on the services provided in hospitals is presented in Table 38.

Table 38. Hospital Services in Bursa and Nilüfer[61]

			Consultation Examination	Number of Outpatient Examinations (including Dental and Emergency)	Number of Emergency Examinations	Rate of Emergency Examinations (%)	Number of Inpatients	Rate of Inpatients (%)	Number of Discharged Patients	Number of Deceased Patients	Number of Hospitalized Days	Total Bed Occupancy Rate	Average Number of Hospitalization per	Number of Turnovers (Day)	Bed Turnover Rate (Patient)
Nilüfer	Public	Faculty of Medicine of Uludağ University	189,655	1,392,614	218,205	15.7	41,963	3.0	41,414	1,048	290,905	89.0	6.9	0.9	46.8
		Bursa City Hospital	36,918	694,019	146,743	21.1	23,409	3.4	20,373	562	115,695	55.8	5.5	4.4	17.3
		Dörtçelik Pediatric Diseases Hospital	54,687	800,425	397,792	49.7	19,741	2.5	19,126	20	77,179	74.2	4.0	1.4	62.7
	Private	Private Acıbadem Hospital	9,061	280,143	17,136	6.1	19,847	7.1	19,492	228	39,093	80.5	2.0	0.5	149.2
		Private Bursa Anadolu Hospital	4,339	148,427	27,727	18.7	5,087	3.4	4,476	114	10,243	41.9	2.2	3.1	75.9
		Private Esentepe Hospital	3,275	179,373	20,154	11.2	6,399	3.6	6,027	217	14,506	53.0	2.3	2.1	85.3
		Private Jimer Hospital	1	41,805	4,690	11.2	4,867	11.6	4,981	2	7,018	34.3	1.4	2.7	86.9
		Private Medicabil Hospital	4,556	201,203	21,028	10.5	8,353	4.2	8,519	383	23,724	63.1	2.7	1.6	81.1
		Private Medicana Hospital	6,815	223,819	21,192	9.5	17,396	7.8	17,300	222	32,728	100	1.9	0	174.0
		Private Pembe Mavi Hospital	441	29,057	1,016	3.5	3,936	13.5	3,952	4	12,539	81.7	3.2	0.7	93.7
		Private Retina Eye Hospital	11	36,286	1,825	5.0	0	0	0	0	0	0	0	0	0
	Total of Nilüfer		309,759	4,027,171	877,508	**25.0**	150,998	**4.1**	145,660	2,800	623,630	-	-	-	-
Bursa	Total Number of Public Hospitals		575,105	14,304,309	4,743,143	33.2	314,013	2.2	299,868	8,356	1,558,647	-	-	-	-
	Total Number of Private Hospitals		56,299	2,783,913	307,476	11.0	164,674	5.9	159,114	3,511	392,543	73.2	2.4	1.0	102.8
	All Hospitals		**758,141**	**17,786,817**	**5,122,081**	**28.8**	**497,241**	**2.8**	**480.023**	**12,353**	**2,126,400**	**74.4**	**4.3**	**2.3**	**55.3**

Table 39. Dialysis Services (2019)[61]

			Total Number of Devices	Number of Backup	Total Number of Patients	Number of Sessions	Specialist Physician	Practitioner
Nilüfer	Public	Uludağ University, Faculty of Medicine Hospital, Dialysis Center	30	1	80	15,600	1	2
		Bursa City Hospital	30	1	85	15,346	3	2
		Dörtçelik Pediatric Diseases Hospital (Only pediatric periton dialysis center)	-	-	-	-	1	-
	Private	Private FMC Bursa Dialysis Center	50	1	240	32,134	1	2
	Total of Nilüfer		**110**	**3**	**405**	**63,080**	**6**	**6**
Bursa	Total Number of Public Dialysis Centers		198	10	649	99,137	10	17
	Total Number of Private Dialysis Centers		369	10	1,622	227,486	8	20
	All Dialysis Centers		**567**	**20**	**2,271**	**326,623**	**18**	**37**

19.4% of all dialysis devices and 15.0% of backup devices of Bursa are in the dialysis centers in Nilüfer. 17.8% of dialysis patients of Bursa are provided services from institutions in Nilüfer, and 19.3% of dialysis sessions are in the district. 33.3% of specialist physicians and 16.2% of general practitioners in dialysis centers of Bursa are in Nilüfer (Table 39).

Table 40. Distribution of Dialysis Services in Public and Private Institutions (2019)[61]

		Total Number of Devices	Number of Backup Devices	Total Number of Patients	Number of Sessions	Specialist Physician	Practitioner
Nilüfer	Total Number of Public Dialysis Centers (%)	54.5	66.7	40.7	49.1	83.3	66.7
	Total Number of Private Dialysis Centers (%)	45.5	33.3	59.3	50.9	16.7	33.3
	Nilüfer Total (%)	**100**	**100**	**100**	**100**	**100**	**100**
Bursa	Total Number of Public Dialysis Centers (%)	34.9	50.0	28.6	30.4	55.6	45.9
	Total Number of Private Dialysis Centers (%)	65.1	50.0	71.4	69.6	44.4	54.1
	All Dialysis Centers (%)	**100**	**100**	**100**	**100**	**100**	**100**

The distribution of dialysis services in the public and private sectors is presented in Table 40. Although most of the devices and physicians are in public dialysis centers in Nilüfer, it is seen that the total number of patients and dialysis sessions is higher in private institutions.

Table 41. Number of Births in Inpatient Treatment Institutions (2019)[61]

			Total Live Born Baby	Total Stillborn Baby	Primary C-section	Normal Birth	Interventional Birth	Cesarean Birth	Total Birth	Cesarean Birth Rate (%)	Primary Cesarean Rate in All Births
Nilüfer	Public	Uludağ University, Faculty of Medicine Hospital	951	50	302	340	7	604	951	63.5	31.8
		Bursa City Hospital	3,595	19	472	2,201	26	1,258	3,485	36.1	13.5
	Private	Private Acıbadem Hospital	710	3	244	167	0	508	675	75.3	36.1
		Private Bursa Anadolu Hospital	107	0	81	20	0	87	107	81.3	75.7
		Private Esentepe Hospital	1,488	0	821	515	0	858	1,373	62.5	59.8
		Private Jimer Hospital	1,249	1	584	105	123	1,012	1,240	81.6	47.1
		Private Medicabil Hospital	1,583	1	830	217	1	1,352	1,570	86.1	52.9
		Private Medicana Hospital	1,592	2	635	409	0	1,165	1,574	74.0	40.3
		Private Pembe Mavi Hospital	1,597	3	783	288	58	1,180	1,526	77.3	51.3
	Total of Nilüfer		**12,872**	**79**	**4,752**	**4,262**	**215**	**8,024**	**12,501**	**64.2**	**59.2**
Bursa	Total Number of Public Hospitals		24,904	247	4,215	14,181	111	10,432	24,724	42.2	17.0
	Total Number of Private Hospitals		21,221	37	7,930	6,130	185	14,497	20,812	69.7	38.1
	All Hospitals		**46,125**	**284**	**12,145**	**20,311**	**296**	**24,929**	**45,536**	**54.7**	**26.7**

Information on deliveries in inpatient treatment institutions is presented in Table 41. According to this, 54.7% of deliveries in Bursa are performed by c-section, while this rate is 64.2% for Nilüfer. The rate of c-section in the Ministry of Health hospitals of Turkiye in 2019[69] was 41.8%; in university hospitals 70.4%, in private hospitals 71.8% and 57.0% in total. If Turkiye and Nilüfer are compared, it is seen that the c-section rates are higher in both the Ministry of Health and private hospitals and Nilüfer as a whole in all institutions. The OECD average for cesarean deliveries is 28.2%[73] and the worldwide estimate[74] for 2018 is 21.1%.

C-section rates are very high in Turkiye, Bursa and Nilüfer. WHO emphasizes that cesarean deliveries effectively prevent perinatal mortality and morbidity, therefore this method should not be applied if it is not medically necessary, and no evidence shows the benefits of this method for mother or child. As in other surgeries, a c-section also creates ongoing health effects for the mother, child, and future pregnancies after the delivery, in addition to its short and long-term effects. These risks are even greater for women who have limited access to health services providing maternity care.[75]

Table 42. Hospital Mother Guesthouse Services (2019)[61]

		Number of Beds	Number of Hospitalized Mothers-Pregnant Women	Number of Hospitalized Days of Mothers-Pregnant Women
Nilüfer	Faculty of Medicine of Uludağ University	8	1,100	3,683
	Dörtçelik Pediatric Diseases Hospital	12	280	1,056
	Total of Nilüfer	**20**	**1,380**	**4,739**
All Hospitals of Bursa		**51**	**2,420**	**8,410**

According to the Bursa Provincial Health Directorate 2019 Health Statistics Yearbook, 39.2% of the beds reserved for mother guesthouses in hospitals of Bursa are in Nilüfer. 57.0% of the number of mothers-pregnant women and 56.3% of the number of days they were hospitalized in Bursa were in institutions of Nilüfer (Table 42).

	2013	2014	2015	2016	2017	2018	2019
Turkiye	33.7	31.3	30.7	29.5	25	24.6	23.9
Bursa	31.4	30.1	30.1	28.9	23.8	23.4	23.2
Nilüfer	29.4	29.7	29.8	28.2	23.5	23.2	23.6
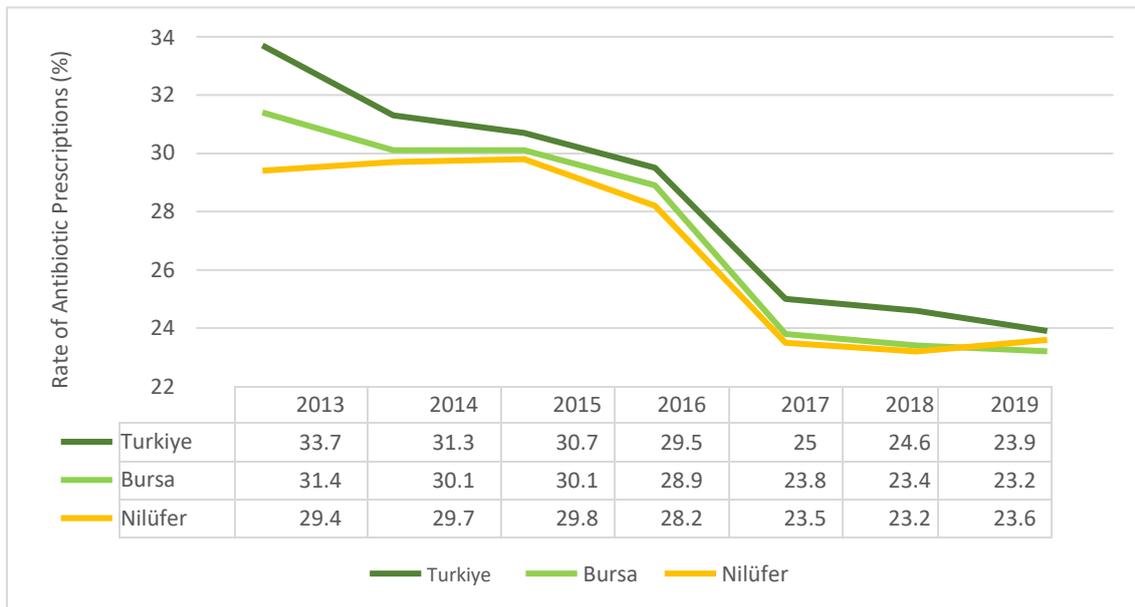
Figure 48: Change of Antibiotic Prescription Rate (%) by year/Family Physician[96]

According to Bursa Provincial Health Directorate's 2019 Health Statistics Yearbook[61], the rate of prescribing antibiotics in prescriptions by Family Physicians in Nilüfer (Figure 48) decreased by 5.8% between 2013 and 2019. The rate of decrease is 9.8% for Turkiye and 8.2% for Bursa. According to the Health Statistics Yearbook for 2019[69], Turkiye has surpassed the OECD average of 32 countries regarding antibiotic consumption per 1000 people (DDD) and has become the country that consumes the most antibiotics after Greece.
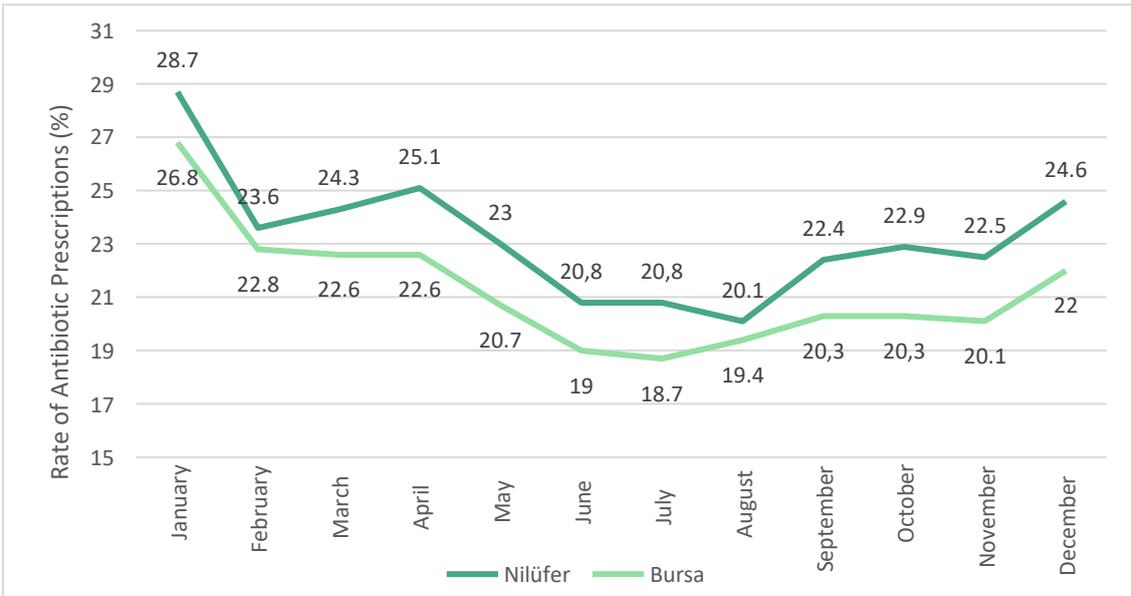
Figure 49: Change of Prescription Rates for Antibiotics (%) by month[61]

According to Bursa Provincial Health Directorate's 2019 Health Statistics Yearbook[61], if all prescriptions prescribed in 2019 are considered, antibiotic prescribing rates by month is shown in Figure 49. According to this, if the antibiotic prescription rates are evaluated by month in 2019, it is seen that more antibiotics are prescribed in Nilüfer throughout the year compared to the Bursa average.

2.6 Communicable Diseases

Since data on communicable diseases for the Nilüfer could be obtained, information such as the communicable disease load of the district, the number of epidemics, and the number of diseases mandatory to be notified cannot be given.

The Extended Immunization Program to combat vaccine-preventable communicable diseases in Turkiye covers pertussis, diphtheria, tetanus, measles, rubella, mumps, tuberculosis, polio, chickenpox, hepatitis A, hepatitis B, Streptococcus pneumoniae and Haemophilus influenzae type b vaccinations[76]. Figure 50 shows the vaccination status for the vaccines included in the basic immunization program for children within the scope of this program by the Bursa Provincial Health Directorate.
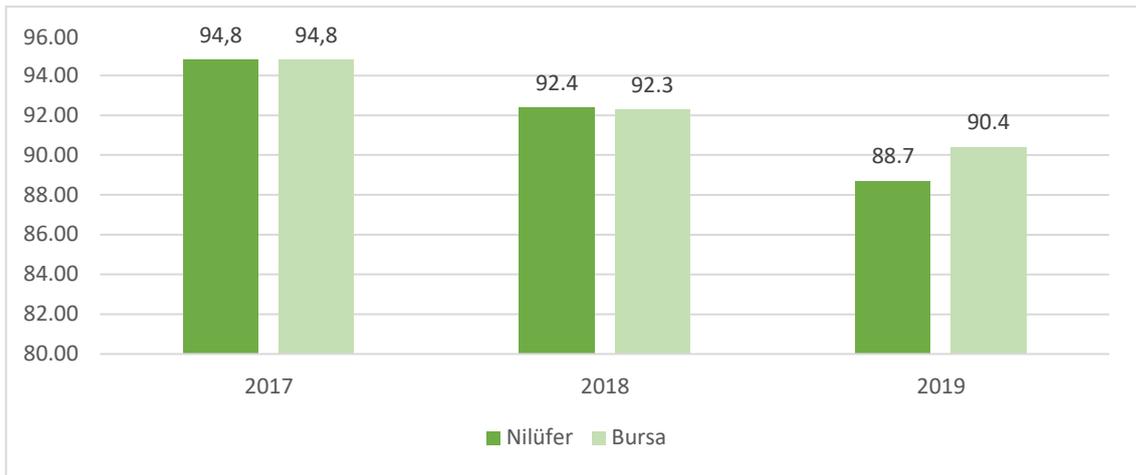
Figure 50: Proportion of Fully Vaccinated Children in Nilüfer and Bursa by year[61]

It is seen that the rate of fully vaccinated children decreased in both Bursa and Nilüfer from 2017 to 2019 (Figure 50). If the data on vaccination according to years in the 2020 Health Statistics Yearbook[59] are considered, it is remarkable that no vaccination rate fell below 95% in 2017, except for the BCG vaccine (93%) for Turkiye in 2017-2019. If this is evaluated in this context, there is a serious problem regarding the vaccination rates of Nilüfer and Bursa. Although there are only three years of data, the reason for the decreasing vaccination over the years is a situation that needs to be researched and intervened immediately.

3. Lifestyles

3.1 Use of Addictive Drugs, Drugs and Volatile Substances

Inpatient and outpatient treatment services are provided at ADATRC and ADATCCA institutions of Nilüfer for patients who want to get rid of their substance addictions. According to the Bursa Provincial Health Directorate 2019 Health Statistics Yearbook[61], the data on the treatments performed in ADATRC and ADATCCA in Nilüfer during 2019 are presented in Table 43.

Table 43. Statistics for Outpatient or Inpatient Treatments in AMATEM and ÇEMATEM (2019)[61]

Institution	Number of Applicants	Female	Male	Provincial	Non-Provincial	Total Number of Polyclinics	Total Number of Duplicate Polyclinics	Number of Hospitalized People	Number of Hospitalization
ADATRC	7,209	456	6,753	6,711	498	11,083	3,874	440	442
ADATCCA	635	303	328	576	59	839	204	77	81
Total	**7,844**	**759**	**7,081**	**7,287**	**557**	**11,922**	**4,078**	**517**	**523**

Totally 7,844 people applied to institutions in Nilüfer for substance abuse treatment. 7,081 (90,3) of them are male. 93.7% of the applicants of ADATRC and 51.7% of the applicants of ADATCCA were male (Table 43). The higher rate of males in admissions is consistent with data on substance use disorders across the world[77]. The difference between genders is more evident in ADATRC, which provides services for adults, and less in ADATCCA, which provides services for children.
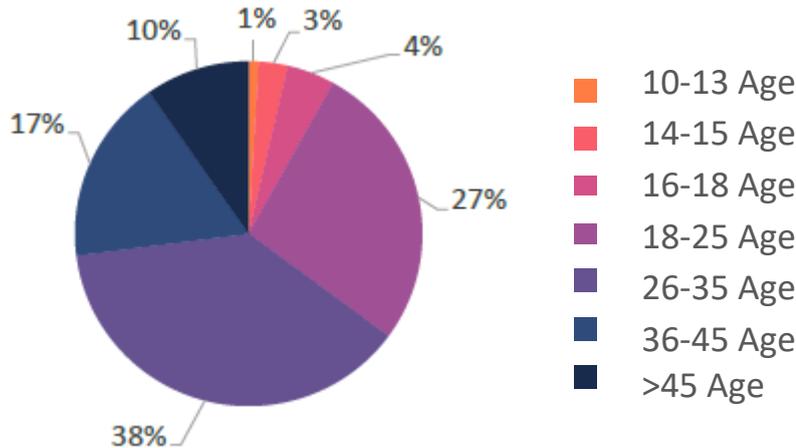
Figure 51: Age Distribution of Those Treated at ADATRC and ADATCCA (2019)[61]

When the age distributions are taken into consideration, it is seen that the age group with the highest number of applicants is between the ages of 26-35, followed by the age group of 18-25 (Figure 51).

According to the data of Bursa Provincial Health Directorate[61], the number of applications to ADATRCT and ADATCCA in a year is 1105 and 41, respectively, for those residing in Nilüfer; these account for 15.3% and 6.5% of all applications, respectively. According to the six-month data of Bursa State Hospital ADATRC, another addiction treatment institution in the province, the number of applicants residing in Nilüfer is 87 (0.9%).
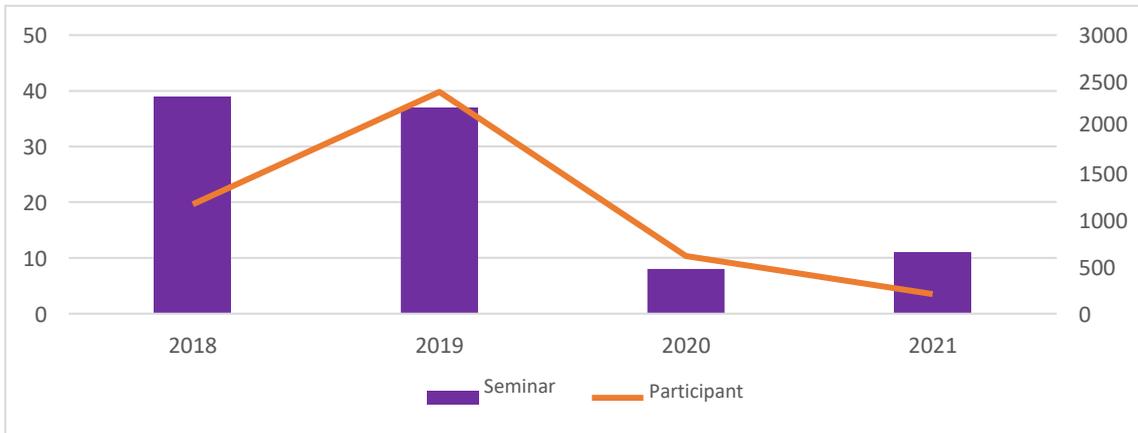
Figure 52: Nilüfer Municipality Social Support Services Directorate Anti-Addiction Unit Combating Addiction and Awareness Seminars[78]

The Anti-Addiction Unit was established by the Nilüfer Municipality in 2017 to combat substance addiction. This unit gave more than 90 seminars in Nilüfer between 2018-2021 and reached more than 4300 individuals (Figure 52).
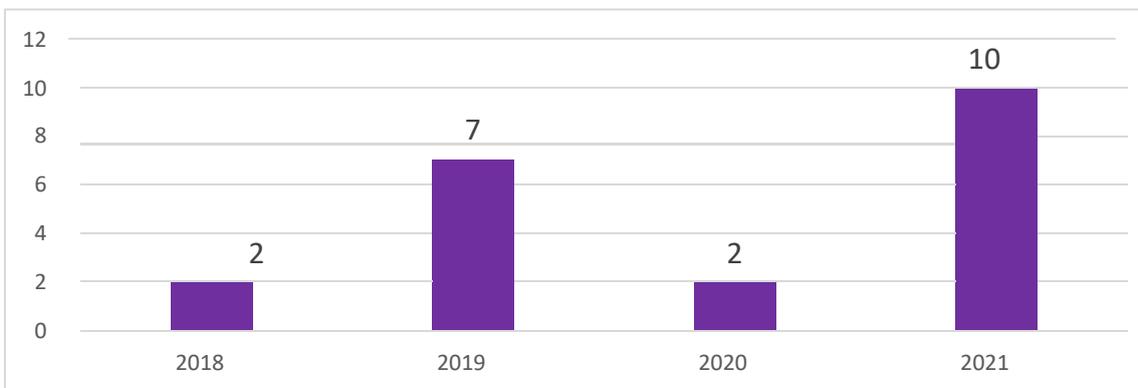
Figure 53: Number of Individuals Provided Counseling Services Regarding Substance Addiction by Nilüfer Municipality Anti-Addiction Unit[78]

It is possible to attribute the decreasing number of seminars in 2020 and 2021 to the pandemic. The number of individuals applying for support is still quite low (Figure 53).

Nilüfer Municipality has opened 17 sports centers and their total area is 76,775.90 decares[79].
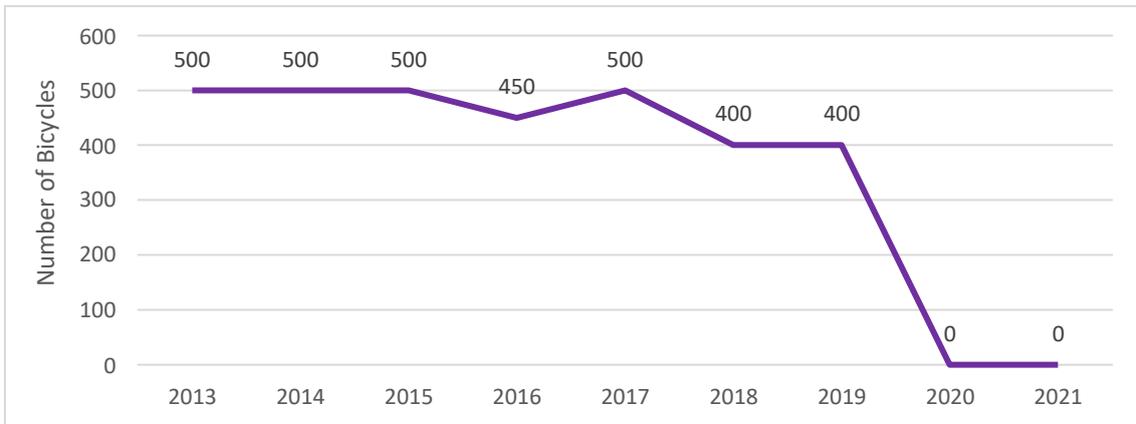
Figure 54: Number of Bicycles Distributed by Nilüfer Municipality[80]

Nilüfer Municipality has distributed bicycles every year until 2020, but no bicycle was distributed in 2020 and 2021 due to the pandemic (Figure 54).
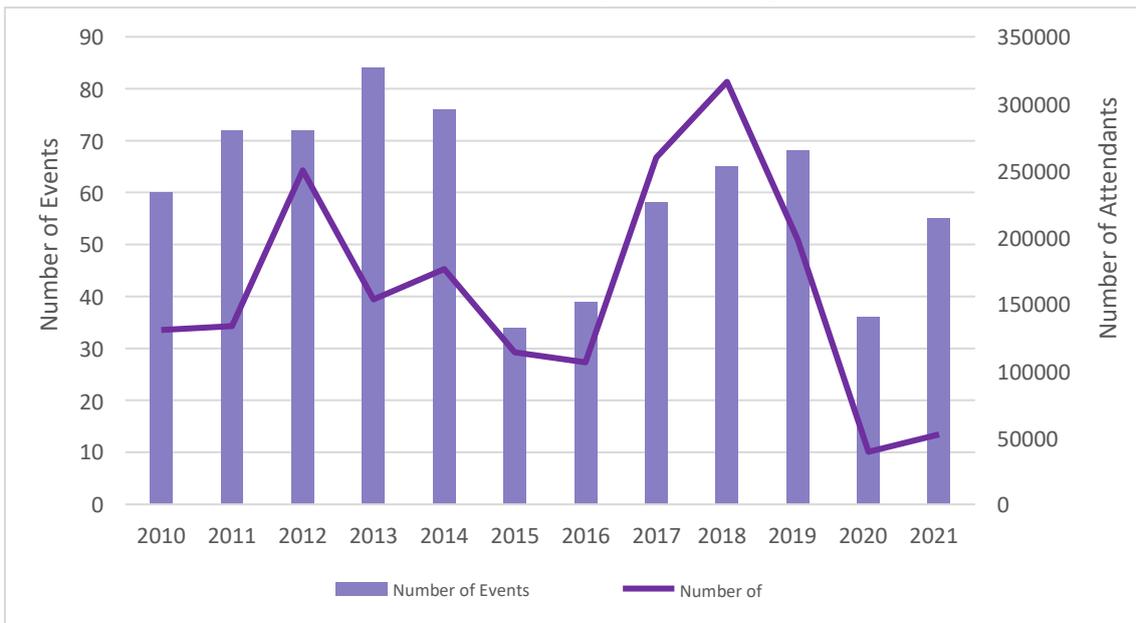
Figure 55: Events and Number of Participants Organized by Nilüfer Municipality[81]

If we consider the various events and the number of participants in these events organized by the Nilüfer Municipality, it is seen that there were fewer events in 2020 due to the pandemic, and after the restrictions were lifted in 2021, events have been organized as much as before the pandemic, but with a limited number of participants (Figure 55).
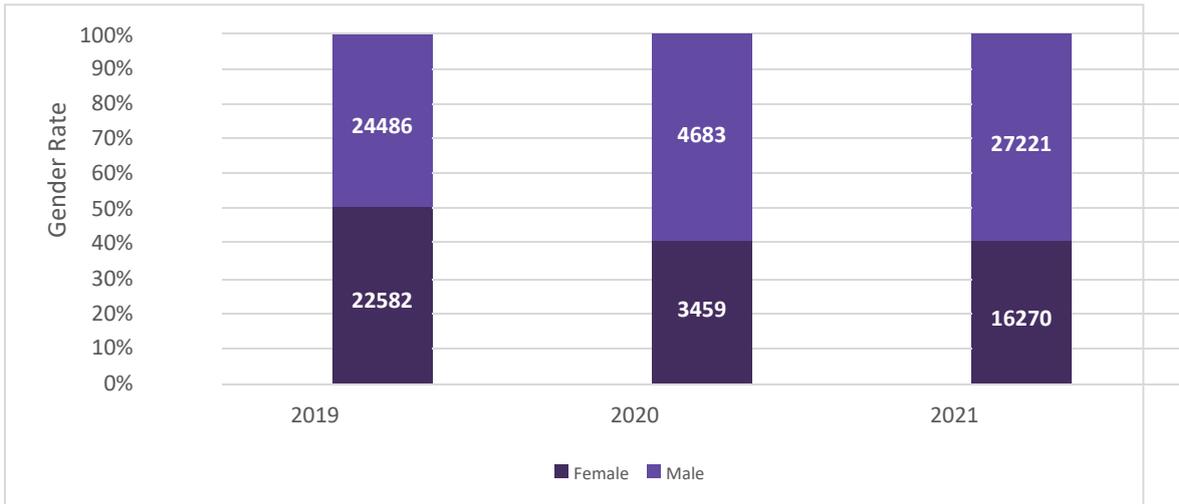
Figure 56: Number of People Using Nilüfer Municipality Sports Facilities[81]

If the use of Nilüfer Municipality sports facilities between the years 2019-2021 is considered, it is noteworthy that there is a decreasing trend in the rate of women using the facilities (Figure 56). It is seen that the number of people using the facilities in 2020 has decreased significantly due to the pandemic. The use of the facilities by persons with disabilities is low. 361 disabled people used the facilities in 2019, 183 in 2020, and 465 in 2021.
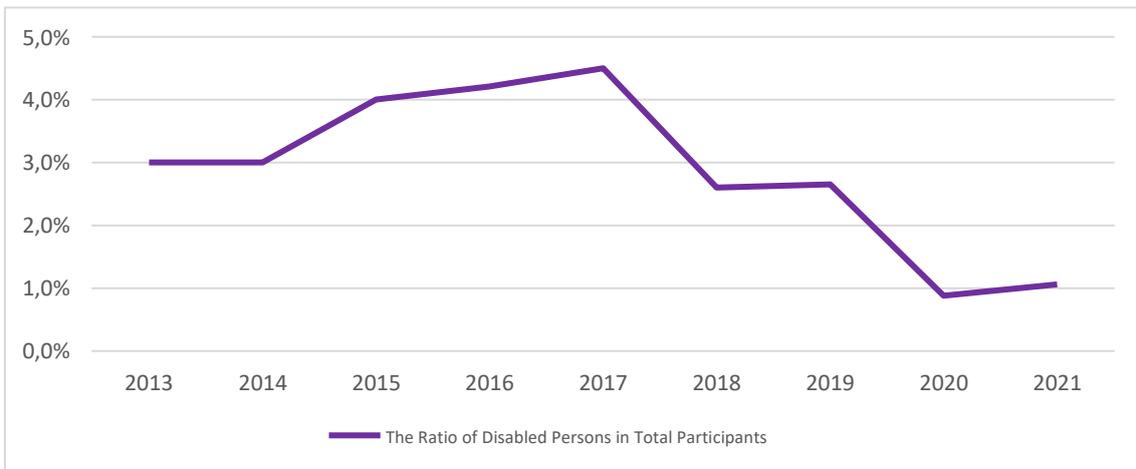
Figure 57: Ratio of Disabled Persons Benefiting from Sports Activities of Nilüfer Municipality in Total Participants[81]

The proportion of disabled people benefiting from sports activities organized by Nilüfer Municipality has decreased over the years after 2017 (Figure 57).

The program called Nilespit, which started its activities in 2016, it is aimed to integrate cheap and healthy transportation with public transportation. In Nilüfer with 167 km of bicycle paths, the number of subscribers of the smart bicycle rental system, serving 33 bicycle stations, 228 bicycles and 388 parking spaces in 2022, is 40,597 and the number of rentals is 197,720.[82]

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The highest use is on Friday, Saturday, and Sunday and mostly during the evening hours. The locations with the highest rental rates are the 4 stations on the Uludağ University campus, the stations in Görükle and the station under Gölyazı Ağlayan Çınar on weekends.[82]

The rental system was started via the mobile application with a QR code to facilitate the rental of bicycles. In this way, cyclists start using bicycles without needing a subscriber card, without coming to the subscriber center, just by installing the mobile application on their mobile phones and signing the electronic contract, by paying their fees through this application with their credit cards.[82]

3.3 Nutrition

Adequate and balanced nutrition is defined as having each of the nutrients necessary for growth, development and a healthy life and their proper use in the body. Nutrition is very important, especially for children. The eating habits a child acquires in the preschool period can form the basis of nutritional problems that may arise in his/her future life.[83] Healthy nutrition plans are prepared in the institutions of Nilüfer Municipality (such as, nursing homes, daycare centers, etc.) to reduce the incidence of overweight and obesity problems under the control of a dietitian by considering the age groups, physical activity levels, lifestyles, etc.

Nilüfer Municipality also serves hot meals to citizens who cannot cook their own meals. Two meals a day are delivered to 210 people in 150 households with the elderly, the sick and the disabled, who live alone, have no one to look after or cannot afford to get any assistance.

Soup is distributed twice a day, in the morning and evening, every weekday for university students. All students who come with a student ID card can benefit from the service free of charge.

4. Living Conditions

4.1 Population Per Household

According to the data of the TURKSTAT Address-Based Population Registration System, there are a total of 162,168 households in Nilüfer. The distribution of these households by household size is shown in Figure 58.
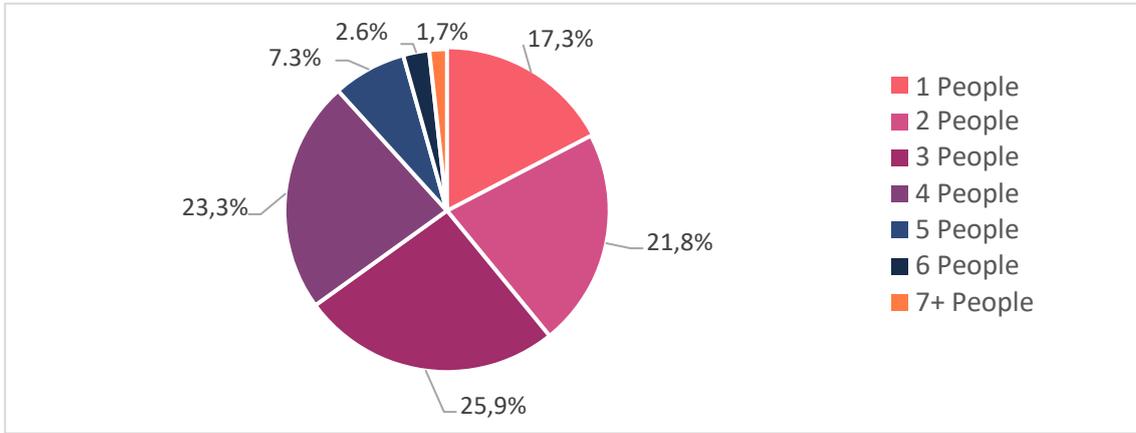
Figure 58: Distribution of Households by Household Size in Nilüfer (2021)[84]

If the households are considered according to the size of the households, it is seen that 88.3% of the households in Nilüfer consist of 4 people or fewer (Figure 58).
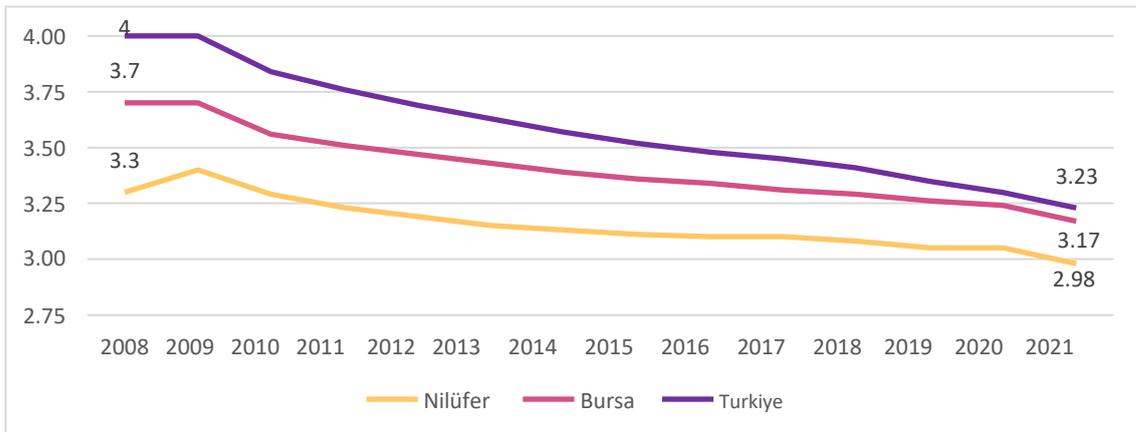
Figure 59: Average Population Per House by year in Turkiye, Bursa and Nilüfer[85]

The average household sizes in Nilüfer, Bursa and Turkiye are shown in Figure 59 according to the TURKSTAT Address-Based Population Registration System. Nilüfer has a smaller household size than both Bursa and Turkiye.

