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Health Info

MAPPING OF NEEDS, INFRASTRUCTURE & RESOURCES OF THE HEALTH - INFO PROJECT **GREECE**

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΥΠΟΥΡΓΕΙΟ ΥΓΕΙΑΣ
Εθνικός Οργανισμός Παροχής Υπηρεσιών Υγείας
ΕΟΠΥΥ

CMT Prooptiki
CONSULTING MANAGEMENT TRAINING

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1. Introduction

The aim of this project was the Mapping of Needs, Infrastructure and Resources of the Health Info project implemented under the INTERREG GREECE-FYROM 2014-2020 Program "Cross Border Cooperation Program CCI 2014 TC 16 I5CB 00". The project focuses on the areas of Central and Western Macedonia.

This report contains the presentation and analysis of data collected during the first phases of the project under the following chapters:

- ***Mapping of demographic and social profile of the target areas***

A detailed map of the demographic and socio-economic profile of the population in the target area was carried out. This section presents the demographic profile and the socio-economic conditions associated with health outcomes. This section is followed by an analysis of mortality and life expectancy rates.

- ***Mapping the health profile of the population in the target area***

A detailed presentation and evaluation of the health profile of the population living in the Western and Central Macedonia areas including health related lifestyle and behaviour is reported in this section.

- ***Mapping and evaluation of the health infrastructure of the target area***

This section contains a detailed map and evaluation of the health infrastructure, services and human resources available in the target areas neighboring with Northern Macedonia. In this section we use data from Ministry of Health and Greek Statistical Authority.

- ***Core indicators***

In this section, sets of health related indicators are presented and followed by a suggested set of indicators for monitoring and evaluating the population needs, resources used, and performance of the services provided.

- ***Proposals***

In this section, areas of focus for future prevention activity are highlighted, based on the analysis presented in the previous chapters.

The project is co-funded by the European Union and national funds of the participating countries
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2. Considerations

This project focuses on the regions of Greece that border with Northern Macedonia. So, in this direction, the data presented and analyzed refers to the regions of Central and Western Macedonia and more specifically, the Regional Units of Kilkis, Serres, Thessaloniki, Pella and Florina.

Where data is available at **Regional Unit level, it is presented as such as more targeted than data at Regional level**. Thus, this study uses and analyses data of regional units of Kilkis, Serres, Thessaloniki, Pella and Florina, when available. If this is not available, data of regions of Central and Western Macedonia is analyzed. In adition, some data is available at Health Pegions level. In this case, the study presents and analyses data from Health Regions of Macedonia and Macedonia & Thrace.

Regions	→	Central and Western Macedonia
Regional Units	→	Kilkis, Serres, Thessaloniki, Pella and Florina
Health Regions	→	Macedonia and Macedonia & Thrace

In the sections 2, 3, 4, 5.1 th**e most recent available data**, from the Greek Statistical Authority and Eurostat is presented. Therefore, the data presented in this study do not all come from the same year.

The analysis of section 5.2 utilizes primary data from the ongoing health interview survey "Health and Welfare", organized by the Department of Health Economics of the National School of Public Health in Greece, which started in 2001.

For the analysis, the primary data collected in the cross-sectional **surveys of the years 2011, 2015, 2016 and 2017 were merged**, as the sample in each survey was different and no individual respondent could participate in more than one survey. Moreover**, the samples of the regions of Central and Western Macedonia were also merged** in order to create a strong and representative sample.

For all the cross-sectional analysis, a representative national sample was selected and stratified by age, gender, geographic region and degree of urbanization. The interviews were conducted via computer-assisted telephone interviewing (CATI), based on a structured questionnaire. The total sample consisted of **2.894 participants** from the population of Central and Western Macedonia and 14.590 participants from all over the country.

In section 6 data presented, originated from the Ministry of Health and the Greek Statistical Authority. The data presented are the latest available as shared by the Minitry of Health.

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3. Socio-economic conditions

Many epidemiological studies confirm the existence of a correlation between the socio-economic level of a population and its health level and, therefore, the need for health services, prevention and health promotion.

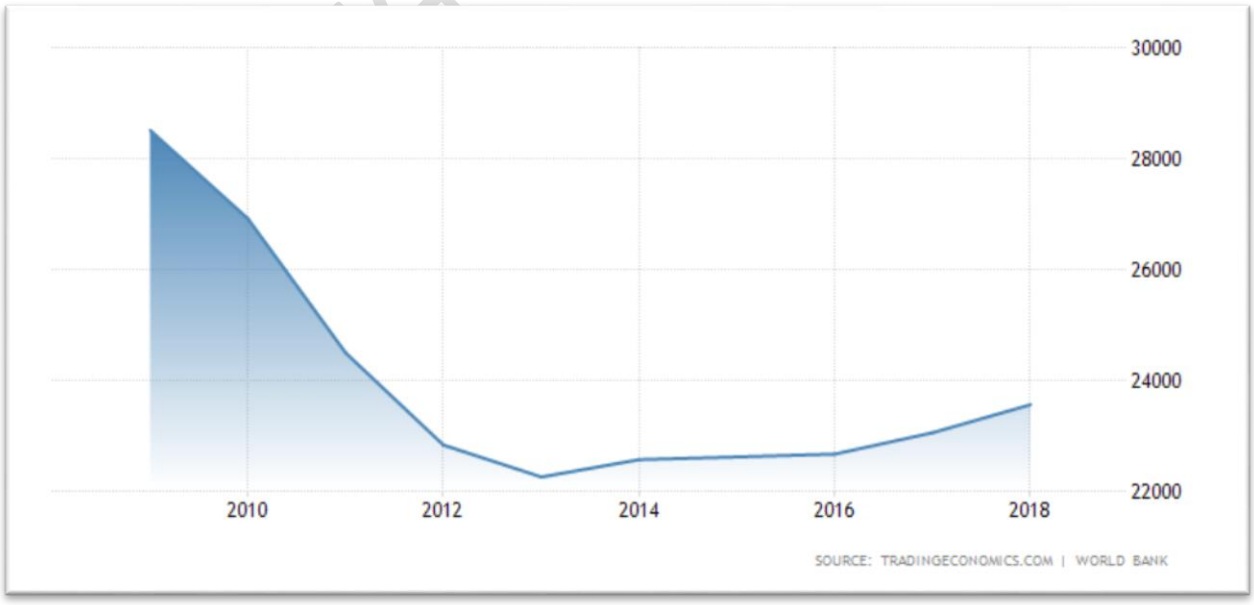
For this reason, this section presents some of the socio-economic factors that are proven to be more relevant to health, such as employment, unemployment, income and education.

3.1 Gross Domestic Product per capita – GDP per capita

Central and Western Macedonia have a relatively balanced production structure with significant presence in all sectors of the economy, valuable infrastructures, international connections (road, air, sea), favorable geofigureic location, large energy production units and relatively large industrial units with significant presence of capital and intermediate industries, fertile plains with rich water potential and diversity in agricultural production, important and diversified tourism resources, higher education institutions and major research centers.

The Gross Domestic Product per capita in Greece was last recorded at 23558.10 US dollars in 2018. The GDP per Capita in Greece is equivalent to 187 percent of the world's average. GDP per capita in Greece averaged 19198.48 USD from 1960 until 2018, reaching an all-time high of 30054.90 USD in 2007 and a record low of 6779.90 USD in 1960.

Figure 1 Gross Domestic Product per capita in Greece

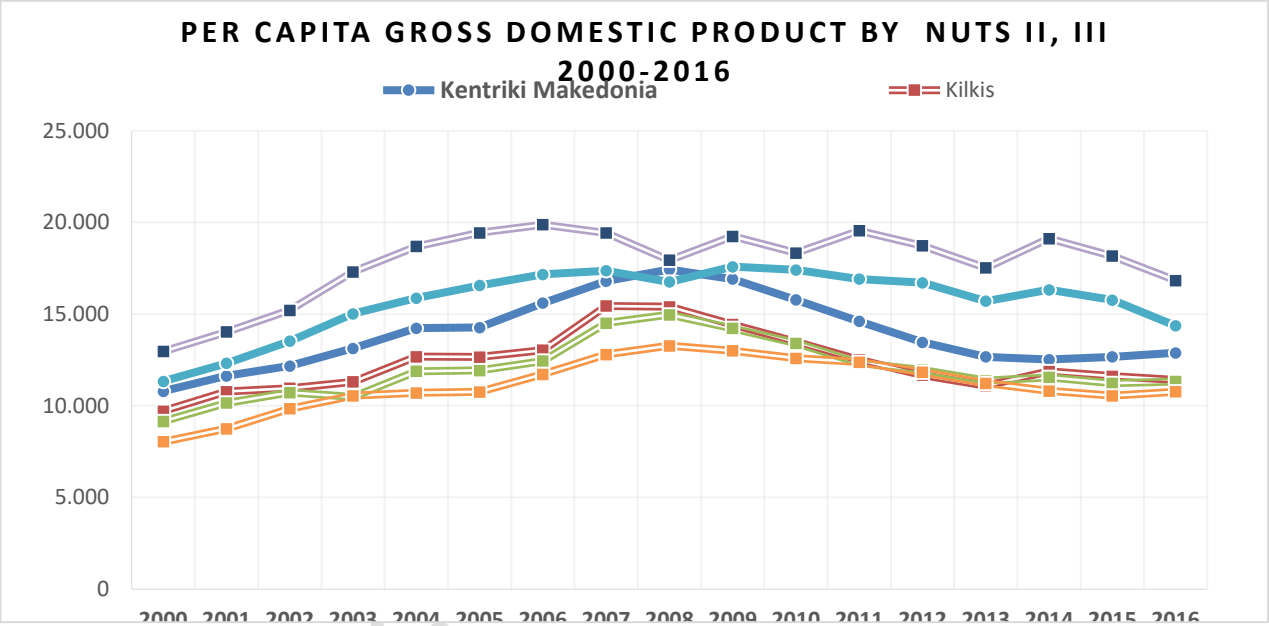


Source: Eurostat

The standard of living and the labor market conditions in Central and Western Macedonia do not deviate from the national average per capita GDP that was 16,378 in 2016. In particular, per capita GDP was 12,880 for Central Macedonia and 14,361 for Westerner Macedonia. More specifically, per capita GDP was 11,408 for Kilkis, 11,324 for Pella, 10,765 for Kastoria and 16,828 for Florina.

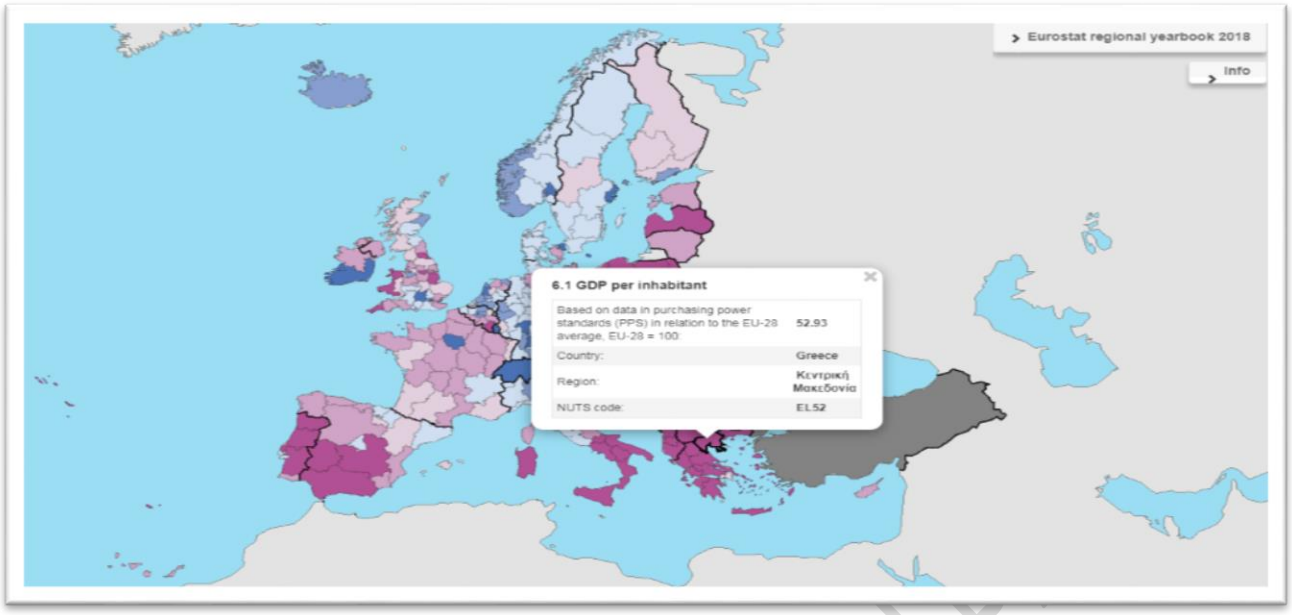
The chart below shows the change in GDP per capita in NUTS II and III from 2000 to 2016. There is a slight increase in 2016 compared to 2000. Over the years the price of GDP per capita for the regions of interest had received higher prices, than those in 2016.

Figure 2 Gross Domestic Product per capita in in NUTS II and III



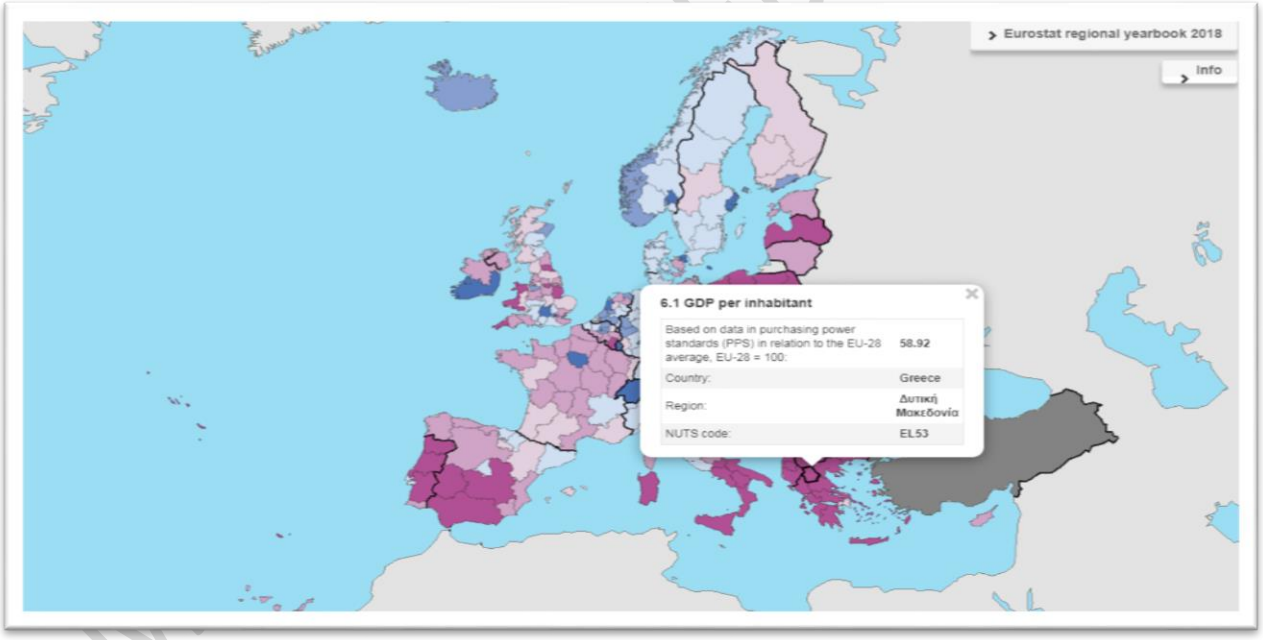
Source: Eurostat

Figure 3 GDP per inhabitant in Central Macedonia in 2008



Source: Eurostat

Figure 4 GDP per inhabitant in Western Macedonia in 2008

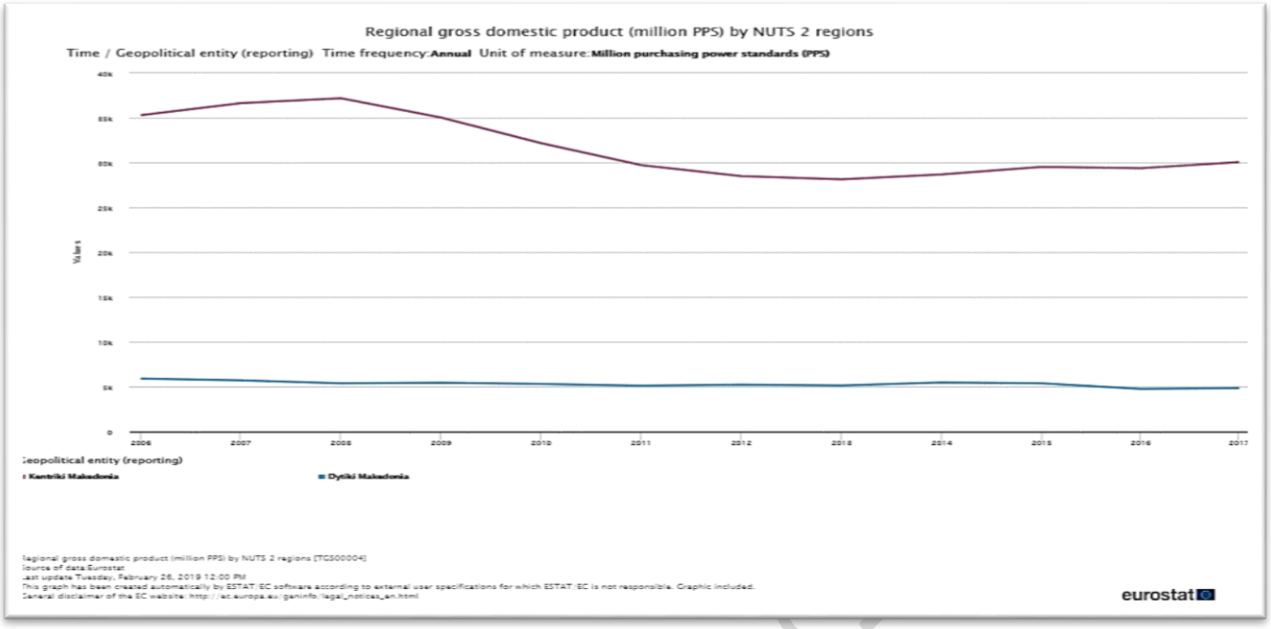


Source: Eurostat

The maps above show GDP per inhabitant in Central and Western Macedonia in 2008 by NUTS 2 regions in relation to the EU-28 average, EU-28 = 100.

Regarding the Regional Gross Domestic Product in Central and Western Macedonia, it seems to have a decrease over the years, for both regions.

Figure 5 Regional Gross Domestic Product in Central and Western Macedonia

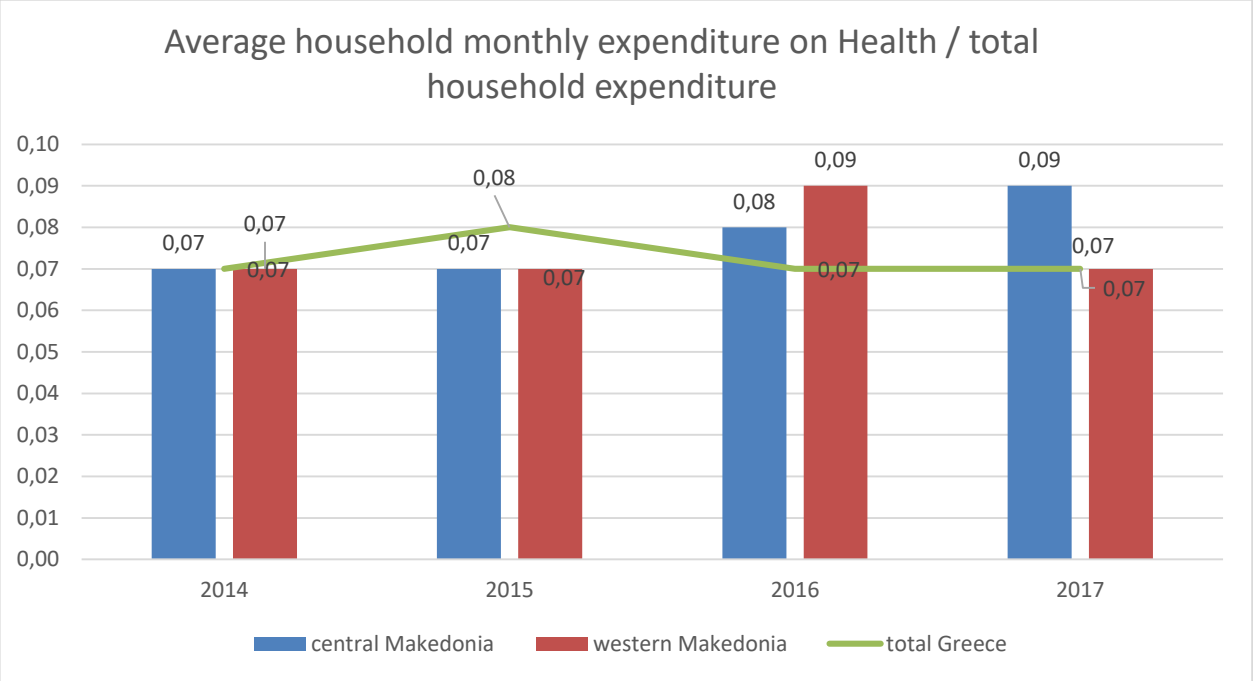


Source: Eurostat (https://ec.europa.eu/eurostat/databrowser/view/tgs00004/default/line?lang=en)

3.2 Average household monthly expenditure on Health

Public expenditure on health stands lower than the EU average and in addition the out of pocket coverage of health needs for the Greek population stands at 35%, more than double than the EU average (State of Health of the EU, Greece 2017). In the following chart it is observed that in both regions, the Average Household Monthly Expenditure on Health over the Total Household Expenditure, is above the Country Total, the previous year particularly for Central Macedonia.

Figure 6 Average household monthly expenditure on Health to total household expenditure



Source: Elstat

3.3 Labor force

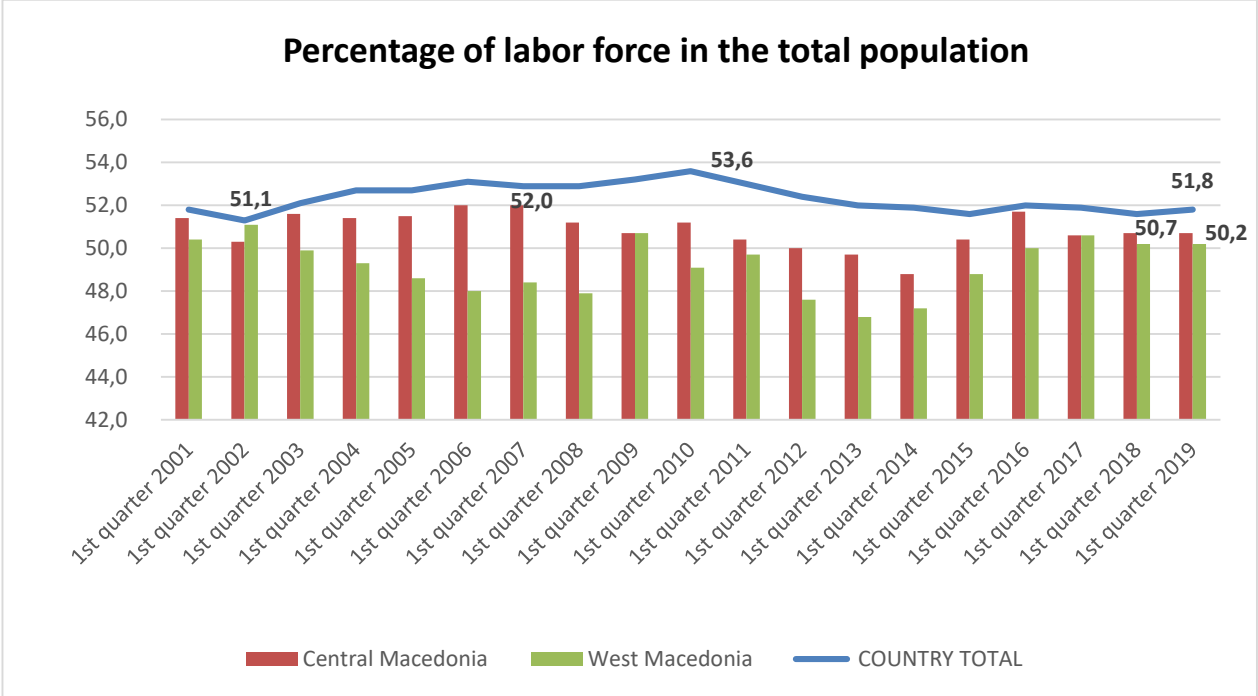
One of the central policies of the European Employment Strategy is to increase the participation of working-age population in the labor market, or, in other words, to increase employment and reduce unemployment.

Potentially economically active population over the age of 15 in the 1st quarter of 2019 in Central Macedonia accounted for 50.7% of the total population of the region.

Similarly, in Western Macedonia, the potentially economically active population aged over 15 was 50.2% of the total population of the region.

In the following chart it is observed that in both regions, the percentage of the economically active population is quite high; only 1-2 percentage points below the country total. The gap between Western and Central Macedonia also seems reduced the last three years.

Figure 7 Percentage of labor force in the total population



Source: Elstat

Regarding the field of employment, in both the two regions of interest, as well as in the country level, the employment sector with the largest number of employees is the "wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities".

Table 1. Employees per employment sector

Employees per employment sector			
Employment sector	**County's total**	**Central Makedonia**	**Western Makedonia**
Agriculture, forestry and fishing	461,817.0	86,079.2	15,058.0
Mining and quarrying, manufacturing, electricity, gas, steam, air conditioning and water supply, sewerage, waste management and remediation activities	377,875.0	67,249.0	15,591.4
Construction	199,230.0	27,140.9	6,157.9
Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities	**1,358,189.0**	**219,224.0**	**22,879.3**
Information and communication	83,966.0	9,030.9	389.8
Financial and insurance activities	81,080.0	10,410.8	905.3
Real estate activities	9,176.0	987.6	111.0
Professional, scientific and technical activities, administrative and support service activities	347,144.0	55,905.3	4,587.7

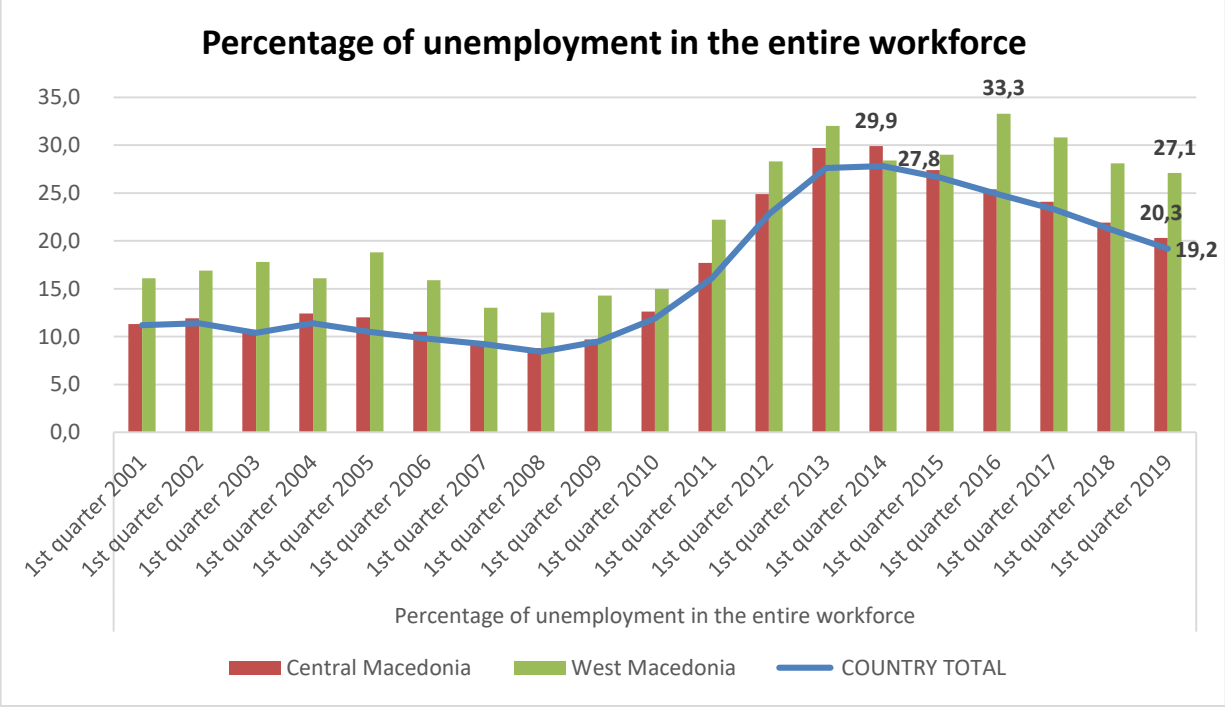
Employees per employment sector			
Employment sector	**County's total**	**Central Makedonia**	**Western Makedonia**
Public administration and defence, compulsory social security, education, human health and social work activities	886,911.0	135,949.7	20,182.4
Arts, entertainment, recreation, other service activities, activities of households as employers, undifferentiated goods and services producing activities of households for own use, activities of extraterritorial organisations and bodies	277,638.0	42,410.0	4,352.9
Total employment	4,083,026.0	654,387.4	90,215.7

Source: Elstat

3.4 Unemployment

In Western Makedonia the unemployment rate was 27.1% of the entire workforce in the 1st quarter of 2019, while in Central Macedonia was 20.3%. The unemployment rates in both regions were higher than the country's average (19.2%).

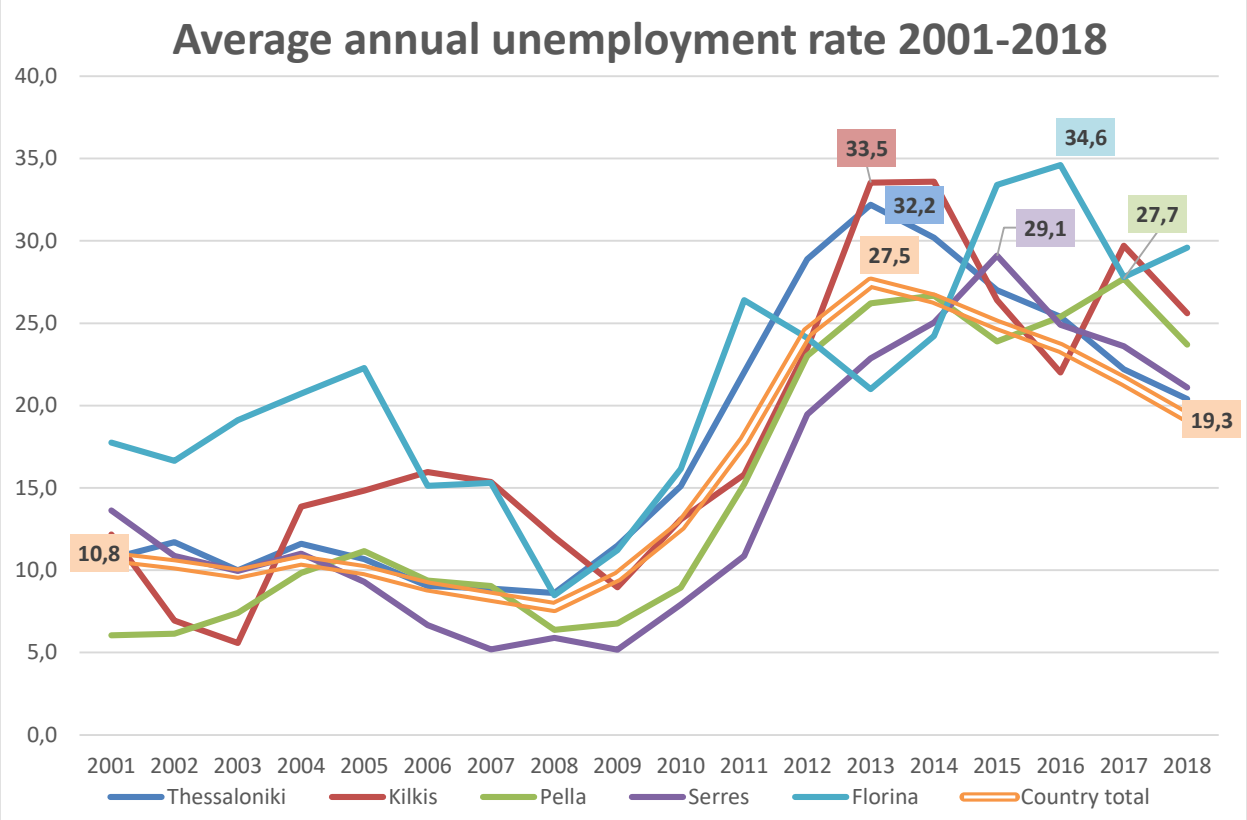
Figure 8 Percentage of unemployment in the entire workforce



Source: Elstat

The average annual unemployment rates for the Regional Units of Thessaloniki, Kilkis, Pella, Florina and Serres are presented in the chart below. Unemployment rates were at their highest values between 2013 to 2017. In 2018 unemployment rates were decreased but still higher than those in 2001 particularly for Western Macedonia.

Figure 9 Average annual unemployment rate 2001-2018



Source: Elstat

Differences in the unemployment rate among gender in the two regions over the years, are presented in the chart below. The rates of unemployment in Western Macedonia are much higher, compared to the country average, for both genders. In Central Macedonia the rates are also higher, but with a deviation of 1- 2 points. The percentages of unemployment are significant higher in the female population compared to the male population in both regions.