Table 44. Distribution of Household Size by Neighborhoods in Nilüfer (2021)[86*]

Name of Neighborhood	Population	Number of Households	Number of People per Household
Ürünlü	3674	978	3.8
Odunluk	18632	6,152	3.0
Alaaddinbey	14714	4,768	3.1
Özlüce	7196	2,455	2.9
Ertuğrul	8101	2,555	3.2
Çamlıca	8271	2,493	3.3
Kültür	915	310	3.0
Gümüştepe	18919	5,657	3.3
Demirci	14685	4,961	3.0
Konak	20215	4,715	4.3
Üçevler	12448	4,720	2.6
Ahmet Yesevi	13433	4,442	3.0
Balat	23420	7,292	3.2
Minareliçavuş	16644	5,615	3.0
Fethiye	16794	5,030	3.3
Karaman	17724	5,364	3.3
İhsaniye	14265	4,347	3.3
Işıktepe	2184	602	3.6
Esentepe	25279	10,483	2.4
Cumhuriyet	12708	3,823	3.3
Ataevler	13106	4,370	3.0
Barış	21424	6,709	3.2
Altınşehir	1295	427	3.0
Beşevler	33321	7,971	4.2
Akçalar	1360	447	3.0
Çalı	509	154	3.3
Gölyazı	1576	511	3.1
Görükle	3870	1,058	3.7
Dumlupınar	28847	9,930	2.9
Kurtuluş	1141	350	3.3
İrfaniye	11212	3,798	3.0
Balkan	2369	786	3.0
Hasanağa	8038	2,517	3.2
Kızılcıklı	24837	7,849	3.2
30 Ağustos Zafer	1100	309	3.6
Kayapa	6957	2,278	3.1
Yüzüncüyıl	13080	3,804	3.4
23 Nisan	4907	1,365	3.6
29 Ekim	6864	2,141	3.2
19 Mayıs	3353	1,112	3.0
Doğanköy	1215	344	3.5
Güngören	25644	7,372	3.5
Konaklı	1334	310	4.3
Tahtalı	2065	583	3.5
Yaylacık	4840	1,257	3.9
Yolçatı	19088	5,982	3.2
Nilüfer	**518,365**	**162,168**	**2.9**

*As Atlas, Ayvaköy, Badırga, Başköy, Büyükbalıklı, Çatalağıl, Çaylı, Dağyenice, Fadıllı, Gökçe, İnegazi, Kadriye, Karacaoba, Korubaşı, Kuruçeşme, Makşempınarı, Unçukuru, Üçpınar neighborhoods are not available in the obtained TURKSTAT data, the household sizes for these neighborhoods could not be calculated.

The distribution of household sizes in the neighborhoods of Nilüfer is presented in Table 44, according to the data of the TURKSTAT Address-Based Population Registration System. If the neighborhoods in the Nilüfer are compared, the neighborhood with the lowest number of people per household is Dumlupınar (2,4), while the neighborhood with the highest number is Ürünlü (4.3).
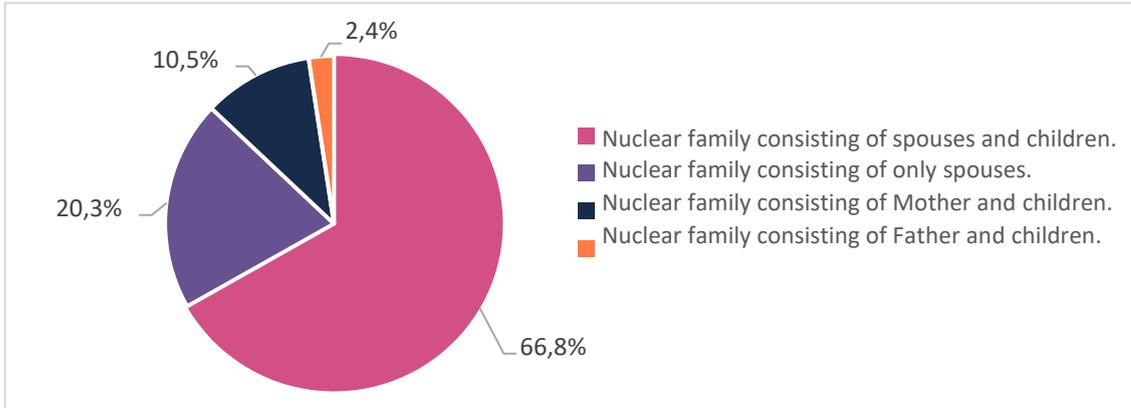
Figure 60: Distribution of Nuclear Families in Nilüfer by Characteristics (2021)[84]

113,478 (approximately 70%) of 162,168 households in Nilüfer are nuclear families (Figure 60).

4.2 General Characteristics of the Housing Units

According to WHO, healthy housing conditions can save lives, prevent diseases, improve quality of life, reduce poverty and impact many areas that affect health and the environment, such as helping to mitigate climate change[87]. The characteristics of houses and their positive effects on health are becoming more and more important for health in light of city growth, the aging population and climate change[87].

Although there is no information about the characteristics of the houses in Nilüfer, the number of houses with annual occupancy permits in the data of TURKSTAT is presented in Table 45.

Table 45. Number of Buildings Permitted to Use in Nilüfer and Bursa by year[88]

	Nilüfer			Bursa		
	For Residential Purposes	For Non-Residential Purposes	Total in a Year	For Residential Purposes	For Non-Residential Purposes	Total in a Year
2011	1,075	151	1226	4394	552	4946
2012	815	119	934	3874	640	4514
2013	811	94	905	4262	748	5010
2014	1089	276	1365	5158	1025	6183
2015	915	181	1096	4652	768	5420
2016	1165	205	1370	5606	898	6504
2017	2469	330	2799	8557	1106	9663
2018	564	114	678	3538	726	4264
2019	183	43	226	1655	450	2105
2020	536	96	632	2689	643	3332
2021	930	114	1044	3671	799	4470
Total	**10552**	**1723**	**12275**	**48056**	**8355**	**56411**

Figure 61: The Percentage of Buildings in Nilüfer with Occupancy Permits Issued Over the Years in Bursa[88]

In Bursa, the average of 22.0% of residential buildings (between 11.9% and 28.9% over the years), 20.6% of non-residential buildings (between 9.6% and 29.8% over the years), and 21.8% of all buildings (between 29.0% and 10.7% over the years) are in Nilüfer (Figure 61).

The surface areas of the buildings with occupancy permits issued in Bursa and Nilüfer are presented in Table 46.

Table 46. Acreages of the Buildings Permitted by year in Nilüfer and Bursa (m2)[88]

	Nilüfer			Bursa		
	For Residential Purposes	For Non-Residential Purposes	Total in a Year	For Residential Purposes	For Non-Residential Purposes	Total in a Year
2011	1634290	480588	2114878	4386322	1404070	5790392
2012	1234953	304934	1539887	4311700	1450901	5762601
2013	1293790	341640	1635430	4941944	1734561	6676505
2014	2181885	1491591	3673476	6383226	3223570	9606796
2015	1388783	658765	2047548	5158378	1901351	7059729
2016	1739836	869951	2609787	6630286	2293567	8923853
2017	5592939	1536351	7129290	12675130	3197368	15872498
2018	1198362	303785	1502147	3910417	1769080	5679497
2019	318371	99197	417568	1427147	868726	2295873
2020	1022046	153985	1176031	2792289	1151032	3943321
2021	1397192	193141	1590333	3904404	1442972	5347376
Total	**19002447**	**6433928**	**25436375**	**56521243**	**20437198**	**76958441**

Figure 62: The Ratio of the Areas of the Buildings in Nilüfer with Occupancy Permits issued by Bursa by year[88]

It is seen that 33.6% of residential buildings, 31.5% of non-residential buildings and 33.6% of all buildings of Bursa are located in Nilüfer in terms of their surface area (Figure 62).

Table 47. Distribution of Residence Permits by year in Nilüfer by Building Owners[88]

	Public		Private		Construction Cooperatives		Total in a Year
	Number	%	Number	%	Number	%	
2011	2	0.2	919	95.6	40	4.2	961
2012	1	0.1	959	98.0	19	1.9	979
2013	3	0.3	976	96.4	33	3.3	1012
2014	5	0.4	1098	93.2	75	6.4	1178
2015	5	0.7	726	94.7	36	4.7	767
2016	0	0.0	780	97.0	24	3.0	804
2017	6	0.6	954	97.6	17	1.7	977
2018	60	5.8	959	92.9	13	1.3	1032
2019	0	0.0	601	95.5	28	4.5	629
2020	2	0.3	650	98.8	6	0.9	658
2021	3	0.4	835	99.4	2	0.2	840
Total	**87**	**0.9**	**9457**	**96.1**	**293**	**3.0**	**9837**

The majority (96.1%) of the buildings in Nilüfer which have been granted occupancy permits since 2011 are private (Table 47).
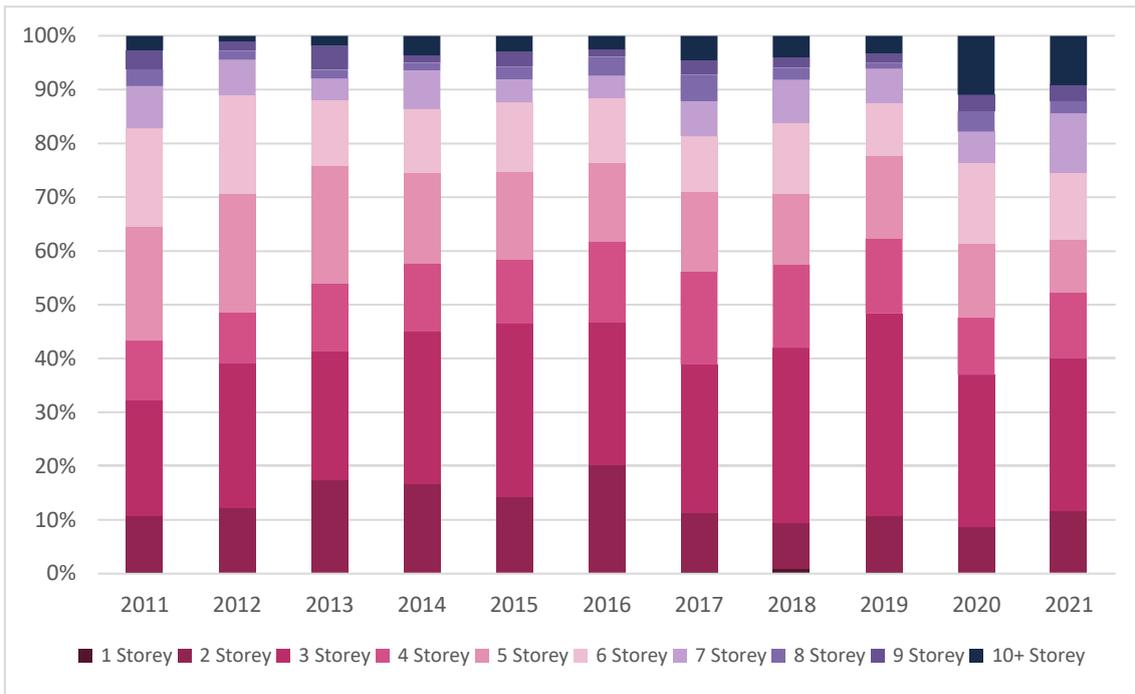
Figure 63: Distribution of the Residence-Purpose Buildings in Nilüfer with Occupancy Permit by the Number of Floors[88]

Most of the residential buildings, with occupancy permits granted in the last 10 years, are 4 floors and below; the increasing rate of buildings with 7 floors or more after 2019 is remarkable (Figure 63).
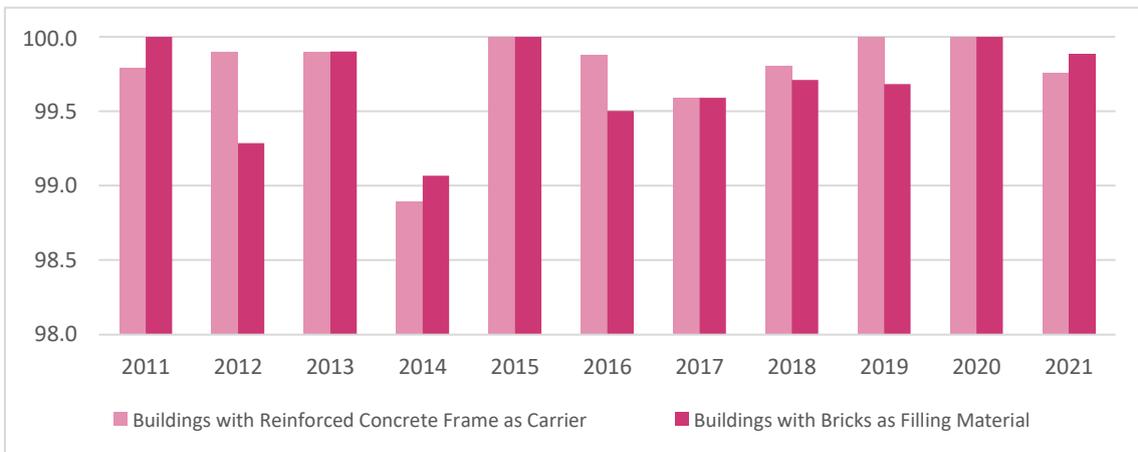
Figure 64: Distribution of Residence-Purpose Buildings in Nilüfer According to the Most Used Carrier and Filling Materials by year[88]

Figure 63 shows the distribution of residential buildings with occupancy permits, according to the most commonly used carrier and filling materials. Considering this, it is seen that the majority of buildings use concrete as carrier material and brick as filling material.

Table 48. Distribution of Residence Purpose Buildings in Nilüfer According to Heating Systems[88]

Number of Structures	Total	Remote Central Heating System	Internal Central Heating System	Room Heater System	Natural Gas Stove	Stove	Air-Conditioner	Other
2012	979	19	232	600	11	117	0	0
2013	1,012	41	218	669	20	63	1	0
2014	1,178	51	365	634	40	87	1	0
2015	767	39	197	466	17	42	6	0
2016	804	28	135	582	5	35	0	19
2017	977	32	151	770	6	13	5	0
2018	1,032	93	119	804	7	8	0	1
2019	629	14	59	545	7	3	1	0
2020	658	72	53	527	0	3	3	0
2021	840	37	157	641	1	1	1	2

In the majority of residential buildings in Nilüfer, the indoor heating system is used. The distribution of heating systems is similar over the years (Table 48).
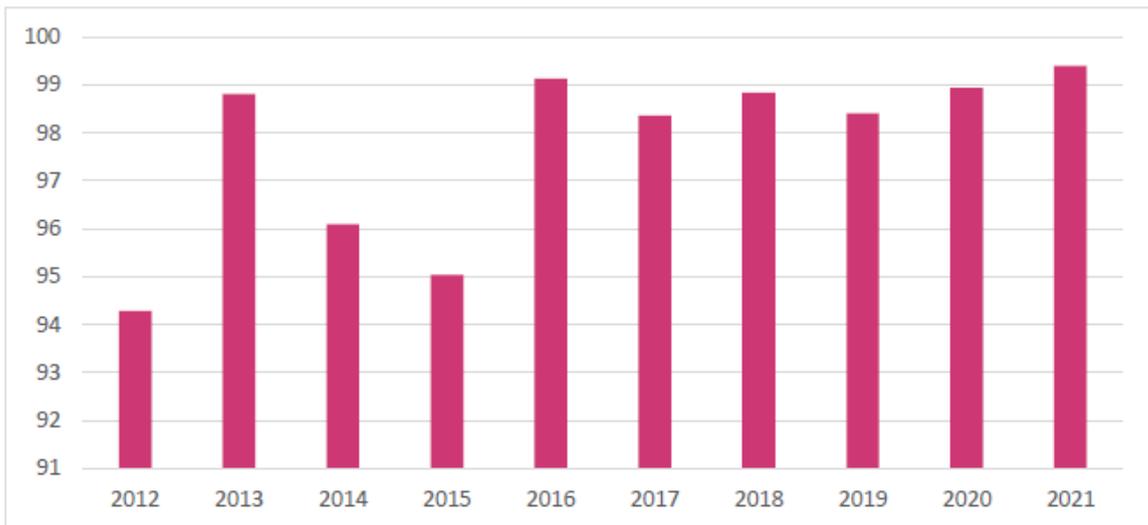
Figure 65: Ratio of Natural Gas Use for Heating Purposes of Residence-Purpose Buildings in Nilüfer with Occupancy Permit by year[88]

The most frequently used fuel for heating is natural gas, and its use in residential buildings has increased in the last 10 years (Figure 65).

5. Education

Education is one of the important factors affecting health, both by affecting the socioeconomic level and directly affecting health behaviors and health literacy.

Various indicators such as the number of students per classroom, per teacher, and gross and net enrollment rates were used to evaluate the educational status of the society. According to the definitions of the Ministry of National Education of the Republic of Turkiye[89], the number of students per classroom is calculated by dividing the number of students by the number of classrooms and this number shows the average number of students in a classroom. While the number of students per teacher shows the average number of students per teacher, calculated by dividing the number of students by the number of classrooms. However, the gross enrollment rate is an indicator obtained by dividing all students in the relevant education type by the total population in the theoretical age group of the education type to which they belong. The net enrollment rate is an indicator obtained by dividing the students in the theoretical age group in the relevant education type by the total population in the theoretical age group in the education type to which they belong.
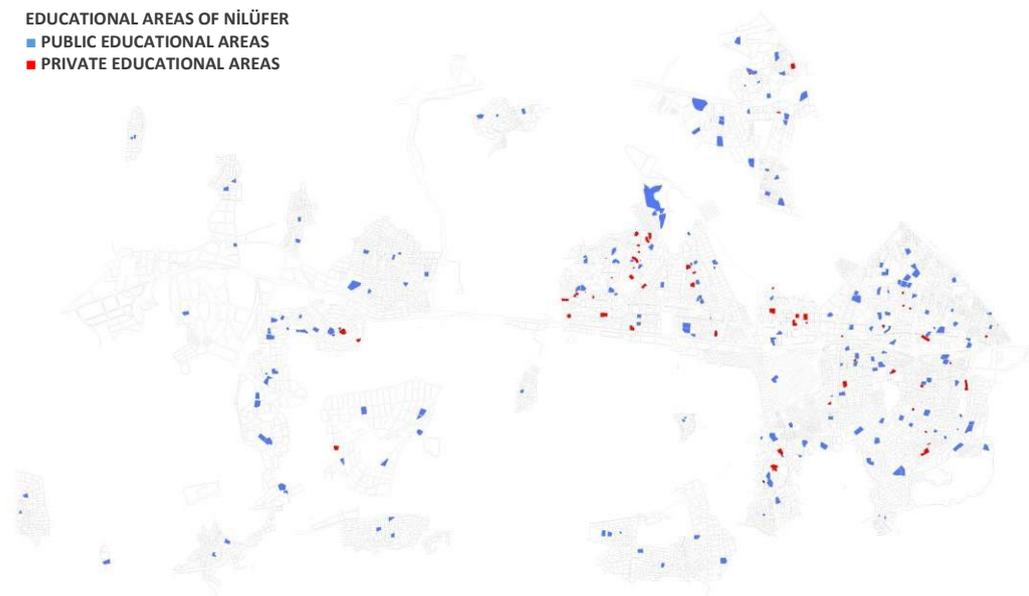
Figure 66: Educational Areas of Nilüfer[90][*]

Public and private education areas in Nilüfer are shown in Figure 66.

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* The education areas on this map show all the education areas (established/not established) allocated in our zoning plans.

According to the data of TURKSTAT, the education level of the population at the age of 6 and over is presented in Table 49.

Table 49. Literacy and Educational Status of the Population at the age of 6 and over[91]

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Illiterate	2.0	1.7	1.6	1.5	1.5	1.4	1.3	1.1	1.0	0.9
Literate but not Completed any Level of Education	14.6	14.4	14.1	14.1	8.1	7.9	7.4	7.2	7.2	7.3
Primary School	16.5	15.3	14.6	14.0	19.2	18.8	18.4	17.9	16.9	16.3
Primary Education	12.3	13.2	13.7	13.6	10.1	8.1	6.9	6.9	6.8	4.7
Secondary School or Equivalent Vocational Secondary School	6.2	5.3	5.0	4.9	8.7	10.0	11.1	11.1	11.3	13.4
High school or Equivalent Vocational High school	28.0	27.3	27.8	27.1	26.7	26.0	26.3	26.3	26.5	26.6
College or Faculty	18.3	20.6	21.0	22.1	23.1	24.9	25.7	25.7	26.0	26.6
Master's / Postgraduate Degree (including 5 or 6-year faculties)	1.5	1.6	1.6	2.0	2.1	2.3	2.4	3.1	3.4	3.6
Doctorate	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.6

It is seen that 57.4% of the population over the age of 6 in Nilüfer received a high school or higher level of education in 2019. It is observed that the illiterate population is 0.9%, which is lower than the Bursa average which is 2.1%. It is observed that the rate of secondary and higher education has increased over the years (Table 49).
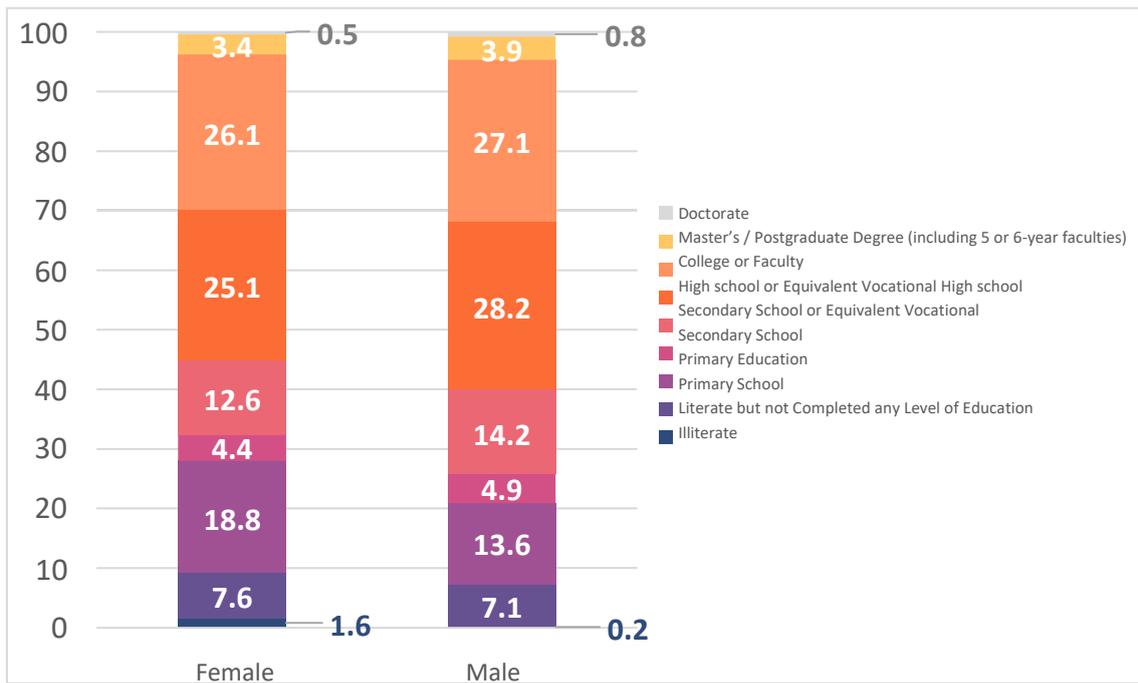
Figure 67: Literacy and Educational Status of the Population at the Age of 6 and Over by Gender (2019)[91]

The literacy and educational status of the population at the age of 6 and over by gender are shown in Figure 67. According to this, it is seen that 1.6% of women are illiterate in 2019. This rate is 0.2% for men. If it is compared in terms of other education levels, it is seen that the proportion of women who have high school and a higher level of education is less than men.

Table 50. Illiteracy Status of the Population at the age of 6 and over[92]

	2015	2016	2017	2018	2019
Gemlik	2.8	2.6	2.4	2.2	2.0
İnegöl	3.3	3.0	2.8	2.6	2.4
İznik	5.0	4.6	4.3	3.9	3.7
Karacabey	5.0	4.6	4.3	3.9	3.6
Keles	9.1	8.7	8.3	7.5	7.3
Mudanya	2.3	2.1	1.9	1.7	1.6
Mustafakemalpaşa	5.1	4.7	4.3	3.9	3.5
Orhaneli	10.5	10.3	9.8	9.1	8.7
Orhangazi	3.0	2.8	2.6	2.4	2.3
Yenişehir	4.3	4.0	3.7	3.3	3.0
Büyükorhan	17.9	17.4	17.3	16.1	15.6
Harmancık	14.1	13.4	12.4	11.1	10.3
Nilüfer	1.4	1.3	1.1	1.0	0.9
Osmangazi	2.5	2.3	2.1	2.0	1.8
Yıldırım	3.0	2.8	2.6	2.5	2.3
Gürsu	3.2	3.0	2.8	2.5	2.3
Kestel	3.1	2.8	2.5	2.3	2.1

Nilüfer is the district with the lowest rate of the illiterate population compared to other districts of Bursa with respect to literacy status (Table 50).
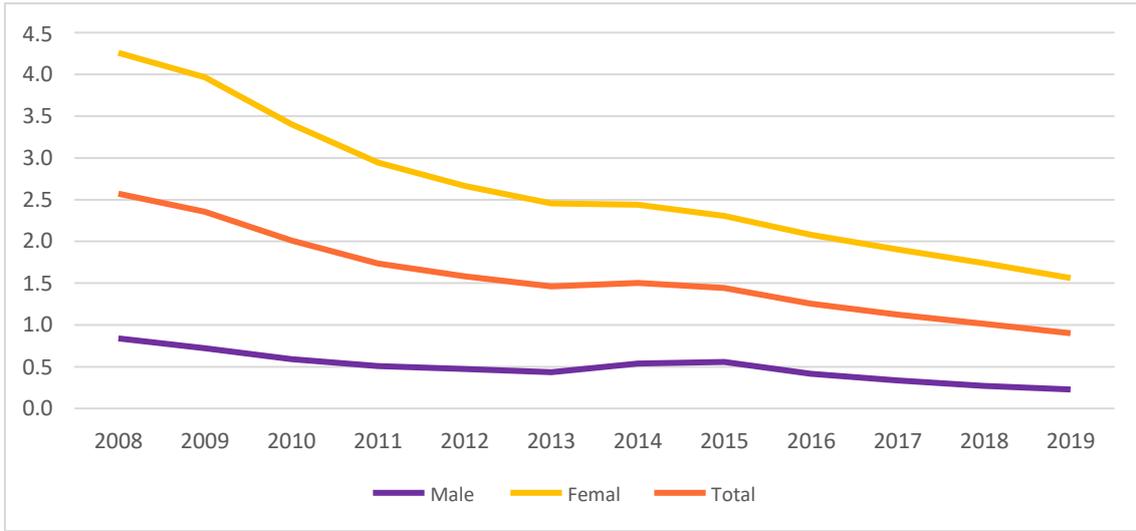
Figure 68: Change of Illiterate Population Rate in Nilüfer by year[92]

If the change in the illiterate population in Nilüfer is considered, it is seen that this rate has decreased over the years, but the inequality between men and women continues (Figure 68).
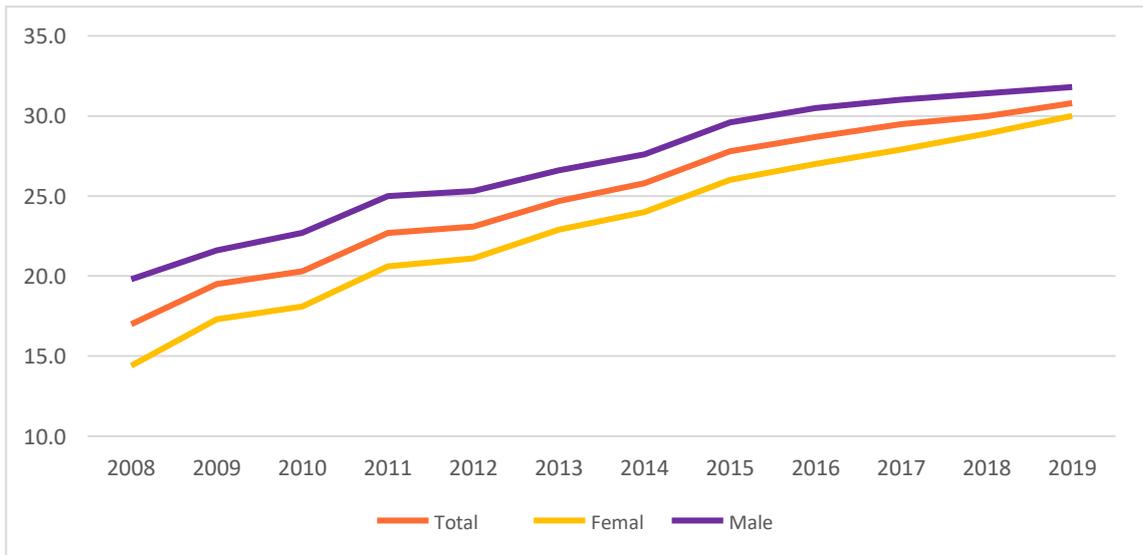
Figure 69: Population Ratio of Higher Education and Above Education in Nilüfer[92]

It is observed that the population of the district with high or higher education has increased over the years, and the inequality between men and women continues, although it has decreased (Figure 69).

5.2 Education Institutions in the City

According to the data of the Nilüfer Directorate of National Education, the distribution of education institutions in the district by year is presented in Table 51.

Table 51. Education Institutions in Nilüfer[93]

	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Number of Public Preschool Institutions	12	13	13	13	13	13
Number of Private Preschool Institutions	50	58	73	86	95	87
Number of Public Primary Schools	46	47	47	47	48	48
Number of Private Primary Schools	25	55	35	36	38	36
Number of Public Secondary Schools	44	45	46	46	46	46
Number of Private Secondary Schools	26	60	39	42	45	45
Number of Public High schools	29	32	34	34	36	36
Number of Private High schools	32	86	61	75	81	81
Number of Public Vocational High schools	11	11	11	12	12	12
Number of Private Vocational High schools	4	4	5	5	5	5
Number of Public Special Education Schools	15	15	15	15	15	15
Number of Private Special Education Schools	-	1	1	2	2	2
Number of Public Education Centers	1	1	1	1	1	1
Number of Driving Schools	21	21	22	23	23	23
Number of Private Education and Rehabilitation Centers	12	17	18	22	25	28

If the distribution of education institutions in Nilüfer is considered (Table 51), the number of private and public institutions for numbers of primary and secondary education in the district are close to each other, but when preschool institutions and high schools are considered, it is seen that private institutions are respectively 6.7 and 2.3 times more than public institutions.

This situation seen for high schools and kindergartens may force low-income families to choose fewer institutions in the district, and it suggests the possibility of inequality in education according to income levels.

According to the same data (Table 51), if the change in institutions over the years is considered, it is seen that the most striking change is in private kindergartens. It is seen that the kindergartens in the district increased by 74.0% from the 2014-2015 academic year to the 2020-2021 academic year, and this increase was 8.3% for public kindergartens. If this situation is considered for inequalities, it is seen that the access of individuals with low-income groups to kindergarten services has not improved over the years.

5.2.1   Preschool Education Institutions

According to the data of the Nilüfer Directorate of National Education, information on preschool institutions in Nilüfer is shown in Figure 70.
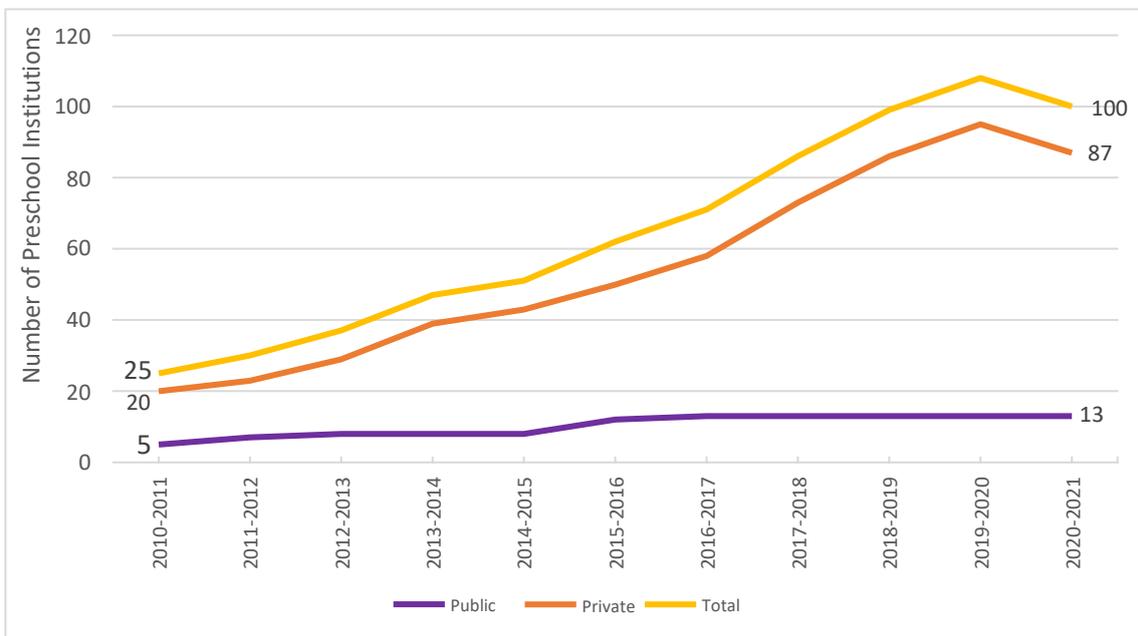
Figure 70: Preschool Institutions in Nilüfer by year[93]

Private preschool institutions in Nilüfer are about 6 times more than public preschool institutions. Considering the changes in the number of preschool institutions over the years, it is seen that the number of private preschool institutions increased to 87 from the 2010-2011 education period to the 2020-2021 education period, while the number of public preschool institutions reached only 13 (Figure 70).
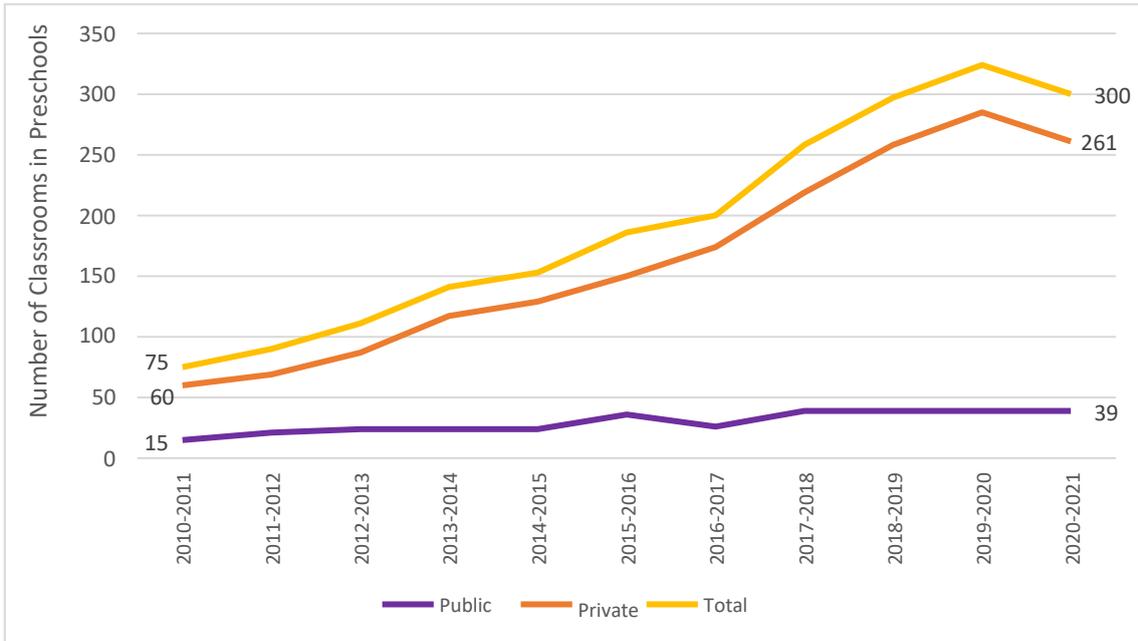
Figure 71: Number of Classrooms in Preschool Institutions in Nilüfer by year[93]
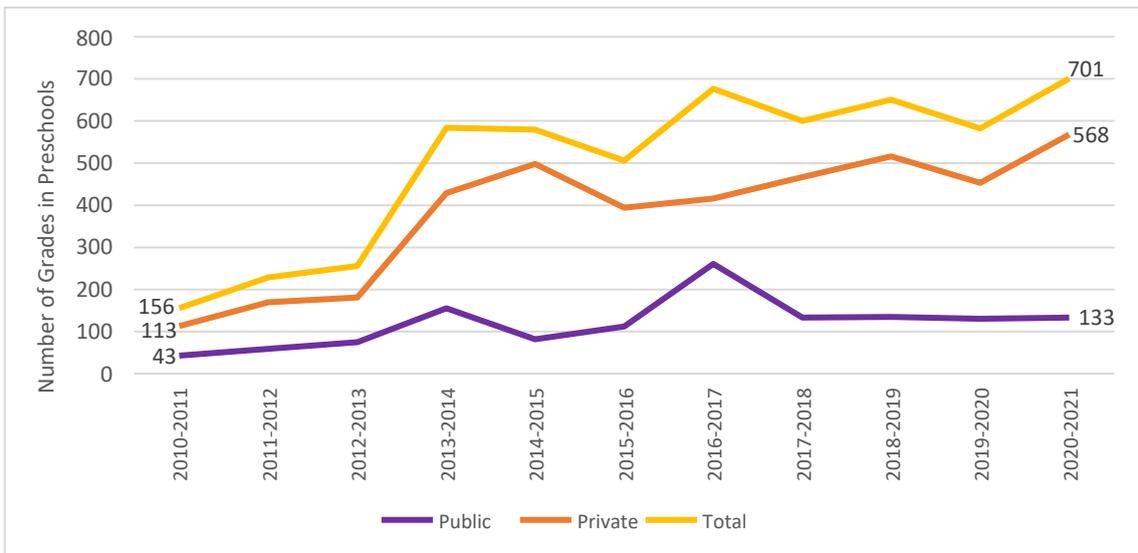
Figure 72: Number of Grades in Preschool Institutions in Nilüfer by year[116]

According to the data of the Nilüfer Directorate of National Education, it is observed that the inequalities between private and public preschool institutions continue in the number of classes and branches (Figure 71-72).
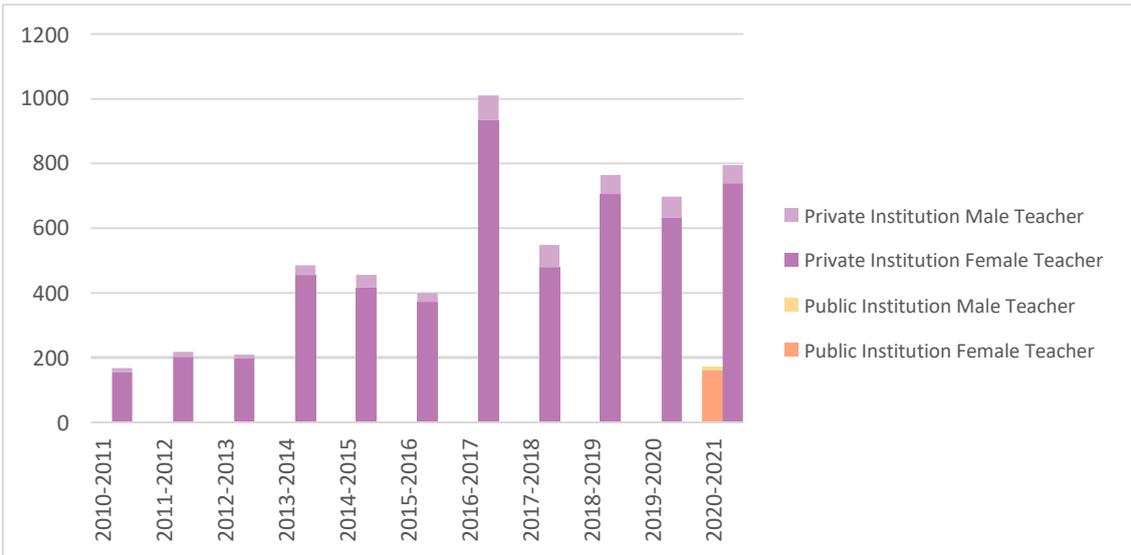
Figure 73: Number of Teachers in Preschool Institutions in Nilüfer by year[93]

According to the data of the Nilüfer Directorate of National Education, the number of teachers in preschool institutions is shown in Figure 73. The data of public institutions are only from 2020 to 2021. In 2020-2021, there are a total of 987 teachers in preschool institutions 82.2% (795 teachers) of them are in private institutions and 17.8% (172 teachers) of them are in public institutions.

Figure 74: Number of Students in Preschool Institutions in Nilüfer by year[93]

In parallel with the increasing number of schools, branches, and classes, it is seen that the number of students receiving preschool education has increased more in private institutions. There are a total of 3071 students in the 2010-2011 education period, where 65.3% (2006 students) are in private and 34.7% (1065 students) are in public preschool education institutions.

In the 2020-2021 education period, there are a total of 9309 students in preschool education institutions, and 74.1% (6895 students) of them are in private institutions while 26.9% (2414 students) of them are in public institutions (Figure 74).

If the number of students per branch is considered in line with all the data, in the 2010-2011 education period, there were 17.8 students per classroom in private institutions, while 24.8 students in public institutions. In the 2020-2021 education period, there are 12.1 students in private institutions and 18.2 students in public institutions per branch.

	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Female	29.9	40.3	40.4	42.5	45.8	46.2	43.1	25.1
Male	31.3	42.1	42.7	44.4	47.2	48.1	45.1	27.0
Total	30.6	41.3	41.6	43.4	46.6	47.2	44.1	26.0

Figure 75: Nilüfer Gross Preschool Enrollment Rate for the 3-5 Age Group[93]

If the change in the gross schooling rate for the 3-5 age group in Nilüfer is examined, it is observed that the schooling rate increases every year from the 2013-2014 education period to the 2019-2020 education period but decreases with the pandemic (Figure 75).

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Female	23.05	27.46	30.44	29.54	35.01	34.20	36.30	38.90	38.80	41.45	23.53
Male	24.34	28.97	31.75	30.85	35.91	35.25	37.13	39.20	40.06	42.90	24.94
Total	23.72	28.24	31.11	30.22	35.47	34.74	36.73	39.05	39.45	42.19	24.25

Figure 76. Nilüfer Net Preschool Enrollment Rate for the 3-5 Age Group[93]

If the change in the net schooling rate for the 3-5 age group in Nilüfer is examined, it is seen that the net enrollment rate increases every year from the 2010-2011 education period to the 2019-2020 education period (Figure 76). In 2020-2021, it is seen that this rate has decreased.

The decrease in this period may have occurred due to the decreasing number of preschool institutions due to the pandemic, the closure of schools, and the concerns of families about the health of their children.

It is seen that the gross and net literacy in Nilüfer in 2020-2021 is lower if compared to the 3-5 age group gross literacy (29.94)[94] and net literacy (28.35)[94] for Turkiye in general, 3-5 age group gross literacy (35.09)[94] and net literacy (32.95)[94] in Eastern Marmara Region, and at a similar level if compared to the 3-5 age group gross literacy (26.05)[94] and net literacy (24.25)[94] in Bursa. If the variation of both gross and net enrollment rates by gender is considered, it is seen that the enrollment rate for boys is higher than for girls, even at this age (Figure 76).

5.2.2   Primary Education Institutions

According to the data of the Nilüfer Directorate of National Education, information on primary schools in Nilüfer is shown in Figure 76.
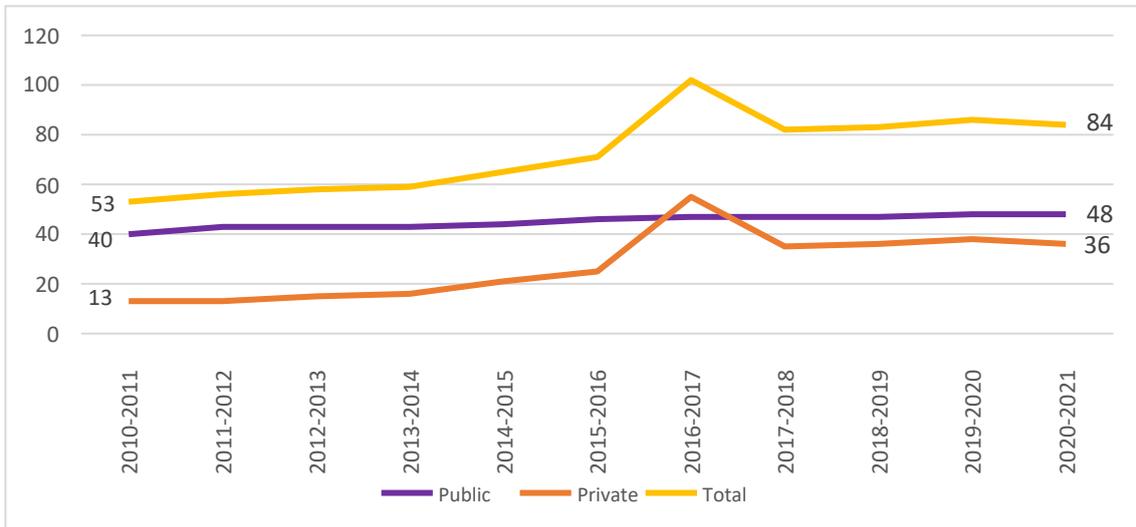
Figure 77: Number of Primary Schools in Nilüfer by year[93]

In 2020-2021, the total number of primary schools is 84, and 42.9% (36 schools) of them are private schools and 57.1 (48 schools) of them are public schools (Figure 77).
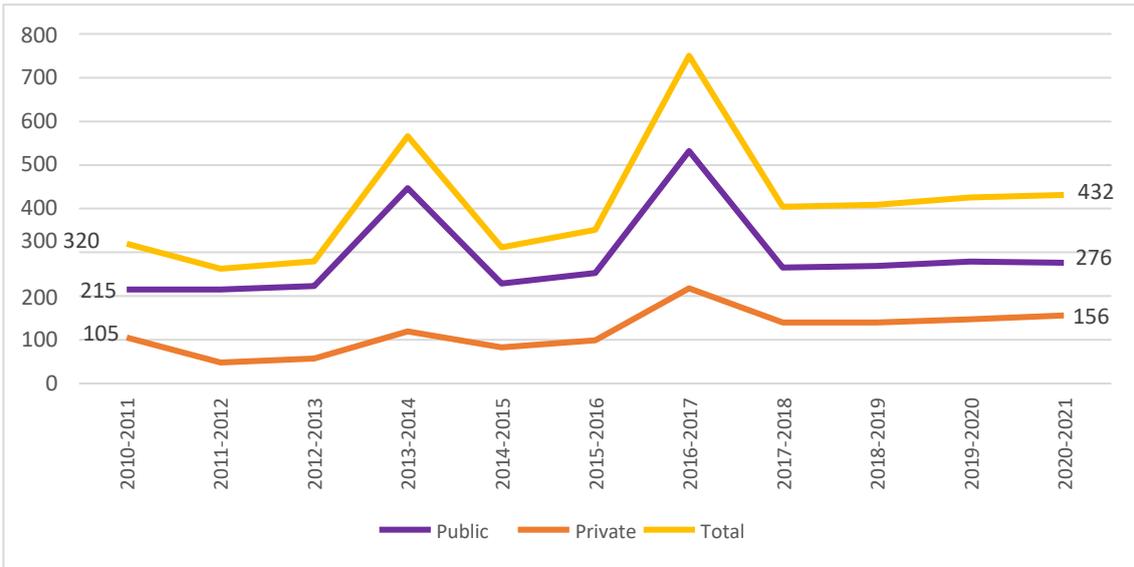
Figure 78: Number of Classrooms in Primary Schools in Nilüfer by year[93]
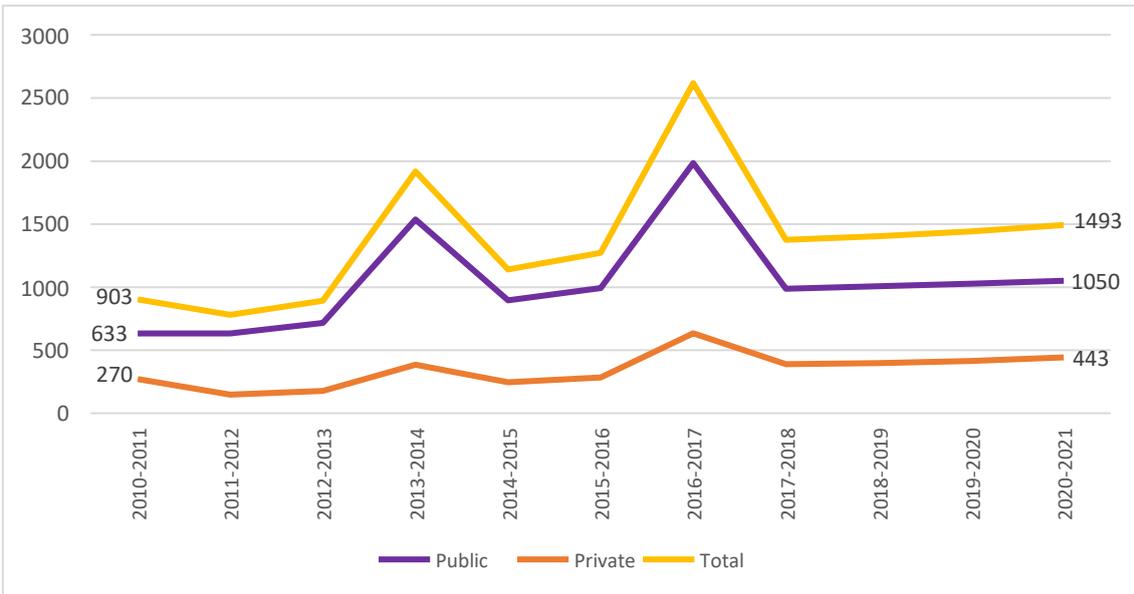
Figure 79: Number of Grades in Primary Schools in Nilüfer by year[93]

The number of grades in primary schools in Nilüfer is shown in Figure 78, and the number of grades in Figure 79. If this information is considered, it is seen that the number of grades and classrooms in public institutions is higher.
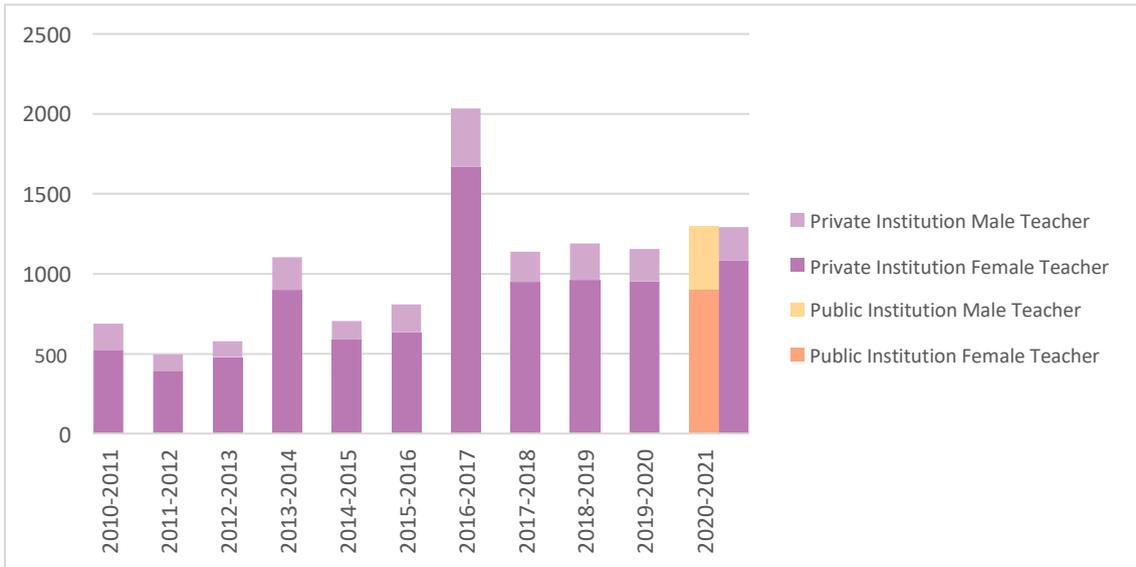
Figure 80: Number of Teachers of Primary Schools in Nilüfer by year[93]

The data of public institutions are only for the period of 2020-2021. In 2020-2021, there are a total of 2588 teachers in primary schools, 49.9% (1291 teachers) of them are in private institutions and 50.1% (1297 teachers) of them are in public institutions (Figure 80).

Figure 81: Number of Students of Primary Schools in Nilüfer by year[93]

It is seen that the number of students in primary schools has increased over the years. There are a total of 13408 students in the 2010-2011 education period, 15.0% (2006 students) of them are in private schools and 85.0 (11402 students) of them are in public schools. If the 2020-2021 education period is considered, there are 30594 students, 22.5% (6895 students) of them are in private schools and 77.5% (23699 students) of them are in public schools (Figure 81).

If it is calculated in line with all this information, there are 15.6 students per branch in primary schools of private institutions and 22.6 students in public institutions in the 2020-2021 education period. According to the statistics of the Ministry of National Education, the number of students per branch in Nilüfer in the 2020-2021 academic year is lower than in Turkiye (22)[94], Eastern Marmara Region (23)[94] and Bursa (23)[94].

The number of students per teacher determined with this information is 11.8 in the 2020-2021 education period, while this number is 5.3 for private institutions, it is 18.3 for public institutions. According to the statistics of the Ministry of National Education, the number of students per teacher in Nilüfer in the 2020-2021 academic year is lower than in Turkiye (17)[94], East Marmara (17)[94] and Bursa (19)[94].
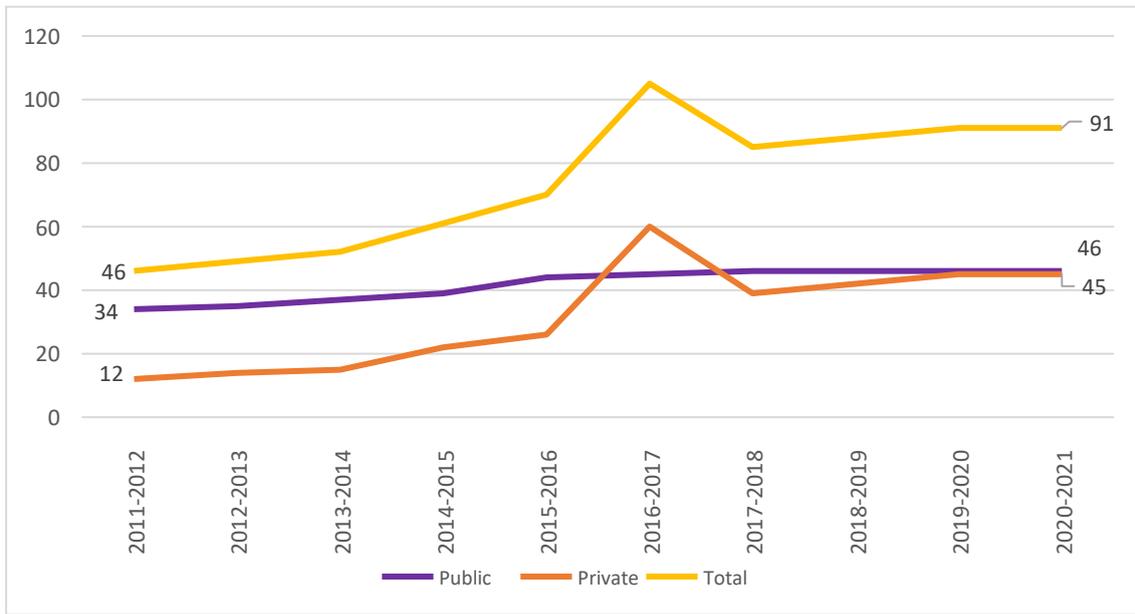
Figure 82: Number of Secondary Schools in Nilüfer by year[93]

According to the data of the Nilüfer Directorate of National Education, information on secondary schools in Nilüfer is shown in Figure 82. In 2020-2021, the total number of secondary schools is 91, and 49.9% (45 schools) of them are private schools and 50.5 (46 schools) of them are public schools.
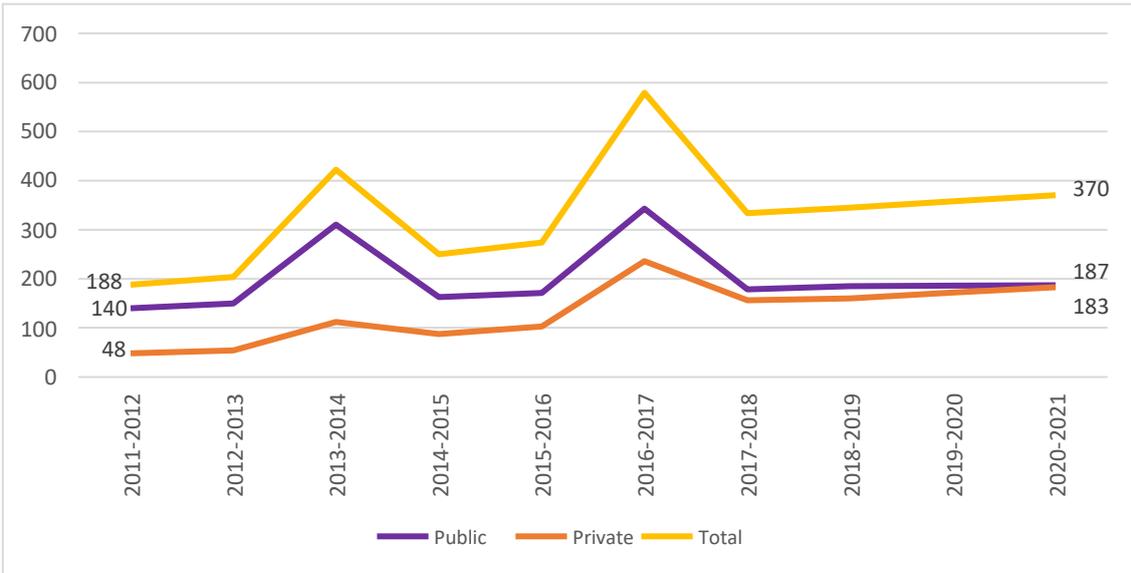
Figure 83: Number of Classrooms in Secondary Schools in Nilüfer by year[93]

According to the data of the Nilüfer Directorate of National Education, the number of classrooms in secondary schools has nearly doubled since the 2011-2012 education period, and the increasing number of classrooms in private schools is remarkable (Figure 83).
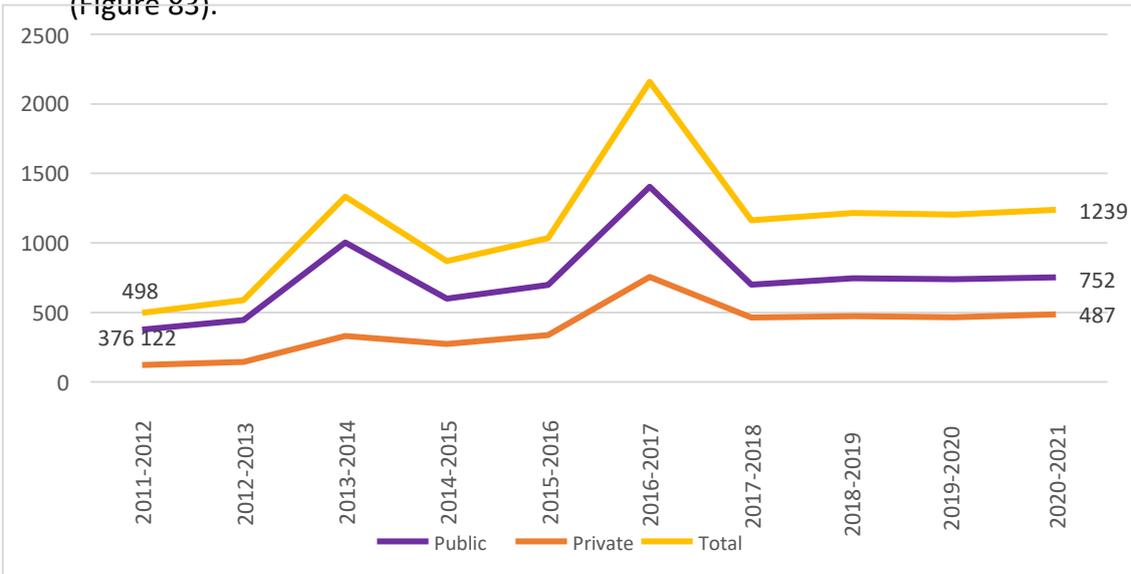
Figure 84: Number of Classrooms in Secondary Schools in Nilüfer by year[93]

According to the data of the Nilüfer Directorate of National Education, the number of classrooms in secondary schools has increased approximately 2.5 times since the 2011-2012 education period, while the rate of increase in private schools is higher (Figure 84).
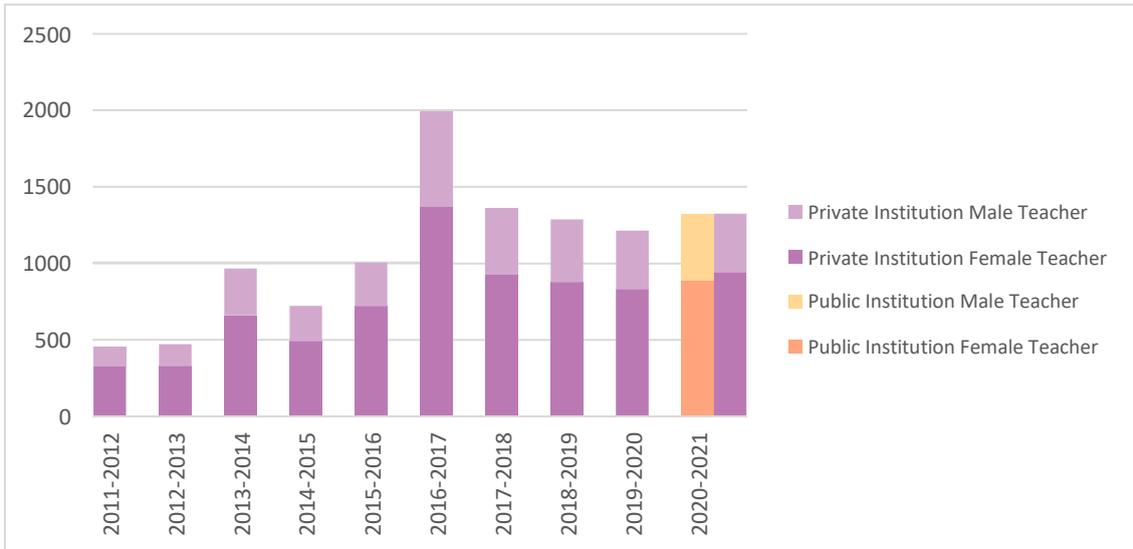
Figure 85: Number of Teachers of Secondary Schools in Nilüfer by year[93]

The data for public schools are only for the period of 2020-2021. In 2020-2021, there are 2647 teachers in secondary schools, half of them (1324 teachers) in private institutions and the other half (1323 teachers) in public institutions (Figure 85).
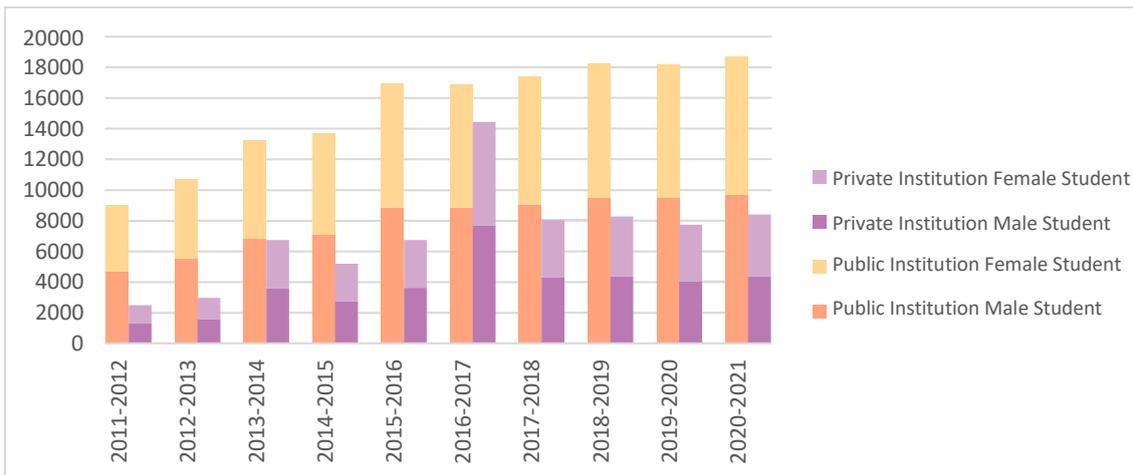
Figure 86: Number of Students of Secondary Schools in Nilüfer by year[93]

It is seen that the number of students in secondary schools has increased over the years. There were a total of 11483 students in the 2011-2012 education period, 21.7% (2492 students) of them attended private schools and 78.3% (8991 students) of them attended public schools. In the 2020-2021 academic year, the total number of students increased to 27128. 31.0% (8410 students) of them attend private schools and 69.0% (18718 students) of them attend public schools (Figure 86).

In accordance with all these data, while the number of students per classroom was 17.2 in private schools and 20.3 in public schools in the 2011-2012 education period, it did not change (17.3) in private schools for the 2020-2021 education period but increased to 24.9 students for public schools.

According to the statistics of the Ministry of National Education, it is seen that the number of students per grade in Nilüfer in the 2020-2021 academic year is in a better position compared to Turkiye (22)[94], Eastern Marmara Region (22)[94] and Bursa (23)[94].

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Female	98.8	99.6	96.0	95.4	90.3	91.4	91.7	94.5	93.9
Male	98.5	99.4	95.4	94.5	89.9	90.8	91.2	94.5	93.9
Total	98.6	99.5	95.7	94.9	90.1	91.1	91.4	94.5	93.9
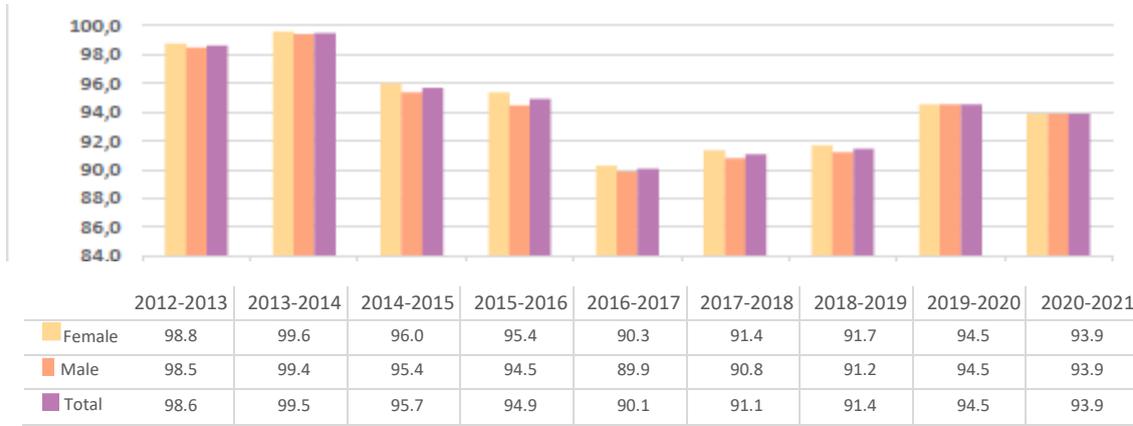
Figure 87: Nilüfer Net Preliminary School Enrollment Rate for the 6-9 Age Group[93]

According to the information received from the Bursa District Directorate of National Education, the change in the net primary school enrollment rates for the 6-9 age group in Nilüfer by year is shown in Figure 87.

It is observed that the net enrollment rate at the primary level in Nilüfer (93.9) is similar to Turkiye (93.2)[94], Eastern Marmara Region (93.6)[94] and Bursa (93.9)[94].

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Female	95.5	96.2	95.9	96.0	96.2	94.8	93.6	96.4	89.8
Male	95.6	96.1	95.9	95.8	96.2	94.3	92.9	96.0	89.9
Total	95.5	96.1	95.9	95.9	96.2	94.6	93.2	96.2	89.9
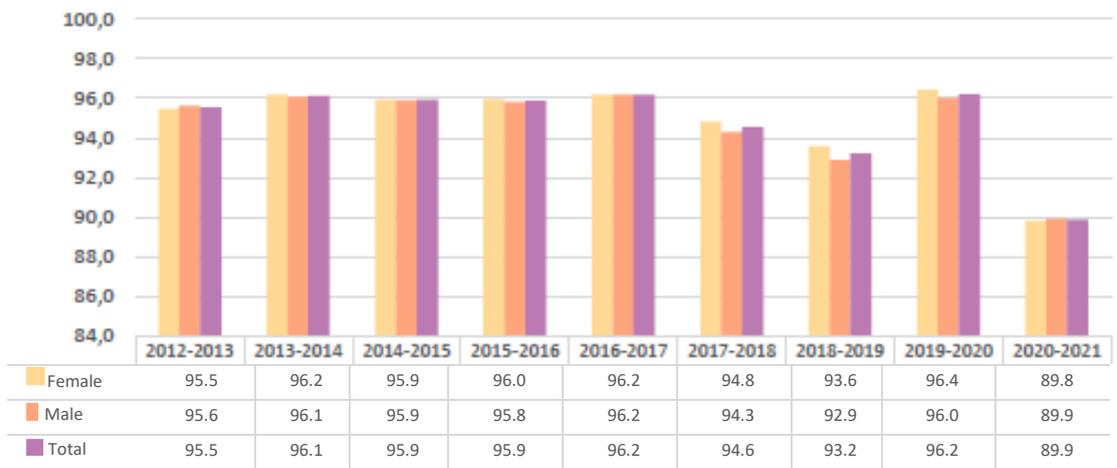
Figure 88: Primary School Net Enrollment Rate for the 10-13 Years Age Group in Nilüfer[93]

The net enrollment rate in secondary schools for the 10-13 years age group is lower than the primary school enrollment rate, and the enrollment rate appears to have dropped significantly in 2020-2021 (Figure 88). The net enrollment rate of Nilüfer at the secondary school level is one point higher than Turkiye (88.9)[94] and similar to Eastern Marmara Region (89.6)[94] and Bursa (89.9)[94].

5.2.3   Secondary Education Institutions

According to the data of the Nilüfer Directorate of National Education, information on secondary education institutions in Nilüfer is shown in Figure 88.
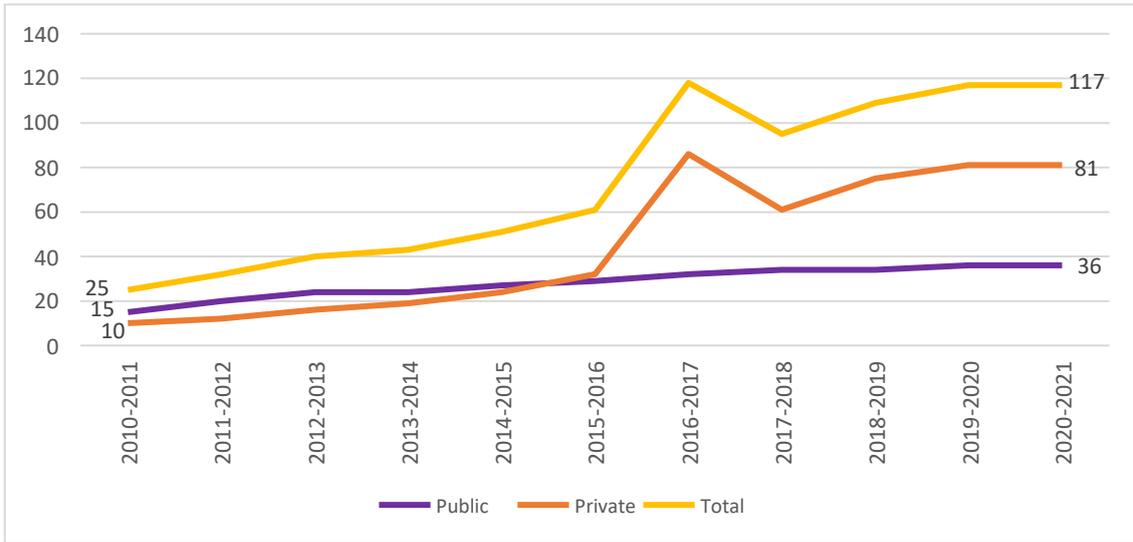

Figure 89: Number of Secondary Schools in Nilüfer by year[93]
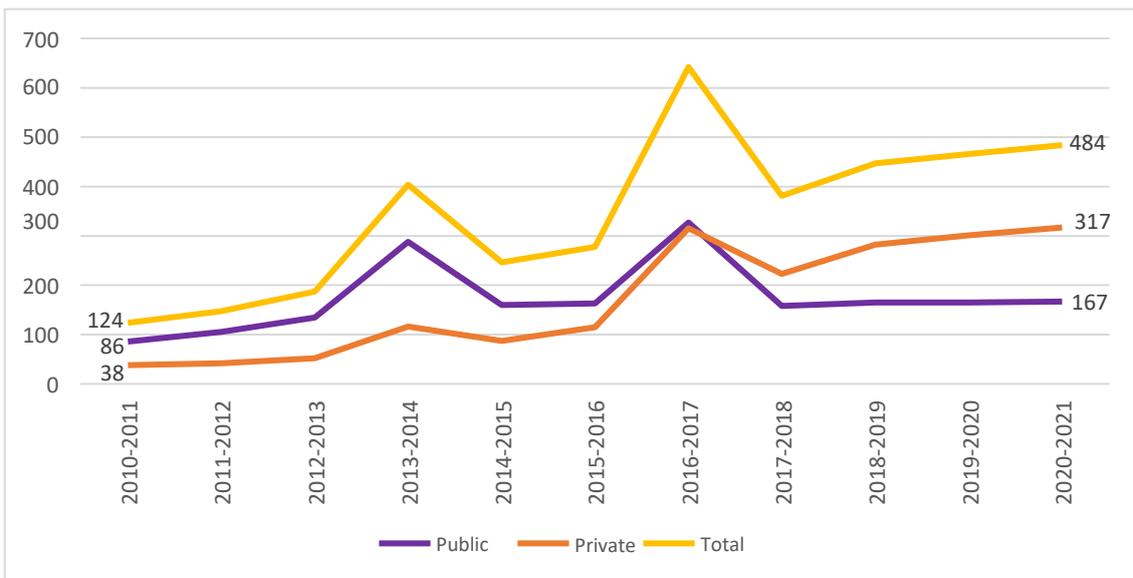
Figure 90: Number of Classrooms in Secondary Schools in Nilüfer by year[93]
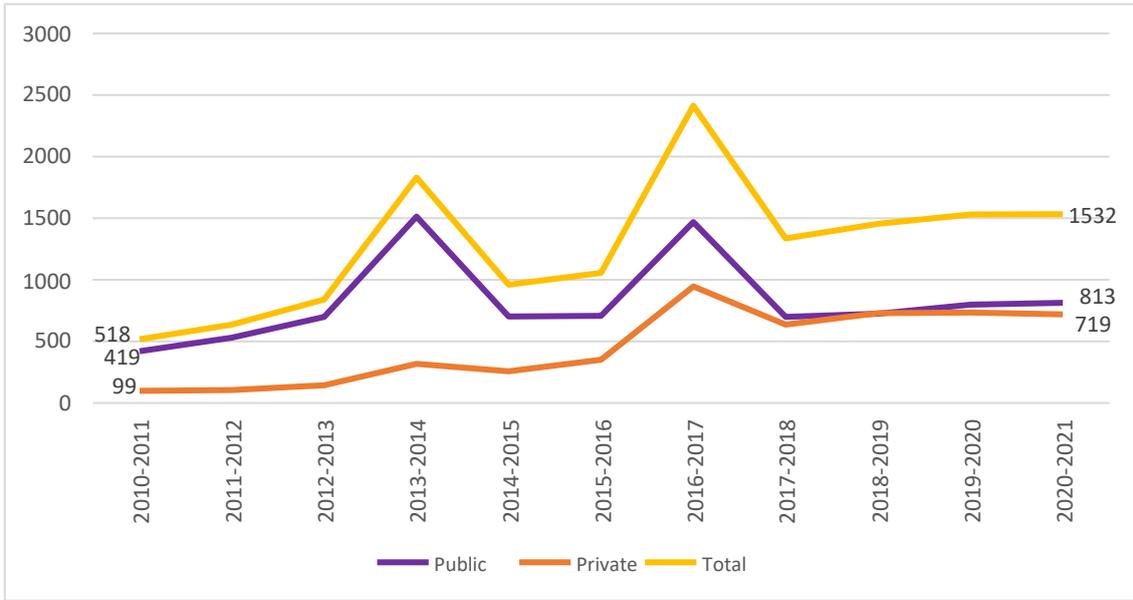
Figure 91: Number of Grades in Secondary Schools in Nilüfer by year[93]

In 2020-2021, the number of high schools is 117, and 69.2% (81 schools) of them are private schools (Figure 89). The high increase in the number of private high schools and the number of classrooms and grades between 2010-2021 is remarkable (Figure 89-90-91).
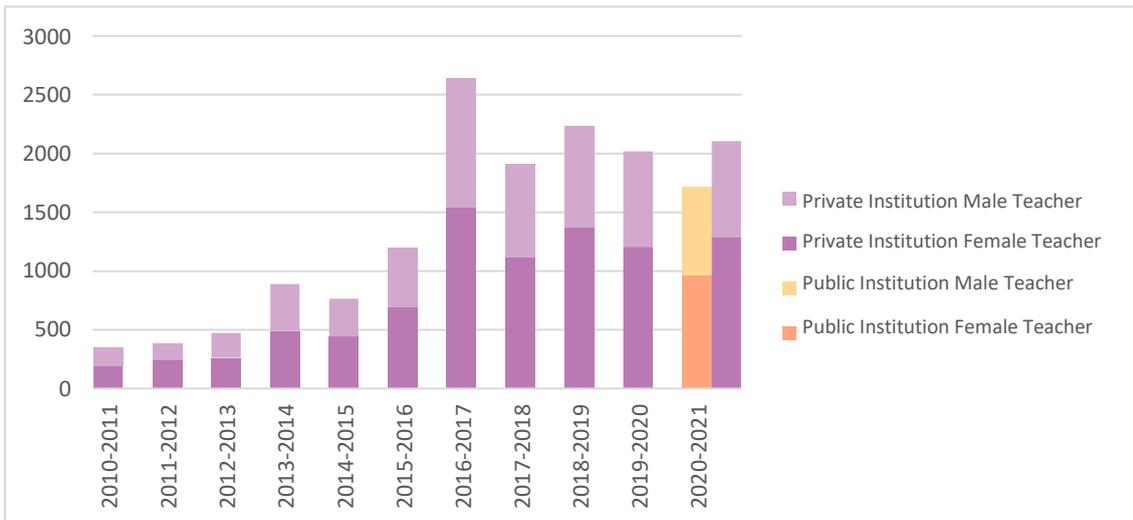
Figure 92: Number of Teachers in Secondary Schools in Nilüfer by year[93]

The data of public institutions are only for the period of 2020-2021. In 2020-2021, there are 3823 teachers in secondary schools, 55.1% (2106 teachers) of them are in private institutions and 44.9% (1717 teachers) of them are in public schools (Figure 92).
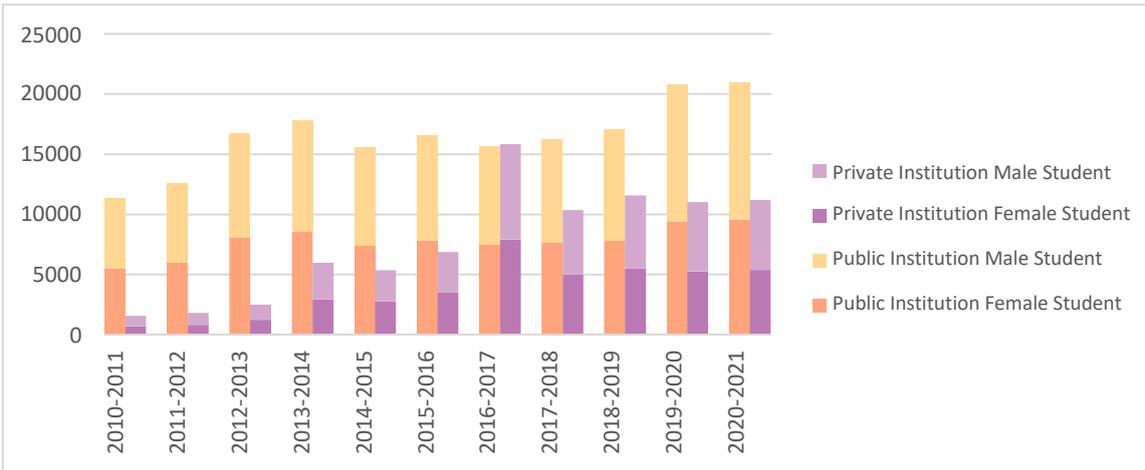
Figure 93: Number of Students in Secondary Schools in Nilüfer by year[93]

It is seen that the number of students in secondary education institutions has increased over the years. In the 2010-2011 education period, there were a total of 12868 students, 12.2% (1564 students) of them were attending private schools and 87.8 (8991 students) of them attending public schools. In the 2020-2021 academic year, the total number of students increased to 32159 and 34.8% (11195 students) of them attend private schools and 65.2% (20964 students) attend public schools (Figure 93).