Table 2. Unemployment rate among gender in Central and Western Makedonia 2007- 2018

Gender	Region	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Both	**Country total**	8.4	7.8	9.7	12.8	17.9	24.5	27.5	26.6	25.0	23.6	21.5	**19.3**

Gender	Region	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
genders	Central Makedonia	9.1	8.4	10.1	13.7	19.7	26.2	30.2	28.7	26	24.5	22.9	**20.7**
	Western Makedonia	12.1	12.5	12.4	15.4	23.1	29.7	31.6	27.6	30.7	31.3	29.1	**27**
Males	Country total	5.3	5.1	7	10.1	15.2	21.6	24.5	23.7	21.8	19.9	17.9	**15.4**
	Central Makedonia	5.5	5.3	7.1	10.2	15.9	22.9	26.3	25.1	22.6	21.2	18.7	**16.7**
	Western Makedonia	7.9	7.9	9.4	12.4	18.7	24.7	27	22.4	23.9	24.2	22.9	**22.5**
Females	Country total	12.9	11.6	13.3	16.4	21.5	28.2	31.4	30.2	28.9	28.1	26.1	**24.2**
	Central Makedonia	14.2	13	14.3	18.4	24.8	30.3	35.1	33.2	30.1	28.4	28.2	**25.8**
	Western Makedonia	18.3	19.1	16.8	19.6	28.8	36.4	37.8	34.6	39.6	40.4	37.2	**32.9**

Source: Elstat

3.5 Accommodation

In terms of accommodation, the regions of Central and Western Macedonia, according to the ELSTAT census, have zero homelessness, with the majority of their inhabitants living in regular housing. In addition, there is a difference between sexes, with men having slightly higher proportions in not regular residence and collective accommodation.

Table 3 Accommodation in 2011

Accommodation in 2011					
Region		Regular residen	Not regular residence	Collective accommodation	Homeless
Country total	total	97.27%	**0.40%**	**1.11%**	**0.03%**
	males	96.61%	0.50%	1.66%	0.04%
	females	97.91%	0.30%	0.58%	0.02%
Central Makedonia	total	97.84%	**0.28%**	**0.94%**	**0.00%**
	males	97.36%	0.37%	1.36%	0.01%
	females	98.30%	0.20%	0.54%	0.00%
Western Makedonia	total	97.75%	**0.14%**	**1.11%**	**0.00%**
	males	97.02%	0.18%	1.85%	0.00%
	females	98.48%	0.09%	0.36%	0.00%

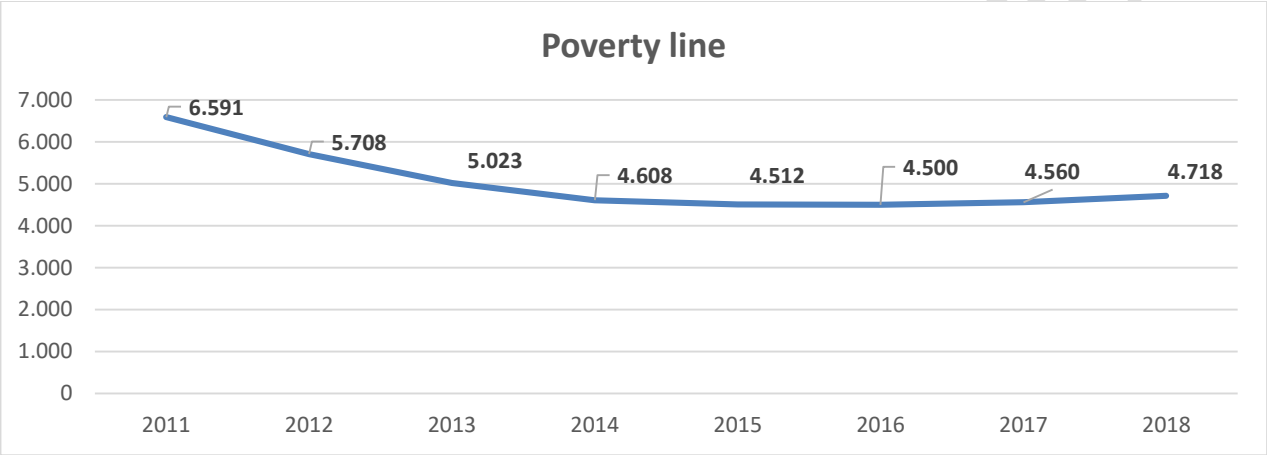
Source: Elstat

3.6 Poverty

The negative impact of the economic crisis on the health of the population is exacerbating the phenomenon of poverty.

The chart below shows the poverty line in euros for the years 2011-2018. Since 2011, the poverty threshold for Greece has dropped by nearly € 1,900 for single-person households.

Figure 9. Poverty line 2011-2018



Source: Elstat

In 2018, 31.8% of the country's population lived at risk of poverty or social exclusion. The proportion for the region of Central Makedonia is a little lower (30.4%), while the proportion for the region of Western Makedonia is higher by approximately five points (36.7%). There are no records on region level for previous years. Data for the whole country, presented in table 4, shows that in 2018 the level of poverty/ social exclusion risk have dropped several points and approaching the levels of 2011.

Table 4 People at risk of poverty or social exclusion 2011 - 2018

People at risk of poverty or social exclusion Greece total 2011-2018							
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
31.0	34,6	35,7	36.0	35.7	35.6	34.8	31.8%

Source: Elstat

Concerning people living below the poverty line, in 2018, 18.5% of the country's population lived below this. The proportion for the region of Central Makedonia is a little lower (17.3%), while the proportion

for the region of Western Makedonia is higher by approximately 4 points (22.3%). There are no records in region level for previous years. Data for the whole country, presented in table 9, shows that in 2018 the level of people living in conditions below the poverty line have dropped several points and it has taken its lowest rate since 2011.

Table 5 People living below poverty line conditions 2011-2018

People living below poverty line conditions 2011-2018							
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
21,4	23,1	23,1	22.1	21.4	21.2	20.2	18.5

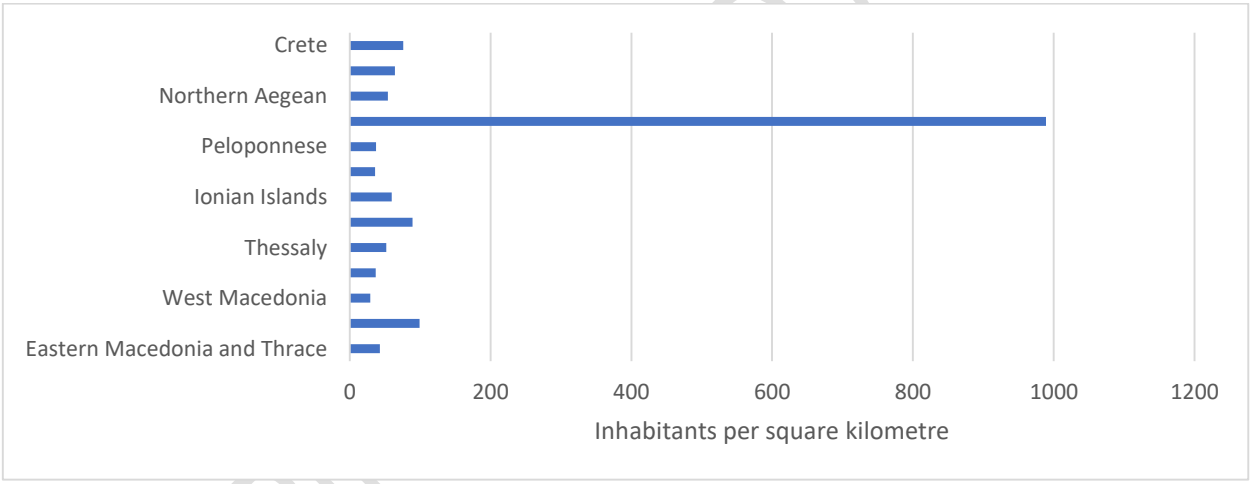
Source: Elstat

4. Demographics

4.1 Population density

Central Macedonia is the most densely populated and urbanized region of Greece after Attica, with obvious trends of further population concentration in already densely populated areas, resulting in a cycle of interactions that has positive and negative effects. The positive ones include the greater - due to their strong urban character - activities in the secondary and / or tertiary sectors of the economy, which, due to the more intensive use of capital and technology, are associated with a high level of growth. The negative ones include the shrinkage of activities and the decline in productivity in areas where the phenomenon of rural 'desertification' is significant, and this problems extend to the urban area, as conditions for the overloading of all types of public infrastructure and the integration of new productive groups and their urban tissue have occurred.

Figure 10 Population density in Greece by NUTS 2 2017



Source: Elstat

In the following table it is observed that in both regions the population density has been declined during the years, following the overall trend of the country. In 2010 population density of Central Makedonia gets its highest value, despite the year with the higher population concentration of the region was 2011. Based on the above we can conclude that over the years a proportion of the country's population has been inhabited in the suburbs of large cities.

Table 6 Population Density of Central and Western Makedonia 2006-2017

POPULATION DENSITY												
Region	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**

POPULATION DENSITY												
Region	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Central Makedonia	100.3	100.7	101.1	101.6	101.9	100.4	100.1	99.6	99.1	100	99.6	99.4
Western Makedonia	31	31	31	31	30.9	30.1	29.8	29.6	29.3	29.7	29.5	29.2
Country total	84.2	84.5	84.7	84.9	85	84.1	83.6	83	82.5	82.7	82.4	82.2

Source: Elstat

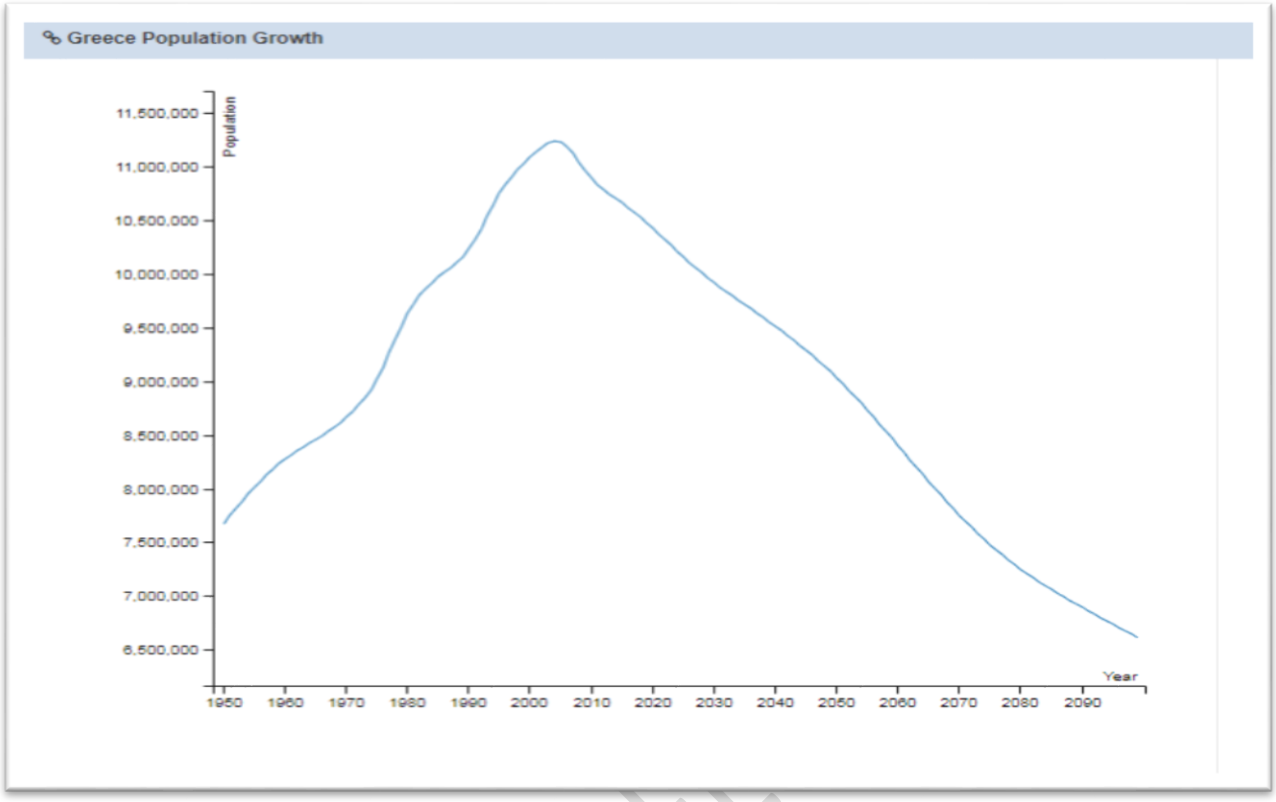
4.2 Population growth

Statistics claim that 19 per cent of the population of Greece in 2012 is aged 65 or over and this figure is predicted to rise to 23 per cent in 2025 and 30 per cent in 2050. This is a worrying statistic and one that points to further declines in the population as a whole.

As far as birth rates are concerned, the United Nation population projections claim that these are also set for a decline but they also suggest that positive immigration will counter this almost in its entirety.

After several decades of population growth, Greece could be looking ahead to a period of significant falls and some reports are suggesting that this is largely due to an ageing population. With birth rate and net migration cancelling each other out, there seems to be no help from these areas and the confirmed results from the 2011 census could be the first indication that the reports are true.

Figure 10. Greece population growth 1950-2100 (Estimated)



World Population Prospects (2019 Revision)

4.3 Population census

Central and Western Macedonia are high densely populated and urbanized region of Greece, with obvious trends of further population concentration in already densely populated areas, resulting in a cycle of interactions that has positive and negative effects. The positive ones include the greater - due to their strong urban character - activities in the secondary and / or tertiary sectors of the economy, which, due to the more intensive use of capital and technology, are associated with a high level of growth. The negative ones include the shrinkage of activities and the decline in productivity in areas where the phenomenon of rural 'desertification' is significant, and this problem extend to the urban area, as conditions for the overloading of all types of public infrastructure and the integration of new productive groups and their urban tissue have occurred.

The table below shows the change of the population of the regions of Central and Western Macedonia as also as of the regional units of Thessaloniki, Kilkis, Pella, Serres and Florina, for the years 2002 - 2018. The percentages of the population of these areas in relation to the total population of the country

remain stable during the years. Population of Central Makedonia has increased its proportion in the total population of the country, because of the population increment of Thessaloniki, during the years.

Table 7. Population change during 2002 - 2018

Population change 2002-2017																
	Country' s total		Central Makedonia		*Thessaloniki*		*Kilkis*		*Pella*		*Serres*		Western Makedonia		*Florina*	
2002	**10,888,274**	**100%**	**1,852,039**	**17.01%**	1,087,329	**9.99%**	80,016	**0.73%**	140,526	**1.29%**	183,282	**1.68%**	**287,813**	**2.64%**	49,177	**0.45%**
2003	**10,915,770**	**100%**	**1,862,475**	**17.06%**	1,095,721	**10.04%**	80,726	**0.74%**	140,779	**1.29%**	182,954	**1.68%**	**288,125**	**2.64%**	49,990	**0.46%**
2004	**10,940,369**	**100%**	**1,871,566**	**17.11%**	1,103,632	**10.09%**	80,793	**0.74%**	140,864	**1.29%**	182,487	**1.67%**	**287,800**	**2.63%**	50,282	**0.46%**
2005	**10,969,912**	**100%**	**1,880,517**	**17.14%**	1,111,060	**10.13%**	80,906	**0.74%**	140,999	**1.29%**	182,078	**1.66%**	**287,631**	**2.62%**	50,629	**0.46%**
2006	**11,004,716**	**100%**	**1,890,244**	**17.18%**	1,118,880	**10.17%**	80,915	**0.74%**	141,175	**1.28%**	181,760	**1.65%**	**287,215**	**2.61%**	50,741	**0.46%**
2007	**11,036,008**	**100%**	**1,899,242**	**17.21%**	1,124,921	**10.19%**	80,947	**0.73%**	141,412	**1.28%**	181,655	**1.65%**	**286,855**	**2.60%**	50,744	**0.46%**
2008	**11,060,937**	**100%**	**1,905,904**	**17.23%**	1,128,970	**10.21%**	80,954	**0.73%**	141,790	**1.28%**	181,367	**1.64%**	**286,696**	**2.59%**	51,120	**0.46%**
2009	**11,094,745**	**100%**	**1,913,980**	**17.25%**	1,133,889	**10.22%**	80,756	**0.73%**	142,102	**1.28%**	181,287	**1.63%**	**286,672**	**2.58%**	51,486	**0.46%**
2010	**11,119,289**	**100%**	**1,921,906**	**17.28%**	1,138,290	**10.24%**	81,340	**0.73%**	142,344	**1.28%**	181,033	**1.63%**	**286,450**	**2.58%**	51,767	**0.47%**

The project is co-funded by the European Union and national funds of the participating countries

Population change 2002-2017																
	Country' s total		**Central Makedonia**		***Thessaloniki***		***Kilkis***		***Pella***		***Serres***		**Western Makedonia**		***Florina***	
2011	**11,123,392**	**100%**	**1,925,437**	**17.31%**	1,139,647	**10.25%**	81,770	**0.74%**	142,285	**1.28%**	180,267	**1.62%**	**285,899**	**2.57%**	51,906	**0.47%**
2012	**11,086,406**	**100%**	**1,922,590**	**17.34%**	1,137,093	**10.26%**	81,759	**0.74%**	141,894	**1.28%**	178,866	**1.61%**	**284,061**	**2.56%**	51,721	**0.47%**
2013	**11,003,615**	**100%**	**1,912,624**	**17.38%**	1,130,229	**10.27%**	81,397	**0.74%**	141,193	**1.28%**	176,604	**1.60%**	**281,324**	**2.56%**	51,369	**0.47%**
2014	**10,926,807**	**100%**	**1,903,360**	**17.42%**	1,123,676	**10.28%**	81,017	**0.74%**	140,495	**1.29%**	174,686	**1.60%**	**278,706**	**2.55%**	51,058	**0.47%**
2015	**10,858,018**	**100%**	**1,893,878**	**17.44%**	1,117,094	**10.29%**	80,616	**0.74%**	139,818	**1.29%**	172,909	**1.59%**	**276,423**	**2.55%**	50,799	**0.47%**
2016	**10,783,748**	**100%**	**1,883,339**	**17.46%**	1,109,969	**10.29%**	80,173	**0.74%**	139,105	**1.29%**	170,929	**1.59%**	**273,843**	**2.54%**	50,473	**0.47%**
2017	**10,768,193**	**100%**	**1,880,122**	**17.46%**	1,108,085	**10.29%**	80,762	**0.75%**	138,583	**1.29%**	169,242	**1.57%**	**271,488**	**2.52%**	50,196	**0.47%**
2018	**10,741,165**	**100%**	**1,875,996**	**17.47%**	1,105,663	**10.29%**	80,576	**0.75%**	137,872	**1.28%**	168,245	**1.57%**	**269,222**	**2.51%**	49,878	**0.46%**

Sourse: Elstat

5. Mortality and Births

Internationally, Health developments are characterized by improvements in the overall standard of living, morbidity and mortality of the population of both developing and developed countries. Progress in the field of health care and the development of new drugs and health technologies, have been clearly key factors with crucial influence in this direction, as well as in the steep rise in health expenditure in recent years.

Both morbidity and mortality from infectious diseases have declined dramatically over the last fifty years. However, despite the general improvement in socio-economic conditions, the implementation of vaccination programs and the use of advanced antibiotics and other medicines, old forms of infectious diseases that emerge again and emerging diseases remain a major cause of morbidity and mortality in developed countries.

Evaluation of classical health indicators such as general and infant mortality, as well as morbidity, reflects the level of health of the reference population. Conclusions can also be drawn on a number of factors related to the living conditions of the population, such as socio-economic problems, stress, eating habits and more.

In addition, it should be noted that due to increased life expectancy, modern sedentary lifestyle and aging population, chronic diseases such as arterial hypertension, degenerative arthropathy, diabetes mellitus and other diseases have increased. A large proportion of these conditions are treated at primary care level, making their registration difficult. In general, however, the hospital standard in Greece is not significantly different from the standard in other developed countries.

5.1 Mortality

In terms of country-wide mortality, Table 8 presents the most important causes of death, as well as their progression (from 2000 to 2016). The most important causes of death are malignant neoplasms, ischemic heart diseases, respiratory diseases and cerebrovascular diseases. The number of deaths due to respiratory diseases and malignant neoplasms present a notable increase since 2000 (68% and 28% respectively). In contrast, number of deaths due to diseases of the circulatory system have been reduced by 14%. There is a disproportionate change in death rates in relation to mental - behavioral disorders and diseases of the nervous system (244%). Probably this can be attributed to a changes in coding and recording of incidents.

Table 8. Mortality by cause Total Greece 2000-2016

Mortality by Cause Total Greece 2000-2016					
Cause of death	**2000**	**2005**	**2010**	**2016**	**% change (2000-2016)**
Malignant neoplasms	23,513	25,884	27,159	30,020	**27.67**
Diseases of the circulatory system	52,283	49,738	47,709	44,910	**-14.10**
Diseases of the respiratory system	7,995	8,209	10,341	13,412	**67.75**
Mental & nervous system Diseases	1,353	1,299	1,627	4,661	**244.49**
Accidents	1,293	1,192	1,167	1,767	**36.66**
Other Causes	18,733	18,769	21,081	24,018	**28.21**
All causes of death	105,170	105,091	109,084	118,788	**12.95**

Sourse: Elstat

Regarding Central and Western Makedonia mortality rates, Tables 9 and 10 present the most important causes of death, as well as their temporal evolution (from 2000 to 2016).

Compared to the whole country we note that accidents and other causes of death have increased more in Central and Western Macedonia over the years. In addition, the evolution of diseases of the circulatory system is lower compared to the country as a whole. The rest of the mortality causes seem to be evolving similar to the country average.

Table 9. Mortality by cause Central Makedonia 2000-2016

Mortality by cause Central Makedonia 2000-2016					
Cause	**2000**	**2005**	**2010**	**2016**	**% change (2000-2016)**

Mortality by cause Central Makedonia 2000-2016					
Cause	**2000**	**2005**	**2010**	**2016**	**% change (2000-2016)**
Malignant neoplasms	4,093	4,641	5,097	5,535	**35.23**
Diseases of the circulatory system	8,307	8,165	8,137	7,820	**-5.86**
Diseases of the respiratory system	1,163	1,093	1,471	2,015	**73.26**
Mental - behavioral disorders and Diseases of the nervous system	234	243	347	936	**300.00**
Accidents	156	160	154	281	**80.13**
Other Causes	2,587	2,800	3,304	4,182	**61.65**
All causes of death	**16,540**	17,102	**18,510**	**20,769**	**25.57**

Sourse: Elstat

Table 10. Mortality by cause Western Makedonia 2000-2016

Mortality by cause Western Makedonia 2000-2016					
Cause	**2000**	**2005**	**2010**	**2016**	**% change (2000-2016)**
Malignant neoplasms	668	762	772	764	**14.37**
Diseases of the circulatory system	1,402	1,443	1,512	1,334	**-4.85**
Diseases of the respiratory system	175	178	212	281	**60.57**
Mental - behavioural disorders and Diseases of the nervous system	37	31	46	152	**310.81**
Accidents	29	20	24	54	**86.21**
Other Causes	528	482	538	631	**19.51**
All causes of death	2,839	2,916	3,104	3,216	**13.28**

Sourse: Elstat

Regarding the mortality rate for the Region of Macedonia in 2016, compared to the Total Country, mortality, we observe that for Total Country mortality is 1,156 per 100 thousand inhabitants while for Central and Western Macedonia it is 1,144 per 100 thousand inhabitants and 1,247 per 100 thousand inhabitants respectively. It is, therefore, noted that the number of deaths for the Regions of Central and Western Macedonia is at the same level as for the whole country.

The below table shows the mortality rates in NUTS III, while table 14 shows Mortality by cause per 100 thousand inhabitants in NUTS II.

Table 11. Mortality rate per 100 thousand inhabitants 2016 - NUTS III

Mortality rate per 100 thousand inhabitants 2016 NUTS III								
Region	**Country' s total**	**Central Makedonia**	***Thessaloniki***	***Kilkis***	***Pella***	***Serres***	**Western Makedonia**	***Florina***
Population	10,768,193	1,880,122	1,108,085	80,762	138,583	169,242	271,488	50,196
Mortality	124,501	21,523	11,187	1,240	1,877	2,677	3,386	636
Mortality per 100 thousand inhabitants	**1,156**	**1,145**	**1,010**	**1,535**	**1,354**	**1,582**	**1,247**	**1,267**

Sourse: Elstat

Table 12. Mortality by cause per 100.000 Inhabitants

Mortality by cause per 100.000 Inhabitants												
	1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
All causes of death (A00-Y89) excluding S00-T98												
Central Makedonia	1,371	1,382.4	1,349.4	1,331.2	1,304.8	1,297.6	1,275.4	1,239.1	1,214.6	1,180.3	1,144.9	1,100.3
Western Makedonia	1,285.2	1,290.8	1,263	1,257.5	1,264.5	1,277.3	1,268	1,222.6	1,186.7	1,166.4	1,132.9	1,098.8
Malignant neoplasms (C00-C97)												
Central Makedonia	285.5	287	291.7	293	295.5	291.8	289.7	284	284.4	282.5	281.5	275.7
Western Makedonia	255	261.7	261.4	261.9	262.2	269.5	276.2	283.8	283	278.6	272.4	264.3
Ischemic heart diseases												
Central Makedonia	161.8	161.9	165.1	162.6	164.5	163.9	159.8	152.4	144	135.5	126.4	116.7
Western Makedonia	148.9	144.4	148.3	149.4	153.9	151.3	145.9	140.2	126.7	118.8	111.8	108
Accidents (V01-X59, Y85, Y86)												
Central Makedonia	32.7	33.4	30.3	30.7	27.1	29.2	28.7	28.9	28.8	28.2	26.6	24.3
Western Makedonia	34.6	34.2	29.1	29.3	26.6	26.5	23.5	22.9	21.6	22.3	21	19.7
Transport accidents (V01-V99, Y85)												
Central Makedonia	20	20.4	18	17.8	14.1	15.3	13.6	13.7	13.6	13.3	12.4	11
Western Makedonia	22.7	20.5	17.1	17	15.6	14.2	12.1	13.2	11.9	12.6	10.7	10.1

Source: Eurostat

5.2 Births

Greece is rapidly shrinking in population. Specifically, according to data from the Hellenic Statistical Authority, births in Greece in 2017 were 88,553, recording a decrease of 4.7% compared to 2016, which was 92,898. Last year was the first year during the previous 80 years that the number of births in Greece was below 90,000. Conversely, deaths were 124,501 last year and were up 4.8% from 2016, counting 118,792. The 2017 is a record year of the last 80 years in the number of deaths in our country. On the contrary, the positive aspect is that infants who lost their lives were reduced, during the last year, to 306 from 387 that was in 2016.

The following table shows that the results for the regions of Central and Western Macedonia are consistent with the results for the whole country.

Table 13. Births of alive infants by place of permanent residence of mother 2004-2017

Births of alive infants by place of permanent residence of mother 2004-2017			
Region	**2004**	**2010**	**2017**
Greece total	105,444	114,551	88,437
Central Makedonia	18,549	19,968	14,423
Thessaloniki	11,604	12,702	9,145
Kilkis	683	750	499
Pella	1,351	1,343	1,013
Serres	1,302	1,241	984
Western Makedonia	2,560	2,662	1,986
Florina	476	516	371

Sourse: Elstat

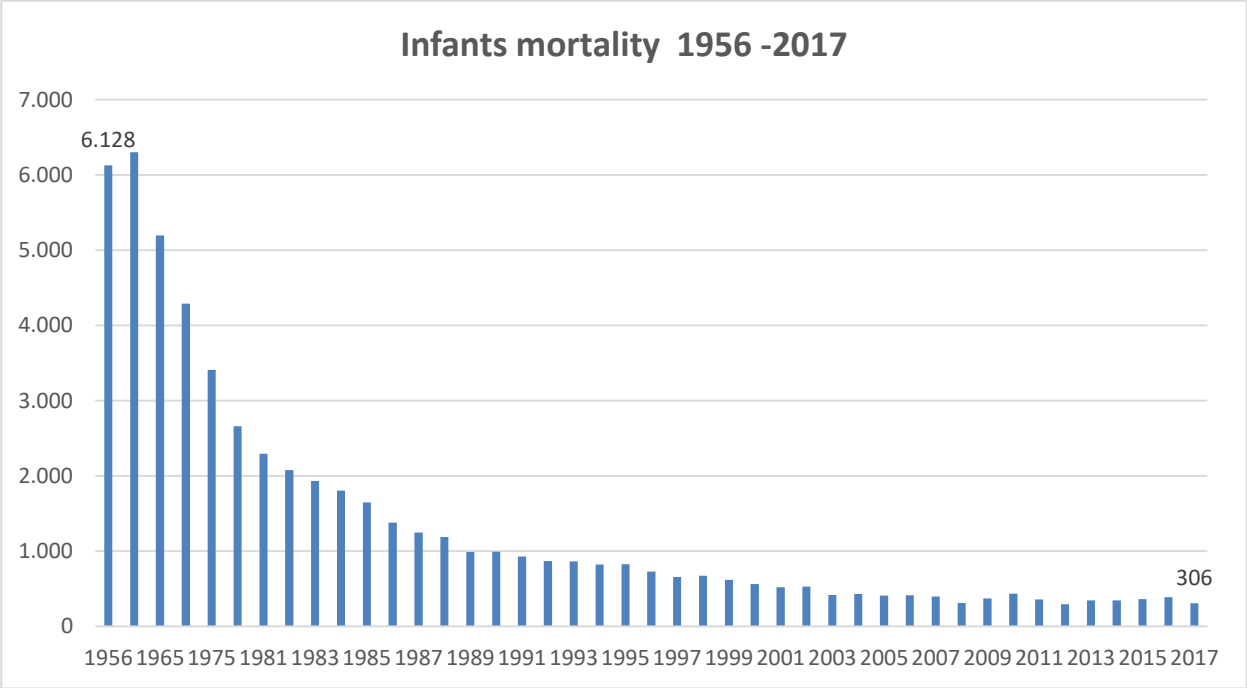
Both in the country total, as well as in the regions of Central and Western Macedonia, deaths for 2017 are significant higher than births. In Central Makedonia, 7,100 more deaths were recorded in relation to births (14,423 births and 21,523 deaths), while Western Makedonia appears to be at a disadvantage, since the number of deaths is almost twice the number of births (1,986 and 3,386 respectively). The regional unit of Serres is in the most unfavorable position, where mortality is 2.7 higher than births.

Table 14 Difference between mortality and births 2017

Difference between mortality and births 2017			
Region	**Births**	**Mortality**	**Difference**
Greece total	88,436	124,501	36,065
Central Makedonia	14,423	21,523	7,100
Thessaloniki	9,145	11,187	2,042
Kilkis	499	1,240	741
Pella	1,013	1,877	864
Serres	984	2,677	1,693
Western Makedonia	1,986	3,386	1,400
Florina	371	636	265

Sourse: Elstat

Figure 11 Infants mortality 1956 -2017



Sourse: Eurostat

5.3 Life expectancy

Life expectancy at birth has increased steadily. In 2017, life expectancy at birth reached 81.4 years in Greece. As in other EU countries, there is still a substantial gender gap, with women living on average five years more than men (84 years versus 79). Regions of Central and western Makedonia keep up with the rates of the whole country, both in their total population and in their gender dimension.

Table 15. Life expectancy at birth 2013-2017

Life expectancy at birth 2013-2017						
Region	**Gender**	**2013**	**2014**	**2015**	**2016**	**2017**
Country Total	**All**	81.4	81.5	81.1	81.5	**81.4**
	Males	78.7	78.8	78.5	78.9	**78.8**
	Females	84.0	84.1	83.7	84.0	**83.9**
Central Makedonia	**All**	81.3	81.2	81.0	81.3	**81.4**
	Males	78.8	78.5	78.5	78.7	**79.0**
	Females	83.7	83.9	83.5	83.9	**83.7**
Western Makedonia	**All**	81.3	82.2	81.5	81.8	**82.2**
	Males	79.1	79.9	79.5	79.6	**80.0**
	Females	83.6	84.7	83.7	84.1	**84.6**

Source: Eurostat

Based on the most recent data for 2017, Life Expectancy at age of 65 years is 20.1 years for total Greece, while for the regions of Central and Western Macedonia are 20 and 20.6 years respectively. Compared to 2000, life expectancy at age 60 has increased by two years for country's total. Western Makedonia is in line with the whole country, while life expectancy in Central Macedonia has increased by three years.

Table 15 shows Life Expectancy at age of 65 at country and region level for 2000, 2010 and 2013 for both genders.

Table 16. Life expectancy at age of 65 1990-2017

Life expectancy at age of 65 1990-2017			
Year	**2000**	**2010**	**2017**
Both Genders			
Country Total	18.0	19.7	**20.1**

Life expectancy at age of 65 1990-2017			
Year	**2000**	**2010**	**2017**
Central Makedonia	17.2	19.1	**20.0**
Western Makedonia	17.8	19.5	**20.6**
Males			
Country Total	16.7	18.2	18.6
Central Makedonia	15.6	17.7	18.6
Western Makedonia	16.8	18.4	19.2
Females			
Country Total	19.2	21.0	21.4
Central Makedonia	18.5	20.4	21.3
Western Makedonia	18.8	20.6	21.9

Source: Eurostat

6. Population Health status

6.1 Data from the health research of the National Statistical Authority

The estimation of population's health profile and the design of health policies must take into consideration the measurement of population's morbidity. One approximate method for measuring morbidity is to observe the number of discharges from the country's hospitals, by disease category. However, this is not always the optimal option. The main reason is the question of how the data are collected and whether the recording correspond with unique patients or not. In addition, the most recent data by disease category are reported in 2013 and should, therefore, be used with some caution. The current patients with primary disease category in Greece in the years 2013 are presented in the table below:

Table 17. Discharged by disease category and place of residence 2013

Discharged by disease category and place of residence 2013						
Disease category	**Total Greece**	**Thessaloniki**	**Kilkis**	**Pella**	**Serres**	**Florina**
Total causes	1,597,333	153,865	13,124	22,182	26,794	7,723
Infectious and parasitic diseases	39,470	2,801	396	675	416	178
Neoplasms	193,674	21,093	1,684	2,703	3,522	933
Diseases of blood and bloodforming organs	31,703	2,321	199	354	334	108
Endocrine and metabolic diseases, nutritional deficiencies immunity disorders	31,616	3,649	172	397	511	191
Mental disorders	35,366	4,608	314	461	472	125
Diseases of the nervous system and sense organs	51,175	6,086	374	573	1,157	205
Diseases of the eye and its components	56,321	5,823	882	638	1,573	240
Diseases of the ear and mastoid process	7,566	764	49	84	211	36
Diseases of the circulatory system	201,076	20,285	2,006	3,087	5,000	1,302
Diseases of the respiratory system	131,192	9,894	1,170	1,904	1,828	571
Diseases of the digestive system	158,583	15,004	1,054	2,221	2,775	840
Diseases of skin and subcutaneous tissue	21,326	1,423	148	268	236	100
Diseases of the musculoskeletal system and connective tissue	60,156	5,502	527	738	811	552
Diseases of genito-urinary system	133,930	11,937	885	2,049	1,985	514

Discharged by disease category and place of residence 2013						
Disease category	**Total Greece**	**Thessaloniki**	**Kilkis**	**Pella**	**Serres**	**Florina**
Complications of pregnancy, childbirth, and the puerperium	112,394	12,641	743	1,844	1,448	494
Certain conditions originating in the perinatal period	25,257	1,620	98	141	168	61
Congenital anomalies	7,980	847	35	91	109	26
Symptoms signs and ill-defined conditions	147,669	12,482	1,124	1,851	1,691	453
Injury and poisoning	111,164	11,277	1,063	1,666	2,197	556
External causes of morbidity and mortality	16,691	1,634	100	274	134	87
Factors affecting health status and contact with health services	23,024	2,174	101	163	216	151

Sourse: Elstat

The main causes of hospitalization of patients in Greece for 2013 were the Diseases of the circulatory system, Neoplasms, Diseases of the digestive system, Symptoms signs and ill-defined conditions and Diseases of genito-urinary system.