In the 2020-2021 academic year, there are 21.0 students per classroom in all high schools (15.6 students in private schools and 25.8 students in public schools). It is seen that the number of students per branch in Nilüfer in the 2020-2021 academic year is lower compared to Turkiye (25)[94], East Marmara (25)[94] and Bursa (25)[94], according to the Statistics of the Ministry of National Education.
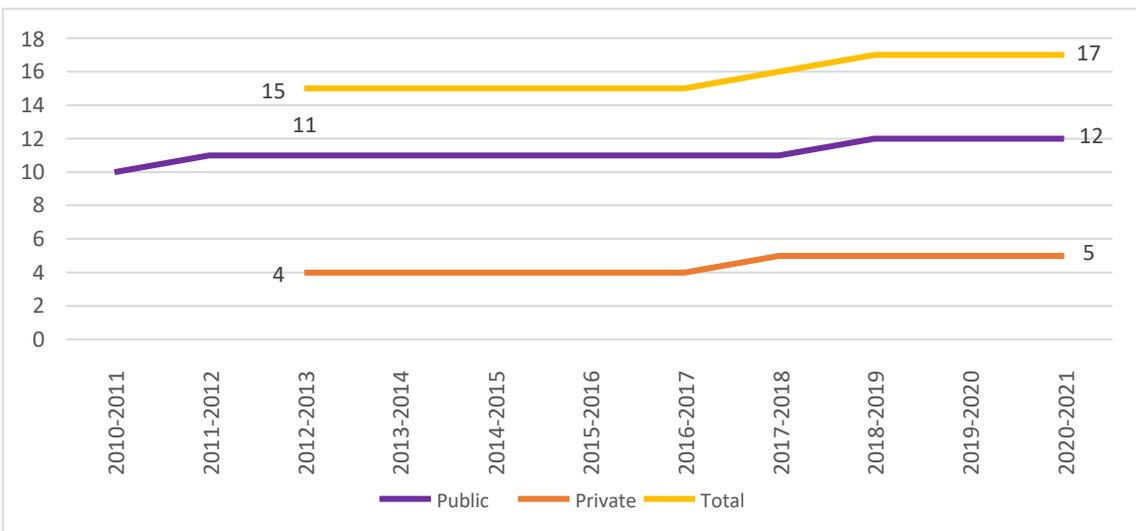
Figure 94: Number of Vocational High Schools in Nilüfer by year[93]

There are a total of 17 vocational high schools in Nilüfer, and the number of vocational high schools has increased from 15 to 17 in the last ten years (Figure 93).
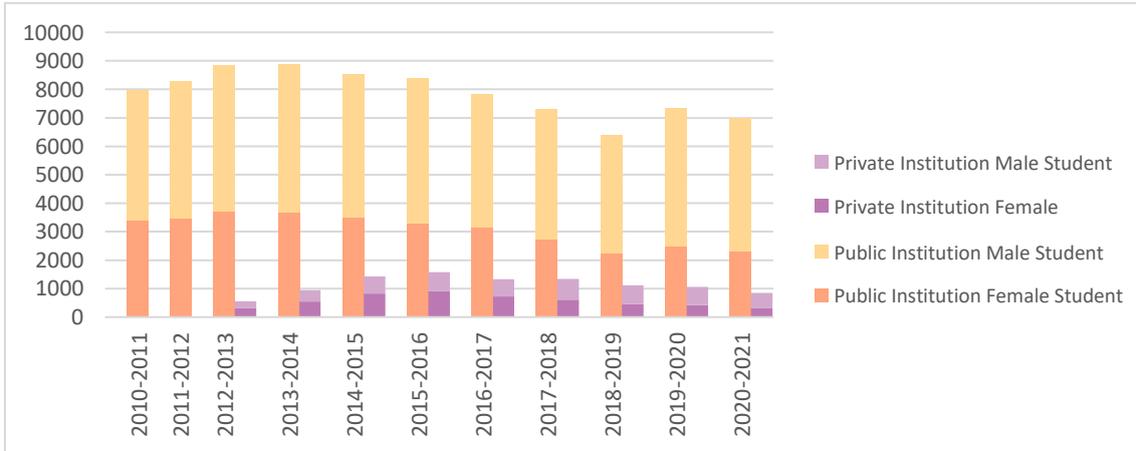
Figure 95: Number of Students of Vocational High Schools in Nilüfer by year[93]

The total number of students in vocational high schools in Nilüfer, which was 9398 in 2012-2013, decreased to 7834 in the 2020-2021 academic year. In 2020-2021, 33.5% of vocational high school students are girls and 66.5% are boys (Figure 95).

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Female	73.7	75.3	77.8	82.8	85.2	85.7	88.7	88.8	88.8	89.0	91.4
Male	77.1	77.1	78.6	82.3	84.1	84.4	88.7	89.1	89.1	89.0	91.5
Total	75.4	76.2	78.2	82.5	84.6	85.1	88.7	88.9	89.0	89.0	91.4

Figure 96: Secondary Education Net Enrollment Rate for the 14-17 Years Age Group in Nilüfer[93]

It is observed that the net schooling rates in secondary education for the 14-17 age group in Nilüfer have increased over the years. It can be seen that the net schooling of Nilüfer at the secondary level is higher than Turkiye (87.9)[94], similar to Bursa (91.4)[94], and slightly lower than East Marmara (93.2)[94] (Figure 96).

5.2.4   Special Education Schools

According to the data of the Nilüfer Directorate of National Education, the information about the institutions requiring special education in Nilüfer is shown in Figure 96.
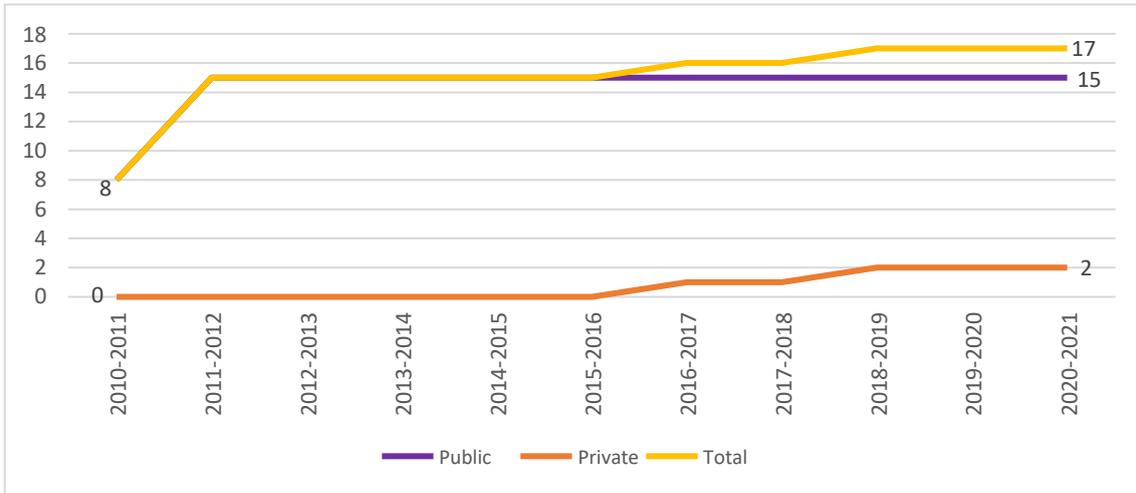
Figure 97: Number of Schools Requiring Special Education in Nilüfer by year[93]

The number of special education schools has increased in Nilüfer over the years, most of which are public (Figure 97).

Figure 98: Number of Students in Schools Requiring Special Education in Nilüfer by year[93]

The number of students in special education schools in Nilüfer has fluctuated over the years, and a decrease is observed in the number of male and female students in public schools in the 2020-2021 period compared to 2011 and 2012 (Figure 98).

5.2.5 Special Education and Rehabilitation Center

According to the data of the Nilüfer Directorate of National Education, information on the special education and rehabilitation centers in Nilüfer is shown in Figure 99.
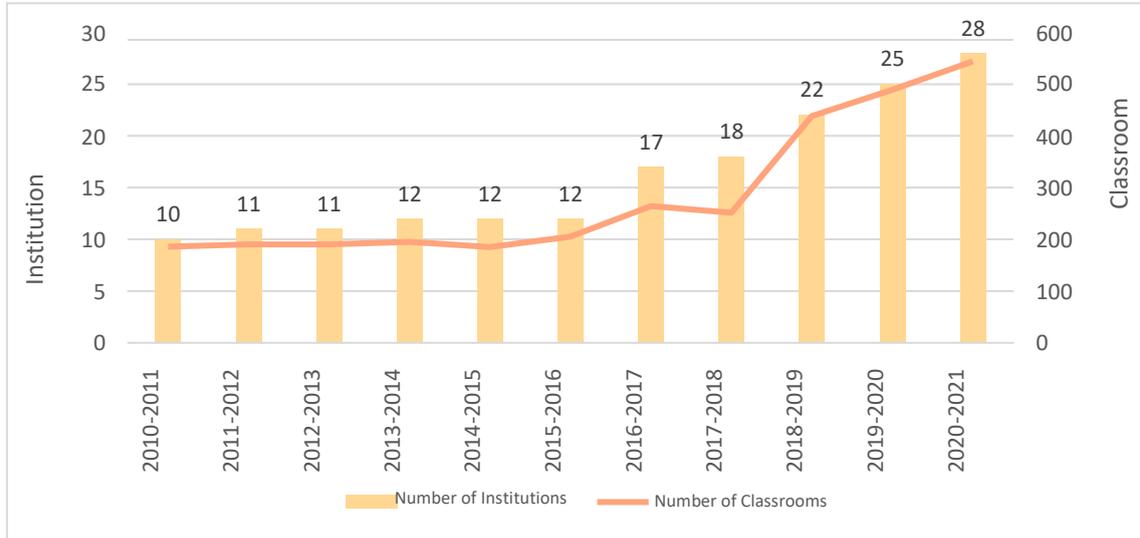
Figure 99. Number of Special Education and Rehabilitation Centers and Classrooms in Nilüfer by year[93]

Figure 100. Number of Teachers in Special Education and Rehabilitation Center in Nilüfer by year[93]
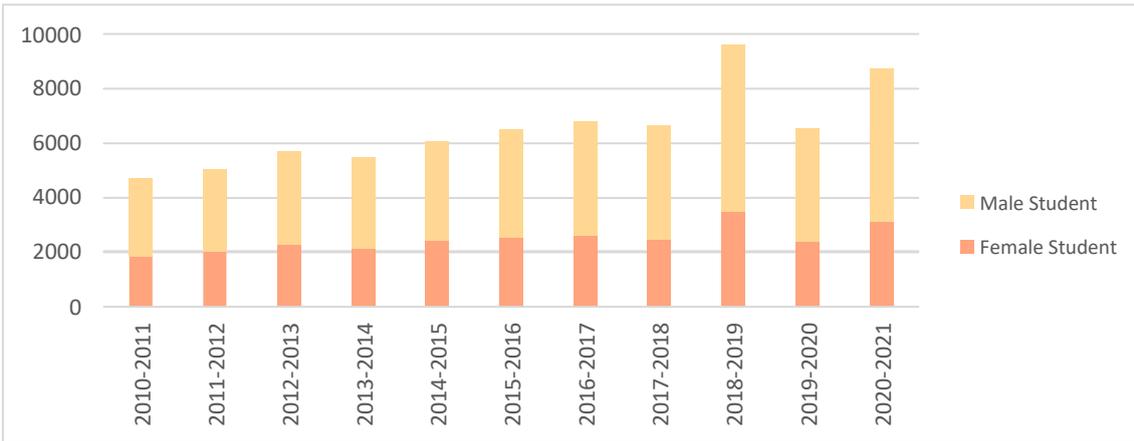
Figure 101. Number of Students in Special Education and Rehabilitation Center in Nilüfer by year[93]

The number of teachers in special education and rehabilitation centers in Nilüfer is shown in Figure 99 and the number of students is in Figure 100. It is observed that the number of teachers has increased over the years and female teachers are in the majority (Figure 100). It is seen that the number of students has increased in general over the years and that there are more male students (Figure 101).

5.2.6   University Exam Results

According to the data of the Nilüfer Directorate of National Education, the change in university exam success rates by year is given in Figure 102
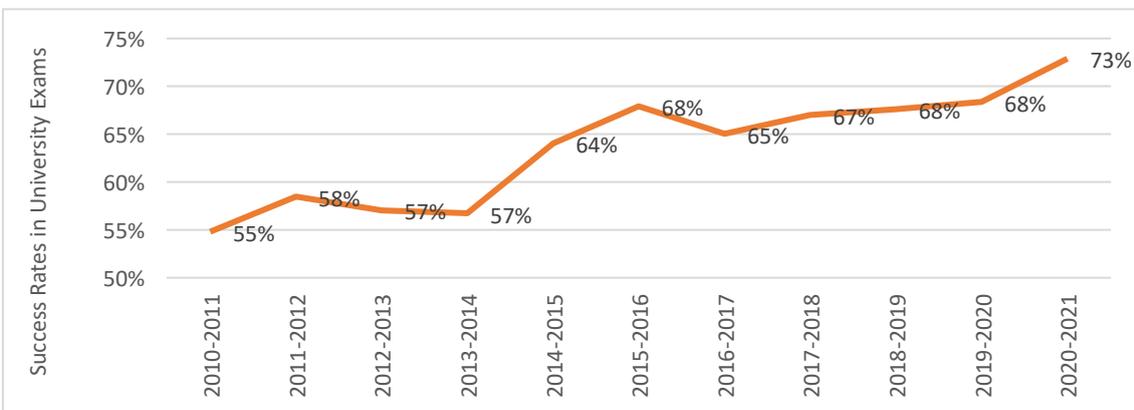
Figure 102. University Exam Success Rates of Nilüfer by year[93]

5.2.7   Higher Education Institutions

Bursa Uludağ University's Görükle Campus and Fethiye Campuses are located in Nilüfer as higher education institutions.

Bursa Uludağ University has 15 faculties, 2 colleges, 15 vocational schools, 1 conservatory, 4 institutes, 27 practice and research centers, 1 research center and 5 departments established under the Rectorate[95].

5.2.8 Driving Schools
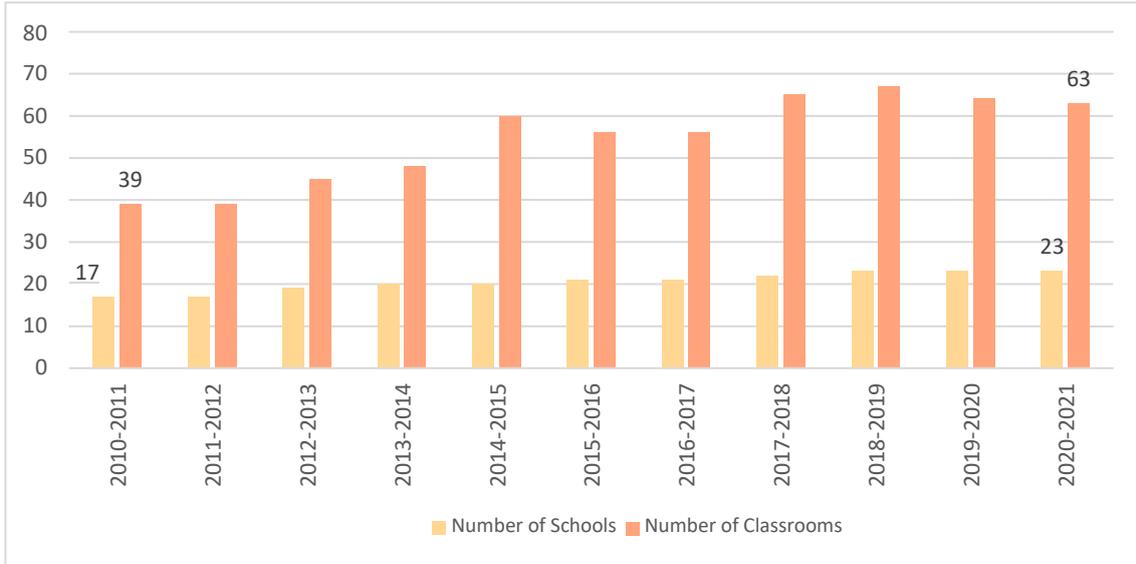
Figure 103. Number of Driving Schools and Number of Classrooms in Nilüfer by year[93]

According to the data of the Nilüfer Directorate of National Education in 2020-2021, there are 23 courses and 63 classrooms in Nilüfer (Figure 103).
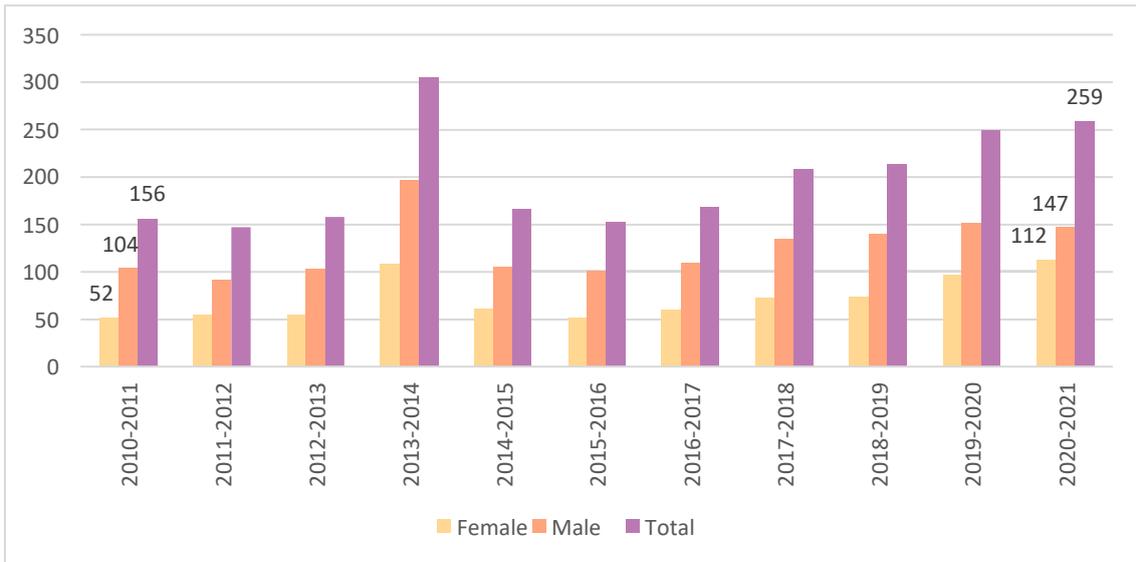
Figure 104. Number of Teachers and Gender Distribution in Driving Courses in Nilüfer by year[93]

It is seen that the number of teachers in driving courses has increased over the years. In 2020-2021, 43.2% of trainers are female and 56.8% are male (Figure 104).

Figure 105. Number of Students and Gender Distribution in Driving Courses in Nilüfer by year[93]

It is seen that the number of students in driving courses has increased over the years. In 2020-2021, 44.0% of students are female and 56.0% are male (Figure 105).

5.2.9 Public Education Activities

According to the data of Bursa Metropolitan Municipality Art and Vocational Courses (BUSMEK), the number of courses in Nilüfer is shown in Figure 106.
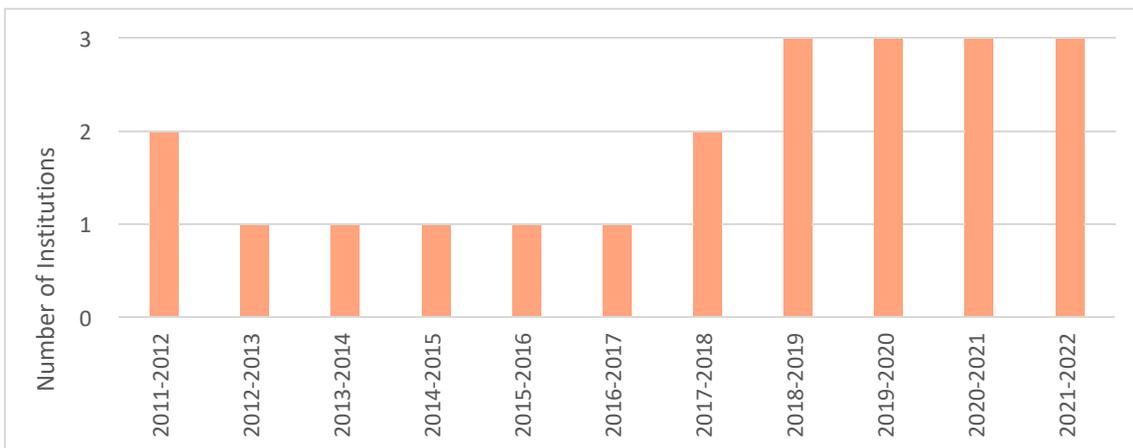
Figure 106. Number of Educational Institutions Attended by Adults such as Public Education Courses, Evening Courses etc., within the borders of Nilüfer [96]
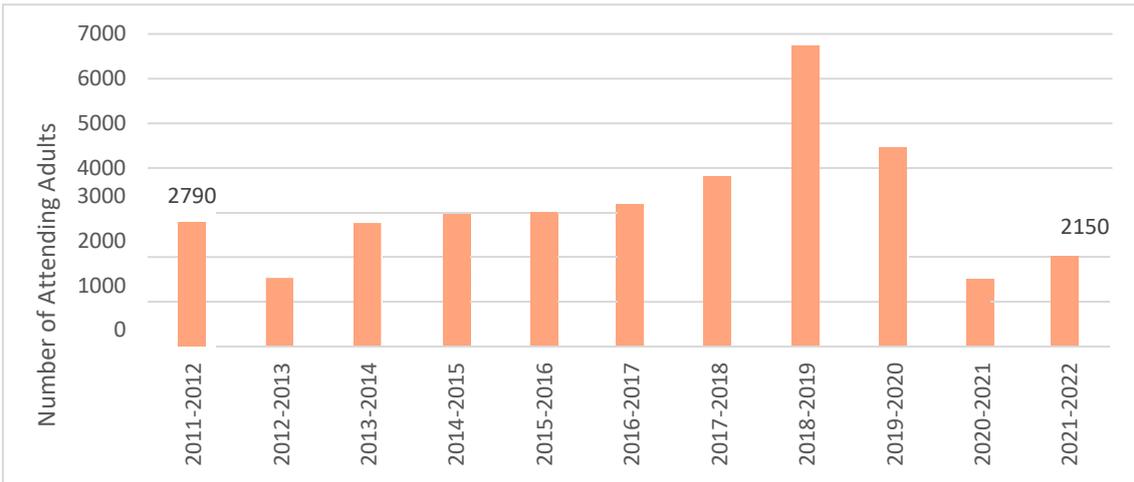
Figure 107. Number of Adults Attending Educational Institutions such as Public Education Courses, Evening Courses etc. within the borders of Nilüfer [96]

It is observed that the number of adults attending public education courses increased until 2018-2019, and it is noticed that there is a decrease after this period (Figure 107).
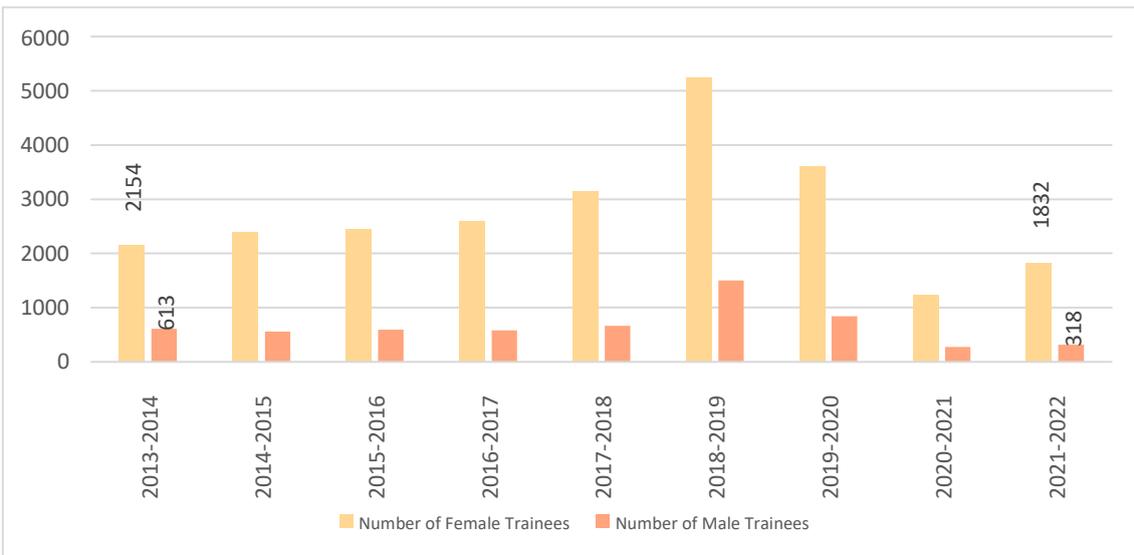
Figure 108. Gender Distribution of Adults Attending Educational Institutions such as Public Education Courses, Evening Courses etc. within the borders of Nilüfer [96]

If the gender distribution of the trainees is considered, it is seen that there are more female trainees in all years (Figure 108).

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According to the data of the Nilüfer Directorate of National Education, information regarding the private student dormitories in the Nilüfer is shown in Figure 109.
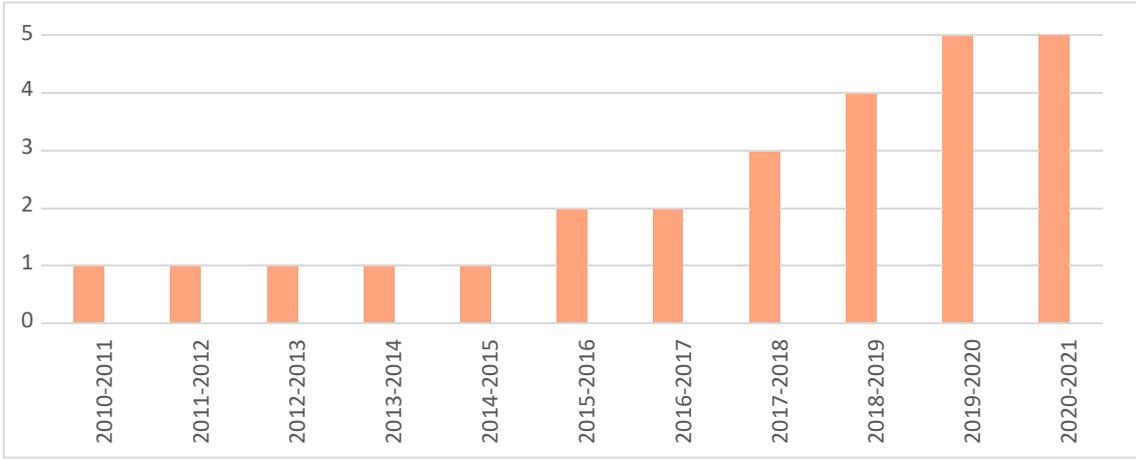
Figure 109. Number of Private Student Dormitories in Nilüfer by year[93]

Information on the number of public student dormitories and dormitory capacities could not be obtained.

6. Socioeconomic Status

6.1 Employment

Bursa has been an important trade center from the past to the present and has maintained its strategic position until today with the Silk Road it is on. Its geographical location has provided an important advantage for the industry of Bursa. With its economic aspect, it continues developing and accelerating the country's economy[97].

If we look at the TURKSTAT 2021 data on the distribution of labor force between sectors, the service sector constitutes the largest part with a 27.65% share in our country[98]. If we look at Table 52, where the distribution of members registered to the Bursa Chamber of Commerce and Industry is considered, the service sector takes the first place with 14.47%. It is followed by textile with 14.31%, construction with 14.23%, and food, agriculture, and livestock in the fourth place with 9.82%[99].

Table 52. Number of Members Registered to Bursa Chamber of Commerce and Industry by Sectoral Classification, Bursa March 2022[99]

Sectors	Number of Members	% Distribution
Services Sector	7075	14,47%
Textile	6999	14,31%
Construction	6959	14,23%
Food, Agriculture, Livestock	4802	9,82%
Defense Industry, Automotive and Other Means of Transportation	2603	5,32%
Information, Electric and Electronic	2453	5,02%
Machine	2206	4,51%
Transportation	1974	4,04%
Metal	1800	3,68%
Chemistry	1798	3,68%
Health	1551	3,17%
Finance and Insurance	1334	2,73%
Furniture and Wooden Products	1237	2,53%
Tourism	814	1,66%
Energy	800	1,64%
Education	792	1,62%
Foreign Trade	629	1,29%
Air-Conditioning	516	1,06%
Other Miscellaneous Manufacturing and Trade	414	0,85%
Paper, Stationary, Games and Toys	386	0,79%
Environment	382	0,78%
Mining	339	0,69%
e-Commerce	325	0,66%
Culture, Arts and Sports	304	0,62%
Jewelry	213	0,44%
Glass, Ceramic, etc., Products	189	0,39%
Total	**48894**	**100,00%**

According to the records of the Bursa Chamber of Commerce and Industry[100], the number of companies opened and closed in Nilüfer and Bursa is presented in Table 53. According to this, while 2353 companies were opened in Nilüfer in 2021, 599 companies were closed. Totally 5000 companies were opened in the same year in Bursa, and 1555 companies were closed.

Table 53. Statistics of Opened and Closed Firms Between 2015-2021[100]

Years	Number of Firms Opened in Nilüfer	Number of Closed Firms in Nilüfer	Number of Firms Opened in Bursa	Number of Firms Closed in Bursa
2015	1425	333	3401	1015
2016	1615	339	3567	1093
2017	1801	371	4084	1095
2018	1804	481	4275	1285
2019	1705	447	3813	1205
2020	1969	462	4347	1197
2021	2353	599	5000	1555

The table of change[101] of real and legal persons registered to the Bursa Chamber of Commerce and Industry over the years is presented in Table 54. According to this, as of 2021, the number of legal persons registered to the Bursa Chamber of Commerce and Industry in Nilüfer is 18,336, and the number of real persons is 1960. The total number of legal persons registered in the Bursa Chamber of Commerce and Industry has reached 24,665, and the number of real persons has reached 4388 throughout Bursa.

Table 54. Number of Legal and Real Persons registered with Bursa Chamber of Commerce and Industry[101]

Years	Nilüfer Legal Entity Registered Member	Nilüfer Real Person Registered Member	Bursa Legal Entity Registered Member	Bursa Real Person Registered Member
2015	9583	1643	19154	5355
2016	10910	1721	19926	5238
2017	12252	1810	20467	5008
2018	13640	1893	21722	5005
2019	14853	1883	22526	4765
2020	16474	1926	23910	4741
2021	18336	1960	24665	4388

Establishing workplaces and issuing work permits are regulated according to the Regulation on Business and Work Licenses published in the Official Gazette with 10.08.2005 date and 25902 number. Although the institutions responsible for the licensing procedures differ according to their jurisdictions, special provincial administration, metropolitan municipality and metropolitan district municipalities, municipalities, organized industrial zone legal entities and provincial directorates of the Ministry of Industry and Technology may be authorized in places that do not have the metropolitan qualification but are within the jurisdiction of the municipality[102].

Nilüfer Municipality continues licensing in accordance with the license applications and needs within its jurisdiction. The number of licenses[103] issued by the Nilüfer Municipality Audit Directorate between the years 2015-2021 is shown in Figure 110. The Directorate took part in the licensing of 1237 workplaces in 2021.

The licenses issued within the municipality decreased in 2019 compared to 2018. Although there was an increase in the licenses issued in the last three years, including 2021, the number of licenses issued during the pandemic period could not reach the number of 2018 due to the economic recession.

According to the Economic and Social Indicators report compiled by Bursa Governorship, there are 86,972 workplaces in Bursa in 2021, and 1,045,956 people work within the scope of social security. The number of dependents within the scope of social security is 1,286,828, and there are 583,393 retirees within the scope of social security. According to the current report, 98.8% of Bursa's population is covered by social security in 2021. Table 55 shows the total number of workplaces, the number of employees and their dependents, the number of retirees and the SSI coverage ratio within the scope of SSI in Bursa[104].

Table 55. Total Number of Workplaces, Number of Employees and Dependents, Number of Retirees and the Social Security Institution Coverage Rate in Bursa[104]

	2015	2016	2017	2018	2019	2020	2021
Total Number of Businesses	68102	72627	78436	78041	78281	81023	86972
People Working within the Scope of SSI	851738	914973	953470	954790	926698	989082	1045956
Number of Dependents within the Scope of SSI	1413230	1269959	1276544	1246331	1277264	1282266	1286828
Number of Retirees within the Scope of SSI	481427	494295	521470	537453	553905	566834	583393
SSI Coverage Rate	96,62%	99%	99.65%	99.70%	98.78%	99.56%	98.8%

Changing population working under SGK and the population of dependents between the years 2015-2021 for Bursa and Turkiye is presented in Table 56[104]. The ratio of the working population to the whole population within the scope of SSI is 29.22 for our country in 2021, while this rate for the same year is 33.20 for Bursa. While the ratio of the dependent population to the entire population within the scope of SSI is 41.69% for Turkiye, it is 40.88% for Bursa.

While the ratio of those receiving pensions to the population is 16.11% in our country, it is 18.53% for Bursa.

Table 56. The ratio of Population Working and Dependent Population to Whole Population in Turkiye and Bursa within the Social Security Institution Cover (2015-2021)[104]

	2015	2016	2017	2018	2019	2020	2021
The Ratio of the Population Working within the Scope of SSI to the Whole Population, TR (%)	26.38	26.06	27.57	27.54	26.66	28.29	29.22
The Ratio of the Population Working within the Scope of SSI to the Whole Population, Bursa (%)	30.46	31.53	32.47	31.89	30.32	31.89	33.20
The Ratio of the Dependent Population to the Whole Population within the Scope of SSI, TR (%)	44.17	44.07	43.96	42.18	41.52	42.10	41.69
The Ratio of the Dependent Population to the Whole Population within the Scope of SSI, Bursa (%)	42.26	43.77	43.47	41.62	41.79	41.34	40.88

According to the Turkish Employment Agency Labor Market Research Bursa 2021 Final Report, the number of registered unemployed people in Bursa at the end of October 2021 is 102,526, and the rate of women in this is 49.4% while the rate of young people between the ages of 18-24 is 40.8%[105]. By the end of 2021, the number of unemployed registered by TEI reached 107,997. The change in the number of unemployed registered with TEI between 2015 and 2021 in Bursa is shown in Figure 111[106].
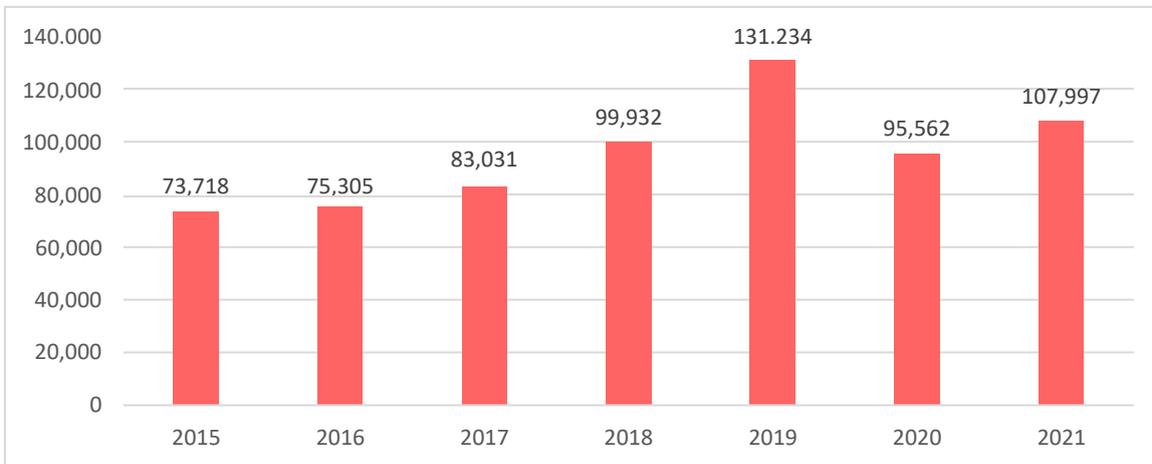
Figure 111. Number of Unemployed in Bursa Registered with TEI by year[105,106]

Unemployment insurance is insurance established by the state to partially cover the income losses incurred if the person loses his/her job without his/her own will and fault, even though this person has no obstacle to work. Changing number of people entitled to unemployment benefits in Bursa by year is given in Figure 112. According to this, 23.463 people benefited from unemployment benefits in Bursa in 2020, and a 56.1% decrease was observed compared to 2019. This is related to the termination restriction during the pandemic period[105]. In 2021, 36,511 people were entitled to receive unemployment benefits[106].
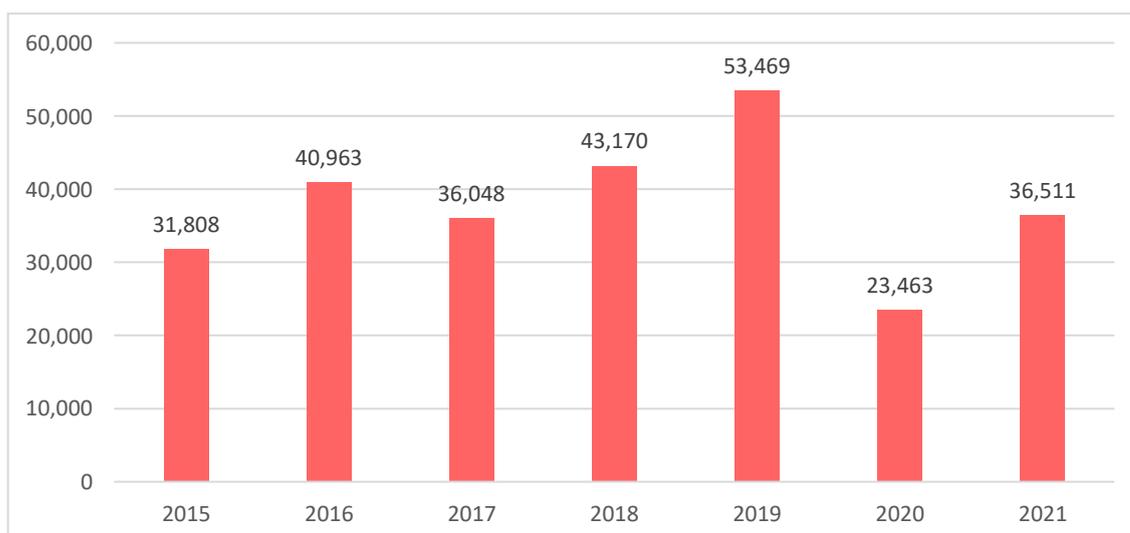
Figure 112. Change in the number of people in Bursa entitled to unemployment benefit by year[106]

The distribution of the number of unemployed persons registered by TEI in Bursa between the years 2019-2021 in occupational groups is presented in Table 57. The number of unemployed (131,234) registered by TEI in Bursa in 2019 decreased in 2020, despite the pandemic conditions, and started to increase again in 2021. Among the registered unemployed people, the most crowded occupational group is those who work in jobs that do not require any qualification[106].

Table 57. Distribution of Registered Unemployment Numbers by Occupational Groups, Bursa 2021[106]

	2019	2020	2021
Office personnel	14,475	10,986	11,259
Service and sales personnel	22,609	17,840	17,774
Elementary occupations	38,580	25,461	33,270
Qualified agriculture, forestry, and aquaculture personnel	612	298	547
Professional occupational groups	13,170	10,826	12,107
Craftsmen and related workers	16,438	10,777	12,091
Occupations related to the armed forces	23	21	40
Technicians and associate professional occupational groups	10,269	8,572	9,041
Plant and machine operators and assembly personnel	13,959	9,827	10,802
Executives	1,099	954	1,066
Total	131,234	95,562	107,997

The distribution of the unemployed registered by TEI in Bursa in 2021 by gender and educational status is presented in Table 58. Approximately half (50.05%) of 107,997 unemployed people registered by TEI in Bursa in 2021 are men, and the other half (49.95%) are women. If the educational status of the registered unemployed is examined, it is seen that primary and secondary education graduates are predominant[106].

	Male		Female		Total
	Number	%	Number	%	
Illiterate	373	0.7	494	0.9	867
Literate	1,995	3.7	2,514	4.7	4,509
Primary Education	19,729	36.5	17,366	32.2	37,095
Secondary Education	18,921	35.0	15,328	28.4	34,249
Associate Degree	4,558	8.4	6,990	13.0	11,548
Undergraduate	8,150	15.1	10,841	20.1	18,991
Post-Graduate/Masters	316	0.6	391	0.7	707
Doctorate	14	0.0	17	0.0	31
Total	54,056	100.0	53,941	100.0	107,997

The distribution of the unemployed registered by TEI in Bursa in 2021 by age group is shown in Figure 113. According to this, it is seen that the most crowded group is 15-24 years old[106] by the age groups of the unemployed registered in Bursa in 2021.

	15 - 24	25 -29	30 - 34	35-39	40 - 44	45-49	50-54	55-59	60-64	65+
Female	16815	11484	6670	6252	6004	3724	1882	803	238	69
Male	20052	12552	5923	4272	3984	3184	2264	1207	450	168
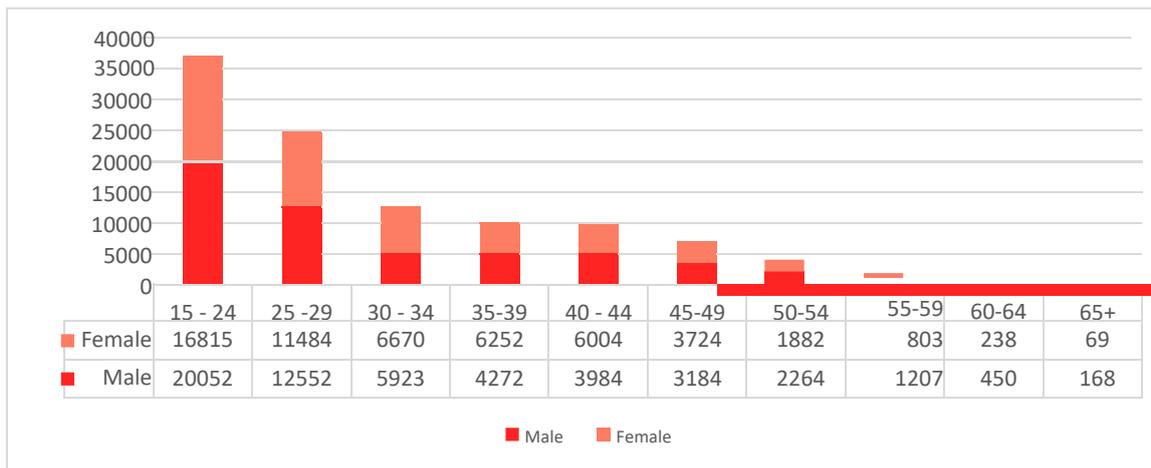
Figure 113. Age Group Distribution Chart of the Registered Unemployed, Bursa 2021[106]

6.1.1 Distribution of Employees by Employment Types

The Turkish Employment Agency was established in 2003 with the 4909 numbered Turkish Employment Agency Law[107]. According to the 2021 Statistics of the Turkish Employment Agency, 24,083 people were employed in the public sector, and 1,268,451 people were employed in the private sector throughout the country. The number of people employed has reached 1,292,534 in total throughout the country. 827,851 of the employed population are male, and 464,683 are female[106].

The change in the number of people employed by the Turkish Employment Agency in Bursa between the years 2018-2021 in the public and private sectors is presented in Table 59. In 2021, 87 people, 65 men and 22 women are in public service in Bursa, and 56,947 people, 32,900 men and 24,047 women were employed in the private sector[106].

Years	Private Sector			Public			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2018	24	9	33	32,983	21,458	54,441	33,007	21,467	54,474
2019	44	6	50	34,769	23,014	57,783	34,813	23,020	57,833
2020	137	59	196	20,200	13,899	34,099	20,337	13,958	34,295
2021	65	22	87	32,900	24,047	56,947	32,965	24,069	57,034

The distribution of 57,034 job placements made by TEI in 2021 by age group and gender is shown in Figure 114. 57,034 jobs found by the Turkish Employment Agency in 2021 were predominantly in the 15-24 age group, and they constitute 37.9% of the jobs found by the Agency in 2021[106].

0	15 - 24	25 -29	30 - 34	35-39	40 - 44	45-49	50-54	55-59	60-64	65+
	9626	3731	2430	2575	2576	1677	832	462	122	38
	11980	7002	4008	2910	2712	1937	1369	738	233	76

Figure 114. Distribution of job placements by the Turkish Employment Agency in 2021 by age and gender, Bursa 2021[106]

The educational status distribution of the jobs found by the Turkish Employment Agency in Bursa in 2021 is presented in Table 60. Most of the 57,034 jobs found were in the group of primary and secondary education graduates. 46.8% of the total number of people are primary school graduates, and 33.6% are secondary school graduates[106].

	Male	Female	Total
Illiterate	19	13	32
Literate	152	270	422
Primary Education	15504	11200	26704
Secondary Education	12045	7140	19185
Associate Degree	2504	2670	5174
Undergraduate	2654	2710	5364
Post-Graduate/Masters	84	65	149
Doctorate	3	1	4
Total	32965	24069	57034

6.1.2 Employment Status by Age Groups

Turkish Statistical Institute publishes labor force participation statistics according to the NUTS-2 sub-level (Bursa, Eskişehir, Bilecik)[108]. The labor force participation rates of the male population in the age group operating in the working life in Bursa, Eskişehir, and Bilecik (İBBS-2) region between the years 2015-2020[108] are presented in Table 61. If these statistics are considered, the age group that participates the most in the workforce is the 25-34 age group for men, with 90.4% of this group participating in the workforce.

Table 61. Labor Force Participation Rates of Men by Age Group (%)[108]

Years	15-19 ages	20-24 ages	25-34 ages	35-54 ages	55+ ages
2015	34.3	79.1	94.6	86.6	30.3
2016	29.6	75.4	93.9	88.4	33
2017	34.8	75.7	95	89.1	32.4
2018	35.7	73.6	93	88.7	33.7
2019	31.5	73.7	92.8	89.3	31.6
2020	28.9	70.9	90.4	87.3	29.4

The labor force participation rates of the female population in the age group operating in the working life in Bursa, Eskişehir, and Bilecik (İBBS-2) region between the years 2015-2020108 are presented in Table 62. The labor force participation rate for women is much lower than for men. The age groups with the highest participation in the workforce for women are 20-24 and 25-34.

Table 62. Labor Force Participation Rates of Women by Age Group (%)[108]

Years	15-19 ages	20-24 ages	25-34 ages	35-54 ages	55+ ages
2015	15.5	47.9	42.6	36.9	13.9
2016	21.1	48.4	45.5	36.9	10
2017	17.2	50.4	48.1	40.8	11.9
2018	18.5	52.2	52.1	45.8	12.3
2019	18.2	46.3	48.8	43.7	14
2020	14.7	44.2	44.1	42.5	14.2

6.1.3 Apprentices and Working Children

According to the records of the Social Security Institution, the number of apprentices in Bursa in 2021 is 31,296, and the age of the apprentices varies between 12-65. While the number of apprentices registered in Nilüfer was 3410 for the same year, 1769 of them were under the age of 18, and the ages of the apprentices ranged from 12 to 44[109]. The distribution of the number of apprentices under the age of 18 in Nilüfer between age groups is presented in Table 63.

Table 63. Change over the Years in the Distribution of Apprentices Under the Age of 18 Registered to the Social Security Board in Nilüfer by Age Groups[109]

	12 Years Old	13 Years Old	14 Years Old	15 Years Old	16 Years Old	17 Years Old	Total
2015	-	-	30	214	730	1667	2641
2016	-	3	75	1391	2035	2477	5981
2017	-	2	36	319	777	1658	2792
2018	-	4	64	287	714	1884	2953
2019	-	-	15	204	477	1632	2328
2020	1	19	29	87	304	1499	1939
2021	1	39	97	89	210	1333	1769

The change in the distribution of apprentices registered by the Social Security Institution among ISCO-08 occupational groups between 2015 and 2021 is presented in Table 64. According to this, it is seen that the number of apprentices working in jobs that do not require qualifications constituted the group with the highest number of people between the years 2015-2021. All 1769 apprentices under the age of 18 registered in 2021 are in this group[109].

Table 64. Evaluation of Occupational Groups Registered as Apprentices in the Social Security Institution according to ISCO-08 Classification[109]

	2015	2016	2017	2018	2019	2020	2021
Members of professional occupations	-	-	-	145	34	-	-
Technicians and associate professional occupational groups	1	-	1	264	163	-	-
Service and sales personnel	-	-	6	10	-	-	-
Craftsmen and workers in related jobs	7	-	8	12	2	-	-
Plant and machine operators and assembly personnel	1	-	1	1	-	-	-
Employees in jobs which do not need any qualification	2632	5981	2776	2521	2129	1939	1769
Total	2641	5981	2792	2953	2328	1939	1769

6.2 Share of Nilüfer from the GDP

Provincial domestic product data were announced by the Turkish Statistical Institute in December 2021. In 2020, the gross domestic product of our country was determined as 5,046,883,307,000 TRY, and on a provincial basis, Istanbul had the highest share of the GDP with 30.1%. Ankara took second place with a 9.6% share, İzmir third with a 6.1% share and Bursa fourth with a 4% share.

The distribution of Bursa's gross domestic product between the sectors between 2018 and 2020[110] is presented in Table 65. According to this, it is seen that the industry and manufacturing industry constitute the largest share of GDP.

Table 65. Distribution of Bursa Gross Domestic Product Between 2018-2020 Sectors[110]

	2018	2019	2020
Agriculture, forestry, and fishery	5,633,148,000	6,766,271,000	8,208,826,000
Industry	63,508,388,000	70,099,877,000	81,187,908,000
Manufacturing Industry	60,044,634,000	65,881,935,000	76,772,092,000
Construction	9,257,214,000	7,926,932,000	7,128,231,000
Services	33,286,873,000	38,502,621,000	41,769,873,000
Information and Communication	1 094.200.000	1,309,344,000	1,711,670,000
Finance and Insurance Activities	2 656,639,000	2,952,752,000	4,037,819,000
Real-estate activities	9 499426000	10,233,415,000	11,335,921,000
Vocational Administrative and Support Service Activities	5,529,330,000	6,607,545,000	7,185,463,000
Public Administration, Education, Human Health and Social Service Activities	11,171,312,000	13,790,862,000	15,664,964,000
Other Service Activities	2,046,398,000	2,363,926,000	2,436,512,000
Overall Total of Sectors	143,682,928,000	160,553,544,000	180,667,189,000
Tax - Subsidy	16,594,782,000	17,751,378,000	22,559,067,000
Total GDP	160,277,710,000	178 304 922000	203,226,255,000

6.3 Cultural Characteristics

The natural and cultural heritage of Nilüfer is tried to be protected and developed. In 2020, cultural and artistic activities have decreased due to the restriction of physical distance practices and collective gatherings due to the coronavirus pandemic.

The number of celebrations, feasts and festival-like events organized by the Nilüfer Municipality Culture and Social Affairs Directorate between 2015-2019 is shown in Figure 115. According to this, 18 national and international celebrations, feasts and festivals were held in Nilüfer in 2019[111].
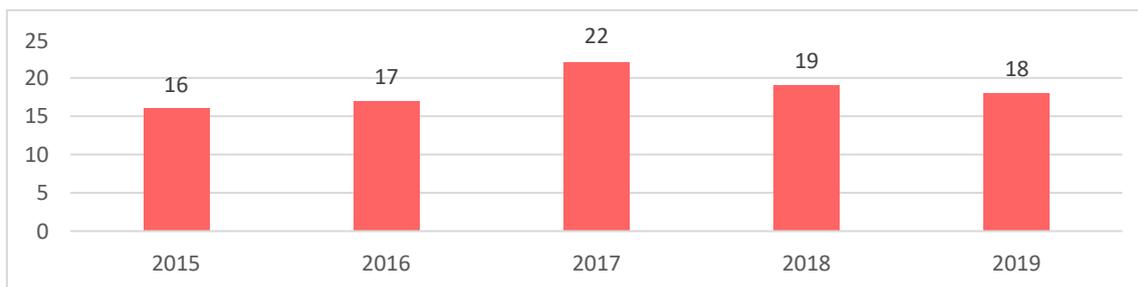
Figure 115. National and International Celebrations, Feasts and Festival-like Activities Held in Nilüfer Between 2015-2019[111]

6.3.1 Museums

Bursa, as one of the oldest settlements in Anatolia, has been a part of many civilizations from the Hittites to the Kingdom of Bithynia, from the Persian Empire to the Roman Empire and from there to the Ottoman Empire. Archaeological studies carried out in the light of scientific data document that Bursa and its surroundings have witnessed 8500 years of history[112].

The number of works, the number of museums and the distribution of the number of visitors in Bursa between the years 2015-2020 are presented in Table 66. In 2020, the number of museum works affiliated with the Ministry of Culture and Tourism in Bursa is 80,741, the number of museums is 8, and the number of visitors is 46,513. There are also private museums which continue their activities in Bursa. According to the data of TURKSTAT for 2020, the number of private museums is 18, the number of works in these museums is 3.055, and the number of their visitors is 380,257[113].

Table 66. Number of Artifacts, Museums and Visitors in Museums and Private Museums affiliated with the Ministry of Culture and Tourism[113]

		2015	2016	2017	2018	2019	2020
Museums of the Ministry of Culture	Number of Pieces	79,365	79,586	79,917	80,040	80,149	80,741
	Number of Museums	7	7	7	7	7	8
	Number of Visitors	113,925	123,035	65,130	109,222	154,414	46,513
Private Museums	Number of Pieces	1848	1987	2188	2204	2272	3,055
	Number of Museums	11	12	13	15	19	18
	Number of Visitors	477,388	519,391	580,242	733,275	2,225,911	380,257

6.3.2 Movie Theaters

In Bursa, Turkish films were released in 365 theaters and foreign films in 551 theaters in 2020. The number of audiences in the movie theaters was 897,298 in the same year[114]. The Turkish and foreign films released in Bursa between 2015-2020 and the number of audiences are presented in Table 67.

Table 67. Changes in the Number of Turkish and Foreign Films Released in Movie Theaters of Bursa and the Number of Audiences by year
[114]

	Number of Turkish Films	Number of Foreign Films	Number of Audiences of Turkish Films	Number of Audiences of Foreign Films
2015	603	804	1,323,224	1,058,830
2016	422	544	1,261,875	989,103
2017	713	980	1,572,228	1,152,412
2018	1018	1222	1,524,291	1,314,721
2019	912	1332	1,478,342	1,016,468
2020	365	551	685,989	193,309

Table 68 shows the change in the number of cinema seats in Nilüfer and the number of seats per thousand people between the years 2015-2019.

The number of movie theater seats in Nilüfer, which used to be 3182 in 2015, has increased over the years, reaching 4827 as of 2019 and the number of movie theater seats per thousand people increased from 8.01 to 10.36[115].

Table 68. The Change in the Number of Movie Theater Seats and the Number of Seats Per Thousand in Nilüfer by year[115]

	2015	2016	2017	2018	2019
Total Number of Seats in Movie Theaters	3182	3182	4256	5047	4827
Number of Movie Theater Seats Per Thousand People	8.01	7.65	10.02	11.44	10.36

6.3.3 Theaters

Table 69 shows the change in the number of theater plays and audiences for the plays staged in Bursa between the years 2015-2020. In 2020, 100 plays were staged for 127,782 people in 567 performances in Bursa. Before the pandemic, 202 plays were staged to 284,933 people in 1450 shows in 2019[116].

Table 69. Changes in the Number of Theatrical Productions, Shows and Audiences in Bursa by year[116]

Years	Number of Theatrical Productions	Number of Shows	Number of Audiences
2015	158	2,441	351,285
2016	133	892	174,461
2017	160	1,128	219,696
2018	194	1,000	212,273
2019	202	1,450	284,933
2020	100	567	127,782

Theatrical productions in Nilüfer could only be staged until 12 March 2020 due to the epidemic in 2020. Until this date, free tickets were offered to theater lovers between the ages of 15-25 and over the age of 65, during the matinee sessions of the plays. During the difficult epidemic period when millions stayed at home, the games were moved to homes in the digital environment with the slogan "Stay at home! Do not be without theater!"[79].

Table 70 shows the change in the number of theater seats and the number of theater seats per thousand people in Nilüfer. The number of theater seats in the city has increased over the years, and the total number of theater seats, which used to be 900 in 2015, reached 1000 as of 2019. Due to the high population growth experienced over the years, the number of seats per 1000 people decreased from 2.27 to 2.15.

Table 70. Change in Total Number of Theater Seats and Number of Theater Seats Per Thousand People in Nilüfer[117]

	2015	2016	2017	2018	2019
Total Number of Seats in Theaters	900	900	900	1000	1000
Number of Theater Seats Per Thousand People	2.27	2.16	2.12	2.27	2.15

6.3.4 Libraries

In 2020, which was passed under the shadow of the pandemic, libraries were closed to service until 1 June 2020 as a result of the measures. As of 8 June 2020, Nilüfer Libraries started their activities by taking all necessary precautions[79]. The library usage statistics of the Turkish Statistical Institute for 2020 also reflect the restrictive effect of the pandemic. In 2020, the number of people using public libraries in Bursa, the number of users per thousand people and the number of loaned materials decreased by half compared to 2019[118]. The number of public libraries in Bursa between the years 2015-2020, the number of books in the libraries and the number of materials loaned, the number of users and the number of users per thousand people are presented in Table 71.

Table 71. Number of Bursa Public Libraries, Number of Books, Number of Borrowed Materials, Number of Users and Number of Benefits Per Thousand People Between 2015-2020 [118]

	2015	2016	2017	2018	2019	2020
Number of Books	280,511	307,440	343,150	335,019	351,179	350,671
Number of Users	362,854	350,175	402,558	529,215	680,650	300,042
Number of Usages per Thousand People	128	121	137	177	223	97
Number of Loaned Materials	118,483	110,366	132,503	154,657	170,483	81,475
Number of Libraries	17	17	17	17	17	17

As of 2021, Nilüfer Municipality has six libraries in total, one of which is mobile, operating in Demirci Library, Akkılıç Library, Children's Library, Mobile Library, Üçevler Library and Şiir Library. Nilüfer Municipality has activated Göl Publishing House and Misi Publishing House to contribute to the literary life; the Municipality strengthened the digital library infrastructure during the period when libraries were closed due to the pandemic in 2020 and provided access to the digital catalogue of Hiperkitap by becoming a member of Nilüfer Libraries over the internet[119].

The number of library users, which used to be 364,217 in 2015, reached 675,714 in 2019, and library usage decreased due to the pandemic and decreased to 214,775 in 2020. While the number of books borrowed from the library was 86,803 in 2019, it decreased by half with the pandemic and fell to 40,793 in 2020[120]. Table 72 shows the number of library users affiliated with the Nilüfer Municipality Library Directorate, the ratio of library users to the entire population, the number of books and the number of borrowed books and the number of books per population.

Table 72. Change of Data on Libraries Affiliated to Nilüfer Municipality Library Directorate by year[120]

	2015	2016	2017	2018	2019	2020	2021
Number of Library Usage	364,217	552,028	559,111	629,264	675,714	214,775	184,870
The Ratio of Library Users to Population	0.91	1.32	1.32	1.43	1.53	0.44	0.36
Number of Books	86,033	100,002	106,290	109,170	112,271	117,027	119,304
Number of Books per Population	0.23	0.25	0.26	0.26	0.25	0.25	0.25
Number of Borrowed Books	43287	52423	66877	75804	86803	40793	56570

6.3.5   Book Distribution

Distribution of books is also done within the Nilüfer Municipality. In 2021, a total of 7524 books were distributed in 58 different schools in 18 different cities. Nilüfer Municipality Library Directorate distributed 8500 books within the scope of the Medicine Day Book Gift event and 9200 books within the scope of the Teachers' Day Book Gift event[119].

6.4   Historical, Archaeological, Natural, City Sites, Religious and Cultural Sites in Nilüfer

There are 11,416.654 square meters of the protected area, which has been declared by the relevant boards within the city limits of Nilüfer. 435,785 square meters of these are qualified natural protection areas, 2,303,349 square meters are first-degree natural protected areas, and 774,463 square meters is third-degree natural protected areas. There are also archaeological sites within the borders of Nilüfer as 2,974.403 square meters of the first-degree natural protected site, 576,095 square meters of the second-degree natural protected site and 3,641,046 square meters of the third-degree natural protected site. The city protected area within the borders of Nilüfer is 711,513 square meters[121].

6.4.1   Natural Protected Sites

The distribution of natural protected areas within Nilüfer by neighborhoods is presented in Table 73. According to this, there are eight natural protected areas in Nilüfer, seven of which are first-degree and one third-degree[122].

Table 73. Archaeological Sites According to Neighborhoods in Nilüfer[122]

Neighborhood	1st Degree	2nd Degree	3rd Degree
Gümüştepe Neighborhood	2	-	1
İnegazi Neighborhood	1	-	-
Odunluk Neighborhood	1	-	-
Ürünlü Neighborhood	2	-	-
Balat Neighborhood	1	-	-
Kültür Neighborhood	1	-	-
Total	7	-	1

6.4.2   City Protected Sites

There are city protected areas in the neighborhoods of Gümüştepe, Gölyazı and Ürünlü in Nilüfer[122].

6.4.3   Archaeological Protected Sites

The distribution of the archaeological sites in Nilüfer by neighborhoods is presented in Table 74. There are 10 first-degree, 6 second-degree and 27 third-degree archaeological sites within the city borders[122].

Table 74. Archaeological Protected Sites of Nilüfer and Their Degrees[122]

Neighborhood	1st Degree	2nd Degree	3rd Degree	Neighborhood (Continuing)	1st Degree	2nd Degree	3rd Degree
Gölyazı Neighborhood	1	2	3	Çatalağıl Neighborhood	-	-	2
Tahtalı Neighborhood	4	2	3	Çaylı Neighborhood	-	-	1
Ürünlü Neighborhood	-	1	-	Fadıllı Neighborhood	-	1	2
Akçalar Neighborhood	2		-	Görükle Neighborhood	1	-	2
Alaaddinbey Neighborhood	1	-	-	Hasanağa Neighborhood	-	-	2
Badırga Neighborhood	-	-	1	İnegazi Neighborhood	-	-	1
Balkan Neighborhood	-	-	1	İrfaniye Neighborhood	-	-	1
Başköy Neighborhood	-	-	1	Karacaoba Neighborhood	-	-	1
Büyükbalıklı Neighborhood	-	-	2	Kayapa Neighborhood	1	-	-
Çalı Neighborhood	-	-	2	Konaklı Neighborhood	-	-	2
				TOTAL	**10**	**6**	**27**

6.5 Community Networks

6.5.1 Nilüfer City Council

Nilüfer City Council is an autonomous organization that conducts activities by prioritizing the principles of protecting the rights and laws of the city, sustainable development, environmental awareness, social assistance and solidarity, accountability, participation, and decentralization. Aiming for the participation of all actors of the society in the administration, the council aims to direct its activities through the dynamics coming from the neighborhoods. Therefore, the council has several working groups such as the Women's Assembly, and Youth Assembly, etc. operating within the Nilüfer City Council.

The distribution of the assembly and working groups of Nilüfer City Council and the number of members is presented in Table 75. There are a total of 1012 members, 13 assemblies and working groups in the council.

Table 75. Number of Members of Nilüfer City Council Assembly and Working Groups

Name of the Council and Working Group	Number of Members
Council of Women	238
Council of Youth	81
Council of Laborers	87
Council of Children	103
Council of Environment	72
Ahmet Cevizci Philosophy Readings Group	24
Melih Elal Readings Group	60
Cevdet Company Children's Readings Group	70
Cycling Group	66
Disability Rights Working Group	53
Animal Rights Working Group	31
Rural Area Working Group	57
Photography Group	70

7. Physical Environment

Nilüfer, which takes its name from the Nilüfer Stream, has 423,181 decares of surface area. It is surrounded by Mudanya in the north, Orhaneli in the south, Osmangazi in the east and Karacabey and Mustafakemalpaşa districts in the west. The district, which contains 64 neighborhoods, continues to develop, and grow at a rapid pace[123].

7.1 Air Quality

Air pollution is the destruction of the natural content of the air in which we live, with various pollutants, making it harmful for humans and other living things[124]. Air pollution is divided into two groups indoor and outdoor air pollution. While indoor air pollution is caused by the use of solid fuels such as stoves, furnaces and fireplaces during heating and cooking, outdoor air pollution is mainly caused by the use of fossil fuels as a result of industry and unplanned urbanization[125].

Air pollution is one of the main causes of preventable diseases and deaths on a global scale. According to the data of the World Health Organization, it is estimated that 3.8 million[126] people die due to indoor air pollution and 4.2 million[127] people die due to outdoor air pollution every year.

7.1.1 Classification and Levels of Air Pollutants

Most air pollutants originate from human activities, including the generation of heat and electricity, inefficient use of transportation systems, poor city development, industry and incineration. There are 187 air pollutants defined by the United States Environmental Protection Agency, and 30 air pollutants are prominent in more than 90% of air pollution[125].

Particulate matter ($PM_{2,5}$, PM_{10}), carbon monoxide, ozone, nitrogen oxides and sulfur dioxide constitute the main pollutants that threaten public health the most. Air pollution poses a risk for heart attack, stroke, cancer, chronic obstructive pulmonary diseases, and deterioration of tissue nutrition. While 80% of deaths due to outdoor air pollution are due to heart diseases, 20% are due to respiratory diseases and cancers[125].

The evaluation and monitoring of air pollution in our country is published hourly on the National Air Quality Monitoring Network website of the Ministry of Environment, Urbanization and Climate Change. The monitoring station must measure at least 75% of the days during the year for the data to be used properly in the evaluation of air pollution in a center. In 2020, the number of stations that measure air quality increased to 257, and the number of stations that made insufficient measurements was determined as 41 (16%)[128]. The measurement period of air quality measurements of some pollutants and the limit values of Turkiye, the European Union and the World Health Organization are presented in Table 76.

Air Pollutant	Measurement Period	Limit Value of Turkiye	Limit Value of EU	Limit Value of WHO
SO_2 (µg/m^3)	24 hours	125	125	40
	1 year	20	20	--
PM_{10}(µg/m^3)	1 year	40	40	15
$PM_{2.5}$ (µg/m^3)	1 year	--	25	5
NO_2 (µg/m^3)	1 year	40	40	10
O_3 (µg/m^3)	8 hours	120	120	100

Nilüfer Municipality's Air Quality Measurement Station started its operations in 2015. The station started operating in front of the Nilüfer Municipality Public House building and carried out measurements here until the end of 2020. An application was submitted in 2021 for the measurement station to be included in the National Air Quality Monitoring Network of the Ministry of Environment, Urbanization and Climate Change and the station was placed in its new location on Ata Bulvarı Ata Caddesi and trial measurements were completed in June 2021.

The average value of pollutants by month at the air quality station of Nilüfer Municipality in 2021 is presented in Table 77[129]. According to these data, it is seen that PM_{10} values are above the limit values of the World Health Organization for six months, and the measurement values for October and December are above the national limit values and the European Union limit values. Although there is no limit value for $PM_{2.5}$ in our country, it is above the European limit values in September, October, November and December and the World Health Organization limit values during the 6-month measurement period. While the nitrogen dioxide measurement in September was above the national limit value, the measurement was above the World Health Organization limit value for five months except for November. Sulfur dioxide and ozone values are below the national limit values and the limit values determined by the World Health Organization[129].

Air Pollutant	July	August	September	October	November	December
PM_{10}	30.8	29.2	38.6	52.7	-	45.8
$PM_{2.5}$	17.1	23.6	26.8	35.5	53.6	29.7
SO_2	4.4	4.6	4.3	3.4	2.7	2.6
NO_2	36.6	42.7	48.1	32.1	9.0	12.8
O_3	83.5	86.3	47.7	21.6	10.6	14.2

PM_{10} values of air quality measurement stations in Bursa for 2021 are shown in Figure 116. Considering the measurement values, it is seen that all values in 2021 are above the PM_{10} limit values recommended by the European Union. Bursa-İnegöl Station has also exceeded the limit values recommended by Turkiye and the European Union[130].

	January	February	March	April	May	June	July	August	September	October	November	December
Bursa	55	65,69	52	47,24	44	39	45	37	25	45	77	42.79
Bursa-Beyazıt Cad. MCAC	56	67,47	53	45,1	38,89	37	38	43	38	44	62	42.19
Bursa-İnegöl MCAC	86	84,39	65	50,33	51,81	44	49,65	52	44	70	119	74.93
Bursa-Kestel MCAC	48	58,77	45	45,53	36,23	38	42	47	35	35	60	38.54
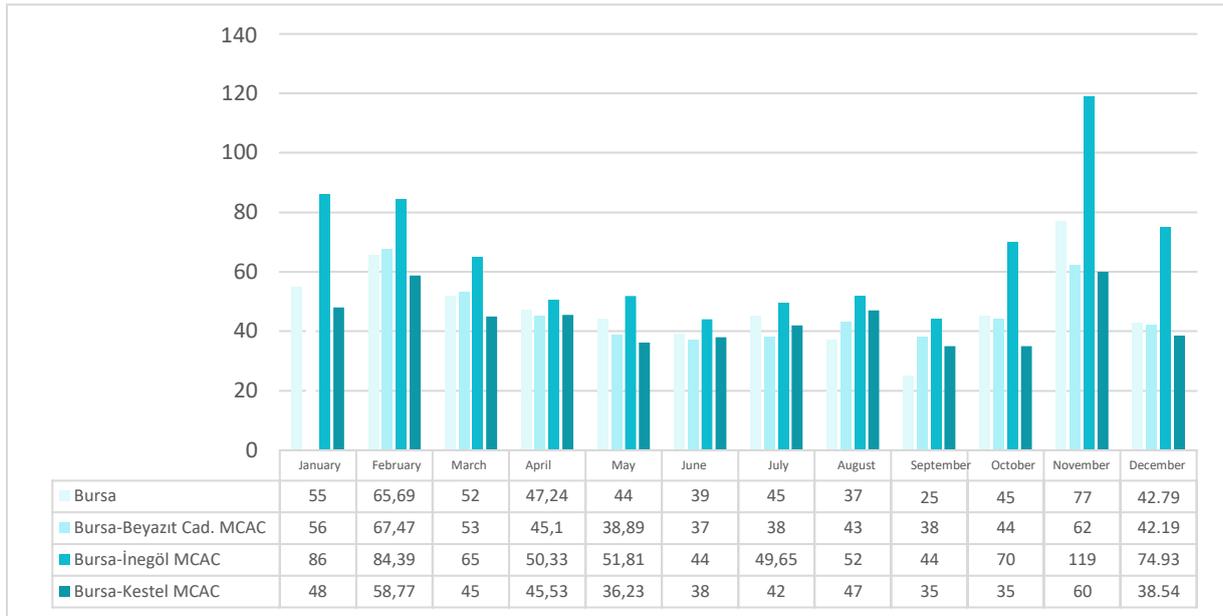
Figure 116. Ministry of Environment, Urbanization and Climate Change, PM_{10} Concentrations at Bursa Air Quality Stations (2021, µg/m3)[130]

The measurement values of the five stations performing PM_{10} measurements in the first three months of 2022 are shown in Figure 117. In the first three months of 2022, PM_{10} values in all five of the Bursa air quality stations are above the limit values recommended by the European Union and the World Health Organization[130].

	January	February	March
Bursa	68.99	62	50
Bursa-Beyazıt Cad. MCAC	73.37	67	55
Bursa-İnegöl MCAC	119.93	87	70
Bursa-Kestel MCAC	53.94	49	54
Air Quality Station of Nilüfer	49	53	64

Figure 117. Ministry of Environment, Urbanization and Climate Change PM_{10} Concentrations at Bursa Air Quality Stations (2022 first three months, µg/m^3)[130]

In 2022, PM$_{2.5}$ measurements have started to be conducted at four air quality stations in Bursa. The changes in PM$_{2.5}$ measurement values started to be measured at four stations in 2022, in the first three months are shown in Figure 118. The measurement values from the measurements in the first three months of 2022 are well above the limit values recommended by the European Union and the World Health Organization at all four stations[130].