Regarding the main causes of hospitalization of patients for the Region of Macedonia in 2013 compared to the Total Country, we observe the number of discharges by disease category for the Regions Units of Central and Western Macedonia is approximately at the same level as for the whole country.

The table 15 shows the number of discharged at country and region level for 1996 and 2013 as well as the rate change for this period for the entire country and the reference regions.

We observe that over the years morbidity level of total Greece has increased by 5.8%, which morbidity level of Central and Western Makedonia has increased only by 1.7%. Disease with high incidence increase are Neoplasms both for country total (35.46384%) and regions of Central and Western Makedona (31.20958%). Diseases of nervous system and Injury – Poisoning show a strong decrease both for country total (-46.4624%, -21.1614% respectively) and regions of Central and Western Makedona (-41.545%, -17.0298% respectively). Moreover, diseases of Endocrine and metabolic system, nutritional deficiencies immunity disorders, Infectious and parasitic diseases, Diseases of skin and subcutaneous tissue and Complications of pregnancy, childbirth, and the puerperium has reduce their number of incidents over the years. It is noteworthy that while Diseases of blood and blood forming organs have increased their incidence at country level (20.6%), at regions of Central and Western Makedonia have reduced their rate (-16.2%). The same has also occurred for Diseases of genito-urinary system.

Table 18. Discharged by disease category and place of residence 1997-2013

Discharged by disease category and place of residence 1996-2013						
Disease category	2013		1996		% change (1996-2013)	
	Total Greece	Central and Western Makedonia	Total Greece	Central and Western Makedonia	Total Greece	Central and Western Makedonia
Total causes	1,597,333	312,553	1,508,506	307,249	5.888409	1.726287
Infectious and parasitic diseases	39,470	6,674	45,576	8,731	-13.3974	-23.5597
Neoplasms	193,674	41,188	142,971	31,391	35.46384	31.20958
Diseases of blood and blood forming organs	31,703	4,893	26,288	5,841	20.59875	-16.2301
Endocrine and metabolic diseases	31,616	6,541	34,351	7,575	-7.96192	-13.6502
Mental disorders	35,366	8,208	35,604	7,213	-0.66846	13.79454
Diseases of the nervous system	51,175	10,889	95,587	18,628	-46.4624	-41.545
Diseases of the circulatory system	201,076	44,025	218,339	47,552	-7.90651	-7.41714
Diseases of the respiratory system	131,192	21,887	126,661	21,935	3.577265	-0.21883
Diseases of the digestive system	158,583	31,020	166,945	33,011	-5.00884	-6.03132
Diseases of skin and subcutaneous tissue	21,326	3,396	25,841	5,033	-17.4722	-32.5253
Diseases of the musculoskeletal system and connective tissue	60,156	11,482	61,643	13,772	-2.41228	-16.6279
Diseases of genito-urinary system	133,930	24,716	126,153	27,604	6.164736	-10.4623
Complications of pregnancy, childbirth, and the puerperium	112,394	23,711	125,298	27,807	-10.2986	-14.7301
Certain conditions originating in the perinatal period	25,257	2,815	17,069	2,879	47.97	-2.22299

Discharged by disease category and place of residence 1996-2013						
Disease category	2013		1996		% change (1996-2013)	
	Total Greece	Central and Western Makedonia	Total Greece	Central and Western Makedonia	Total Greece	Central and Western Makedonia
Congenital anomalies	7,980	1,559	11,686	2,33	**-31.7132**	**569,0987**
Symptoms signs and ill-defined conditions	147,669	25,308	107,492	17,861	**37.37674**	**41.69419**
Injury and poisoning	111,164	23,303	141,002	28,086	**-21.1614**	**-17.0298**

Sourse: Elstat

6.2 Data from the health research "Health and Welfare" of the National School of Public Health

The following analysis utilizes primary data from the ongoing health interview survey "Health and Welfare", organized by the Department of Health Economics of the National School of Public Health in Greece, which started in 2001. The main aim of the "Health and Welfare" survey is to assess the health status of respondents and to probe the use of health services in Greece.

For all the cross-sectional analysis, a representative national sample was selected and stratified by age, gender, geographic region and degree of urbanization.

The following analysis uses only the sample that includes the population of the Western and Central Macedonia Regions, and the results are contrasted with the results of the analysis of the country-wide sample. In addition, where possible, the results were compared with those of the respective health surveys of Eurostat and the Hellenic Statistical Authority (ELSTAT).

6.2.1 Health determinants

Numerous lifestyle habits have been identified as health determinants or risk factors, as they increase the risk of non-communicable diseases (NCDs), like cancer (Linardakis et al., 2015). According to World Health Organization (2010), globally, the main risk factors for chronic diseases are tobacco use, low fruit and vegetable consumption, being overweight and obesity, a sedentary lifestyle and alcohol abuse. Therefore, body mass index, alcohol consumption, tobacco use, physical activity and diet are considered important determinants of the health of the population.

Body Mass Index

The Body Mass Index (BMI) is considered to be the most appropriate way to measure obesity in the population. It is calculated on the basis of a person's weight, in kilograms, divided by the square of height, in meters.

According to the survey results (Table 1), the category the highest proportion of the Regions of Central and Western Macedonia population is overweight (39.7%), followed by those within Normal BMI Range (37.4%). However, there is a difference between females and males, as only the 30.6% for men are within the normal range in comparison to 43.9% for women. Correspondingly, males are more frequently overweight (46.8%), compared to females (32.9%). In both sexes, it is observed that in the 18-24 age group, the percentage of overweight is lower than in the following age groups. Obese people in the total population of the two Regions make up 21.3%, without any significant difference between genders.

Table 19. Body Mass Index (BMI) by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Underweight	Normal range	Overweight	Obese
Men	18 - 24	0.8%	67.5%	28.6%	3.2%
	25 - 39	0.6%	38.2%	41.3%	19.9%
	40 - 54	0.5%	23.8%	49.0%	26.7%
	55- 64	0.0%	20.4%	55.2%	24.4%
	65 +	0.3%	24.0%	51.1%	24.6%
	Total	0.4%	30.6%	46.8%	22.2%
Women	18 - 24	11.2%	71.6%	11.2%	6.0%
	25 - 39	5.2%	59.0%	24.0%	11.7%
	40 - 54	1.6%	45.5%	33.6%	19.2%
	55- 64	0.0%	30.5%	37.9%	31.7%
	65 +	0.3%	22.0%	47.8%	29.8%
	Total	2.8%	43.9%	32.9%	20.4%
Total	18 - 24	5.8%	69.4%	20.2%	4.5%
	25 - 39	3.1%	49.5%	31.9%	15.5%

Gender	Age	Underweight	Normal range	Overweight	Obese
	40 - 54	1.1%	35.1%	41.0%	22.8%
	55- 64	0.0%	25.6%	46.1%	28.2%
	65 +	0.3%	23.1%	49.5%	27.1%
	Total	1.6%	37.4%	39.7%	21.3%

Compared to the results of the survey on the body mass index for the entire Greek population, there is a slight difference in the Normal range and Obese categories. Specifically, country-wide population has a higher frequency in the Normal range of 2.3% while the population of the Regions of Central Macedonia and Western Macedonia has a higher percentage of obese participants by 1.9% .

In a similar survey by the Hellenic Statistical Authority (ELSTAT), for the entire Greek population, the values of underweight, normal range, overweight and obese were 2.2%, 41.6%, 39.2% and 17%, respectively. Therefore, in relation to the ELSTAT survey, the population of Central and Western Macedonia shows a lower frequency in the Underweight and Normal range and an increased frequency in the Overweight and Obese categories.

In comparison with Eurostat result on the body mass index of the European population, It is observed that the frequency in the overweight and obese categories for the Greek population as recorded by the 2 above mentioned surveys is higher than the European population.

Alcohol consumption

The survey records data on the consumption of alcoholic drinks of any kind, like beer, wine, spirits, whisky etc.

Over half of the population in Central and Western Macedonia consumes alcohol either occasionally (27.8%) or once or twice a week (25.9%). A significant proportion of population consumes no alcohol at all (27.9%), while almost one in ten consume alcohol 3 to 6 times a week. Daily consumption makes up 7.8% of the population. There is a significant variation in alcohol consumption by sex. Women are more likely to either not drink alcohol at all (39.9%) or occasionally (32.5%) than men (15.4% and 22.9% respectively), while the males are overrepresented in the other categories. However, the category of daily alcohol consumption stands out, with 13.8% of men consuming alcohol every day in comparison to only 2.0% of women. In terms of age groups, 18-24-year-olds have the lowest incidence of non-alcohol consumption as well as daily alcohol consumption. The age group with the highest daily intake of both sexes is 65 years and over.

Table 20. Alcohol consumption by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Never	Occasionally	1-2 days per week	3-4 days per week	5-6 days per week	Every day
Men	18 - 24	7.5%	29.0%	44.1%	14.0%	3.2%	2.2%
	25 - 39	13.9%	23.2%	44.3%	11.4%	2.5%	4.6%
	40 - 54	16.8%	23.3%	33.6%	11.3%	4.5%	10.6%
	55- 64	17.6%	26.7%	23.0%	9.1%	4.2%	19.4%
	65 +	16.6%	17.0%	20.7%	9.5%	8.7%	27.4%
	Total	15.4%	22.9%	32.3%	10.8%	4.9%	13.8%
Women	18 - 24	9.9%	44.4%	35.8%	7.4%	1.2%	1.2%
	25 - 39	31.4%	34.8%	27.2%	4.2%	1.4%	1.0%
	40 - 54	38.4%	33.4%	21.3%	4.1%	0.9%	1.9%
	55- 64	52.8%	29.2%	7.9%	5.1%	2.8%	2.2%
	65 +	54.5%	26.1%	11.8%	2.8%	0.9%	3.8%
	Total	39.9%	32.5%	19.9%	4.3%	1.4%	2.0%
Total	18 - 24	8.6%	36.2%	40.2%	10.9%	2.3%	1.7%
	25 - 39	23.5%	29.6%	34.9%	7.4%	1.9%	2.7%
	40 - 54	28.1%	28.6%	27.1%	7.5%	2.6%	6.0%
	55- 64	35.9%	28.0%	15.2%	7.0%	3.5%	10.5%
	65 +	34.3%	21.2%	16.6%	6.4%	5.1%	16.4%
	Total	27.9%	27.8%	25.9%	7.5%	3.1%	7.8%

According to the results of the survey, there is no significant difference in alcohol consumption between the population of the Central and Western Macedonia Regions and the entire Greek population, as the differences appear to be almost one to two percentage points in each category (see Appendix).

According to Eurostat, 23.9% of the European population consumes no alcohol, while for Greece the frequency of non-alcohol consumption is 32.1%, slightly higher than the survey result. On the contrary, the daily consumption of alcohol for the Greek population (6.9%) is slightly lower than that of the survey (8.6%) but still lower than the European population (9.2% of it consumes daily alcohol). Consequently, the population of the Regions of Central and Western Macedonia has a lower incidence of daily alcohol consumption and a higher incidence of non-alcohol consumption than the European population.

Vegetables and fruit consumption

Table 21 presents the daily consumption of fruits and vegetables of the population in the Regions of Central and Western Macedonia, stratified by age group and sex. It is notable that the majority of all age groups of both genders, consumes less than 5 portions of fruits and vegetables daily. There is no significant differentiation between the two genders, while in terms of age, people in the younger group consume more than five portions of fruit and vegetables less often than older groups.

Table 21. Daily consumption of fruits and vegetables, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Less than 5 portions	5 portions or more
Men	18 - 24	84.9%	15.1%
	25 - 39	85.1%	14.9%
	40 - 54	83.5%	16.5%
	55- 64	75.0%	25.0%
	65 +	75.5%	24.5%
	Total	80.8%	19.2%
Women	18 - 24	83.8%	16.3%
	25 - 39	89.3%	10.7%
	40 - 54	80.8%	19.2%
	55- 64	72.5%	27.5%
	65 +	74.5%	25.5%
	Total	80.7%	19.3%
Total	18 - 24	84.4%	15.6%
	25 - 39	87.4%	12.6%
	40 - 54	82.1%	17.9%
	55- 64	73.7%	26.3%
	65 +	75.1%	24.9%
	Total	80.7%	19.3%

The same applies to the entire population, according to the survey, as the majority of the Greek population (81.2%) consumes less than 5 servings of fruits and vegetables per day (see Appendix). Consequently, there is no difference in the consumption of fruits and vegetables between the population of the Regions of central and western Macedonia and the total population of Greece.

However, according to Eurostat, consumption of 5 portions or more per day by the Greek population is lower (7.8%) compared to the results of the survey, while there is no significant difference in the consumption of vegetables and fruits between men and women. In contrast, the European population consumes five or more portions of vegetables and fruits more often, but there is a gender difference, with women following the guidance more often than men (17.2% vs. 11.1%).

Fatty fish consumption

The frequent consumption of fatty fish is among the Greek dietary guidelines. Table 22 shows the consumption of fatty fish such as sardines, mackerel, salmon by the population in the Regions of Central and Western Macedonia, stratified by age group and sex. The majority of the population (87.3%) consume fatty fish less than twice a week. Women eat less frequently fatty fish than men, while the age group in the two Regions with the highest consumption of fatty fish is 65 years and over.

Table 22. Fatty fish consumption, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Less than 2 times per week	2 or more times per week
Men	18 - 24	84.1%	15.9%
	25 - 39	86.9%	13.1%
	40 - 54	90.0%	10.0%
	55- 64	83.3%	16.7%
	65 +	84.5%	15.5%
	Total	86.4%	13.6%
Women	18 - 24	91.7%	8.3%
	25 - 39	87.8%	12.2%
	40 - 54	88.3%	11.7%
	55- 64	90.6%	9.4%
	65 +	85.0%	15.0%
	Total	88.2%	11.8%
Total	18 - 24	87.7%	12.3%
	25 - 39	87.4%	12.6%
	40 - 54	89.1%	10.9%
	55- 64	87.2%	12.8%
	65 +	84.7%	15.3%
	Total	87.3%	12.7%

Across the country, 84.6% of population consumes fatty fish, less than twice a week, according to the survey. In addition, men consume 2 or more times a week, fatty fish more often than women. Overall, the population of the Regions of Central and Western Macedonia consumes fatty fish 2 or more times a week more often than the whole country, for both sexes.

Red meat consumption

The majority of population (56.6%) in the Central and Western Macedonia regions consume red meat at least twice a week, while the recommendation is to not exceed once a week. Specifically, according to the survey results, 35.9% consumed red meat twice a week and 20.7% three or more times a week. Correspondingly, 32.8% reported consumption of red meat once a week and 10.5% reported consumption less than once a week. There is a gender difference with men eating red meat more frequently, with women more likely to include it in their diet “once a week” than men (36% vs. 29.5%), and men more likely to eat red meat “three or more times a week” than women (25.2% vs. 16.5%). Regarding age groups, it is observed that as the age increases the frequency of red meat consumption decreases with the exception of the over 65 age group.

Table 23. Red meat consumption, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Less than once per week	Once per week	Twice per week	Three or more times per week
Men	18 - 24	7.6%	26.1%	31.5%	34.8%
	25 - 39	3.0%	23.6%	38.0%	35.4%
	40 - 54	5.8%	28.5%	42.6%	23.0%
	55- 64	14.6%	38.4%	32.3%	14.6%
	65 +	18.1%	31.5%	29.0%	21.4%
	Total	9.6%	29.5%	35.7%	25.2%
Women	18 - 24	6.2%	27.2%	44.4%	22.2%
	25 - 39	6.6%	32.8%	39.0%	21.6%
	40 - 54	11.6%	36.1%	36.4%	16.0%
	55- 64	14.1%	41.8%	31.6%	12.4%
	65 +	17.5%	38.9%	32.2%	11.4%
	Total	11.4%	36.0%	36.1%	16.5%
Total	18 - 24	6.9%	26.6%	37.6%	28.9%
	25 - 39	5.0%	28.6%	38.5%	27.9%
	40 - 54	8.9%	32.5%	39.3%	19.3%
	55- 64	14.4%	40.2%	32.0%	13.5%
	65 +	17.8%	35.0%	30.5%	16.7%
	Total	10.5%	32.8%	35.9%	20.7%

According to the results of the survey, there is no significant difference between the population of the Western and Central Macedonia Regions and the population of the whole country, as the differences observed in the categories are one to two percentage points. On the contrary, there is a difference with the results of ELSTAT in the 'once a week' category, as the proportion for the whole population of the country amounts to 41%, which is significantly higher than the result of the survey. This differentiation may be explained by the different coding of the variables.

Physical activity

The following table (Table 24) shows the frequency of non-work related physical activity of the population of the Regions of Central and Western Macedonia, stratified by sex and age. 25.6% of the population of the two Regions have physical activity 5 to 7 times per week, 16.8% 3 to 4 times per week, 11.5% 2 times per week, and 12% one-time per week or less. 34.1% of population of Central and Western Macedonia reported never undertaking any physical activity beyond work. However, there are differences between the genders: 30.6% of men have physical activity 5 to 7 days per week as opposed to women (20.7%). Moreover, 40.9% of women have never non-work related physical activity (versus 27.0% of men). Similar rates and differences between the genders are present in the whole population of the country (see Appendix). Compared to the population of Greece, the population of the regions of

interest reported less frequently that they did no non-work related physical activity (34.1% vs. 38.1%), and also that they did more often non-work related physical activity 5 7 times per week (25.6% vs. 22.1%).

Table 24 Performing non-work related physical activity per week, of population of Central and Western Macedonia.

Gender	Age	5-7 times	3-4 times	2 times	1 time	Less than 1 time	never
Men	18 - 24	31.6%	21.1%	21.1%	10.5%	0.0%	15.8%
	25 - 39	28.3%	19.6%	17.4%	6.5%	6.5%	21.7%
	40 - 54	27.4%	25.8%	8.1%	12.9%	3.2%	22.6%
	55- 64	23.1%	19.2%	0.0%	7.7%	7.7%	42.3%
	65 +	41.9%	4.7%	4.7%	7.0%	7.0%	34.9%
	Total	30.6%	18.4%	9.7%	9.2%	5.1%	27.0%
Women	18 - 24	11.1%	16.7%	22.2%	0.0%	0.0%	50.0%
	25 - 39	18.8%	29.2%	6.2%	6.2%	2.1%	37.5%
	40 - 54	15.4%	13.5%	19.2%	11.5%	3.8%	36.5%
	55- 64	18.8%	18.8%	25.0%	3.1%	6.2%	28.1%
	65 +	32.1%	1.9%	3.8%	3.8%	5.7%	52.8%
	Total	20.7%	15.3%	13.3%	5.9%	3.9%	40.9%
Total	18 - 24	21.6%	18.9%	21.6%	5.4%	0.0%	32.4%
	25 - 39	23.4%	24.5%	11.7%	6.4%	4.3%	29.8%
	40 - 54	21.9%	20.2%	13.2%	12.3%	3.5%	28.9%
	55- 64	20.7%	19.0%	13.8%	5.2%	6.9%	34.5%
	65 +	36.5%	3.1%	4.2%	5.2%	6.2%	44.8%
	otal	25.6%	16.8%	11.5%	7.5%	4.5%	34.1%

Tobacco consumption

The following table (Table 26) shows the consumption of tobacco, stratified by sex and age. 34.6% of population of Central and Western Macedonia are smokers, 14.7% have smoked in the past but have stopped smoking, and 50.7% are not smokers, nor have they been in the past. Women are more likely to be non-smokers than men (58.6% vs. 42.4%). In addition, 9.2% of women reported having smoked in the past, compared to 20.5% of men. In terms of age groups, the age group with the highest percentage of smokers compared to the rest is 40-54 years old, followed by the 25-39 age group. The age group of over 65 has the smallest proportion of smokers. A common observation in both sexes is that as the age increases, the proportion of smokers increases, up to the age of 40 to 54, followed by a decrease in the proportion of smokers in the older groups.

Based on the results of the survey, there are no significant differences between the smoking rates of the population of the Western and Central Macedonia Regions and the population of the country (see Appendix).. However, there is a difference between the rates of smokers in the two Regions and

between the percentage of smokers in the European population. In particular, according to Eurostat, smokers in Europe, daily or occasionally, make up 23.9% of the population in comparison to 34.6% in the target areas. ELSTAT's figures report a 32,6% of occasional and daily smokes across Greece, slightly lower than the survey but still higher than the European average.

Table 25. Tobacco consumption, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Non smoker	Smoker	Used to smoke in the past
Men	18 - 24	61.8%	31.8%	6.4%
	25 - 39	39.8%	48.4%	11.8%
	40 - 54	34.2%	47.9%	17.9%
	55- 64	45.4%	29.4%	25.3%
	65 +	45.6%	19.8%	34.6%
	Total	42.4%	37.1%	20.5%
Women	18 - 24	67.0%	29.9%	3.1%
	25 - 39	52.2%	36.2%	11.6%
	40 - 54	47.9%	42.9%	9.2%
	55- 64	59.3%	29.0%	11.7%
	65 +	78.7%	15.1%	6.2%
	Total	58.6%	32.3%	9.2%
Total	18 - 24	64.3%	30.9%	4.8%
	25 - 39	46.6%	41.7%	11.7%
	40 - 54	41.3%	45.3%	13.4%
	55- 64	52.7%	29.2%	18.1%
	65 +	61.4%	17.6%	21.1%
	Total	50.7%	34.6%	14.7%

The following Table shows the daily consumption of cigarettes by smokers. The majority of population of Central and Western Macedonia (79.1%) smokes up to 20 cigarettes per day, while 20 to 40 cigarettes daily and over 40 cigarettes daily smoke 18.2% and 2.7% of the population respectively. Men are more likely to smoke more than 20 cigarettes per day than women. It is noteworthy that only 0.2% of women smoke more than 40 cigarettes per day, while the corresponding figure for men is 4.9%. In terms of age groups, over half of smokers aged 18 to 24 smoke 1 to 10 cigarettes per day, while in the following age groups, the majority smoke 11 to 20 cigarettes per day. Based on the results of the survey, there is no difference between the percentages of cigarettes smoked by smokers of the population of Central and Western Macedonia and the population of the country.

Table 26. Daily consumption of cigarettes, by sex and age of smokers of population in the Regions of Central and Western Macedonia

Gender	Age	1-10 cigarettes per day	11-20 cigarettes per day	21-40 cigarettes per day	41 or more cigarettes per day
Men	18 - 24	54.3%	31.4%	14.3%	0.0%
	25 - 39	33.3%	45.2%	20.0%	1.5%
	40 - 54	23.2%	42.3%	29.2%	5.4%
	55- 64	22.8%	36.8%	28.1%	12.3%
	65 +	39.3%	30.4%	23.2%	7.1%
	Total	30.6%	40.1%	24.4%	4.9%
Women	18 - 24	48.3%	37.9%	13.8%	0.0%
	25 - 39	49.2%	41.8%	9.0%	0.0%
	40 - 54	40.5%	47.2%	12.3%	0.0%
	55- 64	38.7%	50.0%	9.7%	1.6%
	65 +	25.6%	56.4%	17.9%	0.0%
	Total	41.9%	46.3%	11.6%	0.2%
Total	18 - 24	51.6%	34.4%	14.1%	0.0%
	25 - 39	40.9%	43.6%	14.8%	0.8%
	40 - 54	31.7%	44.7%	20.8%	2.7%
	55- 64	31.1%	43.7%	18.5%	6.7%
	65 +	33.7%	41.1%	21.1%	4.2%
	Total	36.0%	43.1%	18.2%	2.7%

However, according to ELSTAT, the values of the percentages of the categories '1 to 10 cigarettes a day' and '11 to 20 cigarettes a day' are different. Specifically, 1 to 10 cigarettes a day smokes 30% of Greek population, while 11 to 20 cigarettes a day smokes 47.7% of Greek population. The values of the percentages in the others categories are similar to those of the survey.

6.2.2 Health status

Self-perceived health status

Self-perceived health status is a measure widely used, as it is closely associated with objective health status and health care demand. It is a useful indicator of health care needs when designing programs and is highly sensitive to social factors that cause health inequalities (Fernandez-Martinez et al., 2012).

The majority of the population of the regions of Central and Western Macedonia reported Good or Very Good Health Status (68.5%). Moreover, 24% of population reported Fair Health Status and 7.6%, Poor or Very Poor. With regards to genders, men were more frequently reported to have Very Good Health (31.6% vs. 26.9%) and Good Health (41.7% vs. 37.0%). On the other hand, women reported Fairer Health status more frequently, while in the Bad and Very Bad categories, no significant differences were

observed. In terms of age groups, 0.4% of 18- to 24-year-olds reported Bad or Very Bad Health Status. It seems, that as the age group increases, the proportion of people who reported Bad or Very Bad Health Status increases too.

Table 27. Self-perceived health status, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Very Bad	Bad	Fair	Good	Very Good
Men	18 - 24	0.0%	0.0%	8.6%	33.6%	57.8%
	25 - 39	0.3%	1.2%	13.6%	40.7%	44.1%
	40 - 54	1.7%	3.7%	18.5%	47.2%	28.9%
	55- 64	2.2%	9.0%	21.5%	40.8%	26.5%
	65 +	3.1%	10.2%	31.8%	39.5%	15.4%
	Total	1.6%	5.1%	20.0%	41.7%	31.6%
Women	18 - 24	0.0%	0.9%	17.2%	41.4%	40.5%
	25 - 39	0.8%	1.6%	16.3%	38.8%	42.6%
	40 - 54	1.6%	5.6%	26.2%	36.6%	30.0%
	55- 64	4.1%	9.9%	36.2%	36.2%	13.6%
	65 +	4.7%	11.0%	42.3%	34.3%	7.7%
	Total	2.3%	6.0%	27.8%	37.0%	26.9%
Total	18 - 24	0.0%	0.4%	12.7%	37.3%	49.6%
	25 - 39	0.6%	1.4%	15.0%	39.7%	43.3%
	40 - 54	1.7%	4.7%	22.5%	41.6%	29.5%
	55- 64	3.2%	9.4%	29.2%	38.4%	19.7%
	65 +	3.8%	10.6%	36.9%	37.0%	11.7%
	Total	2.0%	5.6%	24.0%	39.3%	29.2%

Based on the results of the survey, there are no differences in the percentages of categories of reported health status between the population of the Western and Central Macedonia Regions and the population of the country. However, ELSTAT for the whole country reports that Very Good Health stated 38.8% of the population, Good Health 36% and Fair 18.2% (see Annex). Consequently, 74.8% of population, according to the ELSTAT survey, stated Good or Very Good Health Status, which is higher than the percentage of the population of Central and Western Macedonia Regions, who stated Good or Very Good Health Status (68.5%). However, as far as the Bad and Very Bad Health Status, no significant differences were observed. Compared to the European population, the percentage of people reporting Good or Very Good Health Status is similar, as according to Eurostat this figure is 69.7% (See Annex).

Chronic condition

According to WHO (2010), chronic conditions are diseases characterized by a slow rate of development but of a long duration. Often, during the developmental period, no symptoms appear, and prolonged illness can lead to other complications in the patient's health (Bernell & Howard, 2016). The most

common types of chronic diseases, according to the WHO, are cardiovascular disease, such as heart attacks and strokes, some types of malignant neoplasia, respiratory diseases such as chronic obstructive pulmonary disease (COPD), and diabetes (WHO, 2005).

As shown in the following table, 40.7% of the population of the Western and Central Macedonia regions suffer from chronic diseases, with a higher frequency reported by women than men (45.4% vs. 35.9%). The lowest incidence is seen in the 18- to 25-year-old age group of men, where the proportion who reported having chronic illness is 5.5%. In the following age groups, there is an increase in this percentage, which is also true for the same age groups for women.

Table 28. Population in the Regions of Central and Western Macedonia, suffering from chronic health problem or chronic disease.

Gender	Age	Suffering from chronic disease
Men	18 - 24	5.5%
	25 - 39	18.0%
	40 - 54	29.1%
	55- 64	51.1%
	65 +	63.6%
	Total	35.9%
Women	18 - 24	17.2%
	25 - 39	25.4%
	40 - 54	40.9%
	55- 64	61.5%
	65 +	75.6%
	Total	45.4%
Total	18 - 24	11.1%
	25 - 39	22.0%
	40 - 54	35.3%
	55- 64	56.5%
	65 +	69.3%
	Total	40.7%

The country as a whole, according to research findings, shows similar rates. However, according to the ELSTAT survey for 2014, the proportion of people suffering from chronic disease is 49.7%. It is worth noting that in the previous ELSTAT survey for 2009, the corresponding figure was 39.7%. According to Eurostat, for 2017, 37% of the European population reported suffering from chronic illness, while the corresponding figures for men and women were 35% and 38.9%, respectively. Thus, there is a significant difference in the percentage of women from the regions of Central and Western Macedonia and the European population who reported having chronic illness (45.4% vs. 38.9%).

Prevalence of Chronic Conditions

Prevalence is a frequently used epidemiological measure of how commonly a disease or condition occurs in a population. Prevalence measures how much of some disease or condition there is in a population at a particular point in time (Le & Boen, 1995). Following, the prevalence of chronic conditions, which have been classified in groups by the organ or body system they affect, in the population in the Regions of Central and Western Macedonia is presented (Figure 12). It should be noted that the prevalence of each group in the next Graph is presented as the proportion of the number of the population affected by the disease, to the total population.

Cardiac and circulatory disorders are the most prevalent, with 15.7% of the population in the two regions suffering from these diseases. Metabolic & endocrine disorders and Orthopedic disorders have also high prevalence (11.3% and 8.6% respectively), while Otorhinolaryngologic disorders (0.2%) have the lowest prevalence. Significant differences are observed in the prevalence of some groups of chronic conditions between the genders. Specifically, Metabolic & endocrine disorders and Orthopedic disorders, were more prevalent in women (15.4% vs. 6.9%, and 12.4% vs. 4.6%, respectively). On the other hand, males had a higher prevalence of cardiac and circulatory disorders and Kidney & Urologic disorders (16.9% vs. 14.6% and 3.2% vs. 0.3%, respectively).

For all categories of chronic conditions, the highest prevalence is seen in people over 55 years of age. In contrast, the 18 to 24 year old age group had the lowest rate in all categories of diseases, with the exception of skin disorders. It is worth noting that for the category of cardiac and circulatory disorders, 41.2% of the population over the age of 65 reported having a chronic cardiac condition. A detailed table with the prevalence of each age group for each category of chronic condition is given in the Appendix.