	January	February	March
Bursa	52.92	43	32
Bursa-Kültürpark MCAC	55.77	43	38
Bursa-Uludağ Uni. MCAC	37.84	29	26
Air Quality Station of Nilüfer	66	44	40
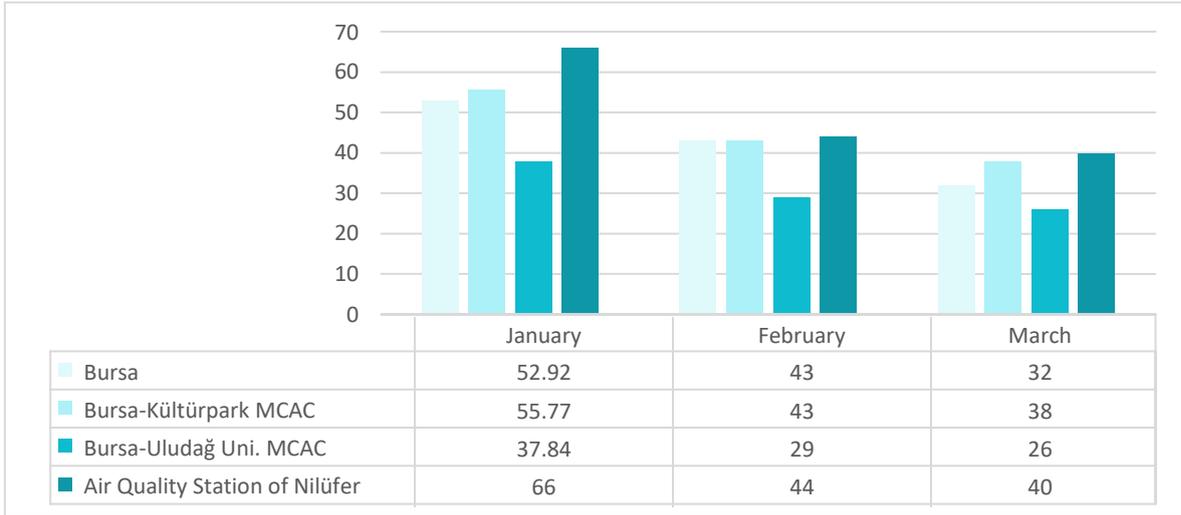
Figure 118. Ministry of Environment, Urbanization and Climate Change PM$_{2.5}$ Concentrations in Bursa Air Quality Stations (2022 first three months, µg/m^3)[130]

The measurement values of the six stations where SO$_2$ measurement was carried out in 2021 are shown in Figure 119. The annual average limit value determined by the European Union and Turkiye for SO$_2$ concentrations is 20 µg/m^3, and it was determined that this limit value was exceeded in the monthly averages of three of the six stations in 2021. The limit values were exceeded at Bursa station in December, at Bursa-Kestel MCAC station in January, February and December, and at Bursa-İnegöl MCAC station in March. The recommendation of the World Health Organization that the 24-hour average should be below 40 µg/m^3 was exceeded by Bursa-Kestel MCAC in December 2021 and reached the highest level with 42.02 µg/m^3 among the measuring stations[130].

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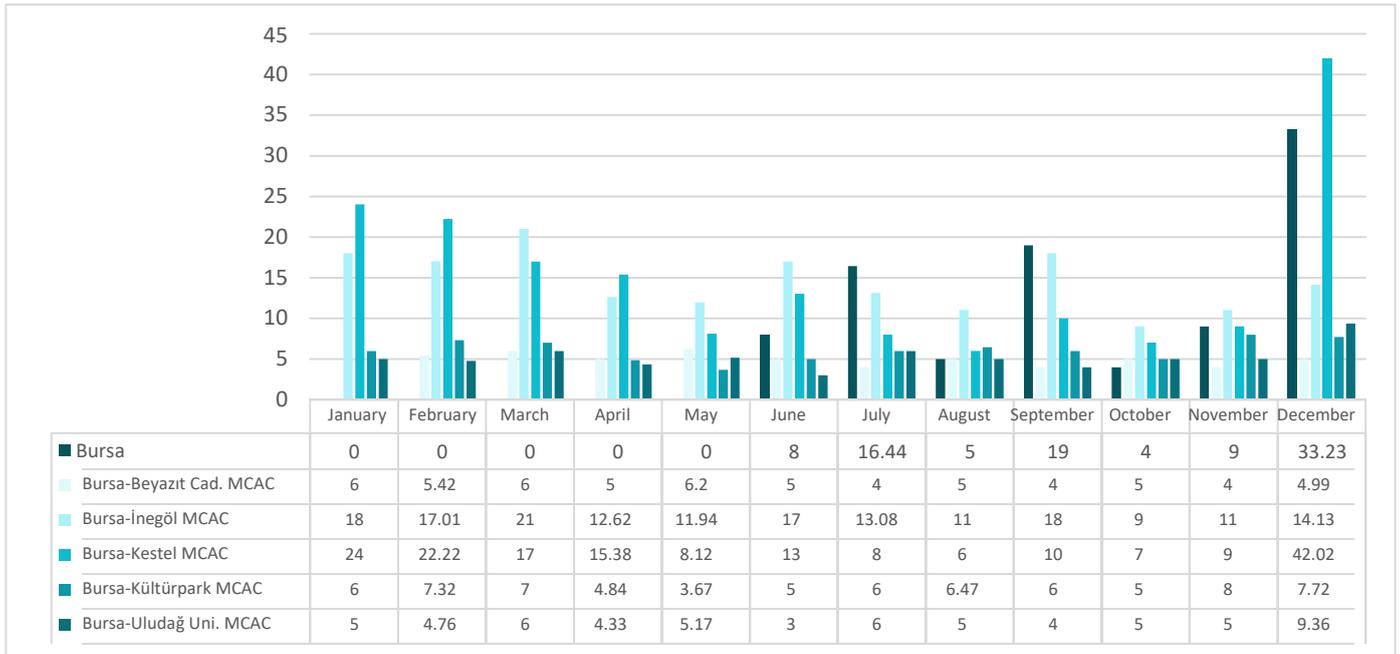
Figure 119. Ministry of Environment, Urbanization and Climate Change SO_2 Concentrations in Bursa Air Quality Stations (2021, μg/m^3)[130]

The changes in SO_2 measurement values in the first three months of 2022 are shown in Figure 120. Sulfur dioxide concentrations were found to be above the limit values of Turkiye and the European Union at Bursa station in January and February 2022 and at Bursa-Kestel MCAC station in January 2022[130].
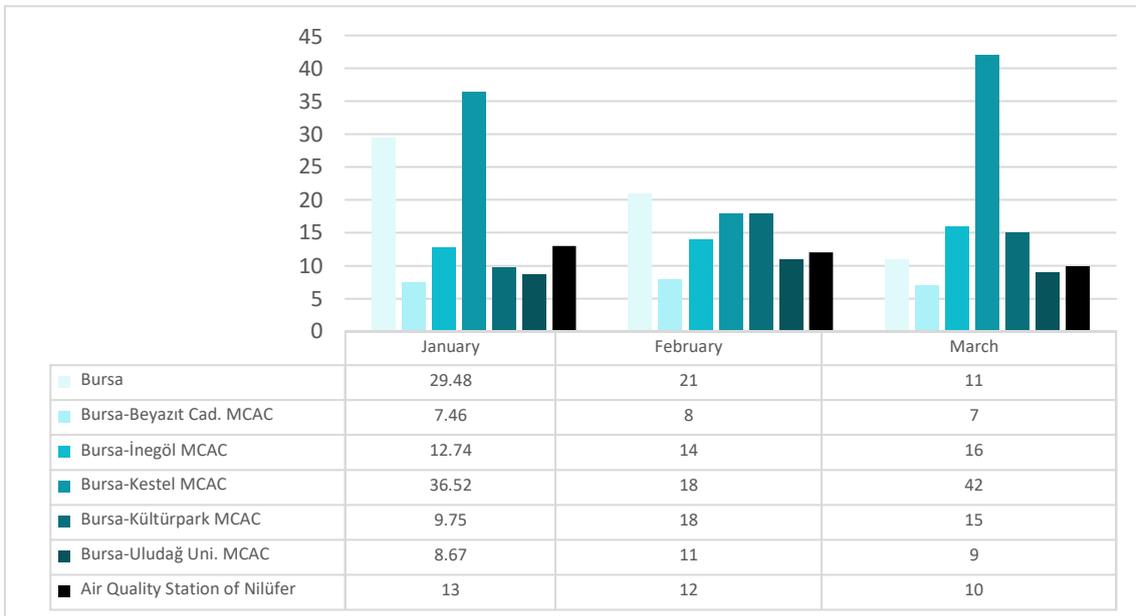
Figure 120. Ministry of Environment, Urbanization and Climate Change SO_2 Concentrations in Bursa Air Quality Stations (2022 first three months, μg/m^3)[130]

Ozone values measured at air quality measurement stations in 2021 are shown in Figure 121. The limit value adopted by Turkiye is 120 µg/m3 for ozone, and it remained below the limit value at the stations where measurements were made throughout the year. Ozone measurement at Bursa-Beyazıt MCAC and Bursa-İnegöl MCAC stations took place only in June 2021 and the measurement values were respectively determined as 5 µg/m3 and 17 µg/m3[130].

	January	February	March	April	May	June	July	August	September	October	November	December
Bursa	22	24.32	27	38.68	48	8	62	67	41	11	27	28.81
Bursa-Kestel MCAC	24	26.25	26	30.84	43.54	13	88	80	71	40	25	27.89
Bursa-Kültürpark MCAC	27	33.31	33	47	59.46	5	74	80.68	53	30	22	27.52
Bursa-Uludağ Uni. MCAC	37	49.13	55	63.33	61.29	3	78	81	57	36	25	33.38
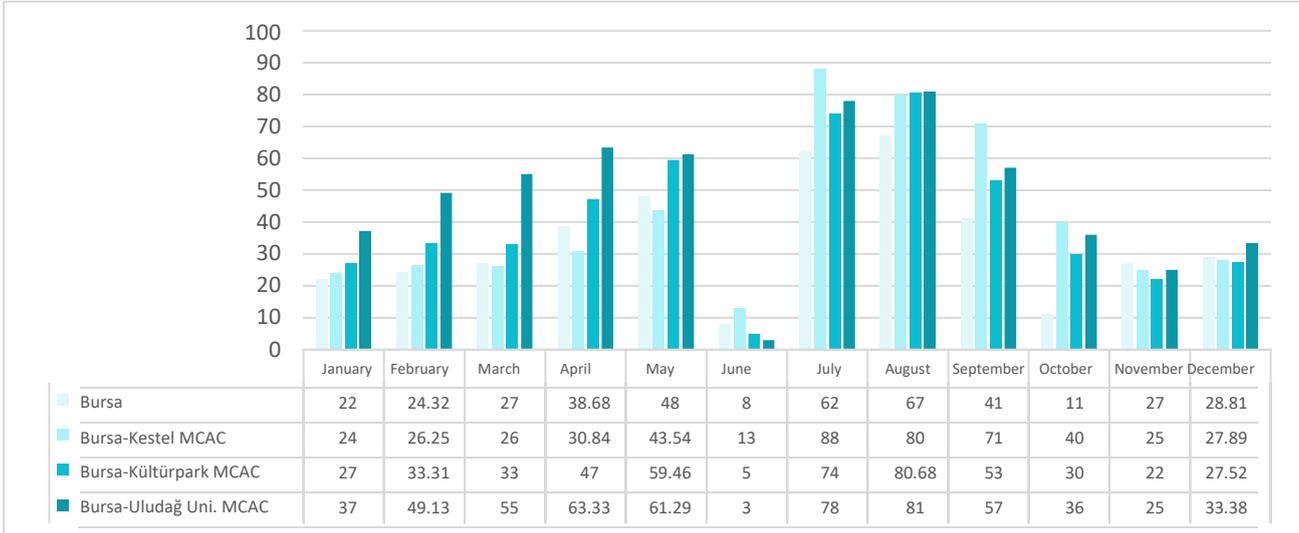
Figure 121. Ministry of Environment, Urbanization and Climate Change Ozone Concentrations at Bursa Air Quality Stations (2021, µg/m^3)[130]

In 2022, the air quality station of Nilüfer Municipality was added to the stations where ozone measurement is done, and the measurements have continued. Ozone measurement values in the first three months of 2022 are shown in Figure 122. The measurement values from the stations throughout the year were determined below the limit value for our country and the World Health Organization[130].

	January	February	March
Bursa	21.7	21	9
Bursa-Kestel MCAC	18.47	22	26
Bursa-Kültürpark MCAC	15.36	28	43
Bursa-Uludağ Uni. MCAC	24	36	53
Air Quality Station of Nilüfer	26	22	29
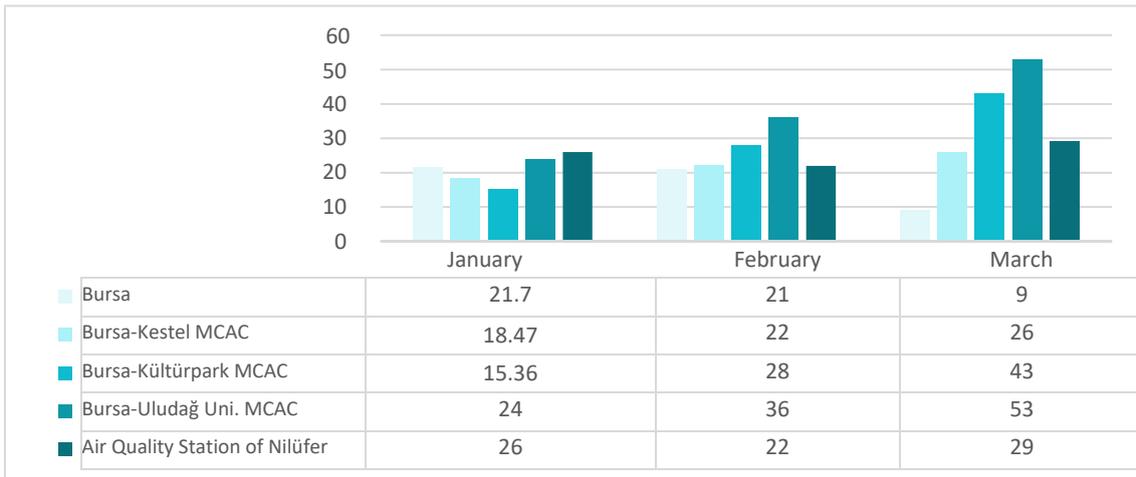
Figure 122. Ministry of Environment, Urbanization and Climate Change Ozone Concentrations at Bursa Air Quality Stations (2022 first three months, µg/m^3)[130]

Nitrogen dioxide levels measured in 2021 by the air quality measurement stations for 2021 are shown in Figure 123. The limit value adopted by the World Health Organization for nitrogen dioxide is 10 µg/m^3, and this value was exceeded at all stations where measurements were conducted throughout 2021; only a measurement performed in Bursa-Uludağ MCAC air quality station in June was determined to be equal to the WHO limit value. The limit value adopted by our country and the European Union for NO$_2$ is 40 µg/m3 and all measurements at Bursa-Kestel MCAC station are below this value, and the limit value has been exceeded in all measurements except the June and July measurements of Bursa-Beyazıt Cad. MCAC station and the January measurement of Bursa-Kültürpark MCAC[130].

	January	February	March	April	May	June	July	August	September	October	November	December
Bursa-Beyazıt Cad. MCAC	66	75.71	73	65.96	47.92	37	38	46	48	62	64	56.75
Bursa-İnegöl MCAC	38	36.21	32	28.86	20.99	19	17	20	21	27	48	40.05
Bursa-Kestel MCAC	29	33.58	31	27.55	20.03	21	18	23	29	23	30	32.82
Bursa-Kültürpark MCAC	32	42.48	41	43.78	47.92	62	68	76.65	63	49	43	42.48
Bursa-Uludağ Uni. MCAC	19	20.59	19	15.51	11.7	10	12	16	15	19	25	42.31

Figure 123. Ministry of Environment, Urbanization and Climate Change NO$_2$ Concentrations in Bursa Air Quality Stations (2021, µg/m^3)[130]

The nitrogen dioxide air quality measurement values conducted in the first three months of 2022 are shown in Figure 124. If the NO$_2$ levels measurement values made by the air quality stations in Bursa in 2022 are considered, it is seen that the six stations where measurements were carried out were above the limit values recommended by the World Health Organization. It has been determined that the March 2022 measurement by Bursa Kestel MCAC is below the NO$_2$ limit value recommended by Turkiye and the European Union, and all other measurements are above this limit value[130].

	January	February	March
Bursa-Beyazıt Cad. MCAC	68.24	67	66
Bursa-İnegöl MCAC	63.65	54	41
Bursa-Kestel MCAC	41.72	40	37
Bursa-Kültürpark MCAC	39.69	61	55
Bursa-Uludağ Uni. MCAC	42.65	45	42
Air Quality Station of Nilüfer	64	55	48

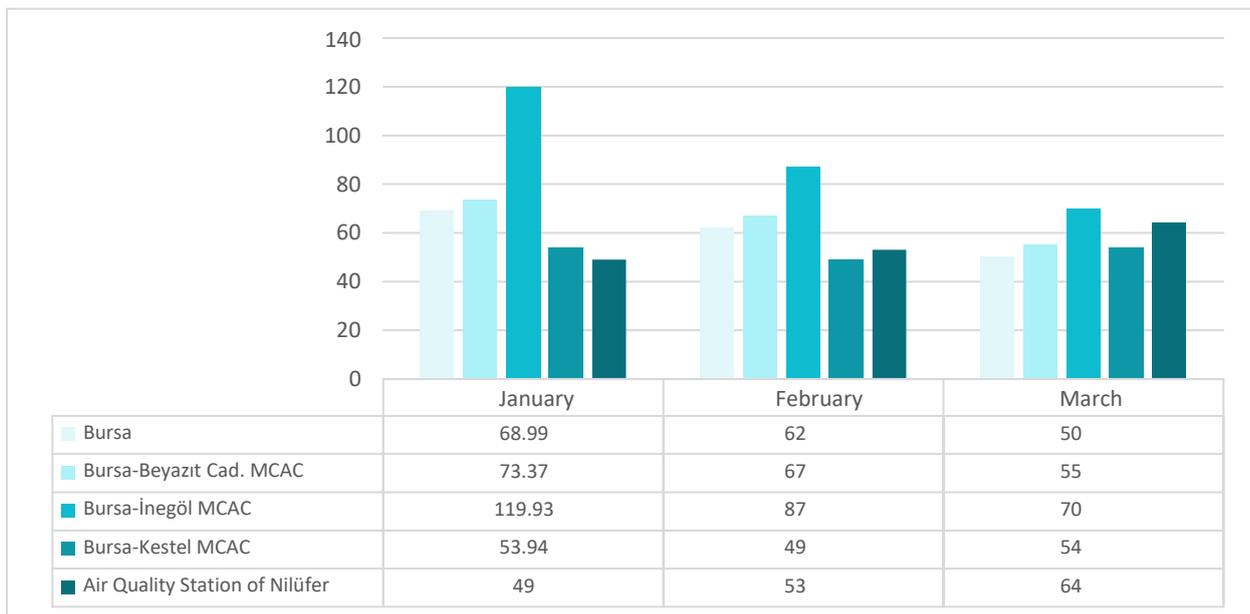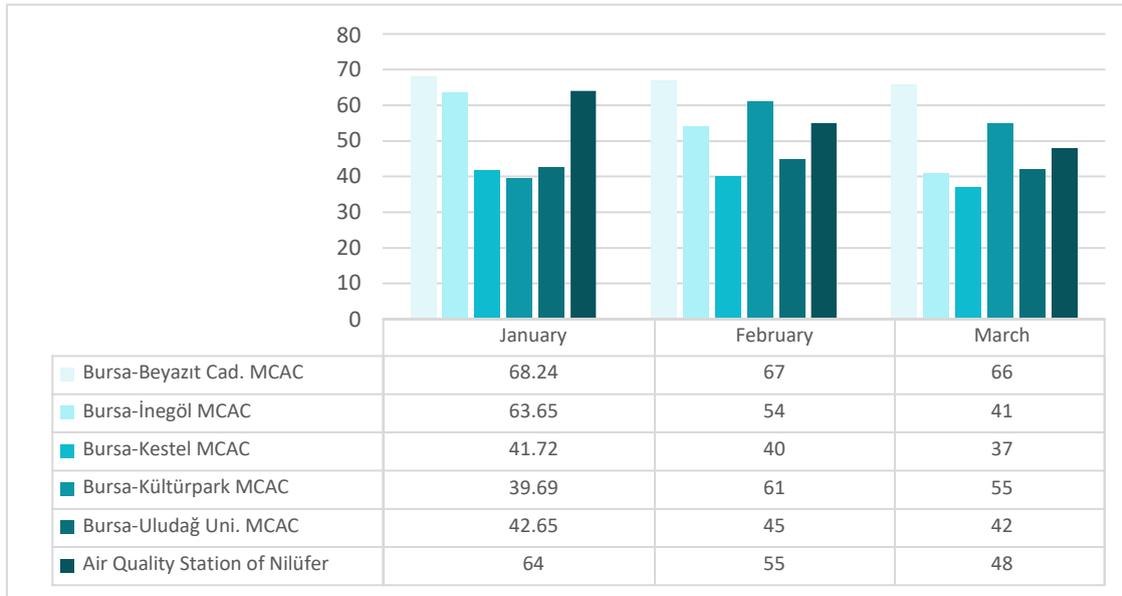**Figure 124. Ministry of Environment, Urbanization and Climate Change NO$_2$ Concentrations in Bursa Air Quality Stations (2022 first three months, µg/m^3)**

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7.2 Water Quality

Water is essential for sustaining life and everyone has the right to sufficient, continuous, safe, acceptable, physically accessible, and obtainable water for personal and domestic use. The United Nations General Assembly explicitly recognized water and sanitation as human rights in 2010.

Not having access to sufficient/safe water is an important public health problem. While the Safe Drinking Water Foundation recommends 235 liters per person per day for enough water in cities, it is expected that at least 150 liters of water are provided per person per day.

Contaminated water and poor sanitation can lead to the transmission of diseases such as cholera, diarrhea, dysentery, hepatitis A, typhoid and polio. Inadequate and/or improperly managed water and sanitation services expose society to preventable health risks. An effective and properly managed system should be established with adequate infrastructure, prepared with effective planning in accordance with health-based objectives to provide safe drinking water in cities. Drinking water quality should be monitored and evaluated on a continuous and regular basis within this system[131].

7.2.1 Drinking Water

Unfortunately, Bursa is a water-poor city. According to the TURKSTAT data, while an average of 228 liters of water per person was supplied to the drinking and utility water network by municipalities in Turkiye in 2020, 199 liters of water could be supplied in Bursa, which was below the Turkiye average[132].

According to the WSAB Annual Report, a total of 225,219,508 m^3 of water was supplied to the city in 2020, and only 46% of it was supplied from drinking water treatment plants.

The amount of water accrual in the WSAB Annual Report reveals that only 70.5% (158.760.303 m^3) of the collected water can be supplied to the subscribers.

There are significant differences in drinking water consumption in Bursa according to the districts. For example, as shown in Table 78, in 2020, while the daily water consumption per person reached 186 liters for Nilüfer, it dropped to 113 liters for İnegöl. In Bursa, the highest consumption per subscriber per day is in Nilüfer with 398 liters, while the lowest consumption is in Büyükorhan with 150 liters[131].

Table 78. Daily Water Consumption in Bursa by Districts (2020)[131]

	Number of Subscribers	Water Consumption (m^3)	Population	Consumption per Subscriber (Day/Liter)	Consumption Per Person (Day/Liter)
Osmangazi	374,484	41,780,213	881 459	306	130
Yıldırım	247,879	29,742,807	657 176	329	124
Nilüfer	226,464	32,922,725	484 832	398	186
İnegöl	110,322	11,559,172	281 384	287	113
Gemlik	80,015	5,955,883	115 404	204	141
Mudanya	70,788	6,767,681	102 523	262	181
Mustafakemalpaşa	54,255	5,342,224	101 820	270	144
Gürsu	32,880	4,229,164	96 985	352	119
Karacabey	51,904	4,177,893	84 666	221	135
Orhangazi	38,416	4,372,653	80 118	312	150
Kestel	32,439	4,054,924	70 865	342	157
Yenişehir	26,979	3,342,844	54 315	339	169
İznik	21,758	2,115,586	44 102	266	131
Orhaneli	13,790	1,027,947	19 055	204	148
Keles	8,775	608,407	11 499	190	145
Büyükorhan	7,862	429,822	9 485	150	124
Harmancık	4,469	330,358	6 145	203	147
Bursa	**1,403,479**	**158,760,303**	**3 101 833**	**310**	**140**

The change in the amount of water consumption per person, the number of subscribers and the amount of consumption per person in Nilüfer between 2011 and 2020 is shown in Table 79. The per-person water consumption in Nilüfer varies between 146 and 186 liters per day between 2011 and 2020. This amount of consumption is generally above 150 liters (except in 2014) that a person should consume in cities[131].

Table 79. Number of Subscribers and Drinking Water Consumption in Nilüfer by year[131]

Year	Number of Subscribers	Water Consumption (m^3)	Population	Consumption Per Person (Day/Liter)
2020	226,464	32,922,725	484 832	186
2019	216,640	27,813,213	465,956	164
2018	204,992	25,804,765	441,299	160
2017	193,210	26,518,793	424,909	171
2016	183,495	25,316,875	415,818	167
2015	173,702	22,773,856	397,303	157
2014	162,471	19,960,977	375,474	146
2013	151,646	23,798,285	358,265	182
2012	141,000	22,082,254	339,667	178
2011	132,000	20,429,819	316,753	177

From the points determined within the district boundaries of Nilüfer Municipality, water samples are taken periodically from 42 neighborhoods in the city area and every two months from 22 neighborhoods in the rural area, and the chlorine level in the water is checked. Water samples are taken by a Laboratory Technician who works in the Environmental Control and Protection Directorate of Nilüfer Municipality and has provided training on this subject.

A total of 828 water samples were taken from city neighborhoods in 2021, and all of the samples analyzed in terms of bacteriology were found to be clean; all water analyses conducted in city neighborhood areas between 2015 and 2021 are clean[131].

The results of water analysis in rural neighborhoods between 2015 and 2021 are shown in Figure 125. 203 water samples were collected from rural neighborhoods in 2021, and 34 (16.7%) of them were found to be contaminated[131].

	2015	2016	2017	2018	2019	2020	2021
Number of Clean Samples	137	155	150	161	160	78	169
Number of Polluted Samples	74	50	55	46	37	13	34
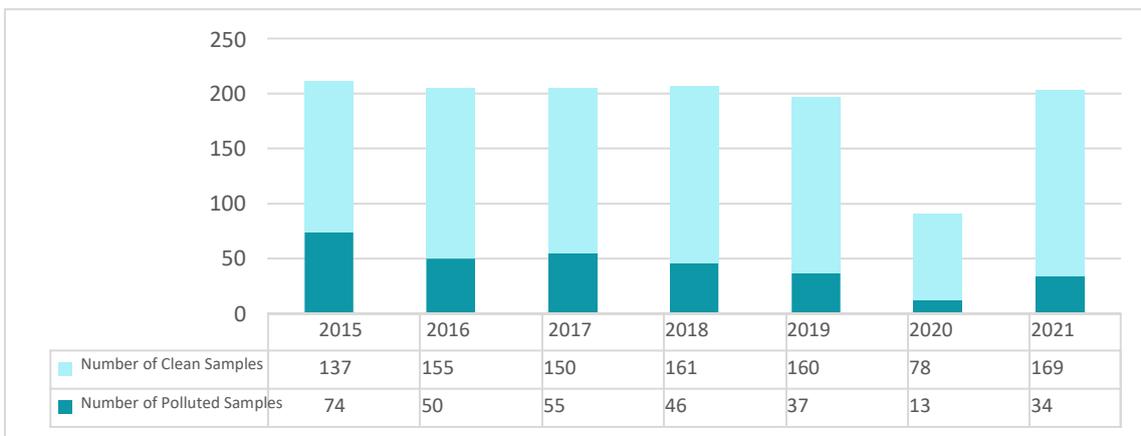
Figure 125. Water Analysis Results in Rural Neighborhoods of Nilüfer[131]*

The residual chlorine concentration required to ensure disinfection in drinking water is specified as 0.2-0.5 ppm in the Disinfection Technical Communiqué[133]. The chlorine level of water in city neighborhoods in Nilüfer is shown in Figure 126. Chlorine levels were found to be low in 174 (21.0%) of 828 samples examined in city neighborhoods in 2021[131].

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* Note: In 2020 and previous periods, samples were also taken and analyzed from charity fountains. Sample results from charity fountains are included in this chart.

	2015	2016	2017	2018	2019	2020	2021
■ Expected Chlorine Level	638	464	625	444	529	354	654
■ Low Chlorine Level	349	328	194	384	299	60	174

Figure 126. Chlorine Level in Water in City Neighborhoods of Nilüfer[131*]

Chlorine levels in water in rural neighborhoods between 2015 and 2021 are shown in Figure 127. Chlorine could not be detected in 16.7% (34 samples) of 203 samples taken in Nilüfer rural neighborhoods in 2021, and residual chlorine was found below 0.2 ppm in 57 samples. If we take into account the samples taken from rural neighborhoods excluding charity fountains between 2015-2021, 2021 was the year that the highest detection rate of non-chlorinated water samples was detected. Further studies are required to achieve the chlorine concentrations of 0.2-0.5 ppm[133] recommended in the Disinfection Technical Communiqué as only 40% of the samples taken in 2021 are at the desired level[131].

	2015	2016	2017	2018	2019	2020	2021
>0,5 ppm	21	7	8	9	10	16	30
0.2 - 0.5 ppm	43	33	62	35	35	25	82
<0,2 ppm	66	102	78	112	98	35	57
No Chlorine	18	12	6	0	15	3	34

Figure 127. Chlorine Level in Water in Rural Neighborhoods of Nilüfer[131†]

*The expected chlorine level is above 0.2 ppm, and the low chlorine level is below 0.2 ppm.
†Note: In 2020 and previous periods, samples were also taken and analyzed from charity fountains. Samples results from charity fountains are not included in this table.

7.3.1   Waste Waters and Treatment Systems

There are a total of 16 large regional water treatment plants in Bursa, and two of them are in Nilüfer. Batı Wastewater Treatment Plant and Akçalar Wastewater Treatment Plant are wastewater treatment plants located in Nilüfer[134]. The distribution of large regional wastewater treatment plants in Bursa among the districts is shown in Table 80.

Table 80. Regional Large Wastewater Treatment Plants (2020)[134]

District	Name of the Facility	Capacity (m³)
Gemlik	Gemlik Wastewater Treatment Plant	18850
Gemlik	Kumla Wastewater Treatment Plant	5350
Gemlik	Kurşunlu Wastewater Treatment Plant	4725
Gemlik	Narlı Wastewater Treatment Plant	1000
İznik	İznik Wastewater Treatment Plant	8500
İznik	İznik Boyalıca Wastewater Treatment Plant	375
Karacabey	Karacabey Wastewater Treatment Plant	8500
Mudanya	Mudanya Wastewater Treatment Plant	21850
Mudanya	Nilüfer Wastewater Treatment Plant	12000
Mustafakemalpaşa	Mustafakemalpaşa Wastewater Treatment Plant	16900
Nilüfer	Batı Wastewater Treatment Plant	87500
Nilüfer	Akçalar Wastewater Treatment Plant	4561
Orhaneli	Orhaneli Wastewater Treatment Plant	1000
Orhangazi	Orhangazi Wastewater Treatment Plant	19000
Osmangazi	Doğu Wastewater Treatment Plant	240000
Yenişehir	Yenişehir Wastewater Treatment Plant	7000

In Bursa, apart from 16 regional large wastewater treatment plants, there are 42 smaller-scale wastewater treatment plants and 64 natural wastewater treatment plants*[134].

While the ratio of the municipal population served by wastewater treatment plants to the total municipal population in our country in 2020 is 77.7%, this rate is 93.0% for Bursa. In 2020, the municipal population served by the sewerage network constitutes 91.1% of the country's population and 98% of the population of Bursa[135].

7.4.1   Noise Monitoring

Noise exposure negatively affects the quality of life. Noise can be defined as "unpleasant, disturbing sound." Although the sound is an objective concept and can be measured, noise is also a subjective concept. The characterization of the sounds encountered as noise differs from person to person[136].

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* In our country, wastewater treatment practices are roughly classified as natural and package treatment systems. While natural treatment systems adopt the principle of biodegradation of organic components without requiring any energy or chemical additives, package treatment systems are based on the principle of purification by exposing them to various physical and chemical processes.

While exposure to noise causes interpersonal communication disorders, it poses a constant risk of hearing impairment and also causes psychological and physical disorders. The 27601 numbered Regulation on the Evaluation of Environmental Noise is aimed to control the noise levels[136].

The change in the complaint applications to Nilüfer Municipality over the years is shown in Figure 128. The number of noise complaints raised increased from 160 in 2017 to 398 in 2021. Necessary evaluations were conducted as a result of the complaints, and measurements were done twice, before and after[137].
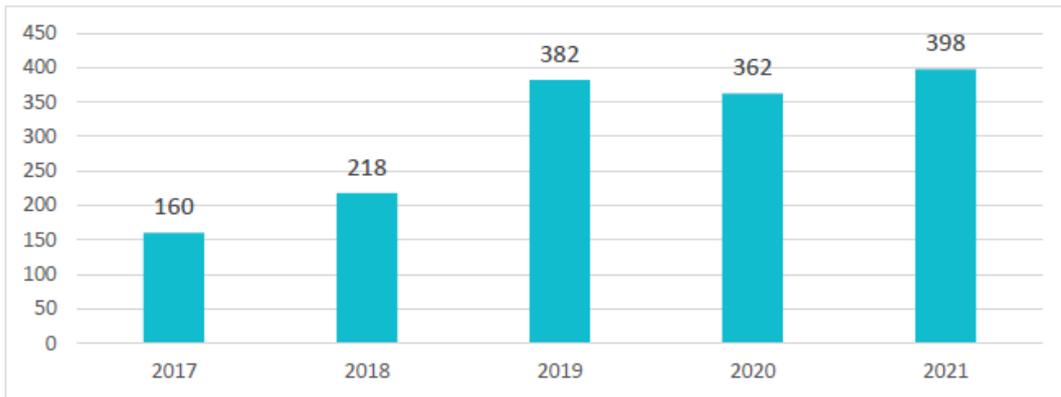
Figure 128. Number of Noise Complaints in Nilüfer[137]

7.5 Open and Green Areas

No universally accepted definition of city green areas has an undisputed impact on health and well-being. City green areas can include untouched green areas left naturally, green areas set close to nature, trees adorning streets, public parks, private gardens, woodlands, children's playgrounds, roadside green areas, riverside paths and beaches[138].

According to the Zoning Regulation for Planned Areas, green areas cover the total of playgrounds, resting, walking, picnic, entertainment, recreation, and recreational areas allocated for the benefit of the society (Metropolitan scale fairgrounds, botanical and animal gardens and regional parks are within the scope of these areas)[139].

Studies on the effects of green areas have increased over the years, and the health effects of city green areas have been systematically revealed. Green areas improve mental health and cognitive functions, reduce deaths due to cardiovascular diseases and the prevalence of diabetes, and positively affect pregnancy. Considering the positive health outcomes of city green areas, the World Health Organization recommends that the amount of green space per person be regulated to be at least 9 square meters, and states that the optimum amount of green space per person should be 50 square meters.

In the report prepared by the Ministry of Environment, Urbanization and Climate of the Republic of Turkiye for the Planning and Budget Committee of the Grand National Assembly of Turkiye in 2020, it was announced that the target for the amount of green space per person in our country is 15 square meters[140].

7.5.1 Public Areas Per Hectare

The change in the space of green areas in Nilüfer is shown in Table 81. According to this, the amount of green space, which used to be 1,252,900 m^2 in 2011, increased to 2,260,740 m^2 in 2021[141].

Table 81. Amount of Green Area by year in Nilüfer (m^2)[141]

Years	Green Area (m²) (Park, Forestation, Grass Areas)
2011	1252900
2012	1286880
2013	1313720
2014	1393480
2015	1468910
2016	1576370
2017	1645180
2018	1744045
2019	1789215
2020	2190614
2021	2260740

The changing amount of green area per person in Nilüfer over the years is shown in Figure 129. The amount of green area per person in Nilüfer in 2021 is 17.62 m2, which is above the minimum recommended by the World Health Organization[142].
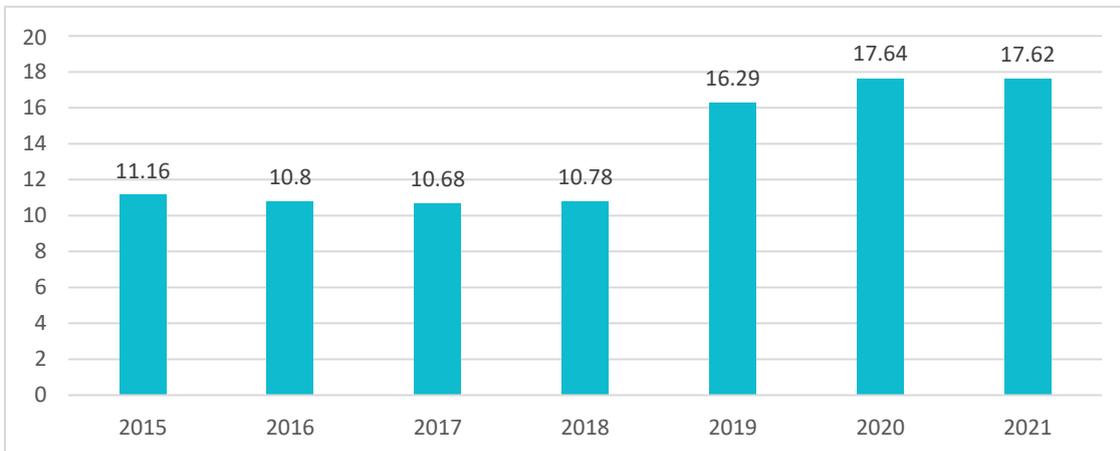
Figure 129. Amount of Green Area Per Person in Nilüfer (m2)[142]

Table 82 shows the distribution of the number of parks, total park area and total park green area amounts by neighborhoods in Nilüfer in 2021. As of 2021, Konak and İhsaniye neighborhoods have the highest number of parks. While Balat Neighborhood has the highest total park area and total park green area[143].

Table 82. Number of Parks, Total Park Area, and Total Park Green Area in 2021[143]

Neighborhoods	Number of Parks	Total Park Area	Total Green Areas in Parks
19 Mayıs	5	14,700	8,910
23 Nisan	6	14,840	6,080
29 Ekim	5	35,560	22,850
30 Ağustos	1	6,120	1,730
Ahmet Yesevi	3	3,530	2,420
Akçalar	4	8,840	5,565
Alaattinbey	3	1,840	930
Altınşehir	9	51,070	18,830
Ataevler	9	86,260	52,050
Balat	6	300,662	287,477
Balkan	7	24,420	15,010
Barış	14	46,260	29,400
Beşevler	19	62,396	36,186
Büyükbalıklı	1	240	-
Cumhuriyet	12	34,450	22,150
Çalı	7	13,825	9,250
Çamlıca	16	93,688	28,540
Çatalağıl	1	240	-
Çaylı	1	240	-
Dağyenice	1	240	-
Demirci	5	7,716	4,055
Doğanköy	2	310	-
Dumlupınar	9	29,830	20,320
Ertuğrul	10	58,520	32,152
Esentepe	12	30,360	18,510
Fethiye	11	36,330	26,370
Gökçeköy	1	240	-
Gölyazı	2	5,240	4,700
Görükle	13	41,130	19,450
Gümüştepe	2	4,250	2,480
Hasanağa	2	1,800	1,150
Işıktepe	2	1,130	610
İhsaniye	28	83,100	50,210
İrfaniye	2	1,240	520
Karacaoba	1	240	-
Karaman	14	28,510	17,130
Kayapa	2	2,330	1,870
Kızılcıklı	1	8,000	6,200
Konak	33	84,870	41,957
Konaklı	2	240	-
Kurtuluş	6	20,050	11,300
Kültür	13	26,470	19,120
Minareliçavuş	6	9,872	3,070
Odunluk	5	22,370	12,320
Özlüce	1	8,625	7,007
Tahtalı	1	240	-
Unçukuru	1	240	-
Üçevler	15	54,159	34,795
Üçpınar	1	240	-
Ürünlü	1	900	510
Yaylacık	1	240	-
Yüzüncüyıl	10	45,700	28,270
Total	**345**	**1,413,913**	**911,454**

7.5.2 Children's Playgrounds

The change in the number of playgrounds between the years 2015-2021 within the borders of Nilüfer is shown in Figure 130. The number of parks and playgrounds, which are critical for the growth and development of children, is 317 by 2021[144].
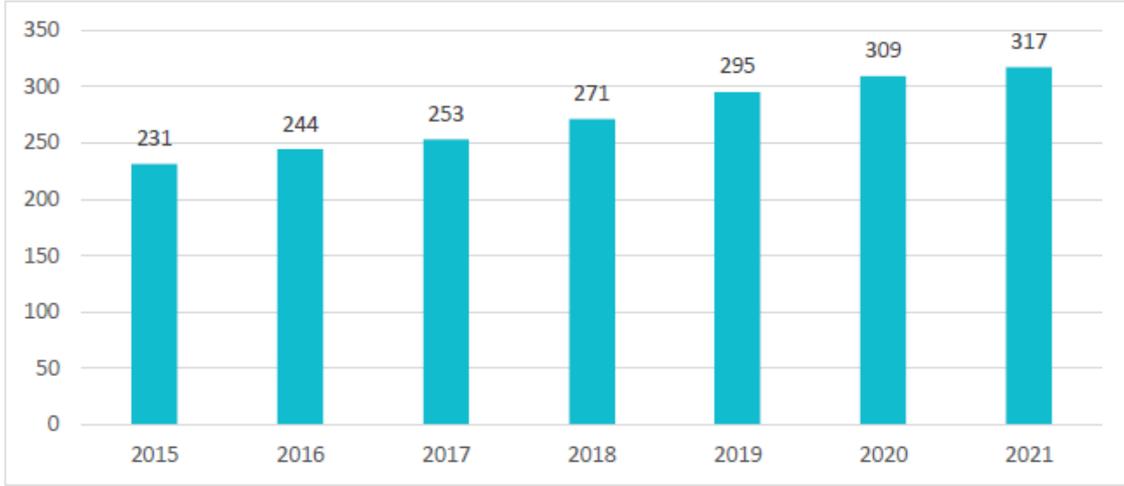
Figure 130. Change in the Number of Children's Parks and Playgrounds in Nilüfer[144]

7.5.3 Running Tracks and Walking Paths

Table 83 shows the total number of running tracks and the distribution of running track lengths by neighborhoods in Nilüfer in 2021. As of 2021, the number of running tracks in Nilüfer Municipality is 111, and the length of the running tracks is 34,744 meters. The neighborhood with the most running tracks is Beşevler with 9 running tracks, while Üçevler Neighborhood has the longest running track with 5 tracks and a track which is 2786 meters[145].

Table 83. Total Number of Running Tracks and Running Track Lengths of Neighborhoods (2021)[145]

Neighborhoods	Number of Paths	Length of the Path	Neighborhoods (continuing)	Number of Paths	Length of the Path
29 Ekim	3	1435	Esentepe	3	685
23 Nisan	4	950	Ertuğrul	4	2001
30 Ağustos	1	200	Fethiye	5	1305
19 Mayıs	2	758	Görükle	7	2049
Ahmet Yesevi	1	97	Işıktepe	1	50
Akçalar	3	592	İhsaniye	7	2151
Alaattinbey	1	132	Karaman	1	664
Altınşehir	4	1641	Kızılcıklı	1	350
Ataevler	5	2075	Konak	6	1678
Balat	2	620	Kurtuluş	6	865
Balkan	1	150	Kültür	4	2620
Barış	2	1118	Minareliçavuş	2	197
Beşevler	9	2182	Odunluk	2	675
Cumhuriyet	4	922	Özlüce	1	325
Çalı	2	320	Üçevler	5	2786
Çamlıca	3	590	Ürünlü	1	170
Demirci	1	156	Yüzüncü Yıl	4	1795
Dumlupınar	3	440	**Total**	**111**	**34744**

7.5.4 Bicycle Paths

The changing bicycle path lengths in Nilüfer over the years are shown in Table 84. The length of the bicycle paths established by the Municipality of Nilüfer is approximately 166 kilometers[144].

Table 84. The Change of the Nilüfer Bicycle Path Lengths (m) Between Neighborhoods Over the Years [144]

	2016	2017	2018	2019	2020	2021
19 Mayıs	3025	4310	4310	4710	4710	4710
23 Nisan	3550	3670	3670	3970	3970	3970
29 Ekim	4060	4060	4060	4060	4215	4215
Ahmet Yesevi	1044	1044	1044	1044	1044	1044
Akçalar	2249	2249	2249	2249	2249	2769
Altınşehir	10190	10190	10190	10190	10270	10270
Ataevler	5920	5920	5920	5920	5324	6364
Balat	3095	5426	5426	5426	5426	5576
Balkan	1450	1450	1450	1450	2650	2650
Barış	1230	1230	1230	1230	1230	1230
Beşevler	1640	1640	1640	1640	1640	1640
Cumhuriyet	3860	3860	3860	3860	3860	3860
Çalı	967	1877	1877	3192	3192	3192
Çamlıca	13745	13745	14020	14020	14020	14020
Demirci	4908	5208	5208	5608	6128	6128
Dumlupınar	10690	11257	11247	11557	11779	12705
Ertuğrul	3450	3450	3450	3450	3450	3450
Esentepe	3860	3860	3860	3860	3980	3980
Fethiye	2990	2990	2990	2990	2990	2990
Gölyazı	632	632	632	632	632	632
Görükle	11310	11730	11730	11730	11880	11880
Gümüştepe	470	470	470	470	470	470
Işıktepe	430	430	430	430	430	430
İhsaniye	4109	4109	4109	4109	4109	4109
Karaman	3170	3170	3170	3170	3170	3170
Kayapa	480	480	480	480	480	480
Kızılcıklı	-	-	-	-	-	971
Konak	6003	6003	6003	6003	6092	6337
Kurtuluş	3720	4820	4820	4820	5340	5340
Kültür	10632	10632	16632	17132	17132	17132
Odunluk	2377	2377	2337	2377	2377	2377
Özlüce	482	482	482	482	542	542
Üçevler	9393	9393	9393	9693	10358	10358
Yüzüncüyıl	7295	7295	7295	7295	7295	7295
Total	142426	149459	155734	159249	163434	166286

7.6 Vector Control

Vector control provides control of living things that carry microorganisms that can cause diseases in humans. The routine vector control program is conducted on mosquitoes and houseflies. The vector control program is formed by periodically carrying out different tasks such as mosquito larvae spraying, the discovery of new vector sources, and spraying trash containers against houseflies[146].

Nilüfer Municipality carries out spraying activities against pests and rodents in open and closed areas in line with the demands of its citizens. Samples taken for fighting against ticks are sent to Uludağ University Veterinary Faculty, Parasitology Department for identifying species, and as a result of the examination, it is determined whether the tick poses a risk for Crimean-Congo Hemorrhagic Fever.

7.7 Animal Hospital, Care and Treatment Center

In 2003, Nilüfer Municipality Animal Care and Treatment Center was established on 7500 square meters of area. In this facility, there are operating rooms, x-ray and examination rooms, a laboratory, delivery rooms, rabies observation and quarantine departments, cat and kitten departments, cat newborn units, heated cages and adoption sections[148]. Along with polyclinic services, the facility also provides care and sheltering for stray animals. After the sterilization and vaccination procedures of stray animals are carried out, they are tried to be rehomed with a family through social media or they are left back in the regions where they were taken. The facility also provides hotel service for animals with owners[148].

Table 85 shows the changes in the services provided and the number of rehoming adoptions at the Nilüfer Municipality Animal Care and Treatment Center in the years 2015-2021. The initiatives of the center have increased over the years, in 2021, 2294 surgical treatments and 2251 internal treatments have been provided, 2265 stray animals have been chipped, 1879 sterilizations have been done, and 711 animals have been rehomed[149].

Table 85. Undertakings of the Nilüfer Municipality Animal Care and Treatment Center[149]

	2015	2016	2017	2018	2019	2020	2021
Number of surgical treatments	1339	1209	991	1389	1576	1809	2294
Number of internal treatments	558	874	947	1242	1378	1488	2251
Number of stray animals with chip	484	911	1060	902	1577	1643	2265
Number of sterilized animals	1283	1818	1378	943	982	1072	1879
Number of homed animals	1280	1364	1514	1019	1131	627	711

Along with the coronavirus pandemic, 72,661 disinfection applications were conducted in the period of March-December 2020, and 40,178 during 2021[150].

7.8 Food Safety

The production, consumption and inspection of foods are conducted in accordance with the 5179 Numbered Law on the Production, Consumption and Inspection of Foods, and the Regulation on the Inspection and Control of Food Safety and Quality, as well as by the Ministry of Agriculture and Rural Affairs (currently, the Ministry of Agriculture and Forestry). Nilüfer Municipality conducts food inspection studies in a limited way in accordance with its authority "to license and supervise non-sanitary establishments and public rest and entertainment places.".

Nilüfer Municipality conducted 144 inspections in 2019, 890 in 2020 and 1351 in 2021[151]. 1243 of 1351 inspections in 2021 were carried out on food production workplaces, other sanitary, and non-sanitary workplaces, and barbers/hairdressers. 232 of these were carried out on barbers/hairdressers, and beauty parlors, and 1119 of them on food and other sanitary and non-sanitary workplaces. 1157 of a total of 1357 inspections were routine, 92 of them were follow-up, and 102 of them were complaint-based and other inspections.

Table 86 shows the 24 business lines with the highest number of inspections and the total number of inspections in Nilüfer during 2019, 2020 and 2021. Conducted inspections include routine, follow-up, complaint-based and other inspections. In 2021, 1119 food and other sanitary and non-sanitary workplaces were inspected in total. 947 of these 1119 inspections were routine, 82 of them were follow-up, and 90 of them were complaint-based and other inspections.

Table 86. Number of Inspections by Food Sectors[151]

Business Type	2019	2020	2021
Aperitives-Fast Food Diner	69	43	82
Buffet	49	16	42
Çiğ Köfte Joint	21	16	28
Turkish İskender Kebab Restaurant	15	-	31
Bakehouse	39	33	41
Grill Restaurant	27	32	48
Public Restaurant	27	16	-
Cafeteria	114	103	76
Coffee House	64	13	20
Butcher	38	-	35
Canteen	75	68	-
Kebab Restaurant	29	17	23
Dried Nut Shop	18	-	21
Diner-Restaurant	74	58	62
Market	96	63	106
Patisserie	17	15	-
Pita Joint	38	21	33
Grocery Store	82	16	81
Supermarket	38	33	23
Delicatessen	29	20	29
Confectioner	18	21	34
Wholesale Food Store	74	-	-
Bakery Products Sales Store	96	27	52
Bakery Products Production Shop	38	20	60

Table 87 includes the distribution of nonconformity detections in workplaces where food inspections have been conducted, according to their causes.

Table 87. Distribution of Nonconformity in Food Workplaces[151]

Audit Headings	2019	2020	2021
Food Safety	88	72	42
Hygiene of Tools-Equipment	37	33	10
Workplace Hygiene	191	129	93
The Personnel Hygiene	2	-	-

7.8.1 Women's Associations of Nilüfer

The Practice Kitchen in the Nilüfer Associations Campus is provided for women's associations in Nilüfer. A food engineer has also been appointed by the municipality for the production of women's associations. In accordance with the necessity of adopting certain rules and principles on personal hygiene, food safety and occupational hygiene during production, Nilüfer Municipality provided training on Food Safety (Food Hygiene and Sanitation), Personal Hygiene and Occupational Hygiene (Industrial Hygiene) to the members of women's associations to participate in the production.

7.8.2 Food Safety in Hasanağa Food Center of Nilüfer Municipality

Nilüfer Municipality Hasanağa Food Center is the first of the food processing and storage centers to set an example. Agricultural products are stored in cold storage, food products are processed, and quality control analyses of every product produced are conducted by the food analysis laboratory of Hasanağa Food Center with approximately 800 m² indoor space. It is aimed to support the production, processing, and storage under appropriate conditions (cold and dry storage) and distribution of food products under hygiene and sanitation conditions within the center.

7.8.3 Food Safety in Producer Markets

4 producer markets are constantly inspected within the scope of food safety studies. The tags and identity plates used by the producers are on the stalls of the producer markets. Necessary controls are carried out in every producer market in accordance with the statement in the Specifications of Nilüfer Municipality Producer Markets indicating that "Producers selling milk and dairy products must sell their products in the fridge at +4 °C to protect consumer health and food safety.".

7.8.4 Exemplary Workplace Project

"Exemplary Workplace Certificate" is given to workplaces that constantly receive the appropriate report in all inspections and work with high-quality and cleanliness awareness in accordance with the standards to ensure that citizens do not worry about food safety while purchasing food. In 2021, 2 workplaces were entitled to receive Exemplary Workplace Certificate.

7.9 Waste Management

With the rapid increase in population, increasing urbanization, and changing lifestyle and consumption habits, solid wastes have become an important environmental

problem and today, the management and disposal of solid wastes have become important.

Solid waste management planning is extremely important for cities with high urbanization rates and industries, such as Nilüfer.

The management and disposal of domestic wastes are regulated by the 29314 numbered Waste Management Regulation issued by the Ministry of Environment and Urbanization in 2015[152]. The collection of domestic solid waste and the transfer and disposal of collected domestic waste in the municipality is carried out by the Municipality of Nilüfer[153].

If the waste composition of Bursa is considered for 2019 (Figure 131), it is seen that 81% is organic waste and 10% is paper[154].
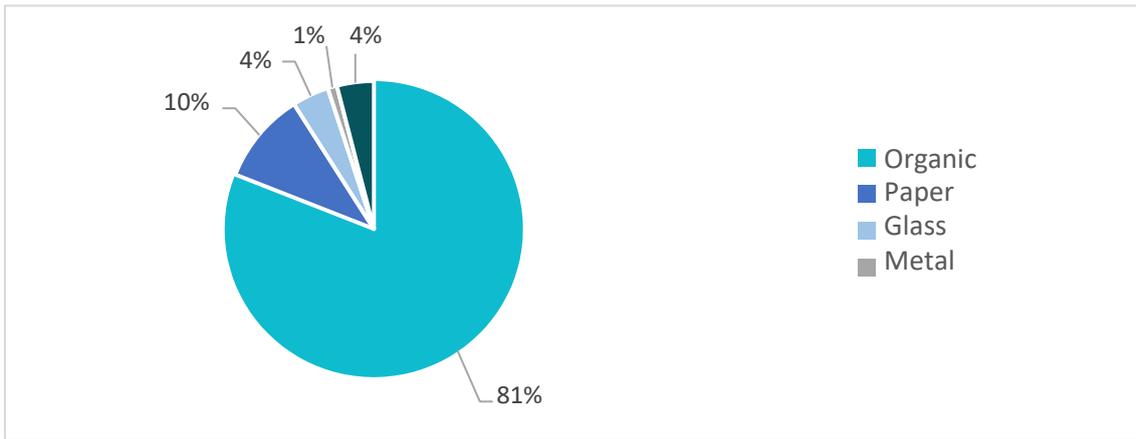
Figure 131. Solid Waste Composition in Bursa Province as of 2019[154]

The waste records of three big central districts are presented in Table 88.

Table 88. Change of Waste Production Amounts of Three Central Municipalities[155]

	Domestic Waste Amount (ton)		
	Nilüfer	Osmangazi	Yıldırım
2015	121236.2	274123	-
2016	130838.3	288266	191482.6
2017	141686.8	-	-
2018	146998.4	-	-
2019	140465.6	280000	-
2020	144992.9	272000	-
2021	152193.1	-	197403

Nilüfer Municipality has begun implementing underground containers to prevent messing of garbage by stray animals and the leakage of liquid substances (litter leachate) in domestic wastes, causing harm to human health and nature by spreading unpleasant odor and bacteria to the environment. As of 2021, 878 underground containers are actively used in the district. There are also 30,000 400 l galvanized containers, 3,000 plastic buckets of citizens in various sizes and 2500 wastebaskets within the municipality[156].

7.10   Recycling Project

The basis for effective waste management is to collect recyclable materials separately at the source. In this way, regular landfills will be made, the volume of garbage will be reduced, and the life of the landfills will be extended. According to the data of TURKSTAT, 32,209,222 tons of waste were produced in our country in 2018. 6,520,657 tons of this waste were sent to municipal dumps, 21,643,796 tons were sent to landfills, and 3,970,889 tons were sent to recycling facilities[157].

According to the data of TURKSTAT for 2020, 1,078,245 tons of waste were produced in Bursa; 19,210 tons of this waste were sent to the municipal dump, 1,078,245 tons of it were sent to the sanitary landfill facilities, and 69,591 tons were sent to the recycling facilities[157].

Recyclable wastes have been collected by Nilüfer Municipality since 1995. Recyclable waste collection is carried out by the 30283 Numbered Regulation on Control of Packaging Wastes and the 30829 Numbered Regulation on Zero Waste. Waste recycling collection services cannot be provided to industrial and organized industrial zones in Nilüfer, as they are outside the regulation.

Recyclable wastes are collected in color bags determined in accordance with the legislation, collected by the Packaging Waste Collection Vehicles of Nilüfer Municipality and empty bags are left as much as the number of full bags. Packaging wastes are collected once a week from central areas in Nilüfer, and once every 15 days from rural areas. In Nilüfer, 12,582 recycling bins were delivered to the citizens in 2019, 7,725 in 2020 and 5,773 in 2021.

The amount of waste recycled in Nilüfer Municipality in 2021 is 8,634.2 tons [158]. Waste recycling amounts of the three big districts between 2015 and 2021 are presented in Table 89.

Table 89. Waste Recovery Amounts in Three Big Central Districts (tons)[158]

	Recovery Amount (ton)		
	Nilüfer	Osmangazi (Package)	Yıldırım
2015	11275.2	7475	-
2016	13240.8	16269	22536
2017	14783.2	-	24739
2018	9838.7	11000	24197
2019	7478.8	3167	-
2020	11946.8	3752	28276
2021	8634.2	-	7810

The concept of waste recycling refers to using existing wastes as raw materials after physical and chemical treatment. Recycling is reusing existing wastes without any treatment[159]. According to the records of Nilüfer Municipality Environmental Protection and Control Directorate in 2021, 8,633 tons of waste was recycled[160]. The changing amounts of recycling in Nilüfer between the years 2015-2021 are shown in Figure 132.
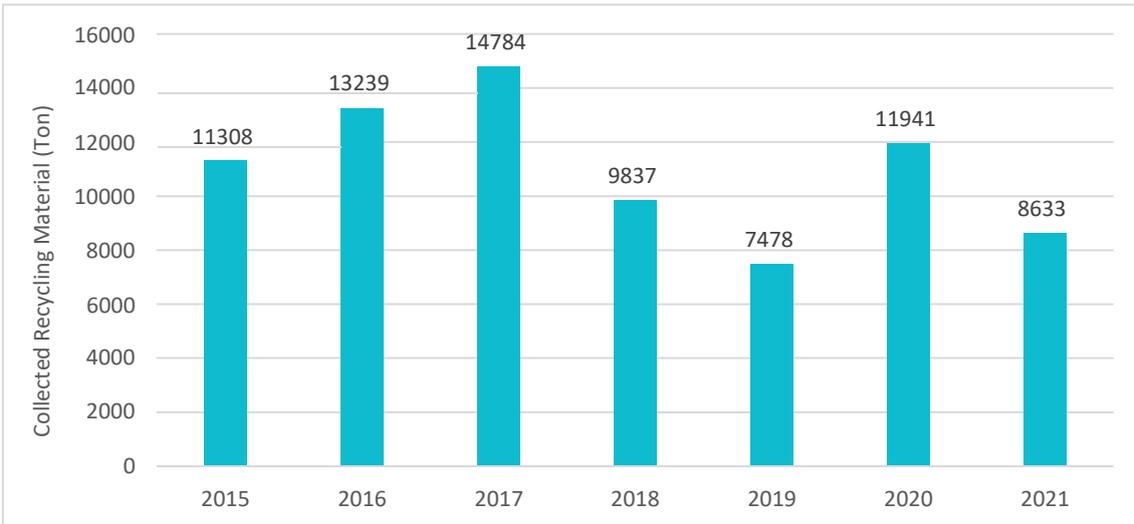
Figure 132. Change of Recycling Materials Collected in Nilüfer (ton)[160]

Within the scope of Zero Waste Regulation, Nilüfer Municipality applied to Bursa Provincial Directorate of Environment, Urbanization and Climate Change for a 1st Class Waste Retrieval Center and this application was approved. District residents have started to bring their recyclable wastes to the Waste Retrieval Center since January 2021. A 10% contribution was made to the process of segregating and collecting the wastes of the 1st Class Waste Retrieval Center.

Waste drugs throughout the district are collected once a month from 41 pharmacies determined by the Bursa Chamber of Pharmacists by a contracted firm of Nilüfer Municipality with an environmental permit and a license and sent for final disposal. In 2021, a total of 3,380 kg of waste medicine was collected and 322 kg of this was collected from the Waste Retrieval Center.

The change in the number of people trained and informed about recycling in Nilüfer between 2015 and 2021 is shown in Figure 133. In Nilüfer, 8700 people in 2020 and 5773 people in 2021 were trained and provided information on recycling[161].
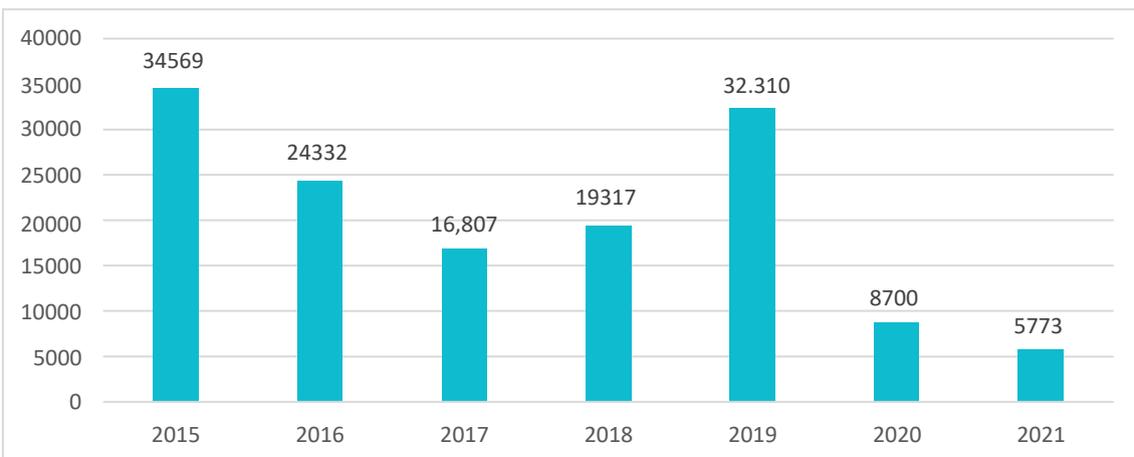
Figure 133. Persons Providing Training and Information on Recycling in Nilüfer[161]

7.11 Waste Battery Project

Batteries are controlled from production to disposal in accordance with the Regulation on Control of Waste Batteries and Accumulators[162]. Batteries that became waste should be delivered to temporary storage, recycling, or disposal facilities in order not to cause harm to human and environmental health when they become waste. Municipalities do not dispose of batteries in landfills together with other solid wastes but inspect facilities that undertake battery disposal[163].

The change in the number of waste batteries collected by Nilüfer Municipality between 2015 and 2021 is shown in Figure 134. Nilüfer Municipality has implemented projects such as a battery collection competition in schools and a battery collection competition between neighborhood administrations (mukhtars) for the collection and disposal of waste batteries. The municipality uses a recycling system that provides access to all municipal borders once a week to collect more quickly and continuously[163]. In 2021, 410 kg of waste batteries were collected[164].
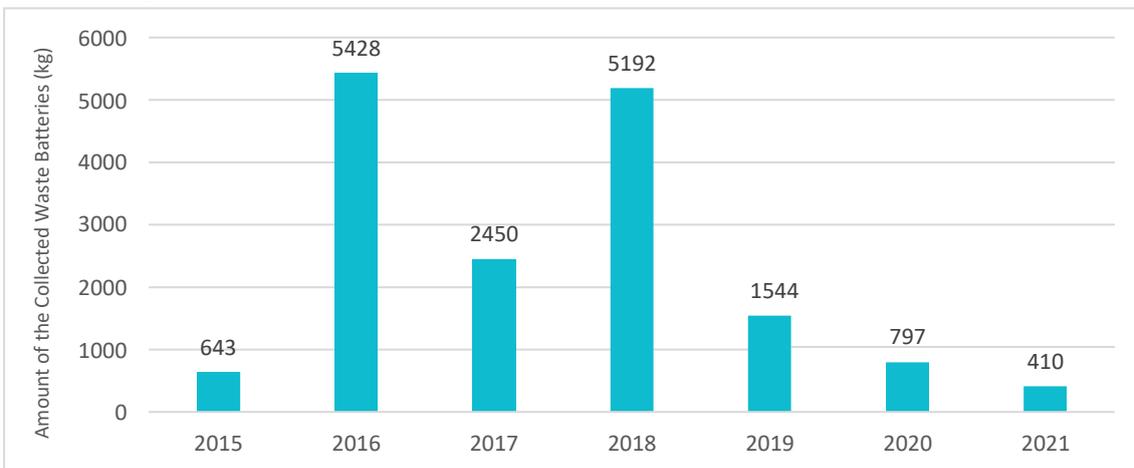
Figure 134. Amount of Waste Batteries Collected in Nilüfer

7.12 Emergency Management

The number and frequency of disasters, as well as the socio-economic damage they cause, have increased exponentially in recent years. The most effective way to manage these losses is to adopt a risk-oriented approach rather than an intervention-oriented one. At this point, Provincial Disaster Risk Reduction Plans appear as effective tools for reducing disaster risks. Provincial Disaster Risk Reduction Plans aim to establish a safe living environment in cities, reduce the loss of life and property due to disasters, and increase inter-sectoral cooperation[165].

The Disaster Response Plan of Turkiye has been put into force with the 2015/7 numbered and 08.09.2015 dated Directive to ensure disaster and emergency management, order and coordination. In accordance with this context, Bursa Disaster Response Plan (BDRP) was prepared, and the services to be carried out in this context and the institutions and organizations responsible for these services have been determined[165]. The local-level response organization chart of the Bursa Disaster Response Plan is given in Figure 135.

Figure 135. Bursa Disaster Response Plan Local Level Response Organization Chart[165]

Within the scope of the Disaster Response Plan of Turkiye, a desk-based exercise is held every year in the provincial DEMP group, and a regional field exercise is held since Bursa is the regional center. There is currently a siren system in the province, and it is in service. The persons responsible for the Provincial Disaster and Emergency Directorate in the province are the governor and the deputy governor[165]. 538 of 880 assembly areas determined in the Bursa Provincial Disaster Response Plan are located within the borders of Nilüfer[165].

Nilüfer Disaster and Emergency Management Center tries to prepare the city for disasters with Earthquake Precursor Signs Monitoring and Prediction Stations, disaster containers in neighborhoods, Disaster Information System, and training activities[166].

The change in the number of people provided civil defense, earthquake, fire and basic disaster awareness training for external stakeholders by Nilüfer Municipality is shown in Figure 136.
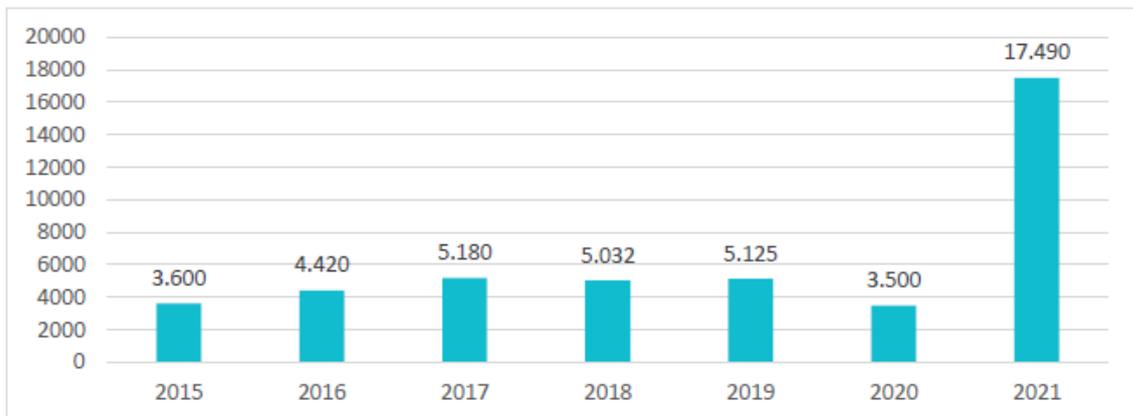
Figure 136. Number of Persons Provided with Civil Defense, Earthquake, Fire and Basic Disaster Awareness Training for External Stakeholders by Nilüfer Municipality[167]

Nilüfer Municipality carries out an Earthquake Prediction Project with Earthquake Precursor Signals Monitoring and Forecasting Stations. The aim of the Earthquake Precursor Signals Monitoring Stations installed on the Nilüfer section of the main fault line in Bursa is to detect the earthquake signals with the changes in measurable parameters before the earthquake occurs and to minimize the damage. As seen in Table 90, there are 22 Earthquake Precursor Signals Monitoring Stations operating in Nilüfer[79].

Table 90. Earthquake Precursor Signal Monitoring Stations in Nilüfer[79]

Earthquake Precursor Signal Monitoring Stations			
Akçalar	Çalı	Hasanağa	Kültür
Alaaddinbey	Dağyenice	Karaman	Özlüce
Atlas	Fadıllı-1	Kayapa-1	Unçukuru
Badırga	Fadıllı-2	Kayapa-2	Ürünlü
Balat	Fethiye	City Forest	
Balkan	Gölyazı	Kuruçeşme	

Nilüfer Municipality has placed disaster containers in various parts of the city to meet the urgent needs of citizens in case of a possible disaster. The equipment to be used after the earthquake is kept ready in the disaster containers placed near the cabstands in densely populated neighborhoods. The change in the number of disaster containers within the borders of Nilüfer between 2015 and 2021 is as in Figure 137 and there are disaster containers in 28 neighborhoods as of 2021[168].
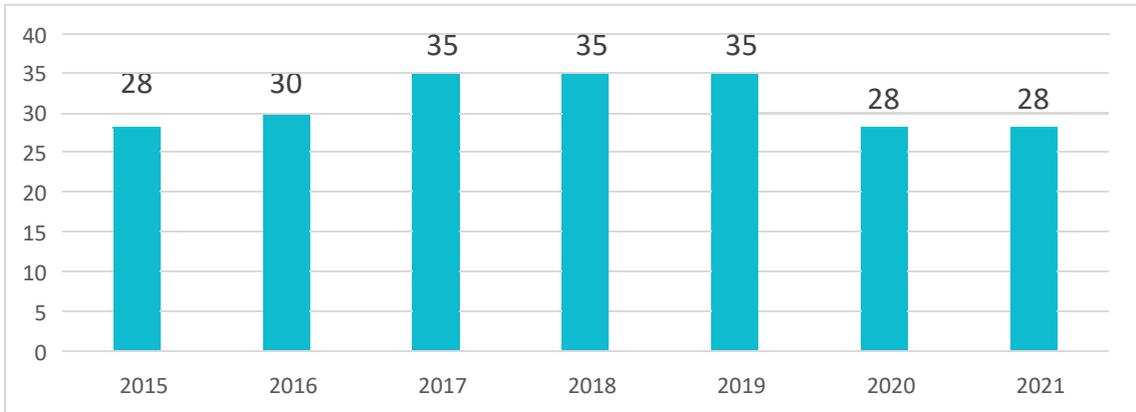
Figure 137. Change in Total Number of Disaster Containers Placed in Neighborhoods[168]

The civil defense organization (NAK Search and Rescue), which continues its activities within the scope of disaster relief in Nilüfer, took an active role in 232 missing person incidents, 78 traffic accidents, 56 fires and 53 drownings[169].

After the World Health Organization declared "the International Public Health Emergency" on January 30, 2020, regarding the COVID-19 disease, Nilüfer Municipality held a conference on the disease, the extent of the pandemic that it may cause and ways to protect it on March 1, 2020. Then a crisis desk was established after the first case in our country on March 11, 2020, and public health activities began[170].

With the recommendations of scientists, events such as concerts, cinemas, theaters, exhibitions, openings, courses, and workshops where people were supposed to come together were cancelled and the reader sections of libraries, museums and women and children academics were also closed on the same reason until a later date. Measures for using hand antiseptics at the entrances and exits of the municipality building have been developed and during the first months of the pandemic, fever measurements were done at the building entrances and the citizens with a fever above 37.3^{o}C were directed to health institutions[170].

Nilüfer Municipality Occupational Health and Safety Unit prepared the COVID-19 Emergency Action Plan and put it into practice on March 27, 2020. Duties, authorities, and responsibilities are defined in this plan to minimize the loss of life and prevent the environment from being adversely affected. Cleaning and hygiene rules that must be followed in public vehicles, in and out of work and workplaces, cafeterias, meetings, training and rest areas have been defined to prevent the pandemic. The guidelines for collecting and disposing of COVID-19 wastes were established on May 11, 2020, and inspections were conducted in accordance with the published circulars on arranging working environments in accordance with the pandemic[170].

As of March 13, 2020, disinfection activities have been carried out in public spaces in cooperation with the Veterinary Advanced Directorate and the Cleaning Affairs Directorate. Masks, as the most effective way to protect against the disease and compulsory to use, started to be distributed free of charge, especially to healthcare personnel. After the ban to sell masks on April 6, 2020, the mask production workshop was launched, and production was arranged in accordance with the opinions of the Chamber of Textile Engineers and Bursa Medical Chamber[170].

Citizens who need transportation to health institutions or from health institutions to their homes were provided with transportation regardless of weekends or public holidays; services were provided to citizens who could not do personal care or house cleaning due to old age, loneliness, or illness. Accommodation services were provided to 1528 healthcare workers between April 10-July 29, 2020. Psychological support was provided by psychologists on duty every weekday for citizens with anxiety disorders to reach the support they seek during the pandemic. Funeral and burial services continued uninterrupted[170].

In accordance with the decisions of the Bursa Provincial Hygiene Board, inspections were conducted in the producer markets with the high crowd, and it was regularly inspected whether public entertainment venues such as theaters, movie theaters, performance centers, coffee houses, cafeterias and country gardens were closed. 7478 workplace-based audits were carried out between 11 March and 30 September[170].

8. Physical and Social Infrastructure

8.1 Transportation

There is no intercity railroad in Bursa, and air and sea transportation are also limited. Bursa highways, which serve as a junction in transportation to Istanbul, Izmir, and Ankara, have been carrying out this task since the Ottoman Period[171]. As of 2020, there are 120,486.31 meters of stabilized roads, 845,828.22 meters of asphalt roads, and 86,128,78 meters of hardwood roads in Nilüfer[144]. The length changes of stabilized roads, cold asphalt roads and parquet roads in Nilüfer between 2015-2021 are presented in Table 91.

Table 91. Change of Stabilized Road, Cold Asphalt Road and Parquet Road Lengths Between 2015-2021[144]

	Stabilized Roads (m)	Asphalt Roads (m)	Parquet Roads (m)
2015	134825.34	726788.33	88415.91
2016	134825.34	767377.89	86238.43
2017	140809.30	779673.59	86269.88
2018	140836.25	789278.82	86092.24
2019	137178.01	805969.76	85313.16
2020	116894.29	838386.61	85960.56
2021	120486.31	845828.22	86128.78

8.1.1 Transportation Systems

Within the city limits of Nilüfer, public transportation services are provided through buses, microbuses, minibuses, and light rail system vehicles. There are 30 public transportation lines completely within the district, and 43 public transportation lines, some of which are within the district (minibus lines are not included in these lines.)[172].

The passenger entrance changes of the metro stations in the district between 2015-2021 are presented in Table 92.

Table 92. Number of Passenger Entries of Stations by year[172]

Subway Stations	2015	2016	2017	2018	2019	2020	2021
Üniversite	3821046	4080181	4262364	4708342	5220288	2561444	3390398
Batıkent	482672	461134	502651	594343	661664	289176	430979
Yüzüncüyıl	1291153	1347869	1360718	1440798	1607455	799516	1008006
Özlüce/29 Ekim	937010	988112	1124747	1255204	1377235	803276	955526
Ertuğrul	1691356	1715895	1800919	1867536	1950968	957937	1198663
Altınşehir	341596	343791	352343	333120	379304	228778	275146
Küçük Sanayi	2828551	2582768	2943196	2905870	2977094	1990655	2462500
Ataevler	902180	926468	1064026	1280390	1408394	850670	1119697
Beşevler	1403265	1407782	1486769	1521075	1480731	811037	1024811
Fatih Sultan Mehmet	1902066	1862504	1925411	1984612	2029397	1145350	1452241
Nilüfer	3472279	3314231	3536618	3755076	3902661	2161232	2616855
Odunluk	0	0	0	0	0	0	338354
Emek	3208949	3257854	3579898	3728443	4112909	2326670	2685435
Korupark	2377293	1957079	2415193	2463793	2425007	1407389	1645922
Organize Sanayi	1467204	1433395	1455763	1464042	1500280	886322	1002793
Hamitler/Fethiye	1460170	1455836	1530979	1558159	1546894	879416	1045450
Bağlarbaşı/Esentepe	2162246	2165030	2273847	2388766	2488507	1467088	1735472
İhsaniye	1308860	1258539	1283212	1326204	1349190	762828	689233
Karaman	1719309	2021923	1668388	1768970	1797020	1028287	1103928

8.1.2   Vehicle Ownership

The change in the number of vehicles in Bursa between the years 2015-2021 is presented in Table 93. The number of vehicles in Bursa, which used to be 732,651 in 2015, reached 1,000,851 as of 2021. As of 2021, automobiles account for almost half of the total number of vehicles[173].

Table 93. Change in Number of Motor Vehicles Over the Years (Bursa)[173]

Years	2015	2016	2017	2018	2019	2020	2021
Minibus	12432	13351	14173	14735	15027	15611	15622
Automobile	398668	436504	473250	496501	508805	536091	565707
Bus	9046	8937	8734	8482	8126	8111	7856
Small Lorry	142497	151536	161616	167849	170626	177319	186426
Truck	25771	27131	27976	28229	28556	29016	29845
Motorcycle	84332	88351	93179	98188	104002	112435	122475
Special-Purpose Vehicles	1513	1679	1915	2051	2142	2371	2774
Tractor	58392	60888	63143	64635	65697	67514	70146
Total	732651	788377	843986	880670	902981	948468	1000851

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*Emek, Korupark and Organize Sanayi are the central junction stations of Hamitler/Fethiye, Bağlarbaşı/Esentepe, İhsaniye, Karaman Osmangazi and Nilüfer.