Figure 12. Prevalence of each group of chronic conditions, in the Population in the Regions of Central and Western Macedonia

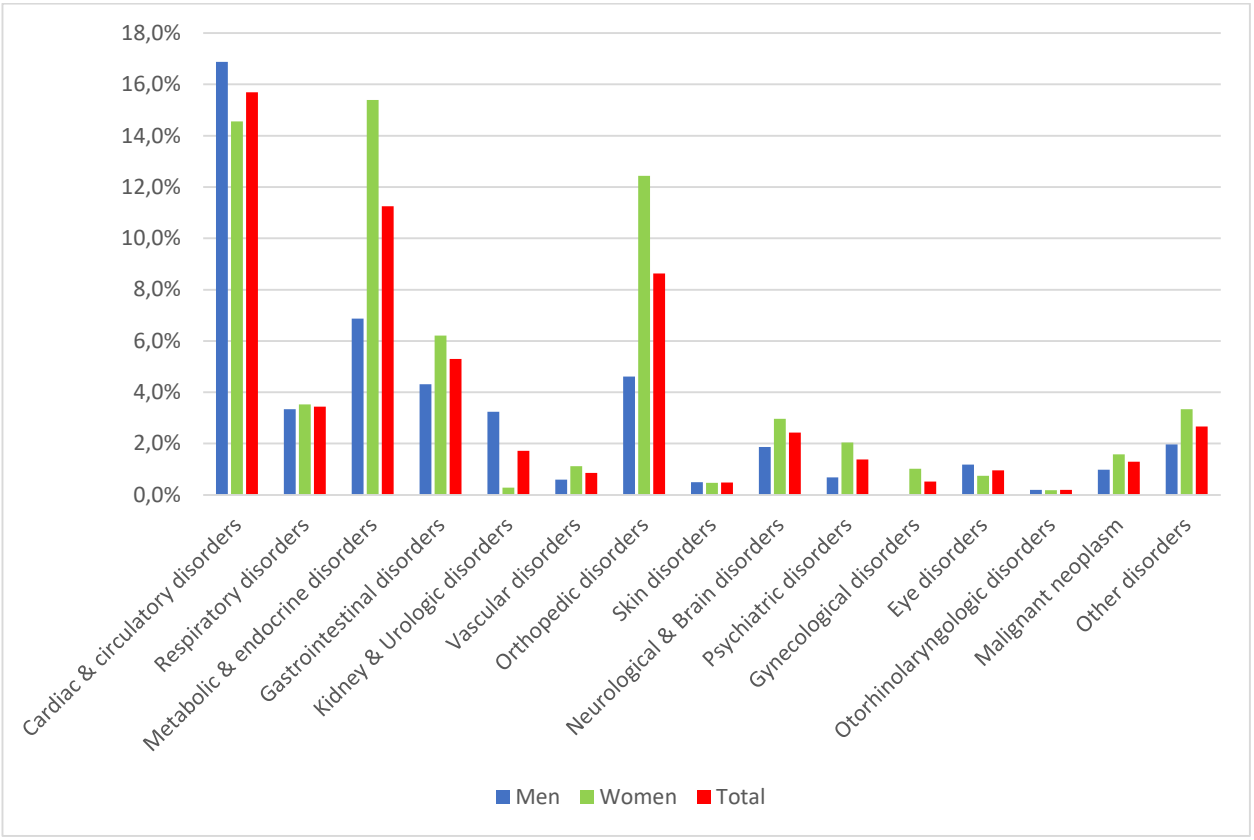
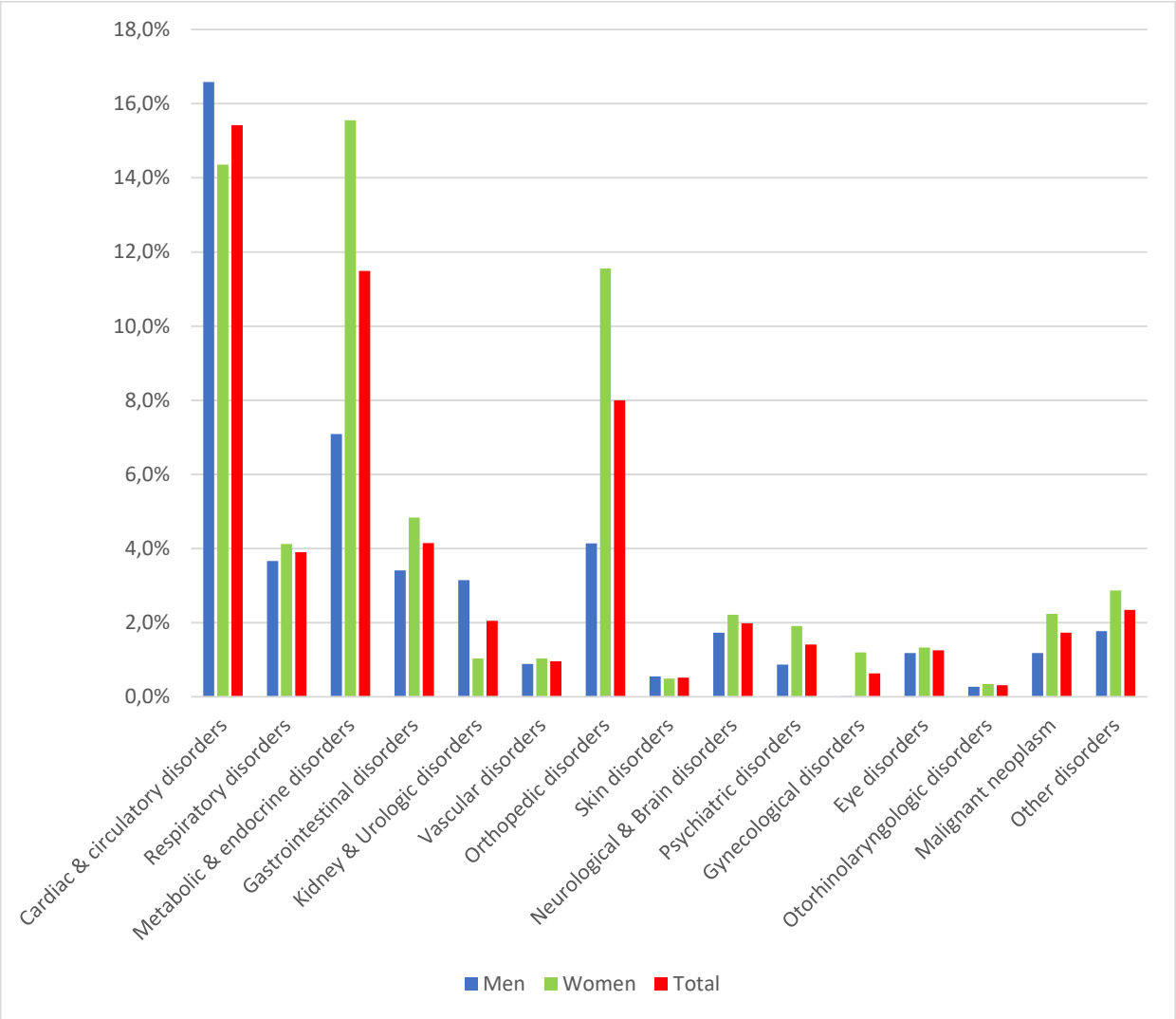


Figure 13 present the prevalence of each group of chronic conditions in the Greek population. There are no significant differences in the prevalence between the population of the two Regions and the population of the country. A detailed table of the prevalence of the categories of chronic diseases in the Greek population, according to the results of the survey, by sex and age is given in the Annex.

Figure 13. Prevalence of each group of chronic conditions in the Greece Population



Comorbidity

Comorbidity was introduced by Feinstein (1970) to describe the coexistence of two, or more, diseases or medical conditions in the same patient. The medical conditions can exist simultaneously and independently or interdependently with each other (Jakovljevic & Ostojic, 2013).

Figure 15 shows the prevalence of comorbidity in the population suffering from chronic conditions. Specifically, the Figure depicts the percentages of the population of the Western and Central Macedonia Regions, suffering from one to seven chronic conditions, which have been classified into categories of diseases as presented above, to the total number of people with chronic conditions.

As already mentioned, comorbidity is the coexistence of 2 or more diseases, so according to the results of the research 28.6% of the population of the two Regions, suffering from chronic diseases, has at least 2 different chronic diseases. More specifically, 17.7% of the population suffers from two chronic

conditions, 6.8% from three, 2.5% from four, and about 0.5% from five to seven. There are no significant differences between the genders, and as far as the age groups, the group 18 to 24 years old has only one chronic condition (see Annex). However, as the age increases, so does the frequency of comorbidity.

Figure 14. Prevalence of comorbidity among patient in the Regions of Central and Western Macedonia, with chronic conditions

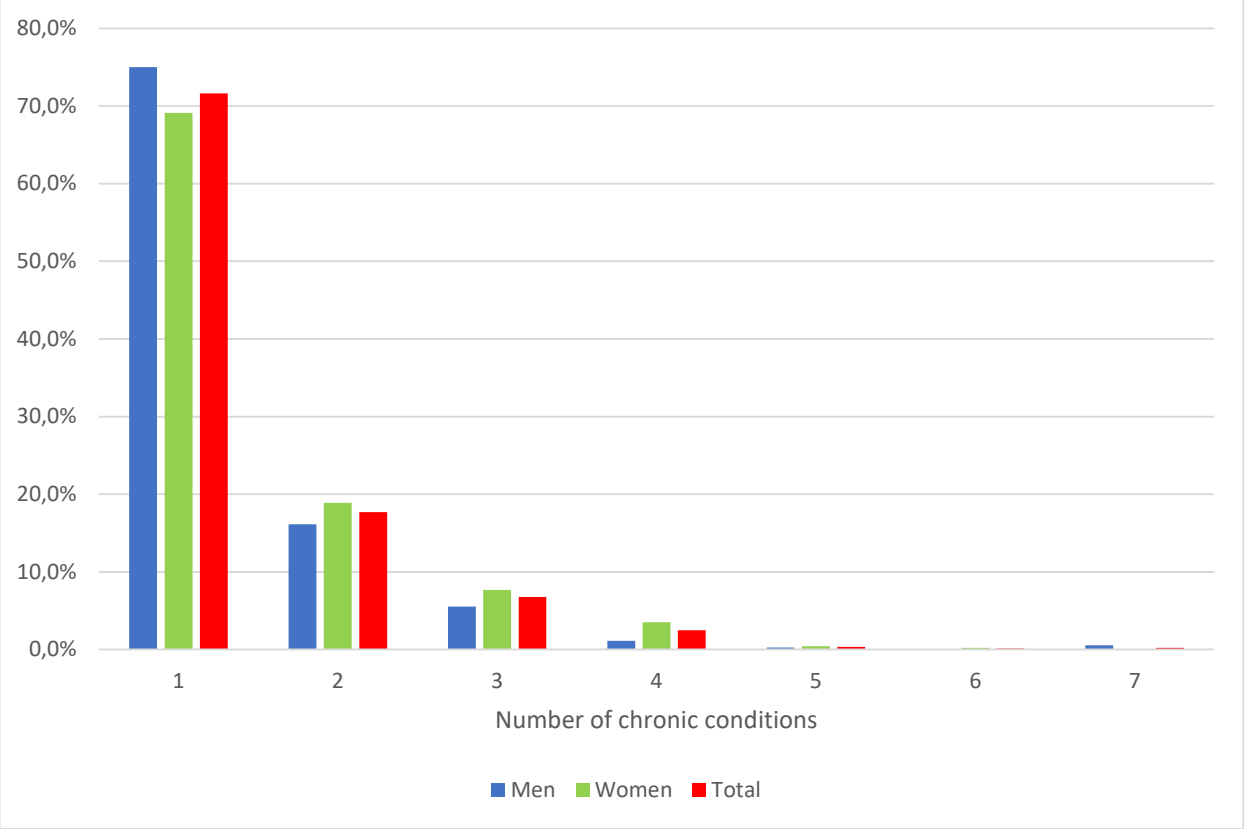
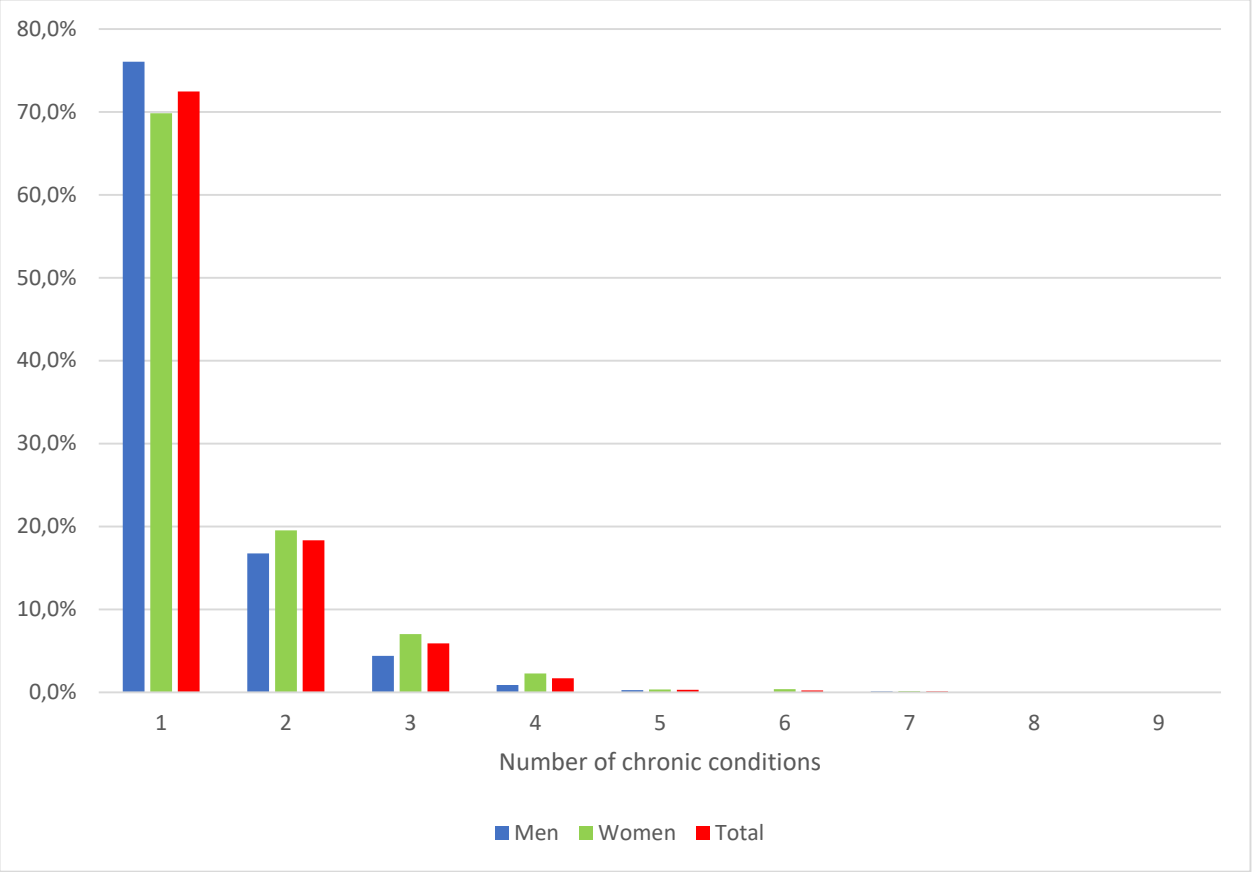


Figure 15 presents the comorbidity of the Greek population, as it emerged from the results of the survey. It is worth noting that there are cases of patients who have 9 different chronic diseases. However, these are very rare cases, with only 0.02% of the population suffering from chronic diseases, having 9 different diseases. Beyond that, there are no significant differences in the prevalence of comorbidity between the population of the Western and Central Macedonian Regions and the Greek population.

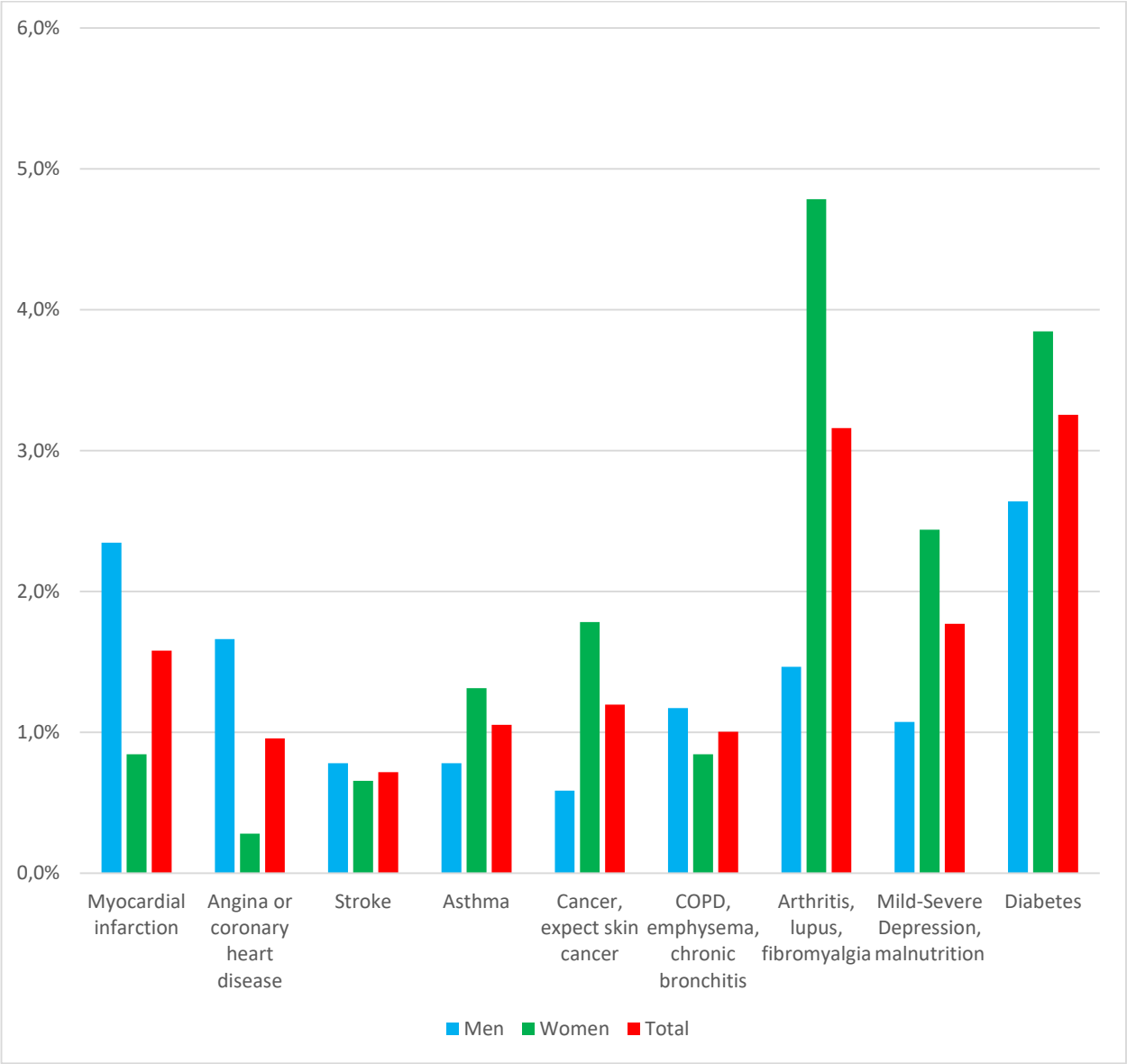
Figure 15. Prevalence of comorbidity among patient of Greek population, with chronic conditions



Prevalence of specific diseases

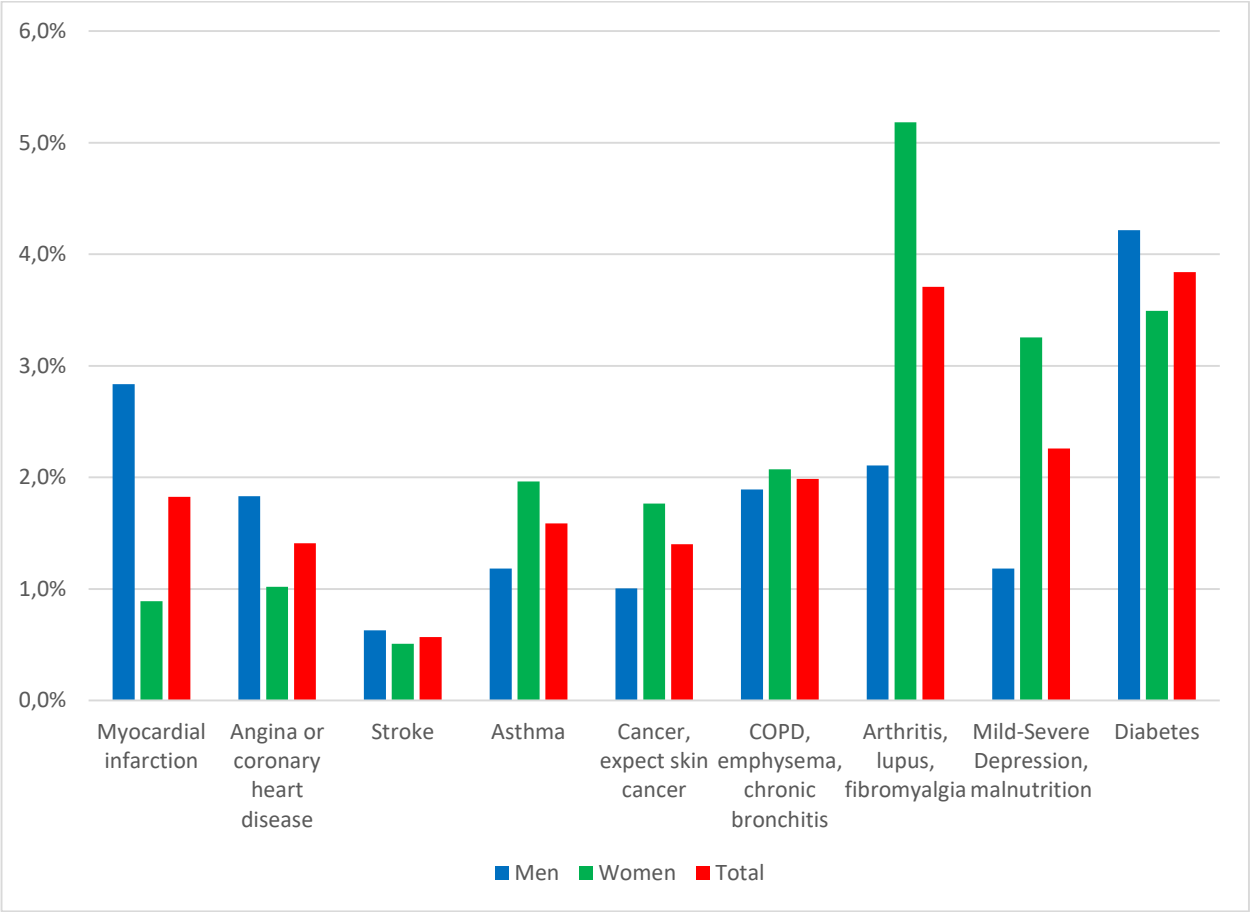
The following Figure is an estimate of the underlying diseases in the population of the Regions of Central and Western Macedonia. As shown in the Figure, the highest prevalence occurs in arthritis followed by diabetes and depression. However, women have a higher prevalence of arthritis compared to men (4.8% vs. 1.5%). On the contrary, men have a higher prevalence of myocardial infarction and angina or coronary heart disease.

Figure 16. Prevalence of specific diseases of population of Central and Western Macedonia



Compared to the country as a whole (Figure 17), it is observed that except for strokes, the population of the Western and Central Macedonia Regions has lower prevalence rates in all the diseases reported. The biggest difference is in COPD, emphysema and chronic bronchitis, as the prevalence of the disease in the regions of Central and Western Macedonia is 1%, while in the whole country it is 2%. Differentiations in the prevalence of many diseases are also observed throughout the country.

Figure 17. Prevalence of specific diseases of Greece population



Functional limitations

The following table shows mobility disorders, stratified by gender and age group of population of Central and Western Macedonia. 87.2% of the population stated none mobility disorders, however 4% have severe or very severe mobility disorders. It is observed that women reported less frequency of none mobility disorders than men. The age group of people over 65 is the group most often with severe or very severe mobility disorders. It is worth noting that the 18- to 24-year-olds did not report very severe mobility problems. Regarding the population of the country, based on the results of the survey, no significant differences were observed in the percentages of people who reported having mobility disorders (see Annex).

Table 29. Mobility disorders, by sex and age of population in the Regions of Central and Western Macedonia

Gender	Age	Very Severe	Severe	Moderate	Mild	None
Men	18 - 24	0.0%	0.0%	1.4%	0.0%	98.6%
	25 - 39	0.5%	0.5%	2.6%	2.1%	94.2%
	40 - 54	0.0%	0.9%	2.6%	3.1%	93.4%
	55- 64	2.2%	2.2%	4.4%	2.2%	89.1%

Gender	Age	Very Severe	Severe	Moderate	Mild	None
	65 +	2.0%	4.0%	6.1%	6.6%	81.3%
	Total	1.0%	1.7%	3.6%	3.3%	90.4%
Women	18 - 24	0.0%	3.2%	4.8%	1.6%	90.5%
	25 - 39	0.4%	1.7%	3.4%	2.6%	91.8%
	40 - 54	1.1%	2.3%	5.7%	3.0%	87.8%
	55- 64	0.7%	4.2%	11.2%	7.0%	76.9%
	65 +	2.6%	11.5%	4.5%	10.9%	70.5%
	Total	1.0%	4.2%	5.7%	4.9%	84.1%
Total	18 - 24	0.0%	1.5%	2.9%	0.7%	94.9%
	25 - 39	0.5%	1.2%	3.1%	2.4%	92.9%
	40 - 54	0.6%	1.6%	4.3%	3.1%	90.4%
	55- 64	1.4%	3.2%	7.9%	4.6%	82.9%
	65 +	2.3%	7.3%	5.4%	8.5%	76.6%
	Total	1.0%	3.0%	4.7%	4.1%	87.2%

Table 30 presents the degree of Personal care difficulties, stratified by gender and age. 94% of the population of the two regions stated that they did not Personal care difficulties. As before, with regard to mobility disorders, women face Personal care difficulties more often than men. Severe or very severe difficulties are experienced by 1.6% of the population of the Western and Central Macedonia without significant gender disparities. In terms of age groups, the highest incidence of serious or very serious Personal care difficulties is observed in the age group of over 65 years. In addition, only 0.2% of the population up to the age of 64 reported very serious difficulties. There are no significant differences between the percentages of the population of the country and the population of the Western and Central Macedonia regions facing Personal care difficulties.

Table 30. Personal care difficulties by sex and age of population of Central and Western Macedonia

Gender	Age	Very Severe	Severe	Moderate	Mild	None
Men	18 - 24	0.0%	0.0%	1.4%	1.4%	97.3%
	25 - 39	0.0%	0.0%	0.0%	2.1%	97.9%
	40 - 54	0.0%	0.9%	0.4%	0.9%	97.8%
	55- 64	0.0%	0.0%	2.2%	0.7%	97.1%
	65 +	2.5%	1.0%	3.5%	3.5%	89.4%
	Total	0.6%	0.5%	1.5%	1.8%	95.6%
Women	18 - 24	0.0%	1.6%	0.0%	3.2%	95.2%
	25 - 39	0.4%	0.0%	2.1%	2.1%	95.3%
	40 - 54	0.0%	1.5%	1.5%	2.3%	94.7%
	55- 64	0.0%	2.1%	3.5%	2.8%	91.6%
	65 +	1.9%	4.5%	3.2%	6.4%	84.1%
	Total	0.5%	1.7%	2.2%	3.1%	92.4%

Gender	Age	Very Severe	Severe	Moderate	Mild	None
Total	18 - 24	0.0%	0.7%	0.7%	2.2%	96.4%
	25 - 39	0.2%	0.0%	1.2%	2.1%	96.4%
	40 - 54	0.0%	1.2%	1.0%	1.6%	96.1%
	55- 64	0.0%	1.1%	2.9%	1.8%	94.3%
	65 +	2.3%	2.5%	3.4%	4.8%	87.0%
	Total	0.5%	1.1%	1.8%	2.5%	94.0%

6.2.3 Health Care

This section analyzes the use of health services by residents of the Western and Central Macedonia Regions. The use of health services includes hospital care, in a public or private hospital, and outpatient, which includes visits to physicians of all specialties, diagnostic tests and any medical practice that does not require the patient to be admitted to the hospital. Finally, the section analyzes the consumption of medicines, whether prescribed or not.

Use of health care services

Table 31 shows the use of health services (hospitals, doctors, etc.) by the population of the Western and Central Macedonia, stratified by sex and age. 32.7% of the population used health services the month before the interview, while women reported higher use than men (37.2% versus 27.9%). Regarding age groups, it appears that for both genders, the age group of 65 years or above made more frequent use of health services, while the lowest use of health services was reported by the age group of 18-24 years old for men and 40-54 years old for women. Compared to the Greek population, it appears that the rates of use of health services are similar for both sexes. However, there are differences with regard to age groups, as for the Greek population the age group of men with the lowest use is 25-39 years old and for women the age group 18-24 years old.

Table 31. Use of any health service due to a health problem, during the month before the interview, of population of Central and Western Macedonia

Gender	Age	Use of health service due to health problem
Men	18 - 24	18.8%
	25 - 39	17.9%
	40 - 54	24.7%
	55- 64	33.2%
	65 +	42.0%
	Total	27.9%
Women	18 - 24	35.3%
	25 - 39	33.3%
	40 - 54	32.5%

Gender	Age	Use of health service due to health problem
	55- 64	44.7%
	65 +	44.0%
	Total	37.2%
Total	18 - 24	26.6%
	25 - 39	26.3%
	40 - 54	28.8%
	55- 64	39.2%
	65 +	42.9%
	Total	32.7%

The following Figure (Figure 18) shows the reasons for using health care services for the population of Central and Western Macedonia. As the Figure shows, the main reason the population referred to health services was transient illnesses, followed by prescription drugs. A large difference between the genders was observed in the use of health services due to transient illness, as women reported it more frequently (42% vs. 32.1%). The age groups of 18-24 years, 25-39 years and 40-54 years, referred to health services mainly due to transient illness (66.2%, 49.2% and 41.8% respectively), while the age groups 55-64 and 65 years or above for prescription drugs (47% and 53% respectively). Detailed table is provided in the Annex. Compared to Greece' population, based on the results of the survey, no significant differences were observed.

Figure 18. Reason for using health services of population of Central and Western Macedonia

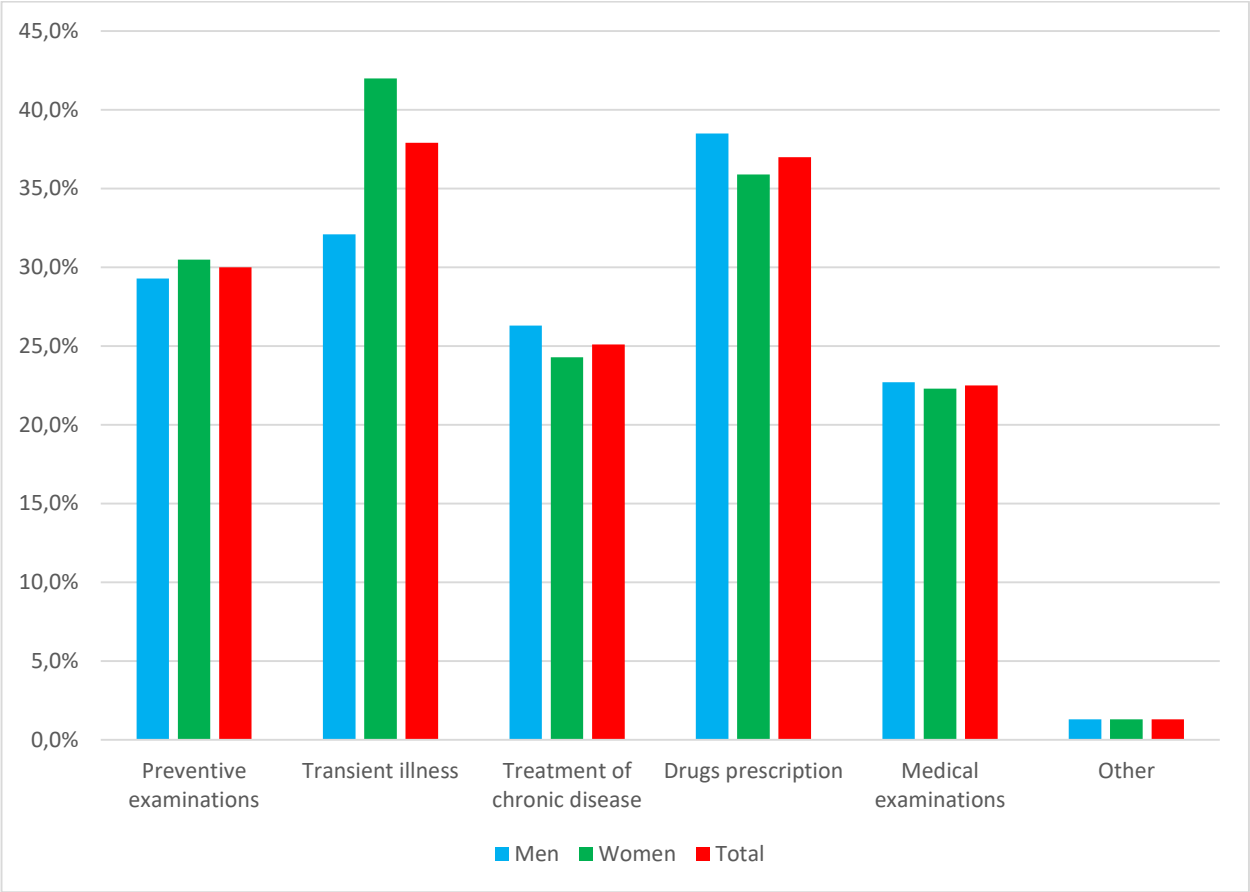
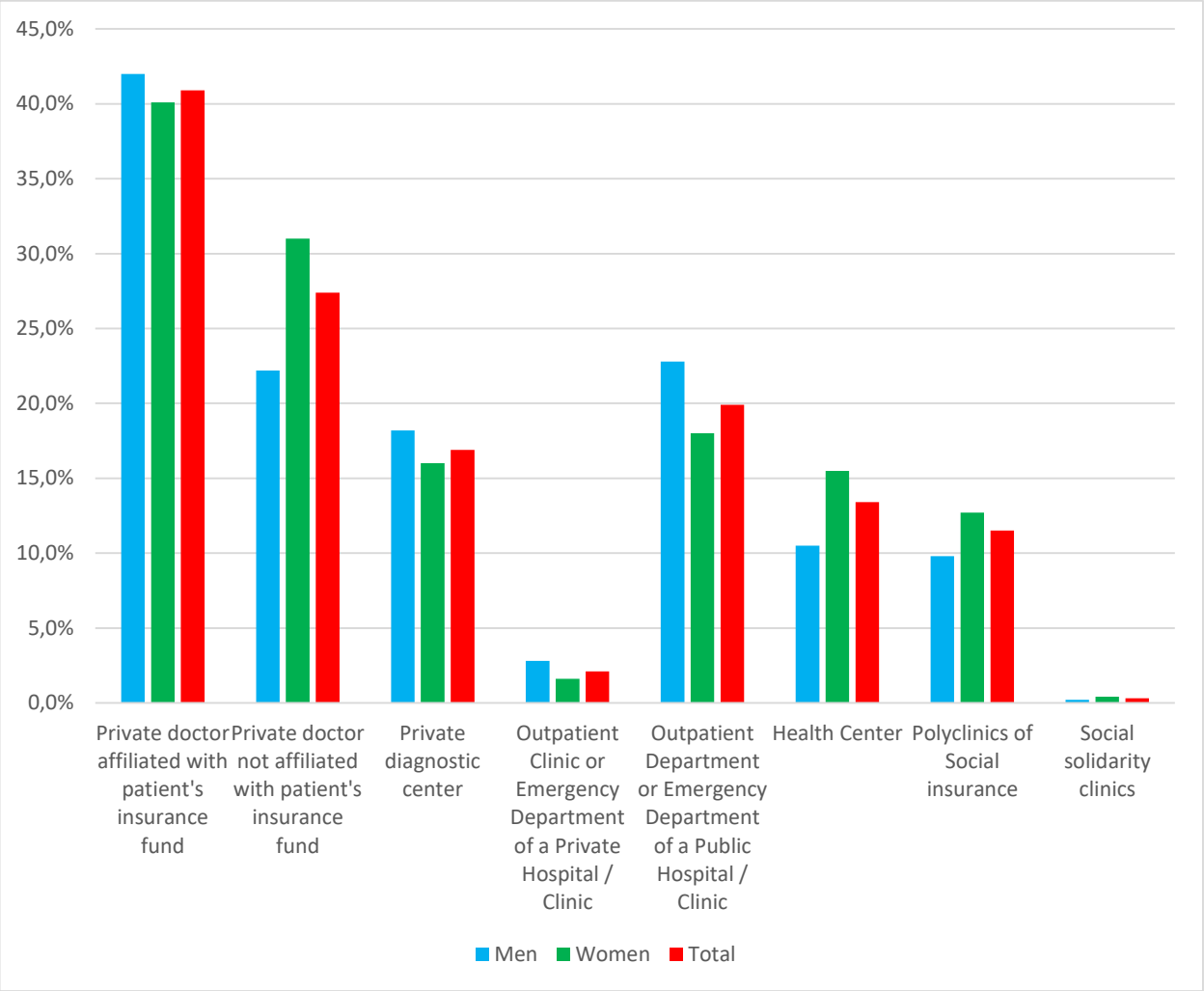


Figure 19 presents the types of health care services visited by the population of Central and Western Macedonia during the month before their interview. Visits to private physicians affiliated with patients 'Insurance Fund (40.9%) are most frequent, followed by visits to private physicians not affiliated with patients' Insurance Fund (27.4%). Visits to outpatient or emergency departments in the public sector are also more frequent, as opposed to the private sector (19.9% vs. 2.1%). Visits to primary health care providers account for 24.9% of total visits. With regards to genders, men are more likely to visit outpatient or emergency departments (22.8% vs. 18%), while women are more likely to visit private physicians who are not covered by their insurance (31% vs. 22.2%) and primary health care providers (28.2% vs. 20.3%). Regarding age groups, it is noted that over half of patients aged 18-24 years (51.5%) visited private doctors affiliated with their insurance fund, and they didn't make any visits to outpatient clinics or emergency departments of private sector. The age group with the most visits to outpatient or emergency department, compared to other age groups, is 25-39 years old. An overview Table of the types of health provider visited by the population of Central and Western Macedonia, stratified by sex and age is provided in the Annex.