The change in the number of vehicles per thousand people in Bursa between the years 2015-2021 is shown in Table 94.

Table 94. Change in the Number of Motor Vehicles Per Thousand Over the Years (Bursa)[173]

Years	2015	2016	2017	2018	2019	2020	2021
Minibus	4.37	4.60	4.83	4.92	4.92	5.03	4.96
Automobile	140.25	150.45	161.14	165.80	166.49	172.83	179.71
Bus	3.18	3.08	2.97	2.83	2.66	2.61	2.50
Small Lorry	50.13	52.23	55.03	56.05	55.83	57.17	59.22
Truck	9.07	9.35	9.53	9.43	9.34	9.35	9.48
Motorcycle	29.67	30.45	31.73	32.79	34.03	36.25	38.91
Tractor	20.54	20.99	21.50	21.58	21.50	21.77	22.28
Total	257.74	271.72	287.38	294.09	295.47	305.78	317.95

The change in the number of vehicle registrations among districts in Bursa between 2013 and 2017 is presented in Table 95. According to the information of the Bursa Traffic Registration Branch Directorate, 156,881 vehicles were registered in Nilüfer in 2017. The number of existing registered vehicles has increased by 50% since 2013[174].

Table 95. Change in the Number of Vehicle Registrations Between Districts over the Years[174]

	2013	2014	2015	2016	2017
Nilüfer	105553	116092	129944	144875	156881
Yıldırım	87707	93857	101629	110091	117690
Gemlik	23252	25497	26295	28301	30141
Mudanya	15787	16500	19884	22167	24174
Kestel	9428	10326	11462	12630	13831
Gürsu	6175	9317	10398	11534	12798
İnegöl	49912	53493	57529	61712	66451
Mustafakemalpaşa	30458	32128	33917	35724	37368
Yenişehir	16596	17448	18475	19378	20366
İznik	14496	15189	16047	16963	17794
Orhangazi	18322	19381	20663	22197	23633
Karacabey	24155	25293	26641	28077	29295
Orhaneli	8789	8850	8968	9274	9604
Keles	2175	2276	2420	2604	2739

8.1.3   Satisfaction of the Citizens with the Public Transport System

In 2016, BMTA conducted a survey in Bursa to determine the deficiencies in city transportation services from the perspective of the passengers and to determine their satisfaction with transportation services. Both female and male participants stated that the most dissatisfying issue during transportation was the attitudes and behaviors of the drivers[175].

8.1.4   Number of Traffic Accidents with Injury or Death in City Area

According to the data of the Turkish Statistical Institute, there were 1,186,353 traffic accidents in our country in 2021, and 187,963 of these accidents are traffic accidents with death or injury. In 2021, 274,615 people were injured in traffic accidents, 2421 people died at the accident site and 2941 after the accident.

The change in the number of deaths and injuries due to traffic accidents in Bursa between the years 2015-2021 is presented in Table 96. In 2021, 6681 traffic accidents with death and injury occurred in Bursa, 9433 people were injured and 134 people died in these accidents. There were 2997 traffic accident injuries and 134 deaths per million population. The number of injuries per million vehicles is 9425 and the number of deaths is 134. Although the number of injuries due to traffic accidents has not changed much over the years, the number of injuries and deaths per million population has decreased if population growth is considered[176].

Table 96. Changes in the Number of Traffic Accidents, Accident-Related Deaths and Injuries over the Years in Bursa[176]

	2015	2016	2017	2018	2019	2020	2021
Traffic accident with injury-death	6172	6633	6480	6602	6392	5418	6681
Number of traffic accidents per million population	2171	2286	2206	2205	2205	2092	1747
Number of deaths in traffic accidents	204	212	213	153	133	119	134
Number of deaths per million population	72	73	73	51	44	38	43
Number of deaths per million vehicles	278	269	252	174	147	125	134
Number of deaths per million automobiles	512	486	450	308	261	222	237
Number of injured in traffic accidents	9760	10259	9954	10160	9847	7793	9433
Number of injured per million population	3434	3536	3389	3393	3222	2512	2997
Number of injured per million vehicles	13321	13013	11794	11537	10905	8216	9425
Number of injured per million automobiles	24482	23503	21033	20463	19353	14537	16675

9. Inequalities

Managers and policymakers have often sought to accept or change the consequences of inequalities rather than studying the causes. This situation has caused the problem of inequality, which has been systematically introduced since the 19th century, to remain a problem that we still have to deal with actively today[177].

The Constitution of the World Health Organization was signed on July 22, 1946, and access to health services has been defined as one of the fundamental rights for every human being, regardless of race, religion, political belief, economic or social status[178]. The 25th Article of the Universal Declaration of Human Rights, signed in 1948, mentioned the adequate living standards that everyone should have, such as nutrition, clothing, housing, and medical care, for the health and well-being of a person and his/her family[179].

Today, inequalities appear as the biggest reason for the limits for accessing to health services. Inequalities in health are not due to natural but social causes. They are preventable because they have an effect for social reasons, and unacceptable because they are preventable. They must be addressed, studied, and fought on a social basis.

Although the socioeconomic development difference between regions and provinces has existed throughout history, it has been extensively discussed in the international literature and it is one of the most important issues examined by researchers in our country since the 1960s[181]. An example of this study was carried out in Nilüfer, and in this study, the social determinants of health inequalities were examined. Education, employment status, ownership of a good home, vehicle ownership, income status and savings differ in city and rural areas, and outputs were found to be much better in city areas. It has been shown that people living in city areas with better socioeconomic outcomes feel much healthier[182].

Socioeconomics is a branch of science that deals with the impact of economic activities on social processes. While socioeconomic development is the presentation and analysis of the local, regional, or global situations of societies with their economic and social aspects[183].

Socio-Economic Development Ranking (SEDR) Studies are one of the leading studies for monitoring and evaluating regional development policies in our country. In the studies, the development levels of Level-2 regions, provinces and districts are analyzed with statistical techniques by using variables that measure socio-economic development, and the development ranking of these units is revealed. District SEDR Studies have been carried out in 1966, 1981, 1985, 1996, 2004, 2017 and 2022.

District SEDR-2017 study revealed the ranking of 970 districts. With this study, Bursa central districts were evaluated separately for the first time, and in previous studies, the central districts of metropolitan cities were considered as a single district and included in the analysis. In the district SEDR-2017 study, 32 variables representing socio-economic development, consisting of input and output variables, with data quality evaluated as sufficient, were used. The variables are divided into eight groups demographic, employment, education, health, competitive and innovative capacity, finance, accessibility, and quality of life. As a result of the analysis, district index scores were determined, and districts were divided into 6 development levels according to score breakdowns. If we consider the distribution of districts divided according to six development levels, there are 56 districts in the first level, 173 districts in the second level, 229 districts in the third level, 205 districts in the fourth level, 197 districts in the fifth level and 110 districts in the sixth level[185].

In the district SEDR-2022 study, the socioeconomic development level of 973 districts was tried to be revealed, therefore, 56 variables were used, including demographics, employment and social security, education, health, finance, competitiveness, innovation, and quality of life. As a result of the analysis, district index scores were determined, and districts were divided into 6 development levels according to score breakdowns. If we consider the distribution of districts divided according to six development levels, there are 67 districts in the first level, 173 districts in the second level, 175 districts in the third level, 215 districts in the fourth level, 222 districts in the fifth level and 121 districts in the sixth level[186].

Nilüfer, which ranked 9th in the District Socio-Economic Development Ranking (SEDR) Survey in 2017, received a total score of 3,349185, and in the District Socio-Economic Development Ranking (SEDR) Survey conducted in 2022, it increased its total score to 4,072 and ranked eighth[186]. The change in the top ten districts in 2017 and 2022 is presented in Table 97[186].

Table 97. Change in Socio-Economic Development Rankings (SEDR) of Nilüfer from in 2017 and 2022[185] [186]

Ranking	District SEDR-2017		District SEDR-2022	
	Province	District	Province	District
1	Istanbul	Şişli	Istanbul	Şişli
2	Istanbul	Beşiktaş	Ankara	Çankaya
3	Ankara	Çankaya	Istanbul	Beşiktaş
4	Istanbul	Kadıköy	Istanbul	Kadıköy
5	Istanbul	Bakırköy	Ankara	Yenimahalle
6	İzmir	Konak	Istanbul	Bakırköy
7	Ankara	Altındağ	Istanbul	Fatih
8	Istanbul	Fatih	**Bursa**	**Nilüfer**
9	**Bursa**	**Nilüfer**	Istanbul	Ataşehir
10	Gaziantep	Şehitkamil	Istanbul	Başakşehir

The human development or human development approach focuses on improving human life, providing people more freedom and opportunity to live the life they value, and the human development index is used as a way to measure actual progress in human development.

The Human Development Report, published by the United Nations in 1990, introduced a new approach to improving the level of welfare[187].

The concept of human development, with a talent and competence approach at its focal point, is about gaining the ability and competence to enable individuals to shape their lives in a way that will provide the highest satisfaction for them and provide more freedom and opportunities for people to live the life they desire[188].

In our country, the human development index study at the district level was carried out for the first time in 2017 by the Human Development Foundation. In the study called Human Development Index-Districts (HDI-D), published in January 2017, 150 districts are included. The study consists of 50 variables grouped under 7 main categories as governance, social inclusion, economic situation, education, health, social life, municipal environmental performance and transportation[189]. 161 districts were covered in the HDI-D study published for the second time in March 2018, and 52 variables were included in 7 main categories as governance, social inclusion, economic situation, education, health, social life, municipal environmental performance and transportation[190]. In the 3rd HDI-D study published in April 2021, 138 districts were covered, and 228 variables were included in 9 main categories under the titles of governance and transparency, social inclusion, economic situation, education, health, social life, environmental performance, transportation and accessibility, and gender equality[191].

The ranking of the top ten districts in the Human Development Index-Districts study in 2017, 2018 and 2020 is presented in Table 98. Nilüfer, ranked 6th with 0.511 points in the HDI-D study in 2017, which was composed of the social inclusion index, economic situation index, health index, and municipal environmental index, formed by compiling the activities in the family, children, elderly, young people, sick people, women, and refugee categories, were below the average in the performance and transportation indexes [189]. Nilüfer, which ranked 6th with 0.511 points in the HDI-D study in 2018, which was formed by compiling the activities in the family, children, elderly, young people, sick people, women, and refugee categories, were below the average in the social inclusion index, economic situation index and social life index[190]. Nilüfer, which ranked 8th with 55.4 points in the HDI-D study in 2020, which was formed by compiling the activities in the family, children, elderly, young people, sick people, women and refugee categories, were below the average in the social inclusion index, economic situation index, environmental performance index covering the environment and disaster oriented activities of municipalities as well as their activities regarding stray animals and social gender index[191]. Although there was a slight increase in the governance and transparency index from 2018 to 2020, Nilüfer showed a downward trend in all the remaining indexes and fell to the eighth rank in 2020[190,191].

Table 98. Change in the Human Development Index of Nilüfer in 2017, 2018 and 2020[189] [190] [191]

Ranking	HDI-D 2017		HDI-D 2018		HDI-D 2020	
	Province	District	Province	District	Province	District
1	Ankara	Çankaya	Istanbul	Beşiktaş	Istanbul	Kadıköy
2	Istanbul	Kadıköy	Istanbul	Kadıköy	Istanbul	Beşiktaş
3	Istanbul	Beşiktaş	Ankara	Çankaya	Ankara	Çankaya
4	Antalya	Muratpaşa	Istanbul	Şişli	Istanbul	Şişli
5	Eskişehir	Odunpazarı	**Bursa**	**Nilüfer**	Istanbul	Bakırköy
6	**Bursa**	**Nilüfer**	Antalya	Muratpaşa	Istanbul	Sarıyer
7	Ankara	Yenimahalle	İzmir	Karşıyaka	İzmir	Karşıyaka
8	Kocaeli	İzmit	Eskişehir	Tepebaşı	**Bursa**	**Nilüfer**
9	Istanbul	Beyoğlu	Istanbul	Bakırköy	Antalya	Muratpaşa
10	Istanbul	Bakırköy	Istanbul	Maltepe	Istanbul	Üsküdar

The roles and obligations imposed on men and women by the society they live in are called gender. Gender roles vary in different parts of societies, from society to society and over time. Policies carried out nationally and internationally feed inequality between individuals, and in this, the environment of inequality, women fall into a position that is less healthy, less educated, less involved in the workforce, and working in jobs that generate less income[192].

Various studies to reveal gender inequality between countries and regions are carried out. These studies aim to reveal transparently the social situations such as violence, access to education, political participation, and employment level, which are unevenly distributed among different geographical parts within the country. The study, which examines gender inequality between the districts in our country, was published by the We Are with You (Yanındayız) Association in 2020. 234 districts in 81 provinces with a population over 100,000 were included in the study. 27 indicators that are accessible at the district level were included in the research, and these indicators were examined in four dimensions: political participation and decision-making, education, economic life and access to resources, and sports. District scores included in the index are calculated by multiplying the number of women in the determined indicators by 100 after dividing by the number of men[193].

According to the District Level Gender Inequality Index, the calculated gender inequality score of the Nilüfer is 70, and the district takes the 15th place among 234 districts for which the index is calculated[193]. The inequality score and the score representation of Nilüfer from its sub-dimensions are shown in Figure 138.

İl / İlçe İsmi City / District Name	Ana Endeks Skoru Main Index Score	İlçe Sıralaması District Rank
Bursa / Nilüfer	**70**/100	**15**/234

Endeksler Indexes	Skor Score	Sıralama Rank
Politik Katılım ve Karar Alma Political Participation and Decision Making	41	10
Eğitim Education	91	49
Ekonomik Hayat ve Kaynaklara Erişim Economic Life and Access to Resources	47	41
Sağlık ve Spor Health and Sport	101	165

Figure 138. Nilüfer Gender Inequality Survey Score Diagram[193]

Nilüfer is the municipality that established the first Equality Unit in Turkiye, and it continues its activities. Nilüfer Municipality, which first creates awareness of gender equality in its employees, has added gender equality to its urbanization policy to cover all sexual orientations and regulated its policies to create an equal Nilüfer. Activities are carried out within the municipality to raise awareness to create an egalitarian perspective and to make gender equality an important driving force of the social development process. Nilüfer Municipality Equality Unit aims to create social awareness, produce studies that will ensure the spread of the understanding of equality in society, fight against all forms of violence and advocate with a rights-based perspective. The Women's Solidarity Center and Social Equality Center also work within the structure of the Nilüfer Municipality Equality Unit.

BIBLIOGRAPHY

1.   The WHO Health Promotion Glossary, 1998 version,
        https://www.who.int/healthpromotion/HPG/en/.
2.   Healthy city checklist, http://www.euro.who.int/en/health-topics/environment-
        and-health/city-health/who-european-healthy-cities-network/what-is-a- healthy-
        city/healthy-city-checklist.
3.   Marmot, M (2011) Social Determinants of Health – What Doctors Can Do, BMA.
4.   Mikkonen J, Raphael D (2010). Social Determinants of Health: The Canadian
        Facts. Toronto: York University, School of Health Policy, and Management.
5.   WHO Regional Office for Europe. WHO Healthy Cities—Revised baseline Healthy
        Cities Indicators. Centre for City Health. March1998.
6.   ECHI - European Core Health Indicators,
        https://ec.europa.eu/health/indicators/echi/list_en#id1.
7.   City Health Indicators Across Turkiye, http://www.skb.gov.tr/wp-
        content/uploads/2013/12/skb-100-246-2.pdf.
8.   Turkish Statistics Institution Address-Based Population Registration System 2021
        Data.
9.   Saroha J. Types and Significance of Population Pyramids. Worldwide J Multidiscip
        Res Dev. 2018;4(4):59-69. Accessed March 5, 2022. www.wwjmrd.com.
10.   Turkish Statistics Institution Address-Based Population Registration System 2022
        Data.
11.   OECD Glossary of Statistical Terms - Population density - UN Definition. Published
        September 25, 2001. Accessed March 8, 2022.
        https://stats.oecd.org/glossary/detail.asp?ID=2083.
12.   National Geographic Society. Population Density | National Geographic Society.
        Published July 8, 2021. Accessed March 8, 2022.
        https://www.nationalgeographic.org/encyclopedia/population-density/.
13.   2021 Statistics of the Plan and Project Directorate of Nilüfer Municipality.
14.   WHO. Annual population growth rate. Accessed March 8, 2022.
        https://www.who.int/data/gho/indicator-metadata-registry/imr-details/1120.
15.   Population Growth Rate. Accessed March 8, 2022.
        https://esdac.jrc.ec.europa.eu/public_path/shared_folder/projects/DIS4ME/indc
        ator_descriptions/population_growth_rate.htm.
16.   Turkish Statistics Institution Address-Based Population Registration System Population
        and Immigration Data.
17.   Dependency Ratio Demographics Population Core indicator. Accessed March 8,
        2022. http://www.un.org/esa/population/unpop.htm.

18. OECD Glossary of Statistical Terms - Marital status Definition. Accessed March 8, 2022. https://stats.oecd.org/glossary/detail.asp?ID=1597.

19. Turkish Statistics Institution Address-Based Population Registration System - 2021 Data for the Population over the Age of 15 and over by Marital Status.

20. Immigration Statistics of the Turkish Statistics Institution Address-Based Population Registration System.

21. OECD. OECD Glossary of Statistical Terms - Crude birth rate Definition. Published September 25, 2013. Accessed May 29, 2022. https://stats.oecd.org/glossary/detail.asp?ID=490

22. Turkish Statistics Institution Birth Statistics 2021 Data.

23. UNFPA. Measuring fertility - Child/Woman Ratio. Accessed May 29, 2022. http://papp.iussp.org/sessions/papp101_s04/PAPP101_s04_050_010.html.

24. WHO. Total fertility rate (per woman). Accessed May 29, 2022. https://www.who.int/data/gho/indicator-metadata-registry/imr-details/123.

25. Statistics of the Turkish Statistics Institution - Total Fertility Rate 2020 Data.

26. *The Status Report on Infant Mortality on the 100th Anniversary of the Foundation of the Ministry of Health;* 2021.

27. WHO. Maternal, Newborn, Child and Adolescent Health and Ageing - Data Portal: Stillbirth rate (per 1000 total births). Accessed June 1, 2022. https://www.who.int/data/gho/indicator-metadata-registry/imr-details/2444.

28. Death Data Registered in Bursa Provincial Health Directorate Death Notification System.

29. Hacettepe University, the Institute of Population Surveys 2018 Turkiye Population and Health Research.; 2019. Accessed June 3, 2022. www.hips.hacettepe.edu.tr.

30. WHO. The Global Health Observatory - Stillbirth rate (per 1000 total births). Published October 12, 2020. Accessed June 3, 2022. https://www.who.int/data/gho/data/indicators/indicator-details/GHO/stillbirth-rate-(per-1000-total-births).

31. The letter of the Bursa Regional Directorate of TURKSTAT with 22.04.2022 date and E-59805075-655.03[622.03]- 34412 number and its attachment.

32. Institute for Health Metrics and Evaluation (IHME). GBD Compare - IHME Viz Hub. Accessed June 1, 2022. https://vizhub.healthdata.org/gbd-compare/.

33. The World Bank. Glossary | DataBank - Death rate, crude (per 1,000 people). Accessed March 17, 2022. https://databank.worldbank.org/metadataglossary/gender-statistics/series/SP.DYN.CDRT.IN.

34. Death Statistics of the TURKSTAT, Deaths and Crude Death Rates by Districts.
35. 2011-2021 Burial Data of the Social Support Services Directorate of Nilüfer Municipality.
36. TURKSTAT Death Statistics - Number of Deaths by Place of Residence and Number of Deaths by Districts.
37. Eurostat. Glossary: Excess death - Statistics Explained. Accessed June 21, 2022. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Excess_mortality.
38. Wang H, Paulson KR, Pease SA, et al. Estimating excess death due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020– 21. Lancet. 2022;0(0). doi:10.1016/S0140-6736(21)02796-3.
39. Excess Deaths Associated with COVID-19. Accessed March 17, 2022. https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess_deaths.htm#dashboard.
40. Excess death during the Coronavirus pandemic (COVID-19) - Our World in Data. Accessed March 17, 2022. https://ourworldindata.org/excess-mortality- covid.
41. Graphs and maps — EUROMOMO. Accessed August 28, 2020. https://www.euromomo.eu/graphs-and-maps/#.
42. YARDIM M, ESER S. COVID-19 Pandemic and Excess death: The Case of Istanbul. Turkiye Halk Sağlığı Derg. (Turkiye Public Health Journal) 2020;18:14. doi:10.20518/tjph.776138.
43. TURCOVID19 - Turkiye - Excessive Mortality. Accessed March 17, 2022. https://datastudio.google.com/embed/u/0/reporting/d4dd0ecb-c165-4f60-b253-944d4b3f4b06/page/QwW2B.
44. Pala K, Yurekli N, Cagac NK, Turkkan A. All-cause excess death in 2020: The example of Bursa City in Turkiye. Infect Dis Clin Microbiol. 2021;3(3):110-119. doi:10.36519/IDCM.2021.86.
45. Bursa Provincial Health Directorate Death Notification System Infant mortality data in Nilüfer and TURKSTAT Mortality Statistics - Infant Mortality Rate (per thousand) database.
46. Burial Data of Nilüfer Municipality Social Support Services Directorate for the Years 2011-2021 and TURKSTAT Death Statistics - Under-Five Mortality Rate (per thousand) database.
47. Baykan Z. Impairment, Disability, Causes of Disability and Protection. Sürekli Tıp Eğitim Derg. (Continuous Medicine Education Journal) Published online September 2000. Accessed March 8, 2022. https://www.ttb.org.tr/STED/sted0900/4.html.
48. Büyükbayrak B. Employment of Persons with Disabilities Declining | Doğruluk Payı. Doğruluk Payı. Published November 3, 2020. Accessed March 8, 2022. https://www.dogrulukpayi.com/bulten/3-aralik-uluslararasi-engelliler-gunu?gclid=Cj0KCQiA95aRBhCsARIsAC2xvfwRsWAO7xC5V6.

49. Republic of Turkiye Prime Ministry State Institute of Statistics Presidency of the Republic of Turkiye , Republic of Turkiye Prime Ministry Administration for the Disabled. Turkiye Disabled Research 2002.; 2002. Accessed March 8, 2022. https://kutuphane.tuik.gov.tr/pdf/.

50. Republic of Turkiye, the Ministry of Family and Social Services. Disabled and Elderly Statistics Bulletin - January 22.; 2022. Accessed March 8, 2022. https://www.aile.gov.tr/media/98625/eyhgm_istatistik_bulteni_ocak_2022.pdf.

51. Turkish Statistics Institution (TURKSTAT, TURKSTAT). Turkiye Health Research, 2019. Published June 4, 2020. Accessed March 8, 2022. https://data.tuik.gov.tr/Bulten/Index?p=Turkiye-Saglik-Arastirmasi-2019-33661.

52. Turkish Statistics Institution (TURKSTAT). Turkiye Health Research 2019 Report.; 2019. https://data.tuik.gov.tr/Bulten/Index?p=Turkiye-Health-Survey-2019-33661.

53. Nilüfer Municipality Social Support Services Directorate Maintenance and Repaired Wheelchair Data.

54. Nilüfer Municipality Social Support Services Directorate Number of Transportation Services Provided to Disabled Citizens.

55. Nilüfer Municipality Social Support Services Directorate Data on the Number of Participation in Workshops for Disabled Individuals.

56. Nilüfer Municipality Social Support Services Directorate Data on Number of Activities for Disabled Individuals and Their Relatives.

57. Number of Requests Received to Disabled Service Department of Nilüfer Municipality Social Support Services Directorate.

58. Bursa Provincial Health Directorate Official Site Health Institutions, Number of Practices Registered in Bursa Medical Chamber.

59. Republic of Turkiye, Ministry of Health (General Directorate of Health Information Systems). The Republic of Turkiye 2020 Health Statistics Yearbook.; 2022.

60. Bursa Provincial Health Directorate 2020 Data.

61. Bursa Provincial Health Directorate 2019 Health Statistics Yearbook.

62. Chamber of Pharmacists Data.

63. The Republic of Turkiye the Ministry of Health The Republic of Turkiye Ministry of Health 2019-2023 Strategic Plan (Updated Version); 2022.

64. Bursa Provincial Immigration Administration Data on Foreigners and Their Status in Nilüfer 2022.

65. Medical doctors (per 10 000 population). Accessed October 12, 2020.

https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-(per-10-000-population).

66. OECD. Health at a Glance 2021: OECD Indicators.; 2021. doi:10.1787/ae3016b9-en.

67. World Health Organization. State of the World's Nursing 2020: Investing in Education, Jobs, and Leadership.; 2020. https://apps.who.int/iris/handle/10665/331677.

68. 6331 Numbered Occupational Health and Safety Law. The Official Gazette 2012;52(28339).

69. The Republic of Turkiye The Ministry of Health Republic of Turkiye Ministry of Health, Health Statistics Yearbook 2019.; 2020 Accessed March 8, 2022. https://sbsgm.saglik.gov.tr/Eklenti/40564/0/saglik-istatistikleri-yilligi-2019pdf.pdf.

70. The Republic of Turkiye The Ministry of Health, the General Directorate of Public Health. The National Standards for Cervical Cancer Screening Program Accessed March 17, 2022. https://hsgm.saglik.gov.tr/tr/kanser-tarama-standartlari/listesi/serviks-kanseri- tarama-programı-ulusal-standartları.html.

71. The Republic of Turkiye The Ministry of Health, the General Directorate of Public Health. The National Standards for Breast Cancer Screening Program Accessed March 17, 2022. https://hsgm.saglik.gov.tr/tr/kanser-tarama-standartlari/listesi/meme-kanseri- tarama-programı-ulusal-standartları.html.

72. The Republic of Turkiye the Ministry of Health, the General Directorate of Public Health. The National Standards for Colorectal Cancer Screening Program Accessed March 17, 2022. https://hsgm.saglik.gov.tr/tr/kanser-tarama-standartlari/listesi/kolorektal- kanser-tarama-programı-ulusal-standartları.html.

73. OECD. OECD Health Statistics 2021-Frequently Requested Data. Published 2021. https://www.oecd.org/health/OECD-Health-Statistics-2021-Frequently-Requested-Data.xls.

74. Betran AP, Ye J, Moller A-B, Souza JP, Zhang J. Trends, and projections of caesarean section rates: global and regional estimates. BMJ Glob Heal. 2021;6:5671. doi:10.1136/bmjgh-2021-005671.

75. World Health Organization (WHO). WHO Statement on C-Section Birth Rates.; 2015. Accessed March 10, 2022. http://apps.who.int/iris/bitstream/handle/10665/161442/WHO_RHR_15.02_tur.pdf;jsessionid=52E120037869696CAC16233784331E42?sequence=11.

76. The Republic of Turkiye The Ministry of Health Extended Immunization Program (EIP). Accessed March 17, 2022. https://covid19asi.saglik.gov.tr/TR-77803/genisletilmis-bagisiklama- programi-gbp.html.

77. Our World in Data. Share with alcohol or drug use disorders, men vs. women, 2019. Accessed March 10, 2022. https://ourworldindata.org/grapher/alcohol- or-drug-use-disorders-male-vs-female.

78. Nilüfer Municipality Social Support Services Directorate, Data of the Combat with Addiction Department.
79. Nilüfer Municipality, Nilüfer Municipality 2020 Activity Report.
80. Nilüfer Municipality Social Support Services Unit Distributed Bicycle Data.
81. Nilüfer Municipality Social Support Services Unit.
82. Nilüfer Municipality Directorate of Transportation Services.
83. Nilüfer Municipality Social Support Services Directorate.
84. TURKSTAT Regional Statistics, Address Based Population Registration System - Number of Households by Household Types.
85. TURKSTAT Regional Statistics, Address Based Population Registration System – Average Household Size.
86. TURKSTAT , Address Based Population Registration System - Number of Households.
87. World Health Organization. WHO Housing and Health Guidelines.; 2018. http://www.who.int/phe%0Ahttp://apps.who.int/bookorders.
88. TUSKSTAT Building Permit Statistics Database.
89. Ministry of National Education. National Education Formal Education Statistics 2020-2021 - Metadata; 2021.
90. Nilüfer Municipality Plan and Project Directorate Planning Office.
91. TURKSTAT , Population (Ages 6 and Over) by Education Levels Completed in 2008-2019.
92. TURKSTAT , Population (Ages 6 and Over) by Literacy Status Completed in 2008-2019.
93. Nilüfer Directorate of National Education, Nilüfer Education Statistics 2022.
94. Ministry of National Education (MNE). National Education Statistics, Formal Education 2020/'21.; 2022. Accessed June 24, 2022. http://www.meb.gov.tr.
95. About Bursa Uludağ University. Official Website of Bursa Uludağ University. Published September 7, 2019. Accessed June 23, 2022. https://www.uludag.edu.tr/konu/view/15/bursa-uludag-universitesi-hakkinda.
96. Bursa Metropolitan Municipality Art and Vocational Courses (BMMAVC) Data.
97. Chamber of Industry and Commerce of Bursa. Overview of the Economy of Bursa.
98. Turkish Statistical Institute, data on the distribution of labor force between sectors in Turkiye in 2021.

99. The Situation of the Sectors in Bursa. The Situation of the Sectors in Bursa.
100. Chamber of Industry and Commerce of Bursa. Statistics of Established and Terminated Businesses.
101. Chamber of Industry and Commerce of Bursa. Legal and Real Person Member Statistics for the Year 2015-2021. Published online 2022.
102. The Official Gazette Regulation on Establishing Businesses and Issuing Work Licenses.
103. Nilüfer Municipality License and Inspection Directorate, Number of Work Licenses Issued.
104. Governorship of Bursa. Economic and Social Indicators of Bursa.; 2022.
105. Turkish Employment Agency. Turkish Employment Agency Labor Market Research Bursa Province 2021 Final Report.; 2021.
106. Turkish Employment Agency. Turkish Employment Agency 2021 Annual Tables.; 2021.
107. TEI. History.
108. The change in the labor force participation rates of Bursa, Eskişehir and Bilecik regions by age and gender between the years 2015-2020 according to the SRUC-2 sub-level of the Turkish Statistical Institute.
109. Social Security Institution, Bursa province and Nilüfer apprentice data between 2015-2021.
110. Turkish Statistical Institute, Bursa province gross domestic product data for the years 2018-2020.
111. Nilüfer Municipality Directorate of Culture and Social Affairs, Number of national and international celebrations, feasts, and festival-like activities in Nilüfer between 2015-2019.
112. Bursa Provincial Directorate of Culture and Tourism. The History of Bursa.
113. Turkish Statistical Institute data on the number of artworks, museums and visitors of Ministry of Culture and Tourism and private museums.
114. Turkish Statistical Institute, the change in the number of domestic and foreign films released in Bursa between the years 2015-2020 and the number of spectators.
115. Nilüfer Municipality Directorate of Culture and Social Affairs, Nilüfer Municipality cinema statistics for the years 2015-2019.
116. Turkish Statistical Institute, Bursa theater data for the years 2015-2020.
117. Nilüfer Municipality Culture and Social Affairs Directorate, Nilüfer Municipality theater statistics for the years 2015-2019.
118. Turkish Statistical Institute, Bursa library statistics for the years 2015-2020.
119. Nilüfer Municipality, Nilüfer Municipality 2021 Activity Report.

120. Nilüfer Municipality Library Directorate, the number of use of libraries affiliated to Nilüfer Municipality Library Directorate between 2015-2021, the proportion of library users to the population, the number of library books, the number of books per population and the number of borrowed books.

121. Nilüfer Municipality Plan Project Directorate, the size of the protected areas within the borders of Nilüfer.

122. Nilüfer Municipality Plan and Project Directorate, Nilüfer city archeological and natural sites and registered structures, cultural and natural assets data.

123. Bursa Provincial Directorate of Culture and Tourism. Nilüfer.

124. Sümer GÇ. Air Pollution Control: Reviewing the Legal Regulations and Organizations to Prevent Air Pollution in Turkiye. *Int J Econ Adm Stud*. 2014;0(13):37-56.

125. Pala K. Air Pollution in Bursa. Bursa Medical Chamber; 2019.

126. Household air pollution and health.

127. Ambient (outdoor) air pollution.

128. Clean Air Right Platform. Black Report.; 2021.

129. Nilüfer Municipality Environmental Protection and Control Directorate, Nilüfer Air Quality Report 2021.

130. General Directorate of Environmental Impact Assessment License and Inspection. Air Quality Newsletters.

131. Nilüfer Municipality Environmental Protection and Control Directorate, Nilüfer Drinking Water Report 2021.

132. Turkish Statistical Institute, Water and Wastewater Statistics.

133. Disinfection Technical Communique.

134. WSAB, WSAB 2021 Performance Program.

135. Turkish Statistical Institute, Water and Wastewater Statistics for 2020.

136. Noise Pollution Control and Governance.

137. Nilüfer Municipality, Number of Noise Complaints.

138. WHO Regional Office for Europe. City Green Spaces and Health. Published online 2016:92.

139. Regulation Information System. Zoning Regulation for Planned Areas. 2017.

140. Republic of Turkiye, Ministry of Environment, Urbanization and Climate. 2020 Budget Presentation. Published online 2019.

141. Nilüfer Municipality Parks and Gardens Directorate, Green Area Changes by year.
142. Nilüfer Municipality Parks and Gardens Directorate, Green Area Per Person (m2/person).
143. Nilüfer Municipality Parks and Gardens Directorate, Number of Neighborhood Based Parks and Total Park Area and Total Green Area Amount.
144. Nilüfer Municipality, Nilüfer Municipality 2015,2016, 2017, 2018, 2019, 2020 and 2021 Annual Reports.
145. Nilüfer Municipality Parks and Gardens Directorate, Existing Running Paths in 2021.
146. Nilüfer Municipality Veterinary Affairs Directorate, Vector Management Data.
147. Nilüfer Municipality. The fight against environmental pests continues in Nilüfer.
148. Nilüfer Municipality Veterinary Affairs Directorate. Animal Care and Treatment Center.
149. Nilüfer Municipality Veterinary Affairs Directorate, Interventions at Nilüfer Municipality Animal Care and Treatment Center.
150. Nilüfer Municipality Veterinary Affairs Directorate, Number of Disinfection Applications.
151. Nilüfer Municipality License and Inspection Directorate.
152. The Prime Ministry General Directorate of Improvement of Legislations and Publications. Waste Management Regulation.
153. Nilüfer Municipality, Nilüfer Municipality Cleaning Activities Working Regulation.
154. Provincial Directorate of Environment and City Planning. Bursa Province 2019 Environmental Status Report. Published online 2020.
155. Nilüfer Municipality Directorate of Cleaning, Domestic waste amounts in three central districts.
156. Nilüfer Municipality Directorate of Cleaning, Distribution of underground containers between neighborhoods.
157. Turkish Statistical Institute, Municipal Waste Statistics for 2020.
158. Nilüfer Municipality Directorate of Cleaning, Waste recovery amounts of three central districts.
159. Gündüzalp AA, Güven S. Waste, Types, Waste Management, Recycling and Consumer: The Example of Çankaya Municipality and Neighborhood Consumers.
160. Nilüfer Municipality Directorate of Cleaning, Recycling and Recovery Amounts.
161. Nilüfer Municipality Environmental Protection and Control Directorate, Number of Persons Provided Annual Recycling Training, and Information.

162. Ministry of Environment, City Planning and Climate Change. Regulation on Control of Waste Batteries and Accumulators.
163. Nilüfer Municipality, Nilüfer Municipality 2017 Activity Report.
164. Nilüfer Municipality 2015, 2016, 2017, 2018, 2019, 2020, 2021 Annual Reports Amount of Collected Waste Battery.
165. DEMP. Bursa Provincial Disaster Risk Reduction Plan.; 2022.
166. Nilüfer Municipality. Nilüfer is Ready for Possible Disasters.
167. Nilüfer Municipality Support Services Directorate, Annual Number of Persons Provided Civil Defense, Earthquake, Fire and Basic Disaster Awareness Training for External Stakeholders.
168. Nilüfer Municipality Support Services Directorate, Total Number of Disaster Containers in Neighborhoods.
169. NAK Search and Rescue.
170. Güleş Z, Pala K. *COVID- 19 Pandemic Report*.; 2020.
171. Bursa Provincial Directorate of Environment and City Planning. Bursa Province 2020 Environmental Status Report. Published online 2021.
172. BMTA, BMTA Transportation Data.
173. TURKSTAT , Transportation Data.
174. Bursa Traffic Registration Branch Directorate, Transportation Statistics.
175. BMTA, Passenger Satisfaction Survey Study.
176. Turkish Statistical Institute, Road Traffic Accident Statistics.
177. Şimşek H., Kılıç B. Basic concepts related to inequalities in health. Turkish Journal of Public Health. 2012;10(2).
178. WHO. *BASIC DOCUMENTS*.; 2020.
179. United Nations. Universal Declaration of Human Rights.
180. Pala K. Social Determinants of Health. In : Handbook of Public Health Management in Primary Care. Palme Publishing House; 2015:25-31.
181. Kart R. B., Keser İ. K. Determination of Socio-Economic Development Levels of Provinces in Turkiye and Comparison of Local Election Votes. Journal of Turkish Social Studies. 2019;23(1):25-52.
182. Türkkan A., Pala K. Social Determinants of Health, and Health Inequalities: Differences Between City and Rural Areas. *Parad J Econ Sociol Polit*. 2021;17(2):151-166.
183. İnan M. Ordu Province in terms of Socioeconomic Development Ranking (A Comparison of the Country-wide and Black Sea Region). Econharran Journal of Harran University Faculty of Economics and Administrative Sciences (FEAS).

2020;4(6).

184. Republic of Turkiye Ministry of Industry and Technology. Socio-Economic Development Ranking Studies (SEDR).

185. Republic of Turkiye Ministry of Industry and Technology, Socio-Economic Development Ranking Research of Districts-2017.

186. Republic of Turkiye Ministry of Industry and Technology, Socio-Economic Development Ranking Research of Districts-2022.

187. UNDP. About Human Development.

188. İNGEV. What is Human Development?

189. Şeker M, Bakış Ç, Dizeci B. Human Development Index-Districts.; 2017.

190. Şeker M, Bakış Ç, Dizeci B. Human Development Index-Districts.; 2018.

191. Şeker M, Ozan C, Yaman B. Human Development Index-Districts.; 2020.

192. Demirgöz Bal M. Overview of Gender Inequality. *KASHED*. 2014;1(1):14.

193. Şeker M, Akduran Ö, Saldanlı A, Bektaş H. District Gender Equality Index. *Yayındayız Association.* Published online 2020.