Figure 19. Type of health care provider visited by population of Central and Western Macedonia during the month before their interview



Hospitalization

The previous section analyzed, among others, the types of health care providers visited by patients of Central and Western Macedonia, during the month before the survey. This section analyzes the Hospitalization rate of the population of Central and Western Macedonia in the year preceding the survey.

As shown in the following table (Table 32), 9.2% of the population of Central and Western Macedonia had to be admitted to a hospital (public or private). There is no significant difference between the genders and in terms of age groups, the age group of 65 years and above presents the highest rate of hospital admission (11.9%) while the age group of 18-24 shows the smallest rate (6.6%). Slightly higher hospitalization rates are present in Greece population, and also in almost all age groups

Table 32. Hospitalization rates of population of Central and Western Macedonia, stratified by age and sex

Gender	Age	Hospitalization
Men	18 - 24	6.2%
	25 - 39	5.6%
	40 - 54	7.9%
	55- 64	11.2%
	65 +	11.8%
	Total	8.6%
Women	18 - 24	6.9%
	25 - 39	11.9%
	40 - 54	7.0%
	55- 64	10.3%
	65 +	12.0%
	Total	9.8%
Total	18 - 24	6.6%
	25 - 39	9.0%
	40 - 54	7.5%
	55- 64	10.7%
	65 +	11.9%
	Total	9.2%

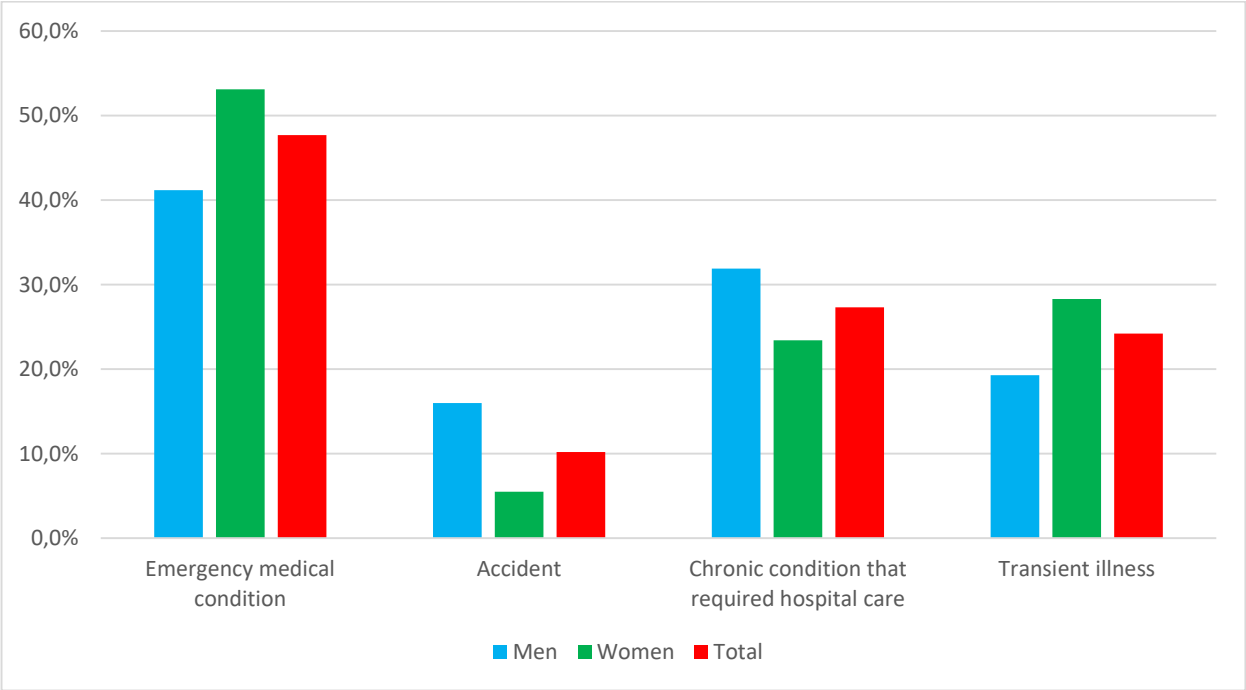
Table 33 presents the rates of admission to public and private hospitals by those who had to be hospitalized. Almost three out of four admitted to public hospitals, with the highest proportion being in men (78.5% vs. 72.6%). The age group with the highest rate of hospitalization in a public hospital is 55-64 years old, while the lowest age group is 25-39 years old. There are no significant differences with the corresponding percentages across the country (see Annex).

Table 33. Ratio of hospitalization to public and private hospitals of population of Central and Western Macedonia

Gender	Age	Public	Private
Men	18 - 24	75.0%	37.5%
	25 - 39	88.9%	11.1%
	40 - 54	84.4%	18.8%
	55- 64	76.0%	24.0%
	65 +	71.1%	28.9%
	Total	78.5%	23.1%
Women	18 - 24	62.5%	50.0%
	25 - 39	56.5%	50.0%
	40 - 54	71.0%	32.3%
	55- 64	84.0%	20.0%
	65 +	88.9%	16.7%
	Total	72.6%	32.9%
Total	18 - 24	68.8%	43.8%
	25 - 39	65.6%	39.1%
	40 - 54	77.8%	25.4%
	55- 64	80.0%	22.0%
	65 +	79.7%	23.0%
	Total	75.3%	28.5%

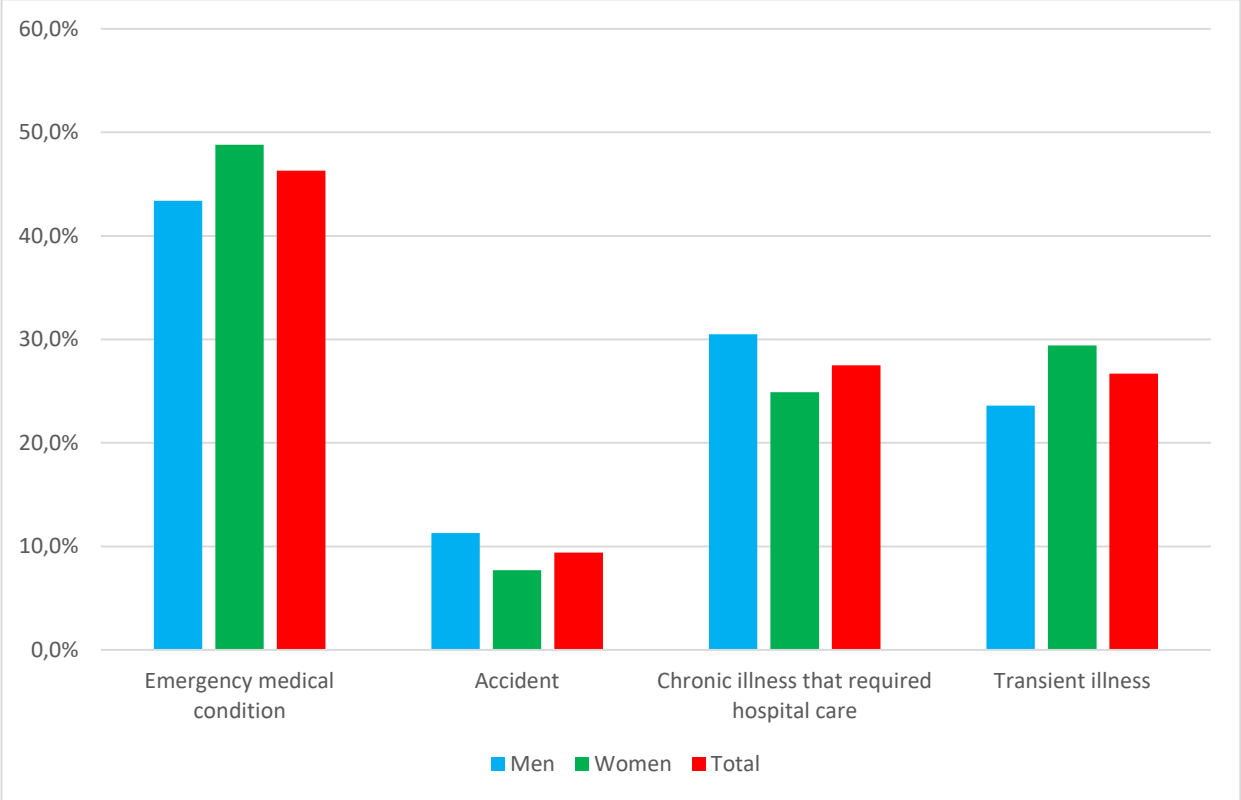
The Figure below shows the self-reported reason for hospitalization by the population of Central and Western Macedonia. It should be noted that part of the population reported being hospitalized more than once and for different reasons. The main reason for hospitalization was emergency medical condition. Other reasons for hospital admission were transient illness and Chronic illness that required hospital care and accidents. Accidents cited by 10.2% of the population as a reason for hospital admission, however, there is a gender difference (16% of men vs. 5.55% of women). In addition, men cited chronic conditions that required hospital care more frequently, while women cited emergency medical conditions and transient illness more frequently.

Figure 20. Reason of hospitalization of population of Central and Western Macedonia



There are no significant differences with respect to the entire population of the country as shown by the comparison of Figures 20 and 21.

Figure 21. Reason of hospitalization of Greece population



Visits to physicians

The following Figure shows the specialties of doctors whom visited by the patients in the Western and Central Macedonia regions during the month before the interview. The analysis was made only for patients who visited at least one doctor and they may have visited more than one doctor specialty. As Figure 23 presents, the specialty that received the most visits from patients is the internist (45%), followed by the "other specialty" (22.5%). It should be noted that other specialty includes dentists. Compared to other doctor specialties, many visits are presented by cardiologists, orthopedics and gynecologists. Significant gender differences are observed in cardiologists, as 21.5% of men visit a cardiologist as opposed to women, a percentage that is more than twice that of women (8.3%).

Figure 22. Specialties of the doctors who visited by the patients in the Western and Central Macedonia regions

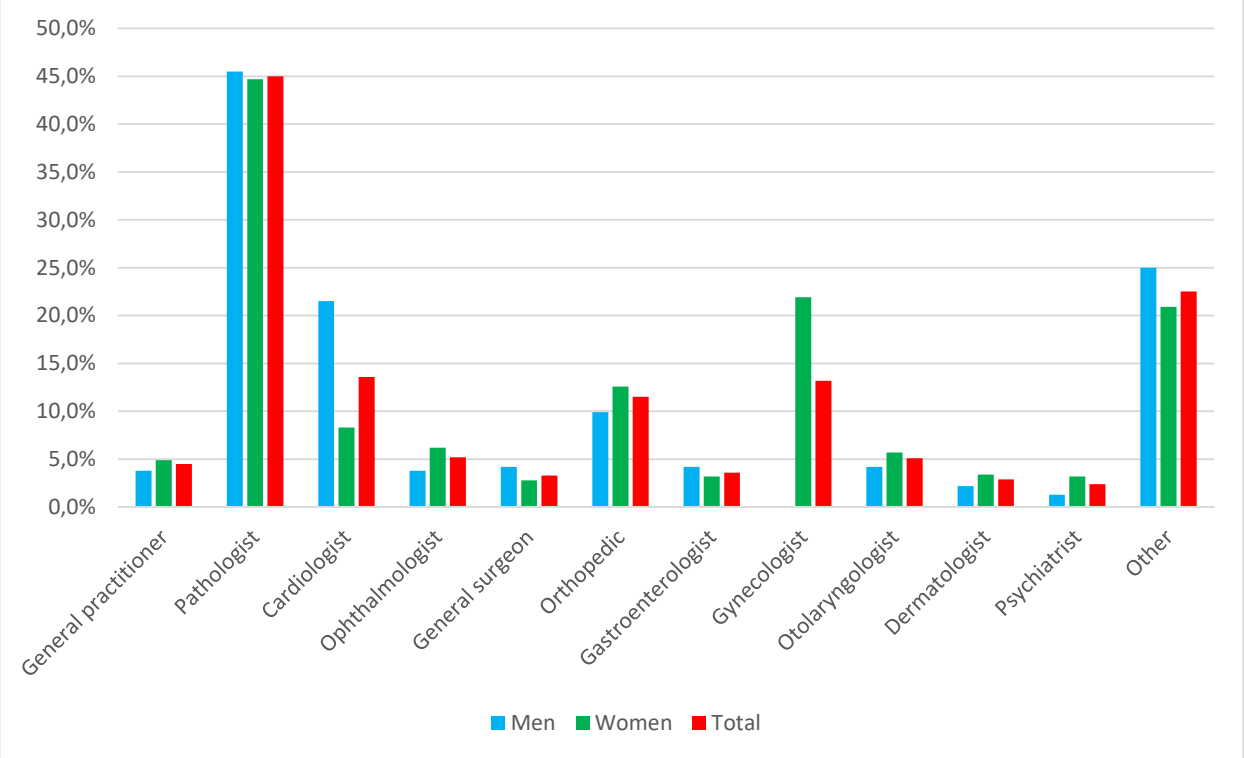
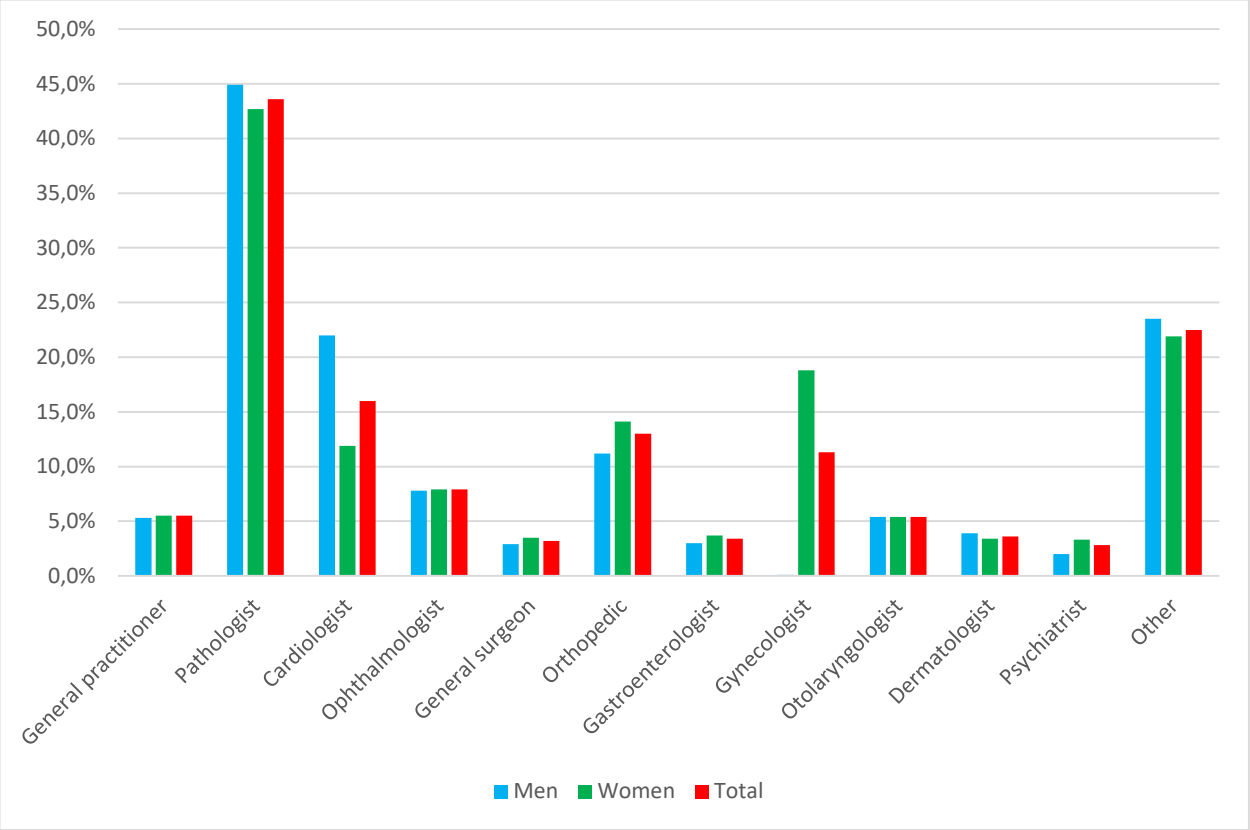


Figure 23 shows the specialties of doctors whom visited by the patients throughout the country during the month before the interview. As can be seen, the results are similar to the previous Figure (Figure 23), with no significant differences observed.

Figure 23. Specialties of the doctors who visited by the patients throughout the country



The following table shows the number of visits made by patients to physicians, regardless of the physician's specialty, in the previous month of the interview. It should be noted that the analysis was performed only for patients who visited a physician at least once. The majority of patients in the Western and Central Macedonia, who needed to visit doctors, made only one visit (60.9%). Two visits made 26.3% of patients, while three or more visits made 12.8%. It is observed that there are gender differences. Specifically, 64.1% of men visited a physician once and 9.6% three or more times. The corresponding rates for women are 58.7% and 14.9%, respectively. There are no differences with respect to the population of the country (see Annex).

Table 34. Total number of visits to physicians by patients of Central and Western Macedonia, who had to visit physicians

Gender	Age	One time	Two times	Three times or more
Men	18 - 24	83.3%	16.7%	0.0%
	25 - 39	66.7%	31.0%	2.4%
	40 - 54	59.2%	27.6%	13.2%
	55- 64	54.0%	33.3%	12.7%
	65 +	69.0%	21.2%	9.7%
	Total	64.1%	26.3%	9.6%
Women	18 - 24	60.0%	25.7%	14.3%
	25 - 39	57.6%	24.6%	17.8%

Gender	Age	One time	Two times	Three times or more
	40 - 54	55.6%	28.6%	15.9%
	55- 64	61.8%	29.2%	9.0%
	65 +	60.8%	23.5%	15.7%
	Total	58.7%	26.4%	14.9%
Total	18 - 24	67.9%	22.6%	9.4%
	25 - 39	60.0%	26.2%	13.8%
	40 - 54	56.9%	28.2%	14.9%
	55- 64	58.6%	30.9%	10.5%
	65 +	65.1%	22.3%	12.6%
	Total	60.9%	26.3%	12.8%

Self-reported unmet needs for health care

Table 35 shows the percentage of the population of the Western and Central Macedonia Regions reporting that while they had a health problem in the previous year of the survey, they did not use any primary health services, stratified by sex and age. Overall, 34.8% of population reported having a health problem and not using a health service, with a higher proportion being observed in women (40.5% vs. 28%). In terms of age groups, the age group of 25-39 years has the highest frequency, while the age group of 65 years and above has the lowest. Based on the results of the survey, similar percentages are observed across the country's population (see Annex). It is worth noting that based on the results of Eurostat, in 2014, the percentage of Greek population reporting unmet needs due to financial reasons, distance/transportation or waiting list is 30.2%. The corresponding proportion of the European population is 26.5%

Table 35. Self-reported unmet needs for health care of population of Central and Western Macedonia, stratified by age and sex

Gender	Age	Self-=reported unmet needs
Men	18 - 24	37.7%
	25 - 39	39.1%
	40 - 54	30.6%
	55- 64	26.7%
	65 +	12.2%
	Total	28.0%
Women	18 - 24	44.3%
	25 - 39	46.3%
	40 - 54	44.1%
	55- 64	42.3%
	65 +	23.2%
	Total	40.5%
Total	18 - 24	41.5%

Gender	Age	Self-=reported unmet needs
	25 - 39	43.2%
	40 - 54	38.0%
	55- 64	35.5%
	65 +	17.4%
	Total	34.8%

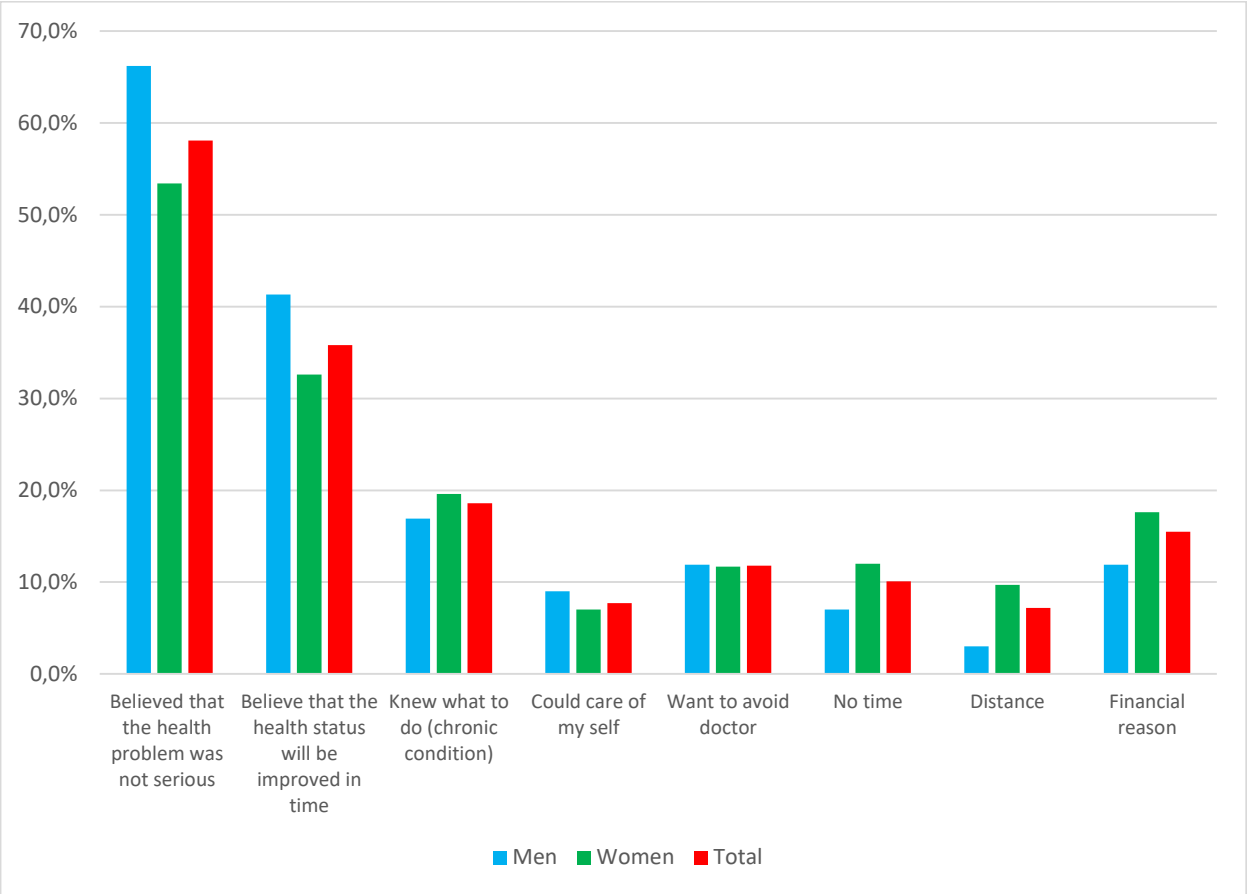
The following table shows the number of times that patients reported unmet needs for health care in the previous year of the survey. It should be noted that the analysis was made only for the population that reported having unmet need for health care. As shown in Table 19, the majority of patients reported twice that they had a health problem but did not use any primary health services (32.4%). One time, reported 25.6% of the population, three with five times and five time or more 25.8% and 16.2% of patients respectively. It is observed that the majority of women reported more than two times unmet needs for health care (50.1%), while men reported up to two times (72%).

Table 36. Times that patients of population of Central and Western Macedonia, reported unmet needs for health care

Gender	One time	Two times	Three-four times	Five times or more
Men	33.8%	38.2%	15.9%	12.1%
Women	20.8%	29.0%	31.5%	18.6%
Total	25.6%	32.4%	25.8%	16.2%

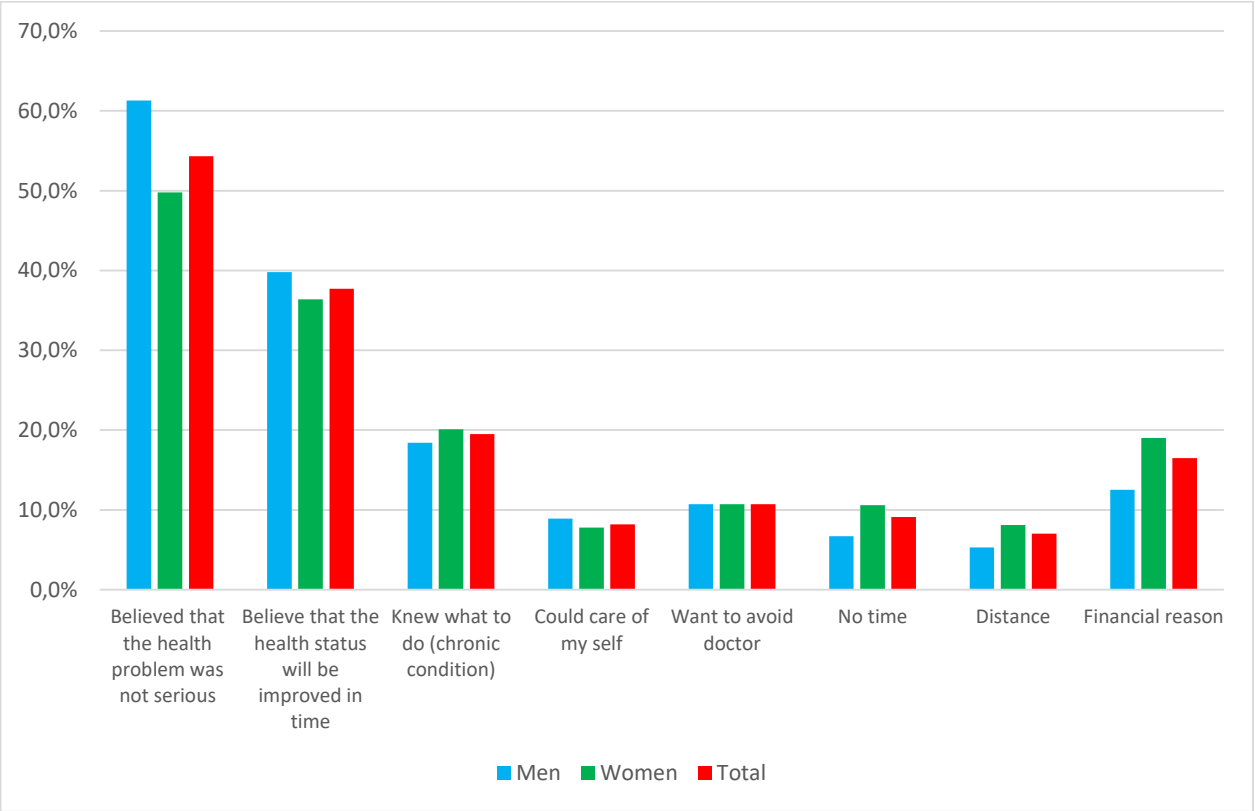
For those who reported unmet needs for health care in Western and Central Macedonia, the main reasons were that they believed their health problem was not serious (58.1%) and that their health status would be improved in time (35.8%). Financial reasons reported by 15.5% of patients with unmet needs, 10.1% reported no time to use any primary health services, and 7.2% reported distance. It is observed that men report more frequently than women that their health problem was not serious (66.2% vs. 53.4%) and that their health status would be improved in time (41.3% vs. 32.6%). On the other hand, women reported more frequent financial reasons for their unmet needs for health care (17.6% vs. 11.9%) and far distance (9.7% vs. 3%). It is worth noting that 72.9% of the 18-24 age group reported that they believed their health problem was not serious (see Annex).

Figure 24. Reason of unmet needs of patients of Central and Western Macedonia



The following Figure shows the reasons for the unmet needs for health care in the country's population. It is observed that there are no significant differences with the previous Figure, since for the whole population of the country the main reasons for unmet needs for health care were that they believed their health problem was not serious and that their health status would be improved in time.

Figure 25. Reason of unmet needs of patients in Greece



According to Eurostat, in 2014 25.3% of Greece population had unmet need for health care that were caused of financial reasons, which is the main cause. In contrast, in the E.U. the main reason of unmet needs of health care was waiting list, while the corresponding rate of European population for financial reasons is 14.8%.

Medicine use

The following table presents the ratio of medicine use of the population of Central and Western Macedonia during the three months prior to the survey. Overall, 57.3% of the population consumed some medication during the 3 months prior to the survey, with men showing lower consumption than women (53% versus 61.4%). Concerning age groups, it is observed that as the population ages, so does the proportion of the population who used drugs. Similar ratios are observed for the entire population of the country.

Table 37. Medicine use rate during the previous three months before the survey, of population of Central and Western Macedonia, stratified by age and sex

Gender	Age	Medicine use
Men	18 - 24	31.5%
	25 - 39	37.6%

Gender	Age	Medicine use
	40 - 54	53.1%
	55- 64	56.0%
	65 +	76.2%
	Total	53.0%
Women	18 - 24	41.5%
	25 - 39	46.6%
	40 - 54	53.1%
	55- 64	69.4%
	65 +	88.7%
	Total	61.4%
Total	18 - 24	36.4%
	25 - 39	42.3%
	40 - 54	53.1%
	55- 64	63.2%
	65 +	82.8%
	Total	57.3%

Finally, in Table 38, is presented the proportion of prescribed and non- prescribed drugs consumed by the population of the Western and Central Macedonia Regions that used drugs within the three months prior to the survey. The majority of the population who used drugs consumed only prescribed drugs (69.4%), while non- prescribed consumed 19.2% of population. It is observed that men reported higher consumption of prescribed drugs than women (72.3% vs. 67%), whereas women reported higher consumption of non- prescribed drugs (20.9% vs. 17.3%). The age group of 65 years and over shows the highest consumption of prescribed and the lowest consumption of non- prescribed. Compared to the population of the country, the population of Central and Western Macedonia showed higher consumption of prescribed drugs (69.4% vs. 64.1%), lower consumption of non- prescribed drugs (19.2% vs. 24.2%), while no significant difference was observed in the rates of population who consumed both prescribed and non- prescribed drugs.

Table 38. Prescribed and non-prescribed drug use rates from the Greece population, who use drugs during the previous three months of survey

Gender	Age	Prescribed	Non-prescribed	Both
Men	18 - 24	60.0%	40.0%	0.0%

Gender	Age	Prescribed	Non-prescribed	Both
	25 - 39	55.6%	36.1%	8.3%
	40 - 54	60.7%	21.4%	17.9%
	55- 64	78.8%	12.1%	9.1%
	65 +	89.6%	3.0%	7.5%
	Total	72.3%	17.3%	10.4%
Women	18 - 24	45.5%	36.4%	18.2%
	25 - 39	54.9%	33.3%	11.8%
	40 - 54	50.0%	36.5%	13.5%
	55- 64	64.1%	17.9%	17.9%
	65 +	90.9%	1.3%	7.8%
	Total	67.0%	20.9%	12.2%
Total	18 - 24	52.4%	38.1%	9.5%
	25 - 39	55.2%	34.5%	10.3%
	40 - 54	55.6%	28.7%	15.7%
	55- 64	70.8%	15.3%	13.9%
	65 +	90.3%	2.1%	7.6%
	Total	69.4%	19.2%	11.3%

6.2.4 Prevention

General preventive health screening

Table 39 shows the time since the last general preventive health screening of the population of the Western and Central Macedonia, at the time they were interviewed. The majority of the population (73.1%) had a health check-up within the previous year, while for 24.5% of the population the last examination was between one and five years before the interview. Never reported 2.4% of the population. It is observed that a higher proportion of women than men did health check-up the previous year (77.2% versus 68.8%). For both genders, it seems that as the age increases, so does the frequency of the 'within previous year' category. However, the highest proportion of the 'never' category in men is seen in the age group of 65 years or above. Overall, however, the 'never' category receives the highest value in the 18-24 age group. No significant differences were observed with respect to the population as a whole (see Annex).

Table 39. Time since last health check-up of population of Central and Western Macedonia

Gender	Age	Within previous year	More than 1 year and less or equal to 2 before	More than 2 years and less or equal to 5 before	More than 5 years before	Never
Men	18 - 24	58.3%	27.8%	8.3%	2.8%	2.8%
	25 - 39	64.4%	12.6%	11.5%	8.0%	3.4%
	40 - 54	63.6%	14.9%	13.2%	6.6%	1.7%
	55- 64	74.5%	12.7%	9.1%	3.6%	0.0%
	65 +	81.2%	3.5%	1.2%	8.2%	5.9%
	Total	68.8%	12.8%	9.1%	6.5%	2.9%
Women	18 - 24	70.6%	11.8%	5.9%	2.9%	8.8%
	25 - 39	68.4%	18.4%	10.2%	2.0%	1.0%
	40 - 54	74.1%	10.7%	11.6%	1.8%	1.8%
	55- 64	83.8%	5.9%	4.4%	4.4%	1.5%
	65 +	87.0%	6.0%	3.0%	3.0%	1.0%
	Total	77.2%	10.7%	7.5%	2.7%	1.9%
Total	18 - 24	64.3%	20.0%	7.1%	2.9%	5.7%
	25 - 39	66.5%	15.7%	10.8%	4.9%	2.2%
	40 - 54	68.7%	12.9%	12.4%	4.3%	1.7%
	55- 64	79.7%	8.9%	6.5%	4.1%	0.8%
	65 +	84.3%	4.9%	2.2%	5.4%	3.2%
	Total	73.1%	11.7%	8.3%	4.5%	2.4%

The following Table shows the reasons the interviewees had previously performed general preventive health screening. The majority of people in the Western and Central Macedonia regions did a general preventive health check because they wanted to prevent having an early diagnosis before a potential disease developed. A doctor or pharmacist recommendation stated 18%, while 18.6% reported being a chronic patient and should be monitored regularly. There were no significant gender differences in all categories. Regarding age groups, it is observed that the 18-24 age group has the highest relative frequency in the 'doctor or pharmacist recommendation' category, while the 65 and above age group reported more often than the other age groups, that it has chronic illness and should be monitored regularly. In addition, the percentage of 'chronic patient that needs to be checked regularly' increases as age increases. In terms of the population of the country, there are no significant differences in the overall percentages of each category, however, there are differences between age groups. For example,

men between the ages of 18 and 24 of the population of the two regions cited the most frequent reason for being a doctor or pharmacist in relation to men between the ages of 18 and 24 of the country's population (29.4% versus 21.5%). A detailed table on the reasons that led to preventive health screening in the Greek population is given in the Annex.

Table 40. Reason of preventive health check of population of Central and Western Macedonia

Gender	Age	Doctor or pharmacist' recommendation	Provide by employer	chronic patient that need to be checked regularly	Wanted an early diagnosis before it's too late	Family history
Men	18 - 24	29.4%	2.9%	2.9%	61.8%	2.9%
	25 - 39	20.3%	3.8%	3.8%	72.2%	0.0%
	40 - 54	14.2%	5.3%	15.9%	64.6%	0.0%
	55- 64	11.3%	1.9%	32.1%	52.8%	1.9%
	65 +	19.5%	1.3%	32.5%	46.8%	0.0%
	Total	17.7%	3.4%	18.0%	60.4%	0.6%
Women	18 - 24	27.6%	0.0%	10.3%	62.1%	0.0%
	25 - 39	13.7%	3.2%	6.3%	76.8%	0.0%
	40 - 54	14.8%	0.0%	13.0%	67.6%	4.6%
	55- 64	24.2%	0.0%	24.2%	51.5%	0.0%
	65 +	19.4%	1.0%	37.8%	40.8%	1.0%
	Total	18.2%	1.0%	19.2%	60.1%	1.5%
Total	18 - 24	28.6%	1.6%	6.3%	61.9%	1.6%
	25 - 39	16.7%	3.4%	5.2%	74.7%	0.0%
	40 - 54	14.5%	2.7%	14.5%	66.1%	2.3%
	55- 64	18.5%	0.8%	27.7%	52.1%	0.8%
	65 +	19.4%	1.1%	35.4%	43.4%	0.6%
	Total	18.0%	2.1%	18.6%	60.2%	1.1%

Medical examinations

Table 41 presents Colonoscopy screening rates of the population of Central and Western Macedonia. Of the total population of the two Regions, only 16% did Colonoscopy at some time in the past, while women were more likely than men to report it (17.2% vs. 14.8%). With respect to age groups, it is observed that a greater proportion of people aged 40 to 54, 55 to 64 and 65 and over have completed

the screening. This is to be expected, as the target population for this screening is those aged 50-74 (European Colorectal Cancer Screening Guidelines Working Group, 2013).

Compared to the country as a whole, the percentage of the population who said they did the examination is lower (16% versus 19.2%). However, for the population of the country too, it is observed that a higher proportion of women than men have at some time in the past examined, as well as a larger proportion of solar groups 40-54, 55-64 and 65 and above have taken the test in relation to the other age groups. It is worth noting that according to Eurostat, in 2014 in Greece 88% of the population aged 15 years and over did not has ever this medical examination in the past, while the corresponding figure in the EU. is 80.3%.

Table 41. Colonoscopy screening rates of population of Central and Western Macedonia

Gender	Age	Colonoscopy screening rates
Men	18 - 24	0.0%
	25 - 39	2.2%
	40 - 54	12.9%
	55- 64	15.4%
	65 +	37.2%
	Total	14.8%
Women	18 - 24	0.0%
	25 - 39	4.2%
	40 - 54	11.5%
	55- 64	28.1%
	65 +	34.0%
	Total	17.2%
Total	18 - 24	0.0%
	25 - 39	3.2%
	40 - 54	12.3%
	55- 64	22.4%
	65 +	35.4%
	Total	16.0%

The next Table present the Protective Antigen screening rates of population of Central and Western Macedonia. It should be noted that this medical examination is only for men. 32.7% of the male population of the two Regions has performed this medical examination sometime in the past. As far as

the age groups, none of men 18 to 24 years old, stated that he ever performed the examination. The highest frequency is observed at age groups of men 55-64 (73.1%) and 65 years old or above (67.4%). Compared to the whole population of the country, there are not any significant differences, expect that the age group of males 55-64 years old has higher value (73.1% versus 66.4%), while the group of men 65 years old and above, has lower (67.45 versus 71.5%)

Table 42. Protective Antigen (PA) screening rates of population (men) of Central and Western Macedonia

Gender	Age	Protective Antigen (PA) screening rates
Total (Men only)	18 - 24	0.00%
	25 - 39	2.2%
	40 - 54	24.2%
	55- 64	73.1%
	65 +	67.4%
	Total	32.7%

Table 43 presents the mammography screening rates of women in Central and Western Macedonia. Of the total female population, 62.1% have had the exam at some point in the past. The highest percentage of mammography occurs in the age group of 55-64 years (84.4%), followed by the age group of women 65 years or older (75.5%). The lowest percentage is in the 18- to 24-year-old age group (5.6%). Of the total Greek population, the percentage of women who have had mammography is higher (66.2%). This observation applies to all age groups, except for the 25-39 age group (34.3% versus 41.7%). It is worth noting that in 2014, according to Eurostat, the percentage of women in the Greek population who had never done mammography was 38.4%. The corresponding proportion of the European population is 44.7%.

Table 43. Mammography screening rates of population (women) of Central and Western Macedonia

Gender	Age	Mammography screening rates
Total (Women)	18 - 24	5.6%
	25 - 39	41.7%
	40 - 54	73.1%
	55- 64	84.4%
	65 +	75.5%
	Total	62.1%

The next table presents breast screening rates by palpation examination of Central and Western Macedonia women. The majority of the population has had this medical examination in the past (68.5%), while in the individual age groups, the highest rate occurs in the 55-64 age group (90.6%). However, the lowest rate in this medical examination as with the previous one, it appears in the age group of 18-24 years. Compared to the entire Greek female population, the percentage of women who have undergone palpation examination is lower (68.5% vs. 72.8%). The percentages of individual age groups, except the age group of 55-64 years, are also lower than the total population of the country (see Annex).

Table 44. Palpation examination of the breast (screening rates) of population (women) of Central and Western Macedonia

Gender	Age	Palpation examination of the breast
Total (Women)	18 - 24	33.3%
	25 - 39	72.9%
	40 - 54	75.0%
	55- 64	90.6%
	65 +	56.6%
	Total	68.5%

The following table presents the HPV DNA test screening rates of Central and Western Macedonia women. It should be noted that HPV is a necessary factor for the development of cervical cancer, as it is detected in 99-100% of cancers (Newton and Mold, 2017). There are many types of this virus, which are estimated to be over 200 (Chrysostomou et al., 2018), but HPV16 and HPV18 are the most dangerous, as they account for over 70% of total cervical cancer cases. (Newton & Mold, 2017). There are several types of HPV DNA test, with the most advanced showing the type of virus in the infection (Burd, 2016). Table 46 shows screening rates regardless of what HPV DNA Test was used. This medical examination has previously been performed by a total of 21% of the population of the two Regions. The highest value is observed in the age group of women 25-39 (37.5%), while the lowest in the age group of 65 years or older (7.8%). Compared to the population of women across the country, the population of women in the two regions shows lower rates of medical examination, a remark that applies to all age groups, except for the 25-39 age group.

Table 45. HPV DNA Test screening rates of population (women) of Central and Western Macedonia

Gender	Age	HPV DNA Test screening rates
Total	18 - 24	16.7%

(Women)	25 - 39	37.5%
	40 - 54	23.1%
	55- 64	16.1%
	65 +	7.8%
	Total	21.0%

The Pap test is a method of detecting cancerous and precancerous cells of the cervix and owes its name to George Papanikolaou, who developed it in the early 40s (Koliopoulos et al., 2017). The following table presents the Pap Smear screening rates of women in Central and Western Macedonia. Overall, 80.8% of the female population has had a Pap test at some point in the past. The highest rate was observed in the age group of 40-54 years (90.6%), while the smallest was observed in the age group of 18-24 years (55.6%). Compared to the total population of women in the country, the population of the two Regions present a little lower screening rate (80.8% vs. 82.8%). However, there are larger differences in the age groups of 18-24 years and 25-39 years (55.6% vs. 65.8% and 83.3% versus 91.5%, respectively).

Table 46. Pap smear screening rates of population (women) of Central and Western Macedonia

Gender	Age	Pap smear screening rates
Total (Women)	18 - 24	55.6%
	25 - 39	83.3%
	40 - 54	92.3%
	55- 64	90.6%
	65 +	69.8%
	Total	80.8%

The majority of the population who had undergone a medical examination at some point in the past, reported doing so the year before the interview (63.2%) (Table 30). 22.1% reported doing the exam 2-3 years before the interview, and 14.75% 4-5 years ago. According to the Eurostat survey, it is observed that a higher proportion of the population of the two Regions took the survey last year compared to the total Greek and European population (49.9% and 38.2% respectively).

Table 47. Time since last Pap smear (for the population who have the examination some time at the past)

The previous year	2 years before	3 years before	4-5 years before	Total
63.2%	19.0%	3.1%	14.7%	100%

Vaccination for influenza

The next table shows the vaccination of the population of the Regions of Central and Western Macedonia, stratified by sex and age. Overall, 14.6% of the population said they had been vaccinated with the Influenza vaccine last year, with no significant gender differences. With regard to age groups, it appears that the age group of people 65 or older has the highest rates, which is more than twice that of other age groups. However, it appears that a greater proportion of men 65 years of age or older have been vaccinated with the influenza vaccine in relation to the corresponding age group of women (49.4% vs. 41.0%).

Compared to the Greek population as a whole, the population of the two regions showed lower vaccination rates (16.0% vs. 19.7%). However, in the Greek population as a whole too, it is observed that the age group of 65 years and over shows the highest rates. It is worth noting that according to the ELSTAT survey, in 2014, 29% of the country's population was vaccinated, with the highest percentage being 65-74 years and 75 years or older (44.3% and 53.3% respectively). In the same year, the proportion of the European population vaccinated with the Influenza vaccine amounted to 17.7%.

Table 48. Influenza vaccination rates of population of Central and Western Macedonia

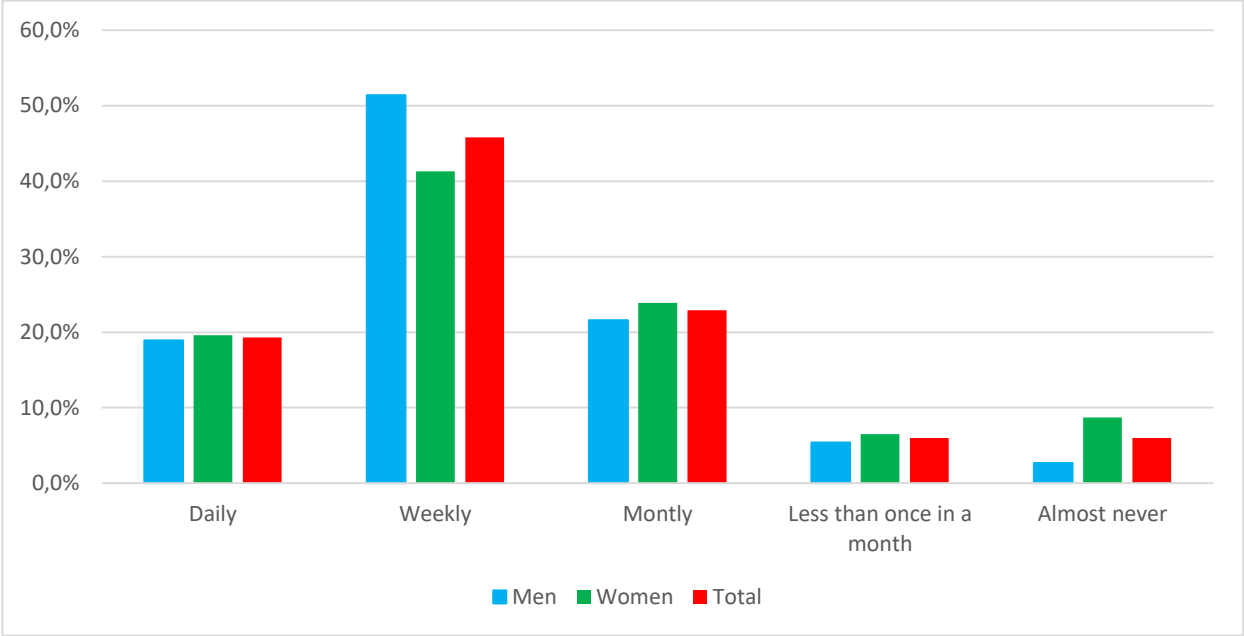
Gender	Age	Influenza vaccination rates
Men	18 - 24	11.4%
	25 - 39	3.4%
	40 - 54	5.0%
	55- 64	18.2%
	65 +	49.4%
	Total	17.0%
Women	18 - 24	6.1%
	25 - 39	1.0%
	40 - 54	6.2%
	55- 64	16.2%
	65 +	41.0%
	Total	15.1%
Total	18 - 24	8.8%
	25 - 39	2.2%
	40 - 54	5.6%
	55- 64	17.1%
	65 +	44.9%

	Total	16.0%

Self-examination

Figure 26 presents the frequency of blood pressure control by patients who have been diagnosed with arterial hypertension in the Western and Central Macedonia Regions. It appears that the majority controls their pressure once a week (45.8%), while 22.9% of the population controls it once a month. Daily pressure control was reported by 19.3% of the population and never by 6%. There were no significant differences between the genders in the percentages of each category. It is worth noting that the majority of all patients in the country, who have been diagnosed with arterial hypertension, also said that they monitor their blood pressure once a week (see Annex)

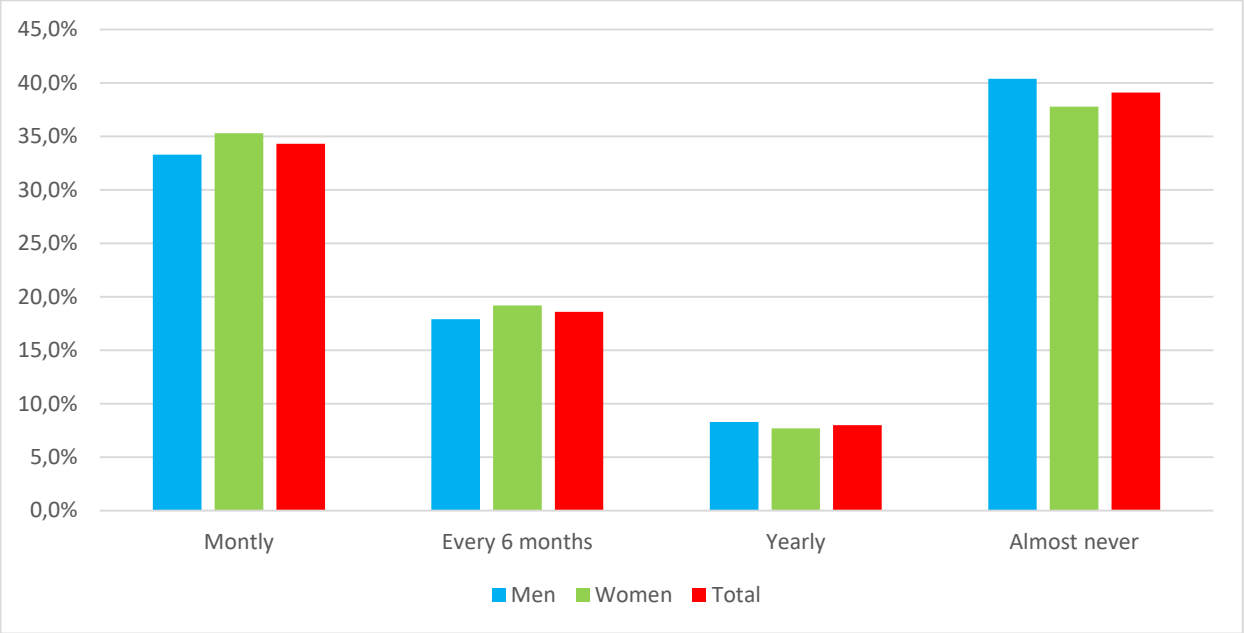
Figure 26. Frequency of blood pressure control by people with arterial hypertension in in the Regions of Central and Western Macedonia



The next Figure presents the frequency of blood pressure control by people who have not been diagnosed with arterial hypertension in the Western and Central Macedonia Regions. 39.1% of the population stated that they never control their pressure or almost never, 34.3% said they control it once a month, while 26.6% stated that they controls their pressure once a half or year (18.6% and 8.0% respectively). No significant gender differences were observed, while, with regard to age groups, the majority of the 65-year-old group or more control their pressure monthly (62.3%) and the majority of the 18-24 age group, never or almost never (71.4%). There are no significant differences in the

percentages of the respective categories in the population of the country who have not been diagnosed with hypertension.

Figure 27. Frequency of blood pressure control by people who have not been diagnosed with hypertension in the Western and Central Macedonia Regions



Finally, the following table presents the frequency of using tools or devices in self-examination of patients from the population of Central and Western Macedonia to monitor their chronic condition. The majority of the population stated that they rarely or sometimes use tools and devices to monitor their condition (41.7%), while daily or almost daily reported 21.5% of the population. There are differences between the genders, with men reporting more frequently daily control of their condition (32.3% vs. 13.4%), while women more frequently reported controlling their condition rarely (43.9% vs. 38.7%) or several times (42.7% vs. 29%). A similar situation is observed in the whole population of the country (see Annex).

Table 49. Frequency of using tools or devices in self-examination of patients with chronic conditions of the population of Central and Western Macedonia

Gender	Age	Rarely/sometimes		Often/most of the times		Daiy/almost daily	
		Proportion	Count	Proportion	Count	Proportion	Count
Men	18 - 24	100.0%	1	0.0%	0	0.0%	0
	25 - 39	50.0%	5	30.0%	3	20.0%	2
	40 - 54	53.3%	8	33.3%	5	13.3%	2
	55- 64	20.0%	3	53.3%	8	26.7%	4

Gender	Age	Rarely/sometimes		Often/most of the times		Daiy/almost daily	
		Proportion	Count	Proportion	Count	Proportion	Count
	65 +	33.3%	7	9.5%	2	57.1%	12
	Men	38.7%	24	29.0%	18	32.3%	20
Women	18 - 24	0.0%	0	0.0%	0	0.0%	0
	25 - 39	53.8%	7	38.5%	5	7.7%	1
	40 - 54	45.8%	11	37.5%	9	16.7%	4
	55- 64	53.3%	8	26.7%	4	20.0%	3
	65 +	33.3%	10	56.7%	17	10.0%	3
	Women	43.9%	36	42.7%	35	13.4%	11
Total	18 - 24	100.0%	1	0.0%	0	0.0%	0
	25 - 39	52.2%	12	34.8%	8	13.0%	3
	40 - 54	48.7%	19	35.9%	14	15.4%	6
	55- 64	36.7%	11	40.0%	12	23.3%	7
	65 +	33.3%	17	37.3%	19	29.4%	15
	Total	41.7%	60	36.8%	53	21.5%	31

7. Health related resources

The following section presents the health related infrastructures in the regions Units of Thessaloniki, Pella, Kilkis, Serres and Florina. We prefer to refer to “regions units” despite of “regions”, because health related data are provided by the Ministry for Health at Health Region level and not at regional level. There is no overlap between health regions and regions in Greece.

7.1 Infrastructures

The following table shows the public hospitals located in the region units of interest, as well as the operating clinics and the fully developed beds on them. Moreover, the available Fully Developed Beds, which exist in each region unit, have been converted per 100,000 inhabitants.

Thus, we observe that region unit of Florina notes excessively higher rate of available Fully Developed Beds per 100.000 inhabitants. From the remaining region units of interest, Thessaloniki is in advantage position and Kilkis is in a disadvantage one.

Table 50. Public Health Units and number of Fully Developed Beds per 100.000 inhabitants

Public Health Units and number of Fully Developed Beds per 100.000 inhabitants						
Region	**Public Health Unit**	**Sector**	**Clinics**	**Number Of Fully Developed Beds**	**Population**	**Number Of Fully Developed Beds per 100,000 inhabitants**
Thessaloniki	General Hospital Of Thessaloniki "Papageorgiou"	Intersectoral	None	11	**1,108,085**	**39.43**
			Cardiac Surgery Clinic	3		
		Pathological	Cardiology Clinic	9		
		Surgery	Gynecological Clinic	4		
			Nuclear Medicine Clinic	2		
	General Hospital Of Thessaloniki "Saint Dimitrios"	Intersectoral	None	7		
	General Hospital Of Thessaloniki "Genimatas"	Intersectoral	None	9		
		Pathological	Cardiology Clinic	7		
	General Hospital Of Thessaloniki "Papanikolaou"	Intersectoral	None	16		
		Pathological	Hematology Clinic	17		
			Respiratory Deficiency Clinic	7		
			Cardiology Clinic	12		
			Pulmonary Clinic	4		
		Surgery	Heart Surgery -Toroch Surgery- Vascular Surgery Clinic	7		

Public Health Units and number of Fully Developed Beds per 100.000 inhabitants						
Region	**Public Health Unit**	**Sector**	**Clinics**	**Number Of Fully Developed Beds**	**Population**	**Number Of Fully Developed Beds per 100,000 inhabitants**
			Clinic Of Plastic Surgery And Burns	4		
	Psychiatric Hospital Of Thessaloniki	Psychiatric	Rehabilitation Clinic	31		
			Hospitality Hostels	27		
			Nursing Clinic	102		
			Clinic Of Protected Apartments	109		
	Anti-Cancer Hospital Of Thessaloniki "Theagenio"	Intersectoral	None	8		
	General Hospital Of Thessaloniki "Ipokrateio"	Pathological	Intensive Treatment Clinic For Children	8		
		Surgery	Intensive Treatment Clinic	9		
	General Hospital Of Thessaloniki "Saint Paul"	Pathological	Pathological Clinic	13		
		Surgery	Surgery Clinic	11		
	Total beds of Thessaloniki			**437**		
Florina	General Hospital Of Florina "Eleni Dimitriou"	Pathological		51	**50,196**	**203.20**
		Surgery		51		
	Total beds of Florina			**102**		
Pella	General Hospital Of Giannitsa	Pathological	Intensive Treatment	6	**138,583**	**10.82**
			Cardiology Clinic	6		
	General Hospital Of Edessa	Intersectoral	None	3		
	Total beds of Pella			**15**		
Kilkis	General Hospital Of Kilkis	Intersectoral	None	0	**80,762**	**0**
	Total beds of Kilkis			**0**		
Serres	General Hospital Of Serres	Pathological	Intensive lTreatment Clinic	6	**169,242**	**20.08**
			Cardiology Clinic	7		
			Pediatric Clinic	10		
				17		

Public Health Units and number of Fully Developed Beds per 100.000 inhabitants						
Region	**Public Health Unit**	**Sector**	**Clinics**	**Number Of Fully Developed Beds**	**Population**	**Number Of Fully Developed Beds per 100,000 inhabitants**
	Total beds of Serres			**34**		

Ministry of Helth

Regarding Health Infrastructures, the table below presents Mental health units, National primary health network (ΠΕΔΥ), Diagnostic centers, Centers of hemodialysis and blood donation and Specialized care units located in the regional units of interest.

Table 51. Health Infrastructures

Health Infrastructures					
Category	**Thessaloniki**	**Kilkis**	**Serres**	**Pella**	**Florina**
Mental health Units	73	2	1	3	1
National primary health network (ΠΕΔΥ)	77	29	56	32	23
Diagnostic centers	265	18	32	31	3
Centers of hemodialysis and blood donation	17	1	3	3	1
Specialized care units	21	1	1	7	0

Atlas Ygeias

The table below shows the number of pharmacies at country and region level for 2006 up to 2017. Moreover, Pharmacies per 100.000 inhabitants, which existing in each region unit, have been calculated for 2017. Serres seems to be the region unit with the higher rate of pharmacies per 100000 inhabitants, in contrast to Florina that is the one with the lower rate. Compared to the whole country, central Macedonia has a higher concentration of Pharmacies (approximately 8 points difference), while western Macedonia has a lower one approximately 5 points difference).

Regarding health technology available in the regions of interest, in the following table we observe that X-Ray and Ultrasound are the medical equipment categories with the highest concentration. PET – CT scans and Lithoren are the medical equipment categories with the less (or no) concentration.

Regional units of Florina and Pella have too low concentration of health technology.

Table 52. Health technology, 2018

Health technology 2018						
MEDICAL EQUIPMENT CATEGORY	REGION					
	Thessaloniki	Kilkis	Serres	Pella	Florina	Total
PET - CT	2					2
Arteriogram	3					3
X-Ray	119	25	12	5	3	164
CT Scanner	13	1	1		2	17
G Camera	8					8
Linear Accelerator	6					6
Bone Density Diagnostic Unit	7		1			8
Lithoren	1		1			2
Mammography	14	2	3		1	20
3d Dental	3					3
StefanoFigureer	5					5
Mri	6					6
Ultrasound	96	9	13	2		120
Other	10				1	11
Total	293	37	31	7	6	374

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Table 53. Pharmacies and drugstores at regional and regional unit level: 2006-2017

Pharmacies and drugstores at regional and regional unit level: 2006-2017							
Area	2006	2010	2015	2016	2017	Populations 2017	Pharmacies per 100,000 inhabitants 2017
Country total	9586	10148	10362	10386	10420	10,768,193.00	96.77
Central Makedonia	1786	1882	1965	1948	1971	1,880,122.00	104.83
Thessaloniki	1115	1134	1173	1172	1175	1,108,085.00	106.04
Kilkis	58	67	74	72	72	80,762.00	89.15
Pella	124	136	140	127	139	138,583.00	100.30
Serres	155	172	199	198	213	169,242.00	125.86
Western Makedonia	203	256	247	247	249	271,488.00	91.72
Florina	26	26	36	35	37	50,196.00	73.71

Sourse: Elstat

7.2 Human resources

The following table provides information for physicians and dentists in the regions of interest. Compared to the whole country (1,211.72 per 100,000 inhabitants), Central Macedonia has a similar concentration of Physicians (1,224.07 per 100,000 inhabitants), while Western Macedonia has lower (710.16 per 100,000 inhabitants). In a regional unit level, Thessaloniki seems to be the region unit with the higher rate of Physicians per 100,000 inhabitants (1,597.35 per 100,000 inhabitants), in contrast to Florina that is the one with the lower rate (390.47 per 100,000 inhabitants).

Regarding the concentration of dentists, compared to the whole country (123 per 100,000 inhabitants), Central Macedonia has a higher concentration of Dentists (117 per 100,000 inhabitants), while Western Macedonia has lower (97 per 100,000 inhabitants). In regional unit level, Thessaloniki seems to be the region unit with the higher rate of Dentists per 100,000 inhabitants (138.9785 per 100,000 inhabitants), in contrast to Florina that is the one with the lower rate (55.78134 per 100,000 inhabitants).

Table 54. Physicians and dentists, at regional and regional unit level 2017

Physicians and dentists, at regional and regional unit level 2017								
Category	**Greece total**	**Central Makedonia**	**Thessaloniki**	**Kilkis**	**Pella**	**Serres**	**Western Makedonia**	**Florina**
total specialist doctors	114,123	20,306	15,524	569	876	1,027	1,663	181
Agricultural Physicians	1,004	10	0	0	0	0	27	10
nterns Trainees Physicians	6,569	86	0	23	0	0	78	3
Without speciality Physicians	8,784	2,612	2,176	44	94	105	160	2
total Physicians	130,480	23,014	17,700	636	970	1,132	1,928	196
Physicians per 100,000 inhabitants	**1,2112**	**1,224.**	**1,597**	**788**	**700**	**669**	**710**	**390**
Dentists, total	13,261	2,215	1,540	52	111	161	264	28
Dentists per 100,000 inhabitants	**123**	**118**	**139**	**64**	**80**	**95**	**97**	**56**

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The number of specialized physicians per specialty, is presented on the following table. In country total, Clinical Chemistry, Public Health and Healthcare physicians are the specialists with the less

concentration, despite General Medicine, Cardiologists, Obstetricians- Gynecologists, Bacteriologists, Internists and Paediatrists are the specialists with the most concentration.

Regarding the region of Central Makedonia, specialists with the less (or none) and the most concentration are the same ones with country's total.

In the region of Western Makedonia, Occupational Medicine, Medical jurisprudents, Clinical Chemistry, Public Health, Neurosurgeons, Healthcare and Maxillofacial surgeons are the specialists with the less (or none) concentration, despite, specialists the most concentration are the same ones with country's total.

Table 55. Physicians by speciality and dentists, at regional and regional unit level, 2017

Physicians by speciality and dentists, at regional and regional unit level, 2017								
Specialty	**Greece total**	**Central Makedonia**	**Thessaloniki**	**Kilkis**	**Pella**	**Serres**	**Western Makedonia**	**Florina**
Physicians. total	**65,240**	**11,507**	**8,850**	**318**	**485**	**566**	**964**	**98**
Haematologists	**519**	**97**	85	1	1	4	**3**	0
Radiotherapists	**352**	**44**	43	0	0	1	**9**	0
Radiologists	**2,313**	**435**	348	10	25	14	**29**	5
Immunologists	**148**	**18**	13	0	0	1	**3**	0
Anaesthesiologists	**2,021**	**399**	343	7	15	12	**21**	3
Gastroenterologists	**835**	**146**	119	3	5	5	**11**	0
General Medicine	**3,054**	**625**	271	52	50	87	**72**	12
Dermatologists-Veneriologists	**1,334**	**211**	170	4	9	11	**21**	3
Endocrinologists	**740**	**101**	80	3	2	5	**8**	0
Occupational Medicine	**153**	**17**	14	0	0	0	**1**	0
Medical jurisprudents	**104**	**25**	23	0	0	1	**1**	0
Cardiologists	**3,451**	**613**	460	14	28	36	**61**	7
Clinical Chemistry	**4**	**0**	0	0	0	0	**0**	0
Public Health	**9**	**1**	1	0	0	0	**0**	0

Physicians by speciality and dentists, at regional and regional unit level, 2017								
Specialty	Greece total	Central Makedonia	Thessaloniki	Kilkis	Pella	Serres	Western Makedonia	Florina
Cytologists	377	50	45	0	2	0	6	0
Obstetricians-Gynaecologists	3,041	547	419	15	22	27	48	5
Bacteriologists	3,483	584	398	21	35	41	40	9
Neurologists	988	215	173	3	7	9	13	1
Neurosurgeons	407	74	71	1	0	2	0	0
Nephrologists	652	127	91	3	5	10	17	3
Orthopedists	2,569	463	337	16	25	21	44	4
Urologists	1,144	221	159	7	13	14	23	2
Ophthalmologists	2,237	411	318	8	16	22	33	5
Internists-Cytologists	534	118	89	20	1	4	3	0
Internists	4,565	734	547	11	39	41	67	5
Paediatrists	3,672	683	526	12	31	28	62	8
Paidopsyhiatric	397	66	57	1	0	2	2	0
Nuclear Medicine	285	56	44	0	4	4	3	0
Rheumatologists	361	65	48	2	2	5	6	0
Healthcare	7	0	0	0	0	0	0	0
Phytochemists - Pneumonologists	1,600	197	158	3	6	10	10	4
Accident and emergency medicine	256	31	20	1	1	4	2	0
Surgeons	2,290	451	360	13	20	15	31	3
Thoracic Surgeons	407	84	81	1	1	0	1	1
Children Surgeons	200	59	57	0	1	0	2	0

Physicians by speciality and dentists, at regional and regional unit level, 2017								
Specialty	Greece total	Central Makedonia	Thessaloniki	Kilkis	Pella	Serres	Western Makedonia	Florina
Plastic surgery	456	92	88	0	0	1	3	0
Vascular surgeons	294	49	43	0	0	2	3	0
Maxillofacial surgeons	80	21	17	3	0	1	0	0
Oncologists -Internists	319	57	55	0	1	1	2	0
Psychiatrists	1,525	319	275	7	11	10	15	1
Otorhinolaryngologists	1,459	238	182	9	13	8	20	2
Neurologists-Psychiatrists	241	55	46	0	0	2	3	0
Agricultural Physicians	1,004	10	0	0	0	0	27	10
Interns Trainees	6,569	86	0	23	0	0	78	3
Without speciality	8,784	2,612	2,176	44	94	105	160	2

Ministry of Helth

The following table provides information for physicians of the national health system in the Health Regions of Macedonia and Macedonia - Thrace. These kind of data are not provided at regional unit level.

Table 56. Physicians of the national health system 2018

Physicians of the national health system 2018				
Health Region	Medical Specialists	Medical Specialists with an extra specialization	Resident specialty registars	Total
Health Region of Makedonia	906	20	906	1.832
Health Region OF Macedonia and Thrace	1.116	27	1068	2.211
Country total	9.048	309	7.316	16.673

Ministry of Helth

The following table provides information for University physicians in the Health Regions of Macedonia and Macedonia -Thrace. These kind of data are not provided at regional unit level.

Table 57. University physicians 2018

University physicians 2018					
Health Region	**Professors**	**Associate professors**	**Assistant professors**	**Lecturers**	**University professors total**
Health Region of Makedonia	28	46	49	7	130
Health Region OF Macedonia and Thrace	81	76	104	7	268
Country total	**382**	**366**	**372**	**46**	**1.166**

Ministry of Helth

Assistant and rural physicians in the Health Regions of Macedonia and Macedonia - Thrace are presented in the table below. These kind of data are not provided at regional unit level.

Table 58. Assistant and rural physicians 2018

Assistant and rural physicians 2018		
Health Region	**Assistant physicians**	**Rural physicians**
Health Region of Makedonia	6	2
Health Region OF Macedonia and Thrace	72	0
Country total	**1.398**	**95**

Ministry of Helth

The table below provides information for Non-medical hospital staff in the Health Regions of Macedonia and Macedonia - Thrace. These kind of date are not provided at regional unit level.

Both in country and Health Regions of interest level, the occupational categories with the less hospital staff are Technical and assistant staff, in contrast with the ones with the most concentration are nursing and paramedical staff.

Table 59. Non-medical hospital staff, 2018

Non-medical hospital staff 2018								
Health Region	**Nursing**	**Administrative**	**Scientific non-medical staff**	**Paramedics**	**Technical**	**Other**	**Assistant staff (except physicians)**	**Total**
Health Region of Makedonia	3809	693	249	635	244	414	228	**6.272**
Health Region of Macedonia and Thrace	4666	1023	241	858	284	651	242	**7.965**

Non-medical hospital staff 2018								
Health Region	Nursing	Administrative	Scientific non-medical staff	Paramedics	Technical	Other	Assistant staff (except physicians)	Total
Country total	32955	9525	2301	5,908	2191	3043	2,125	58,048

Ministry of Health

Primary health care staff in health units is presented in the table below. Both in country's total and Health Regions of interest level, national health system physicians and nurses are the staff categories with the most concentration, in contrast with the one with the less concentration is technical staff.

Table 60. Health units of primary health care, 2018

Health units of primary health care 2018								
STAFF CATEGORY	National Health System Physicians	Nurses	Administrative Staff	Scientific Non-Medical Staff	Paramedical Staff	Technical Staff	Others	Total
Health Region of Makedonia	558	492	80	287	157	21	97	1,692
Health Region of Macedonia and Thrace	599	715	106	641	179	37	136	2,413
COUNTRY TOTAL	4,302	3,553	779	2,999	1,225	159	934	13,951

Ministry of Helth

Primary health care staff in regional medical practice spaces are presented in the table below. Both in country total and Health Regions of interest level, general physicians/ attending physician, rural service doctors on term are the staff categories with the most concentration, in contrast with midwives that are the category with the less concentration.

Table 61. Regional medical practice centers, 2018

Regional medical practice centers 2018					
STAFF CATEGORY	Compulsory Physicians Of Rural Service	General Physicians / (Attending physician) In The Position Of Rural Service Physicians	Rural Service Doctors On Term	Nurses	Midwives
Health Region of Makedonia	64	112	5	13	1
Health Region of Macedonia and Thrace	31	242	10	27	4

Regional medical practice centers 2018					
STAFF CATEGORY	**Compulsory Physicians Of Rural Service**	**General Physicians / (Attending physician) In The Position Of Rural Service Physicians**	**Rural Service Doctors On Term**	**Nurses**	**Midwives**
COUNTRY TOTAL	571	**980**	80	87	**13**

Ministry of Health

8. Core indicators

A health indicator is a measure designed to summarize information about a given priority topic in population health or health system performance. Health indicators provide comparable and actionable information across different geographic, organizational or administrative boundaries and/or can track progress over time.

A health indicator can describe:

- the health of a population (e.g., life expectancy, mortality, disease incidence or prevalence, or other health states);
- determinants of health (e.g., health behaviors, health risk factors, physical environments, and socioeconomic environments);
- health care access, cost, quality, and use.

Many indicators and indicator definitions have been developed by international organizations, reference groups, interagency groups, countries, academics, advocacy groups and others. The indicators are often used for different purposes, including programme management, allocation of resources, monitoring in-country progress, performance- based disbursement and global reporting. There is a plethora of indicators lists available, although in the present study we suggest those that either have global recognition or are in line with European standards, or, even more, represent the socio-economic and epidemiological profile of Greece. More specifically we suggest:

- **The Global Reference List of 100 Core Health Indicators, published by WHO** is a standard set of core indicators prioritized by the global community to provide concise information on the health situation and trends, including responses at national and global levels.
- **The European Core Health Indicators (ECHI)**, formerly known as European Community Health Indicators, is a list of 88 core health indicators, that are the result of long-term cooperation between EU countries and the European Commission. Three ECHI projects (1998-2001, 2001-2004, 2005-2008) funded under the EU Health Programmes established the first lists of ECHI indicators, aiming to provide comparable health information and knowledge system to monitor health at EU level.
- **The Observatory of Socio-Economic and Epidemiological Indicators, published by National School of Public Health (ESDY),** is part of the European Union and World Health Organization (WHO) strategies to reduce social inequalities in health. The Observatory, which is a list of 106

core health indicators, aims to support the implementation of health interventions, and be used to reduce socio-economic disparities, improve the efficiency of health services and develop national and regional strategies.

The complete lists with the indicators are included in ANNEX 2.

Other European- level indicators[1] are those of the European Centre for Disease Prevention and Control (ECDC) surveillance data on communicable diseases, the EU Sustainable Development Goals (SDG) indicator set or other health indicators such as indicators on regional health, urban health, Health Care Quality (HCQI), and youth health.

8.1 Proposal for a set of core Indicators that can be used for the monitoring of population's needs, the resources used and the performance of health services

The choice of indicators that can be used for the monitoring of population's needs, the resources used and the performance of health services, was based on whether or not they met the following characteristics:

- Availability at regional level
- Expected predictive value on the impact of socio-economic and epidemiological factors on the country's and region's epidemiological profile
- Used or proposed by previous programs (e.g. ECHIM) or international organizations (e.g. WHO).
- Can be considered as "powerful" indicators that can guide political commitment to health from beyond the health sector, as suggested by WHO.

This choice was based on the expected predictive value of the indicators in describing the profile of Greece's regions. The list of proposed indicators is indicative.

The list of the indicative set of core indicators are presented below:

I. Demography and socio-economic situation

1. Population by sex/age
2. Total unemployment

[1] https://ec.europa.eu/health/indicators_data/overview_en

II. Health Status

3. Life expectancy
4. Disease-specific mortality
5. Selected communicable diseases
6. Cancer incidence
7. Diabetes, self-reported prevalence
8. Depression, self-reported prevalence
9. AMI
10. Stroke
11. Asthma, COPD and other pulmonary diseases, self-reported prevalence
12. Injuries: home/leisure, self-reported incidence
13. Injuries: road traffic, self-reported incidence
14. Injuries: workplace
15. Self-perceived health
16. Self-reported chronic morbidity
17. Physical and sensory functional limitations

III. Determinants of Health

18. Body mass index
19. Blood pressure
20. Regular smokers
21. Consumption of fruits and vegetables
22. Physical activity

IV. Health interventions & services

23. Breast cancer screening
24. Cervical cancer screening

25. Hospital beds
26. Physicians employed
27. Nurses employed
28. Medical technologies: MRI units and CT scans
29. Hospital in-patient discharges, limited diagnoses
30. Expenditures on health

8.2 Calculation/ Estimation of selected core Indicators that can be used for the monitoring of population's needs, the resources used and the performance of health services

In this paragraph, a calculation of some indicative indicators of the proposed core heath indictors mentioned above has been made. For their calculation, methods of measurement and estimation were used, as they were proposed by the National School of Public Health, with some exceptions.

The following analysis utilizes primary data from the ongoing health interview survey “Health and Welfare”, organized by the Department of Health Economics of the National School of Public Health in Greece, which started in 2001. The main aim of the “Health and Welfare” survey is to assess the health status of respondents and to probe the use of health services in Greece.

For the analysis, the primary data collected in the cross-sectional surveys of the years 2011, 2015, 2016 and 2017 were merged, as the sample in each survey was different and no individual respondent could participate in more than one survey. For all the cross-sectional analysis, a representative national sample was selected and stratified by age, gender, geographic region and degree of urbanization. The interviews were conducted via computer-assisted telephone interviewing (CATI), based on a structured questionnaire. The total sample consisted of 2.894 participants from the population of Central and Western Macedonia and 14.590 participants from all over the country.

I. Demography and socio-economic situation

Population by sex/age

Of the selected regions: 0,30924

Of the country: 0,28816

Unemployment

Of the selected regions: 21,51%

Of the country: 19,3%

II. Health Status

Life expectancy

Of Central Macedonia: 81.4

Of Western Macedonia: 82.2

Of the country: 81.4

Of the E.U.: 80.9

Mortality rates

C00-C96 Malignant neoplasms:

Of the region: 293,3 per 100.000

Of the country: 279,8

D50-D89: Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism

Of the region: 6,9

Of the country: 6,76

E00-E88: Endocrine, nutritional and metabolic diseases

Of the region: 23,36

Of the country: 19,27

F01-F99: Mental and Behavioral Disorders

Of the region: 18,36

Of the country: 13,01

G00-G98: Nervous system diseases

Of the region: 32,08

Of the country: 30,21

I00-I99: Circulatory System Diseases

Of the region: 424,35

Of the country: 416,47

J00-J98: Diseases of the respiratory system

Of the region: 106,43

Of the country: 124,37

K00-K92: Diseases of the digestive system

Of the region: 33,51

Of the country: 32,47

L00-L98: Diseases of the skin and subcutaneous tissue

Of the region: 6,72

Of the country: 6,58

P00-P96: Certain conditions originating in the perinatal period

Of the region: 2,92

Of the country: 1,98

Q00- Q99: Congenital abnormalities, malformations and chromosomal abnormalities

Of the region: 2,09

Of the country: 2,22

R00-R99: symptoms, signs and pathological clinical and laboratory findings not elsewhere classified

Of the region: 90,62

Of the country: 99,95

V01-Y89: External causes of morbidity and mortality

Of the region: 35,19

Of the country: 37,67

A00-B99: Certain infectious and parasitic diseases

Of the region: 3,34

Of the country: 4,29

M00-M99: Diseases of the musculoskeletal system and connective tissue

Of the region: 1,71

Of the country: 2,18

Discharged patients

Number	Descriptions	Country	Selected regions
01	All categories	14516.43	14246.14
02	I A00-B99 Certain infectious and parasitic diseases	358.70	304.20
03	II C00-D48 Neoplasms	1760.09	1877.34
04	III D50-D89 Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	288.11	223.02
05	IV E00- Endocrine, nutritional and metabolic diseases	287.32	298.14
06	V F00-F99 Mental and behavioral disorders	321.40	374.12
07	VI G00-G99 Diseases of the nervous system	465.07	496.32
08	VII H00-H59 Diseases of the eye and adnexa	511.84	574.26
09	VIII H60-H95 Diseases of the ear and mastoid process	68.76	65.00
10	IX I00-I99 Diseases of the circulatory system	1827.36	2006.66
11	X J00-J99 Diseases of the respiratory system	1192.26	997.61
12	XI K00-K93 Diseases of the digestive system	1441.19	1413.89
13	XII L00-L99 Diseases of the skin and subcutaneous tissue	193.81	154.79
14	XIII M00-M99 Diseases of the musculoskeletal system and connective tissue	546.69	523.35
15	XIV N00-N99 Diseases of the genitourinary system	1217.14	1126.55
16	XV O00-O99 Pregnancy, childbirth and the puerperium	1021.43	1080.75
17	XVI P00-P96 Certain conditions originating in the perinatal period	229.53	128.31
18	XVII Q00-Q99 Congenital malformations, deformations and chromosomal abnormalities	72.52	71.06
19	XVIII R00-R99 Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1342.00	1153.54
20	XIX S00-T98 Injury, poisoning and certain other consequences of external causes	1010.25	1062.15
21	XX V01-Y98 External causes of morbidity and mortality	151.69	146.36
22	XXI Z00-Z99 Factors influencing health status and contact with health services	209.24	168.74

Selected communicable diseases

	Hepatitis acute B	Measles	Legionellosis	Listeriosis	Mumps	Salmonellosis	Tuberculosis
selected regions	0,232	2,324	0,279	0,093	0	4,322	3,718
country	0,297	9,537	0,455	0,195	0,065	6,268	4,337

III. Determinants of Health

Body Mass Index (BMI)

Of the selected regions: 21.3%

Of the country: 15.4%

Of the country according to ELSTAT: 17%

Of the E.U.:15.4%

Blood pressure (Hypertension)

Selected regions: 20.9%

Country: 23.6%

ELSTAT: 20.9 %

E.U.: -

Smokers[2]

Selected regions :34.6%

Country: 35.1%

ELSTAT: 32.6%

E.U.: 23.9%

[2] Data include regular and non-regular smokers.

Consumption of fruit and vegetables (5 portions or more, daily)[3]

Selected regions: 19.3%

Country: 18.8%

Greece (by Eurostat): 7.8%

E.U.: 14.3%

Physical activity[4] (5-7 times per week)

Selected regions: 25.6%

Country: 22.1%

ELSTAT: 6.6%

IV. Health interventions & services

Breast cancer screening (screening test: Mammography[5])

Selected regions: 62.1%

Country: 66.2%

ELSTAT (2009): 46.8%

Greece (by Eurostat, 2014): 86.5%

E.U.: 88.7%

Cervical cancer screening (screening test: PAP smear)

Selected regions: 68.8%

Country: 70.7%

ELSTAT (2009): 68.5%

[3] There are two different indicators; one for fruit and one for vegetable consumption. Although we modified the indicator and since in our study we did not separated fruit and vegetable consumption.

[4] Data for the calculation came from the question: "During the last month, in addition to your work duties, did you participate in any physical activity or exercise such as running, walking, gardening, or other activities to get fit? How many times per week?". ELSTAT refers to a" Percentage distribution of people 15 years of age or older who do sports, exercise or training for entertainment".

[5] Data referred to women who had undertaken the test at least on time in the past. The indicator is about women who had undertaken the test at least one time in the past 2 years.

E.U.: 70.7%

Hospital beds

Selected regional units: 38,01

Country: 26,61

Physicians employed

Selected regions: 1156,23 per 100.000

Country: 1211,72 per 100.000

9. Indicative Proposals for Improvement of Prevention Services

In the context of this project, a set of health determinants related to the suggested core indicators and the indicative values are highlighted as potential targets of future local prevention strategy or interventions. In the highlighted areas of health the target population demonstrate poor or poorer results than the general Greek population. The following proposals are corresponding with the Greek Strategic Plan for Health (2016) that sets 13 priorities for prevention and health promotion in the general population and guidelines available from the World Health Organisation for the prevention of ill health.

9.1 Health promotion proposals

Certain socioeconomic factors are associated with poor health outcomes. Unemployment links to poverty and poor health. The overall country rates had significantly increased following the economic crisis but appear to decrease slowly since 2014. The same course follow the rates of the target areas but the workforce in West Macedonia seems to have a slower increase that the country average and that of Central Macedonia. From the presentation and analysis of the socio-economic and health profile in the areas of Western and Central Macedonia and the estimated values of the suggested indicators, transpire some of the challenges the local healthcare system faces.

The vast majority of the proposed services, actions and activities are within the remit of the Primary Care Regional Networks. According to the resources and the level of development, the health needs assessment of the local population, the design and implementation of prevention and health promotion programs, the provision of primary mental health care and support as well as the coordination and delivery of the national screening and immunization programs is within the scope of the transformed primary care services and particularly, the Family Doctor, the Local Health Teams and the local community health centers.

Health determinants

Smoking

Smoking is a widely acknowledged modifiable risk factor that affects the health of a large proportion of the Greek population and it appears that smoking rates are even higher in the project target areas. Over one third (34.6%) of the adult population of Western and Central Macedonia are smokers, almost 1 in 2 men 25-54 and over 1 in 3 women smoke occasionally or regularly. The area rates are slightly higher

than the Greek rates (32.6%) but significantly higher than the EU average of 23.9% and the second highest among Member States.

Globally, 8 million people per annum die from tobacco related conditions. Tobacco can also be deadly for non-smokers. Second-hand tobacco smoke contributes to heart disease, cancer, and other diseases.

Tackling the significant effects on health due to smoking, there are two complimentary directions proposed by the National Strategy and the WHO; prevention initiatives and smoking cessation initiatives.

Smoking prevention initiatives include:

- The implementation of the national legislation for tobacco control, for example the legislation on smoking ban in public places, messaging on tobacco products, banning of advertising tobacco products etc.
- Community based initiatives; lectures/seminars, online information and fora and printed material on the effects of smoking available on local level.
- school based initiatives: information sessions for students, seminars for teachers, events and campaigns

Smoking secession programs

On a primary care level, the provision of smoking secession programs is recommended within the primary care setting and/or with the support of health charities and NGOs or within the private sector. According to the WHO smoking secession programs should encompass the following charactristics:

- Tobacco cessation advice incorporated into primary and routine health-care services
- Easily accessible and free telephone help lines (known as quit lines)
- Access to free or low-cost cessation medicines

In more detail WHO provides very comprehensive guidelines on the development of evidence –based population specific population and individual specific interventions that can include specialized tobacco dependence treatment services and the provision of medication.[6]

Monitoring the smoking status and level of preparation for change as well as the promotion of smoking secession activities are within the remit of the primary care teams that can tailor the advice and support the person to access the appropriate services.

Obesity

[6] FCTC. WHO Framework Convention on Tobacco Control, Guidelines for implementation of Article 14 https://www.who.int/fctc/treaty_instruments/adopted/Guidelines_Article_14_English.pdf?ua=1

Being overweight and obese are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Obesity is measured mainly through the calculation of the Body Mass Index (,BMI) Results and analysis of the relevant indicator shows that the areas of Central and Western Macedonia seem to demonstrate higher obesity rates than the general Greek and European population. Notably, over 70% of men and women over 40 in the target areas are overweight or obese. A particularly concerning figure is that approximately 30% of women over 55 are obese, facing the health risks associated with the condition.

Focusing on health behaviors and lifestyle choices that increase the risk on poor health, the target population has not demonstrated a particularly poor or poorer results regarding healthy eating, physical activity or alcohol consumption in isolation. Nevertheless, the increasing obesity rates in the country and the target areas have been attributed to a combination of behaviors and lifestyle choices that have an impact on the obesity rates. The WHO has recently produced guidelines on tackling obesity in childhood with a focus on increasing physical activity and reducing sedentary behavior.

Services that support and promote the physical activity of the population are usually provided at lower cost to the end user from local authorities. The equity of these services and the extent that it covers the needs of the wider population as well as the needs of vulnerable groups is an important parameter of their effectiveness. The cost factor and the promotion of subsidies for low income families and individuals is important for their inclusion and encouragement to participate. Additionally, is recommended to consider the development of sessions targeting people with physical or sensory disabilities, older people, people with mental health problems and other groups according to the local need. Physical activity services need also to take into consideration the challenges of rural areas including transport barriers but also take advantage of and promote low cost outdoors activities, like walking, running, cycling, swimming accordingly.

In addition, and acknowledging the role of diet, promoting a healthy diet in the population in parallel with the promotion of physical activity is recommended for tackling obesity.

The Greek national strategy calls for the promotion of healthy dietary choices across the population and the provision of healthy meals in primary schools.

<u>Diet recommendations should focus in general on</u>:

- achieving energy balance and a healthy weight
- limiting energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of trans-fatty acids

- increasing consumption of fruits and vegetables, and legumes, whole grains and nuts
- limiting the intake of free sugars
- limiting salt (sodium) consumption from all sources and ensure that salt is iodized

Community services for the promotion of healthy diet in the target population can focus on raising awareness of the above principles of a healthy diet through primary care and the schools through individual consultations, group sessions

A wider campaign of the promotion of the 5-a-day message, the consumption of 5 portions of fruit and vegetables a day, can reach a wide audience but also more methods and services such as, information sessions, awareness campaigns and printed guidelines and material for example on reading food packaging labels.

The assessment of individual need and the design of tailored advice and support can be delivered within the primary care but is also evident that the involvement of various stakeholders is essential for the impact on the individual and the effectiveness of the interventions. Local stakeholders could be local schools, local authorities, sports groups and associations, etc.

Health status – chronic illness

Chronic conditions are the leading determinants of disability adjusted life years (DALYs) taking into account both the burden of mortality and morbidity.

40.7% of the population of the Western and Central Macedonia regions suffer from chronic diseases, with a higher frequency reported by women than men (45.4% vs. 35.9%). Thus, there is a significant difference in the percentage of women from the regions of Western and Central Macedonia and the European population who reported having chronic illness (45.4% vs. 38.9%)., Also small differences appear on indicators referring to neoplasms, ophthalmological (diseases of the eye and adnexa) and endocrine, nutritional and metabolic conditions.

Cardiac and circulatory disorders are the most prevalent, with 15.7% of the population in the two regions suffering from these diseases. Metabolic & endocrine disorders and orthopedic disorders have also high prevalence (11.3% and 8.6% respectively).

Correspondingly, the indicator values of mortality rates due to endocrine, nutritional and metabolic diseases, malignant neoplasms, mental and behavioral disorders, nervous system diseases and circulatory diseases appear to be slightly higher than the country values.

The management and support of long term conditions is also within the remit of the primary care teams that are responsible for the monitoring and support of people with long term conditions.

Recommendations for further development of services for people with long term conditions in the target areas can focus on the equity and quality of statutory services and the promotion of secondary prevention and supported self-management in the community. More specifically:

- Continuous care at primary care level with specialist input when required. This needs to take into consideration the particularly challenges of people with long term conditions living in rural and semi-rural areas and make provisions for home visits or home care where that is essential.
- A system of monitoring and reminding follow up appointments and health checks for people living with long term conditions
- Up to date information about the nature, progression and impact of the long term conditions (particularly for the most common conditions in the area) in simple language.
- The promotion of peer support through supporting the development of groups, forums, associations of patients that live with the same or similar long term conditions. Flexible peer support networks in the form of buddying systems, telephone or online support are some of the ways of overcoming challenges for people living in rural or semi-rural areas.
- Tailored rehabilitation and health promotion programs in partnership with people living with long term conditions and local and health authorities that ensure equal access to services (for example rehabilitation services for people who have had a stroke, accessible or tailored exercise programs for people living with cancer or heart disease, or health promotion activities for people with type 2 diabetes) and support programs for accessing or returning to education, meaningful occupation or work.
- Monitoring and delivering the recommended by the National School of Public Health (2010)[7] screening test for primary and secondary prevention including:
    - vascular health screening for healthy population 40-74,
    - aortic aneurysm screening for men over 55,

Mental health

Mental health and neurological conditions, based on diagnosis at discharge appear to have a higher indicator value than at country level. On a country wide level, the disability burden of Alzheimer's and other types of dementia has also increased sharply the past nearly 20 years, with associated DALYs almost doubling (OECD, 2017)[8].

[7] Scroubelos, A. and Kyriopoulos, Y. *National Screening Programs for Adults in Greece*,2010. National School of Public Health

[8] European Commission, EOCD. 2017. State of Health in Greece. Country Health Profile

Primary care services have also the role of identifying mental health issues and providing a first level of support and referrals to specialist services allowing more localized support in a potentially less medicalized environment in community settings. This can promote access to appropriate support considering the existing stereotypes related to mental illness and potentially support more people receive appropriate support sooner.

- Reinforcement of systems of long term support and monitoring the needs of people with mental health conditions living in the community within primary care and the provision for mobile, remote or home based- services for people living in rural areas.
- Promotion of the person centered approach that focuses on the holistic needs of the person and also promotes self-management principles.
- Provision of telephone/online support on mental health through helplines or equivalent services.
- From the perspective of prevention and promotion of good mental health, services that can promote that in the target communities need to focus on
- Raising awareness of signs of positive mental health and the signs of poor mental health and at what point need to take action and visit a health professional.
- Public initiatives aiming at tackling the stigma associated with mental illness and mental health disorders and the emphasizing on the importance of an inclusive society.
- Raising awareness of activities that are accessible for people with mental health difficulties and their carers and activities that have a secondary positive impact on someone's mental health, for example physical activity initiatives.

Dementia and neurological conditions

Taking into considerations that dementia and some long term conditions are more prevalent among older population, collaboration with the program EPIONI that focuses on health promotion and prevention targeting older people is essential the program focuses particularly on the promotion of sensory health, namely, vision and hearing, providing a wide range of services and support to access aides for older people.

The provision of services for the early diagnosis and support of people with dementia is highlighted as the burden of dementia is rising as the condition progresses for the individual and their family.

Services that can be provided at community and primary care level relate to raising awareness of the signs of dementia and frailty primary to older adults, understanding the conditions, their symptoms effects and progression, treatment and support available. Information and support initiatives should also take into consideration the needs of informal carers and families.

Services is preferable to be oriented towards providing community based and home based support for as long is it safe and reasonable.

9.2 Prevention and early detection of cancer

Breast cancer screening

Mammography rates in Western and Central Macedonia appear to be lower than the rest of the country and the EU average with less than 2in 3 women having had a test according to the sample. Mammography can provide early diagnosis and treatment of breast cancer that can lead to better outcomes and survival rates.

There is available evidence (WHO) on cancer etiology and effective interventions, supporting it is possible to prevent up to 50% of premature deaths from cancer and to cure the disease or prolong survival in another 30% of cases with early detection and proper treatment. examples of health promotion preventive interventions include smoking cessation efforts, promotion of healthy diets, exercise and weight control programmes. Prevention methods also are vaccination against hepatitis B virus to control liver cancer, and vaccination against human papillomavirus (HPV) to prevent cervical, anal, and possibly oropharyngeal cancer. In addition, screening programmes for cervical, colorectal, and breast cancers have been shown to be effective when implemented on a large scale. In the case of cervical cancer, for example, important advances in both primary and secondary prevention have been made in recent years. Several new preventive interventions offer enormous hope for reducing incidence and mortality from this disease, which has been extremely difficult to control in developing countries, where it remains one of the leading causes of cancer death.

In Greece, the recommended screening program for cancer include a mammogram every 3 years for healthy women. There is lack of a coordinated action plan on population screening nationally and regionally, allowing room for people to fall off the net and increase of out of pocket expenses. To encourage further uptake if the screening the following services and methods can be deployed in the target areas, taking into consideration that there are sufficient equipment to cover the needs of the population:

- Wide awareness raising campaign focusing on the benefits of the screening and early detection.
- Information material and online information available in plain language with a consideration of modifying the messaging for disadvantaged groups and translating the main messages in different languages.
- A system of monitoring and reminding of the women and the primary care system (family doctor) of the next appointment when is due.
- Consideration of mobile units for remote and rural areas to overcome transport barriers and the anxiety associated with a hospital or health center visit for preventative purposes.

Screening for other forms of cancer

The national screening program also indicates screening for other forms of cancer and particularly:

- Colorectal cancer screening: this is recommended by the CDC to be considered from the age of 50 -74.
- Cervical cancer screening: the screening requires the known as PAP test in Greece.

Correspondingly to breast cancer, the lack of a formalized action plan hinders the coordinated promotion and monitoring of compliance. Hence, the introduction of the screening processes, the clear parameters and monitoring processes should be included in national and regional plans. In addition, and in accordance with those, wide public campaigns, taking into consideration sensitivities around the screening and focusing on the potential benefits from undertaking the screening could raise public awareness. Also, the introduction of these screening within the primary care program would also increase the promotion and monitoring capacity.

9.3 Influenza vaccination

Rates of influenza vaccination - Influenza vaccination rates also appear to be lower than the Greek (16.0% vs. 19.7%) and EU rates increasing the risk of ill health among the high risk groups of young children and the elderly.

Influenza vaccination is promoted to vulnerable and special groups across the country. To increase the uptake of the immunization within these groups a national campaign is launched biannually.

The role primary care professionals and particularly the medical staff in encouraging the high risk groups in being vaccinated is vital as the “doctors’ recommendation” has added weigh in the decision making of the Greek population and particularly in rural or agricultural populations where preventative checks may be perceived as signs of weakness.

Outreach services and mobile units providing vaccinations are also recommend for rural areas, hard to reach groups and groups that are not easy to transfer, for example schools or older people with mobility issues. The utilization of community settings also reduces the anxiety about the vaccination itself.

10. Mapping of Needs – Area of Gevgelija –North Macedonia

10.1 Introduction

The Republic of North Macedonia is a landlocked country in southeast Europe on the Balkan Peninsula. The country is administratively divided into 8 statistical regions with 80 municipalities. It covers a land area of 25,713 km2, with estimated east-west distance around 220 km and north-south - 160 km. North Macedonia has some 748 km of boundaries, shared with Serbia (62 km) to the North, Kosovo (159 km) to the northwest, Bulgaria (148 km) to the east, Greece (228 km) to the south, and Albania (151 km) to the west.

10.2 Fiscal-economic situation and perspectives

10.2.1 Gross Domestic Product GDP

The GDP in North Macedonia amounted to 10,734.7 million EUR in 2018 (estimation by Eurostat) or 9,656.5 million EUR in 2016 (latest officialy available data). GDP increased for 99% in a period 2005-2018 (Eurostat, 2019). Measured by the Gini index, the inequalities of the distribution of income among individuals or households within the economy have further improved from 40.9 in 2010 to 33.7 in 2015. This is slightly higher than the EU average (31).

In 2018, Ireland recorded the second highest level of GDP per capita in the EU-28 (European Union), at 87 % above the EU average, with only Luxembourg at a higher level. Levels of actual individual consumption were somewhat more homogeneous, but still showed significant differences across Europe. North Macedonia is on the bottom.

Volume indices per capita, 2015-2018, (EU=100)

	Gross domestic product				Actual individual consumption			
	2015	2016	2017	2018	2015	2016	2017	2018
Luxembourg	266	260	253	254	140	134	132	132
Ireland	178	177	181	187	94	94	93	94
Netherlands	130	128	128	129	115	111	111	112
Austria	129	128	127	127	121	119	117	116
Denmark	127	126	128	126	116	113	114	114
Germany	124	124	124	123	122	122	122	121
Sweden	125	122	121	121	113	110	109	109
Belgium	118	118	116	115	114	113	112	111
Finland	109	109	109	110	114	113	112	112
EA19	106	106	106	106	105	105	104	104
United Kingdom	109	107	106	104	115	115	114	113
France	106	104	104	104	110	110	108	107
Malta	93	95	98	98	79	78	79	80
Italy	95	97	96	95	97	98	98	98
Spain	91	91	92	91	89	89	89	90
Czechia	87	88	89	90	78	78	81	83
Slovenia	82	83	85	87	76	76	77	77
Cyprus	82	84	85	87	91	92	92	94
Estonia	76	77	79	81	71	72	72	74
Lithuania	75	75	78	81	83	85	88	90
Slovakia	77	77	76	78	76	76	76	77
Portugal	77	77	77	76	82	82	82	82
Poland	69	68	70	71	74	74	75	77
Latvia	64	64	67	70	66	66	68	70
Hungary	68	67	68	70	63	62	62	64
Greece	69	68	67	68	79	77	76	76
Romania	56	59	63	64	58	64	68	70
Croatia	59	61	62	63	59	61	62	63
Bulgaria	47	48	49	50	53	53	54	56
Switzerland	165	160	156	157	131	126	124	124
Norway	156	145	146	150	130	127	126	125
Iceland	126	130	130	133	116	116	118	121
Turkey	66	65	66	65	66	66	67	68
Montenegro	42	44	45	47	54	56	56	57
Serbia	39	39	39	40	47	47	47	48
North Macedonia	36	37	36	38	41	42	40	41
Albania	30	30	30	31	38	37	38	38
Bosnia and Herzegovina	30	31	31	31	41	41	41	41

Note: countries are sorted according to their 2018 volume index per capita for GDP.
Source: Eurostat (online data code: prc_ppp_ind)

eurostat

(source: Eurostat, online code prc_ppp_ind)

10.2.2. Unemployment

Unemployment is a continuing problem in the Republic's economy where a large percentage of the Republic's qualified labor force cannot find work. Many Macedonians lost their jobs with the collapse of Yugoslavia. As a result, national unemployment was above 35% (37.30% in 2005), but in recent years that number is decreasing. In the end of 2018, the rate of unemployed was 20.7%, with population below the poverty line also dropping from 30.4% (2011) to 21.5% (2015), it is reasonable to assume that based on the trend over the past few years, further declines are likely for both unemployment and poverty. Full-time employment has risen steadily over the last few years, with part-time employment trending slightly downward over the same period resulting in an overall increase to employment, wages increased sharply after 2008, with steady increases continuing into 2018.

	Active population			**Activity rates**		
	Total	**Employees**	**Unemployed**	**Activity rate**	**Employment rate**	**Unemployment rate**
2014	958.998	690.188	268.810	57,3	41,2	28,0

2015	954.924	705.991	248.933	57,0	42,1	26,1
2016	948.599	723.550	225.049	56,5	43,1	23,7
2017	954.212	740.648	213.564	56,8	44,1	22,4
2018	957.623	759.054	198.569	56,9	45,1	20,7

(Source: State Statistical Office (Labor Force Survey))

In the period 2008 - 2018, activity, employment and unemployment rates change year-on-year, increasing and / or decreasing. In the last year of this period, the rate of active population of men increased by 0.4 percentage points compared to 2008. The highest employment rate of 45.1 is recorded in 2018, while the lowest unemployment rate of 20.7 is also recorded in 2018. Higher employment rate in this period was observed among men (54.4%), reflecting higher share of men in the total number of employees. The employment rate of women during the period also increased by 7 percentage points compared to 2008.

10.3. Social conditions

10.3.1. Population living conditions, Poverty.

The State Statistical Office measures the standard of living in the Republic of North Macedonia through the Laeken indicators of poverty, household consumption, as well as data on time use and work-family balance. The Household Consumer Survey collects data on average disposable resources by source, amount of consumption consumed, quantities of food and other items intended for personal use, as well as data on the supply of households with some consumables. The data from this survey are used as a basis for calculating personal consumption in GDP in the National Accounts, but also for making weights for calculating the CPI. The Survey of Income and Living Conditions enables calculations of the distribution of income and monetary indicators of poverty. The EU-SILC survey also serves to calculate reliable quantitative indicators of social exclusion and material disadvantage.

The State Statistical Office, based on data from the Survey on Income and Living Conditions, conducted in line with the recommendations of the European Union, calculated the Laeken poverty indicators for 2017 (last available data). The basis of poverty calculations are income, and the poverty threshold is defined at 60% of median equivalent income.

According to the data, in 2017, the poverty rate in the Republic of Macedonia was 22.2%.

Poverty and social exclusion indicators, 2015-2017 (final data)

2015	2016	2017	
21,5	21,9	22,2	At-risk-of-poverty rate, % of population
445,2	453,2	460,3	Number of persons below at-risk-of-poverty threshold, in thousand persons
78 362	82 560	90 129	At-risk-of-poverty threshold of single-person household - annual equivalent income in denars
164 560	173 376	189 270	At-risk-of-poverty threshold of four-person household (2 adults and 2 children aged less than 14) - annual equivalent income in denars
40,5	41,6	40,7	At-risk-of-poverty rate before social transfers and before pensions, % of population
6,6	6,6	6,4	Inequality of income distribution, S80/S20, %
33,7	33,6	32,5	Inequality of income distribution, Gini coefficient, %

(source: State Statistical Office - Laeken Indicators of Poverty in 2017- definitive data)

Analysed by type of households, the poverty rate of households comprised of two adults with two dependent children in 2017 is 20.0%. According to the most frequent economic activity status, the rate of poor employees is 9.0%, while the rate of poor pensioners is 7.7%. Fini's coefficient (measure of inequality in income distribution) is 32.5%.

At-risk-of-poverty rate by most frequent activity status and by gender, 2015-2017 (final data)

in percent

2015			2016			2017			
Total	Male	Female	Total	Male	Female	Total	Male	Female	
8,9	10,3	6,8	9,0	10,7	6,5	9,0	10,8	6,2	Employed
39,7	45,1	32,9	41,1	46,2	33,8	38,7	44,0	31,6	Unemployed
7,3	9,9	2,7	7,1	9,9	2,2	7,7	11,5	1,6	Retired

26,7	24,6	27,2	29,4	27,7	29,8	32,1	33,7	31,7	Other inactive population

(source: State Statistical Office - Laeken Indicators of Poverty in 2017- definitive data)

10.3.2. Insurance coverage

The HIF data (Health Insurance Fond Annual report 2019) shows that the number of insured persons in 2018 compared to 2017 decreased by 28,373 persons. By category, the number of employees in 2018 amounted to 569 thousand insured persons and declined compared to the previous year by approximately 2.6 thousand persons. The category of pensioners has increased by 4.7 thousand persons and at the end of 2018 it is 312.105 thousand.

Insurance types	**2016**	**2017**	**2018**
Active workers	563.053	572.291	569.618
Active farmers	21.317	21.028	19.796
Pensioners	300.128	304.657	312.105
Unemployed	7.037	6.649	4.282
Persons insured through the MOH program	244.867	246.611	247.179
Others	14.159	13.768	12.329
Insured persons:	**1.150.561**	**1.165.004**	**1.165.309**
Insured through Family members:	**720.200**	**707.462**	**678.784**
Total insured persons:	**1.870.761**	**1.872.466**	**1.844.093**

(Source: Health Insurance Fond – Annual report 2019)

The number of persons insured through the program of the Ministry of Health (those who are not insured on any other basis), is 247,179 and has increased by 568 persons compared to the previous year. The increase is due to the fact that as of 2015, low-income people are no longer required to re-register.

In the structure of insured persons, 63.2% are persons who are insurance carriers or who allocate funds for health insurance contribution from their income or some institution or organization pays

health insurance contribution. The remaining 36.8% are persons who, according to the Law on Health Insurance, are health insured as family members, (husband / wife, children up to 18 years or until the completion of their education up to 26 years). According to the North Macedonian system, these people do not pay contributions, but are entitled to health insurance through their family member who is the holder of health insurance.

Region	Personally insured	Members	Total insured	Coefficient of members in terms of personally insured
Vardar	91.033	44.671	135.704	0,49
Eastern	106.202	47.531	153.733	0,45
Southwest	108.345	68.215	176.560	0,63
Southeast	94.453	55.478	149.931	0,59
Pelagonia	140.143	68.827	208.970	0,49
Polog	139.727	112.428	252.155	0,8
Northeast	88.338	57.359	145.697	0,65
Skopski	397.068	224.275	621.343	0,56
Total	1.165.309	678.784	1.844.093	0,58

(Source: Health Insurance Fond – Annual report 2019)

10.4. Demographics (population, aging, life expectancy and deaths and births)

The last census in the Republic of North Macedonia was in 2002 and showed a population of 2.022 million, while the last official estimate of population by the State statistical office in the Republic of North Macedonia are for 2018 and based on their estimates the population have increased to 2.077 million which means increase of 0.055 million in 16 years. The population of the North Macedonia is ethnically, religiously and culturally mixed. Its population is largely centralized in cities, 57.8% of the population live in the 34 cities, the highest concentration being in the capital, Skopje (20.5%) (State

Statistical Office, 2018). According to State Statistical Office data the Birth rate is 10.3 live births per 1.000 inhabitants, crude mortality rate is 9.5 deaths per 1.000 inhabitants.

Vital events in the Republic of North Macedonia

Year	Births in the country		Deaths in the country		Natural increase
	total	live births	total	infant deaths	
2014	23 767	23 596	19 718	233	3 878
2015	23 260	23 075	20 461	198	2 614
2016	23 199	23 002	20 421	273	2 581
2017	21 946	21 754	20 318	201	1 436
2018	21 484	21 333	19 727	122	1 606

(source: Natural Population Movement, 2018, State Statistical Office)

Live births by sex, legitimacy and place of birth for 2018

Total	Sex		Legitimacy		Place of birth		
	male	female	legiti-mate	illegiti-mate	medical facility	elsewhere	
21 333	**11 173**	**10 160**	**18 746**	**2 587**	**21 332**	**1**	**Republic of North Macedonia**
773	403	370	679	94	773	-	Bitola
232	121	111	223	9	232	-	Gevgelija

(source: Natural Population Movement, 2018, State Statistical Office)

Deaths by age and sex

Total	0-4	5-14	15-24	25-44	45-64	65+ and unknown	

male	female	male	female	male	female	male	female	male	female	male	female	male	female	
10 339	**9 388**	**82**	**54**	**21**	**14**	**54**	**16**	**358**	**180**	**2 392**	**1 324**	**7 432**	**7 800**	**Republic of North Macedonia**
600	538	1	1	-	1	4	1	21	8	119	70	455	457	Bitola
170	106	2	-	-	-	-	1	4	4	35	12	129	89	Gevgelija

(source: Natural Population Movement, 2018, State Statistical Office)

In terms of age structure, the Macedonian population is growing older. In the period from 2008 to 2018, the share of the young population (0-14 years) in the total decreased from 18.1% to 16.4%, and the share of the elderly population (65 years and older) increased from 11.5% to 14.1%. The average age of the population (SSO data) in 2017 is 39.8 years for females and 38.1 males, with is another indicator of population aging compared to average age of population in 2007 which was 37.2 and 35.7 accordingly.

The United Nations Desa / Population division, on 01.07.2019 have published the last projection for whole world population on low, middle and high variants.

Variant	**Region, subregion, country or area**	**2020***	**2030***	**2040***	**2050***
Medium variant	**WORLD**	7 794 799	8 548 487	9 198 847	9 735 034
Medium variant	Europe	747 636	741 303	727 811	710 486
Medium variant	North Macedonia	2 083	2 051	1 967	1 857

* In thousands

(source: United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1.)

According those data, although the world projected population will increase by 24.9% between 2050-2020, the population in Europe continent and in North Macedonia will decrease by 5% and 10.8% accordingly for the same period.

10.4.1. Southeast region – Gevgelija

The Southeast Region is located in the extreme southeast part of the country and comprises the Strumica-Radovish and Gevgelija-Valandovo basins, the Strumica River valley and the lower course of the Vardar River. In 2017, 8.4% of the total population in the Republic of Macedonia lived in this region. The region covers 10.9% of the total land area of the country and has a population density of 63.3 people per km2. The extensive hydrographic network, the great number of sunny days, the climate and the favorable pedologic conditions characterize the region as predominantly agricultural. The large-scale production of high-quality early vegetables, fruits and industrial crops enable the development of the canning and food processing industry, for which this region is renowned. In recent years, there has been an increasing trend in tourism, shown by the increased number of accommodation facilities, tourists and nights spent in the region. This is mostly due to the revitalization of the Dojran Lake and its exploitation for tourism. Another specific feature of the region is that in 2017, compared to the other regions, it had the highest employment rate of 59.7.

Southeast Region - Basic Statistical Data

10	Number of municipalities
188	Number of settlements
171 416	Total population, Population Census, 2002
173 550	Estimated population, 2017
63.4	Population density, 2017
59 499	Number of dwellings, Population Census, 2002
3.4	Average number of persons per household, Population Census, 2002
1 706	Live births, 2017
1 846	Deaths, 2017
- 140	Natural increase, 2017
168	Immigrants from abroad, 2017
23	Emigrants to abroad, 2017
96.0	Literacy rate of population over the age of 10, Population Census, 2002
67.8	Activity rate, 2017
59.7	Employment rate, 2017
12.0	Unemployment rate, 2017
26 769	Average gross wage per employee, 2017
18 293	Average net wage per employee, 2017
118	Number of primary and lower secondary schools, 2017/2018
9	Number of upper secondary schools, 2017/2018
14 152	Number of students in primary and lower secondary education, 2017/2018
4 820	Number of students in upper secondary education, 2017/2018
592	Number of graduated students from universities, 2017
5 970	Number od active business entities, 2017
543	Number of enterprise births, 2016
479	Number of enterprise deaths, 2015
509	Number of enterprise deaths, 2016[1)]
315 717	GDP per capita, 2015
6 449	Number of beds, 2017
142 888	Number of tourists, 2017
457 162	Number of nights spent, 2017
465	Number of completed dwellings, 2017
2 362 734	Value of completed construction works, 2017, thousand denars
303	Number of issued building permits, 2017

(source: Statistical Annual book, 2018, State Statistical Office)

10.4.2. Pelagonia region – Bitola

The Pelagonia Region is located in the south of the Republic of Macedonia and comprises the Pelagonia basin and the Prespa Lake basin. This region is the largest, covering 18.9% of the total land area of the country, but also one of the most sparsely populated, having a population density of 48.8 people per km2. In 2017, 11.1% of the total population of the Republic of Macedonia lived in this region. The Pelagonia basin, which is the largest plain in the country, the Prespa Lake basin, the specific climate and the extensive hydrographic network are the basic preconditions for the agricultural development in the region. All of this makes this region the breadbasket of the country and the largest producer of tobacco, apples and milk. At the same time, the largest coal deposits are located in this region, making it the country's largest producer of electricity. The Prespa Lake, the

Pelister National Park and the winter tourist resort Krusevo represent the basis for development of summer, winter and cultural tourism in the region.

Pelagonia Region - Basic Statistical Data

9	Number of municipalities
343	Number of settlements
238 136	Total population, Population Census, 2002
230 387	Estimated population, 2017
48.8	Population density, 2017
93 976	Number of dwellings, Population Census, 2002
3.3	Average number of persons per household, Population Census, 2002
2 142	Live births, 2017
3 062	Deaths, 2017
- 920	Natural increase, 2017
279	Immigrants from abroad, 2017
23	Emigrants to abroad, 2017
96.2	Literacy rate of population over the age of 10, Population Census, 2002
64.8	Activity rate, 2017
54.2	Employment rate, 2017
16.3	Unemployment rate, 2017
31 242	Average gross wage per employee, 2017
21 196	Average net wage per employee, 2017
175	Number of primary and lower secondary schools, 2017/2018
20	Number of upper secondary schools, 2017/2018
19 946	Number of students in primary and lower secondary education, 2017/2018
8 052	Number of students in upper secondary education, 2017/2018
1 068	Number of graduated students from universities, 2017
8 064	Number od active business entities, 2017
696	Number of enterprise births, 2016
723	Number of enterprise deaths, 2015
815	Number of enterprise deaths, 2016[1)]
260 855	GDP per capita, 2015
10 203	Number of beds, 2017
63 549	Number of tourists, 2017
161 751	Number of nights spent, 2017
278	Number of completed dwellings, 2017
3 424 842	Value of completed construction works, 2017, thousand denars
312	Number of issued building permits, 2017

(source: Statistical Annual book, 2018, State Statistical Office)

10.5. Population Health status

The health of the population as a precondition for quality life and welfare is fundamental for sustainable development. Although genetic factors are very significant, lifestyle and environmental factors greatly affect the health status. Right nutrition and physical activity improve the health, while fast food, alcohol and tobacco increase the risk of chronic disease incidence.

Improvements in health status and increases in life expectancy and in healthy life years lead to longer, more productive working lives. A population with health problems creates financial pressures on public health and long-term health care, and increases absence from work, all of which reduces

productivity. Health problems affect mostly the poor who usually have lower levels of education and lower level of income. The poor don't have equal opportunities to access health services or opportunities to practice a healthy life. Inadequate housing conditions, inadequate warming and pollution have an impact on health.

Accessibility of health services, going beyond just physical access, including economic, social and cultural accessibility and acceptability, is of fundamental significance for monitoring the progress on the health system progress, equity and sustainable development. In 2017, according to the State Statistical Office data, 90.3% of the population in North Macedonia had access to primary health care facilities.

(source: State Statistical Office, Sustainable Development, 2018)

When we talk about inpatients, the most common reason for hospitalization in 2018 is the cases in the "Circulatory System Diseases" chapter, with 29.32 thousand cases, which is an increase of 3.2% to 2017. In second and third place in 2018 are the cases of the chapter "Diseases of the respiratory system" with 27.86 thousand cases and the chapter "Pregnancy, birth and puerperal" with 24.60 thousand cases.

According to the HIF and theirs DRG methodology, the CMI (case mix index) is a major indicator for the comparison of hospitals, in terms of the complexity of patients treated and the consumption of hospital resources, over a set period of time. It indicates the average clinical complexity of hospitalized patients over a period of time and is significantly influenced by the complexity of health care services

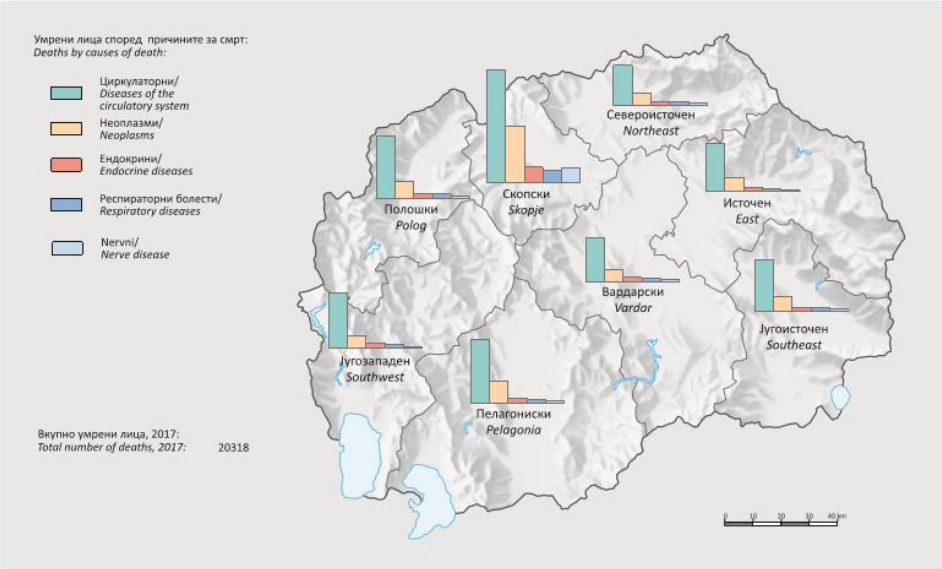
provided, as well as the patient's additional diagnoses and complications during treatment. The CMI (case mix index) of a hospital is obtained when the weighting coefficients of all DRG groups (services) in that hospital are divided by the total number of cases per DRG. By analogy, the national CMI (case mix index) is obtained when the weightings of all DRG groups (services) in all hospitals in Macedonia are divided by the total number of DRG cases and represent the average complexity of patients in the country. This can track how complex or difficult patients are treated by each hospital.

Complexity, or CMI (case mix index), nationally in 2018 is 1.22 (1.28 with the tertial which is introduced in April 2011, as an additional valuation of clinic services) and has an upward trend 2017 when it was 1.19. This means that all hospitals with a CMI (case mix index) below 1.22 treated patients of lower complexity than the national average complexity, which are all general and clinical hospitals with the exception of the City General Hospital "8 September" - Skopje, while hospitals with a CMI (case mix index) above 1.22 treated more complex patients and included university clinics primarily.

Графикон бр. 12 Case mix индекс по здравствени установи3

Preventive services, such as immunisation and preventive medical check-ups traditionally have a high coverage rate in North Macedonia. Their delivery is universal to all children and adolescents, regardless of their health insurance status. Three cancer screening programmes have been introduced: breast cancer, cervical cancer and colorectal cancer (Law on Health Protection, 2012).

Deaths by most frequent causes of death in the total number of deaths, 2017



10.6. Health related resources

The health system in North Macedonia is regulated by two main laws: the Law on Health Care and the Law on Health Insurance through legislative, administrative and market mechanisms. The legislative power is vested in the parliament, while the administrative regulation is implemented through various permissions and licensing procedures of the Ministry of Health, the Agency for Medicines and Medical Aids and the Health Insurance Fund (HIF).

The Ministry of Health is primarily responsible for health policymaking, implementation and monitoring of these policies and enforcing health legislation and also covers all National Health Programs.

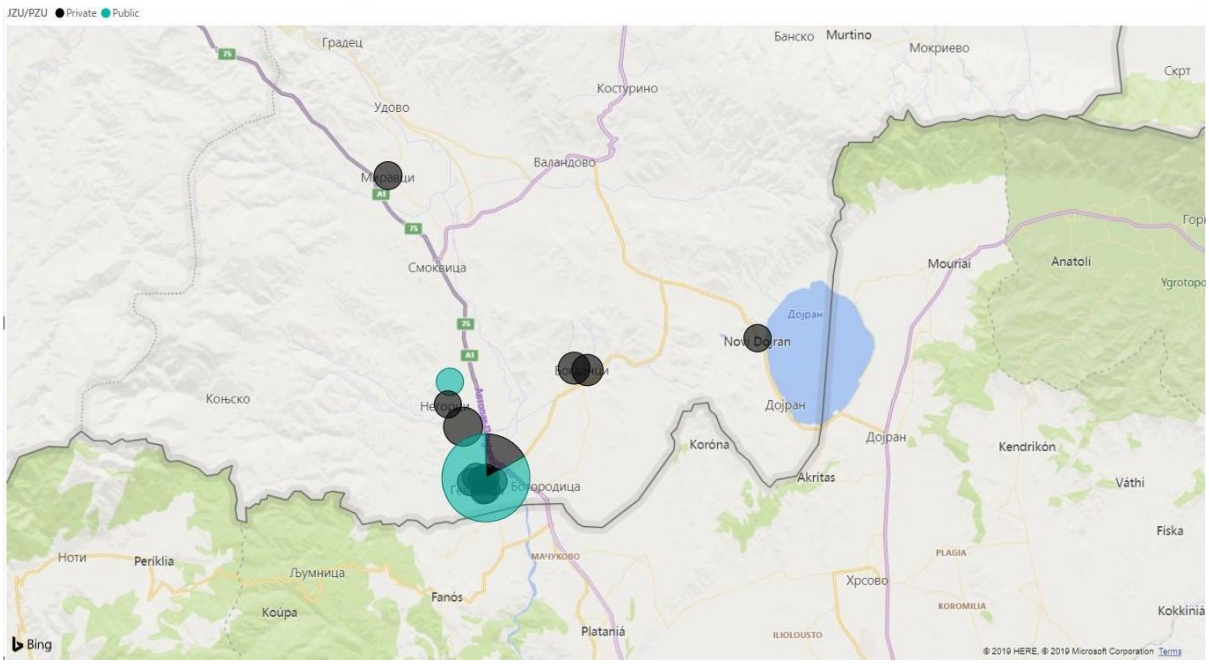
According to the Law on Health Care in 2012 the Ministry of Health established the Health Network - geographically equally distributed network of public and private providers of primary, secondary and tertiary health care services. The network aimed to improve health strategic planning and ensure equal distribution of health care resources throughout the country. The Ministry of Health issues certificate to both public and private health care providers for participating in Health Network. Importantly, only those institutions which have issued certificate for the Health Network are eligible for getting contract and being reimbursed by HIF.

Hospital health care services are provided in public health facilities: general hospitals, clinical hospitals, special hospitals, university clinics, as well as in private hospital health facilities. In the beginning of 2018, there were total of 114 public health institutions, but 8 PHI were transformed (merged) into 4 new health institutions - general hospitals with expanded activity (General Hospital with extended activity Gevgelija, General Hospital with expanded activity Kocani , Kavadarci General Hospital and Extended General Hospital Debar) were created, and the total number of PHIs is 110 public health institutions.

10.6.1. Infrastructures

10.6.1.1. Gevgelija Region

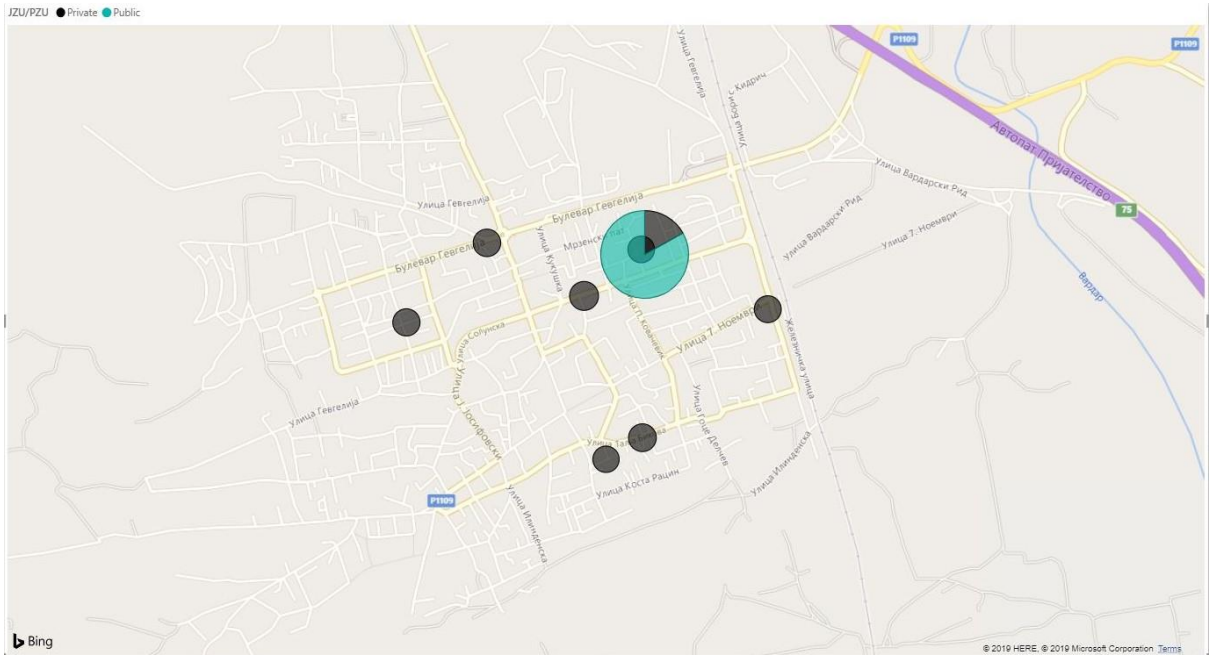
According to the data of the research in Gevgelija municipality there were 29 Health Institutions in total. From those HI, 86.2% have contract with the HIF (public and private), and only 4 of them are private without HIF contract. In the city Gevgelija there were 2 public health institutions (PHI Health Center – Gevgelija and PHI General Hospital – Gevgelija), but in 2018 by governmental decision both HI were merged and new HI was created: PHI General Hospital with extended activities – Gevgelija. This General Hospital is the only HI with inpatient capabilities for general purposes. In Gevgelija municipality in the place called Negorci there is PHI Psychiatric Hospital, as one of the three psychiatric specialized hospitals in the country.



In Gevgelija Region there are 19 general medicine HCI in the network and 2 HCI out of the health network. There are 3 Biochemical laboratories, one of them acting as a separate institution for

laboratory tests out of the network and 2 laboratories within other institution (one in the PHI General hospital – Gevgelija and one in PHI).

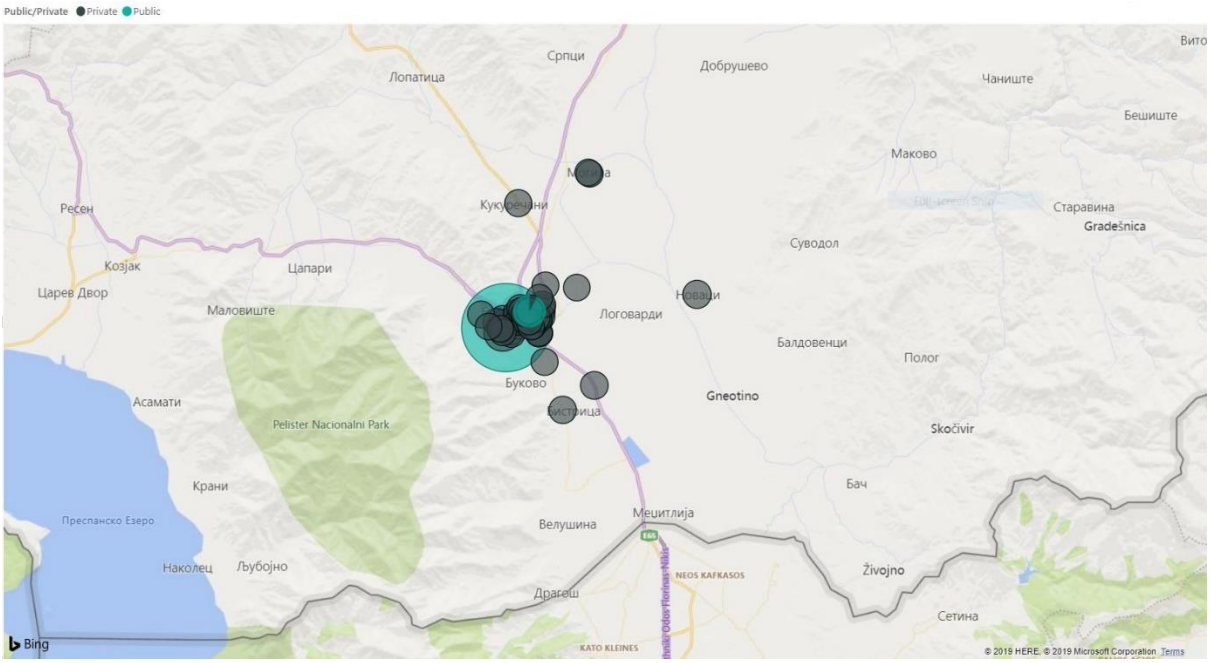
Type of HI	In the Health Network	Out of the Health Network	Grand Total
Biochemical laboratory		1	1
Hospital Health Care	2		2
Hospital Health Care PHI (Natural Spa)	1		1
Gynaecologist	2		2
General Medicine	19	2	21
Specialist-consultative Health Care	1	1	2
Grand Total	**25**	**4**	**29**



10.6.1.2. Bitola Region

According to the data of the research in Bitola municipality there were 89 Health Institutions in total. From those HI, 86.52% have contract with the HIF (public and private), and only 12 of them are private

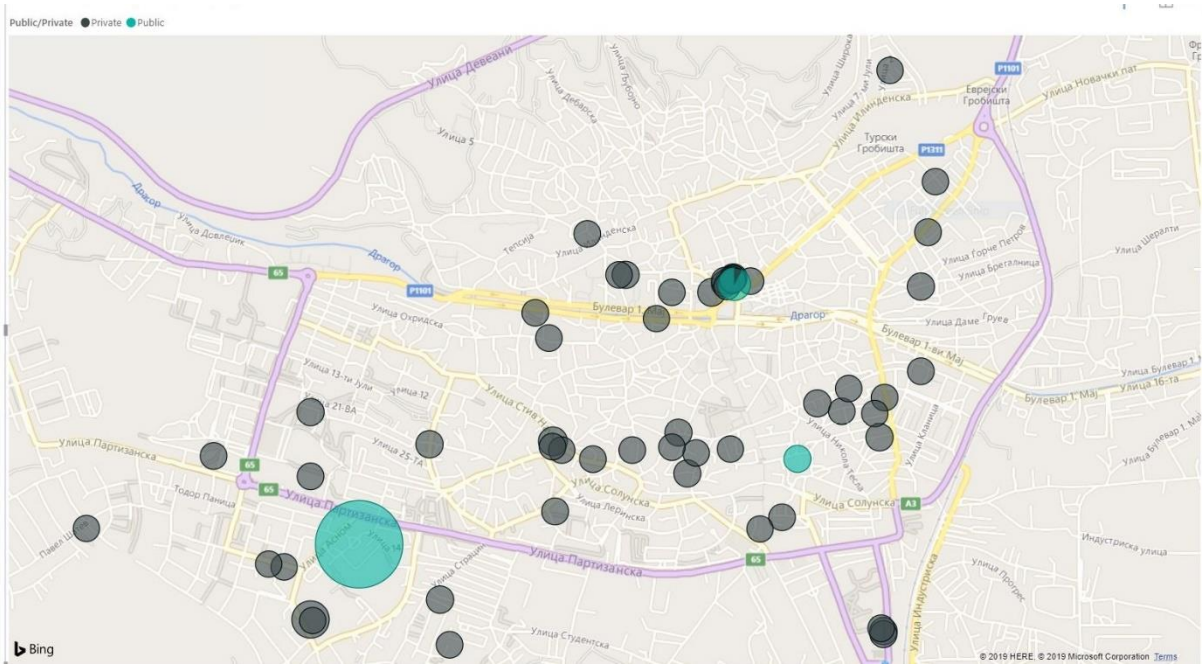
without HIF contract. In the city Bitola there is an Clinical Hospital, which is the only HI with inpatient capabilities for general purposes (this HI is acting as an regional center). In Bitola there Private HI – Plodnost which also have inpatients, but this HI is specialized HI for gynecology and obstetrics. This hospital (Plodnost) have contract with HIF only for biomedical assisted fertilization medical services. There is one private dialysis center in Bitola acting as regional center for all patient with renal diseases which uses dialysis treatments.



In Bitola Region there are 60 general medicine HCI in the network and 1 HI out of the health network. There are 6 Biochemical laboratories, two of them acting as a separate institutions for laboratory tests in the network and 4 laboratories within other institution (one in the PHI Clinical hospital – Bitola, one in the PHI Health Center - Bitola and two in PHI).

Type of HI	**In the Health Network**	**Out of the Health Network**	**Grand Total**
Biomedical Assisted Fertilization (BFA)	1		1
Biochemical laboratory	2		2
Hospital Health Care	2		2
Gynaecologist	5	1	6
General Medicine	60	1	61
Specialist - consultative Health Care - Dialysis	1		1
Specialist-consultative Health Care PHI (Health	1		1

Care Centres)			
Specialist-consultative Health Care PHI (Centres for Public Health)	1		1
Specialist-consultative Health Care	4	10	14
Grand Total	**77**	**12**	**89**



10.6.2. Human resources

10.6.2.1. Gevgelija Region

According to the data of the research from 353 personal in all of the Health Institutions in Gevgelija region, 85 of them are doctors.

Specialty	**Nr. Of Doctors**
General Medicine	34
Psychiatry	5
Radiology	4
Family medicine	4

Gynaecology and Obstetrics	4
Paediatrics	4
Surgery	3
Physical and Rehabilitation Medicine	3
Internal Medicine	3
Ophthalmology	3
Neuropsychiatrist	2
Specialist in general medicine	2
Medical Biochemistry	2
Otorhinolaryngology	2
Cardiology	1
Family medicine specialist	1
Labor medicine	1
Dermatology	1
School medicine	1
Epidemiology	1
Hygiene with health ecology	1
Social medicine with organization of health activity	1
Pathology	1
Neurology	1

The average age of doctors in Gevgelija region is 48.8 years. The average age of total employees in the Health Institution in Gevgelija Municipality is higher than doctors average age by 0.5 years.

In the Public Health Institutions, PHI Center for Public Health Veles, PE Gevgelija and PHI Psychiatry Hospital – Negorci, average doctors are older than the average doctors from the municipality with 59 and 51 average age respectively.

PHI Name	**Average age**
PHI Centre for Public Health - Veles PE Gevgelija	59
PHI Psychiatric Hospital - Negorci, Gevgelija	51
PHI General Hospital with extended activities – Gevgelija	45
Average age of doctors in PHI	**46,57992528**

From the General Practitioners, the average age of the doctors is 51,4 years, where the youngest GP have 32 years, and the oldest have 69 years.

10.6.2.2. Bitola Region

According to the data of the research from 1234 personal in all of the Health Institutions in Bitola region, 409 of them are doctors.

Type	**Count**
Nurse	592
Doctor	409
Biochemistry	75
Technicians	45
Medical Associate	38
Other	34
Physiotherapist	19
Pharmacist	18
Pharmaceutical technician	4

The average age of doctors in Bitola region is 51 years. The average age of total employees in the Health Institution in Bitola Municipality is lower than doctors average age by 2 years.

In the Public Health Institutions: PHI Center for Public Health – Bitola, PHI Clinical Hospital - Bitola "Dr. Trifun Panovski" and PHI "Jaime Abravanel" - Bitola, average doctors are younger than the average

doctors from the municipality with 50 and 51 average age respectively. Doctors working in Private Health institutions are averagely older than those in Public Health Institutions.

Row Labels	Average age	Max age	Min age
Public Health Institutions	**50**	**67**	**20**
Biochemistry	51	64	27
Doctor	49	67	26
Other	47	66	27
Nurse	50	67	20
Medical Associate	52	66	25
Technicians	51	66	28
Pharmacist	53	62	26
Pharmaceutical technician	44	64	22
Physiotherapist	46	61	27
Private Health Institutions	**46**	**71**	**23**
Biochemistry	39	58	30
Doctor	55	71	26
Nurse	41	63	23
Medical Associate	43	57	30
Technicians	38	46	29
Pharmacist	42	58	26

According to the data in Public Health institution in average youngest workers in health sector are Pharmaceutical technicians.

PHI Name	Average age
PHI "Jaime Abravanel" - Bitola	50
PHI Clinical Hospital - Bitola "Dr. Trifun Panovski"	49
PHI Center for Public Health – Bitola	51
Average age of doctors in PHI	**49**

A major investment in human resource development will be crucial to achieving and sustaining any change for modern health care. Hiring young doctors and sending them to specialization is crucial, not only 5-6 years before senior doctor go to pension, but the change needs to be planed at least 10 years

ahead, so the young specialists to have time to learn from the senior doctors and to adapt to work independently.

10.6.3. Health technology

The utilisation of medical equipment is crucial as a part of comprehensive treatments of specific patients. Because of the constant increase of chronic diseases, the access to the diagnostics is gaining importance.

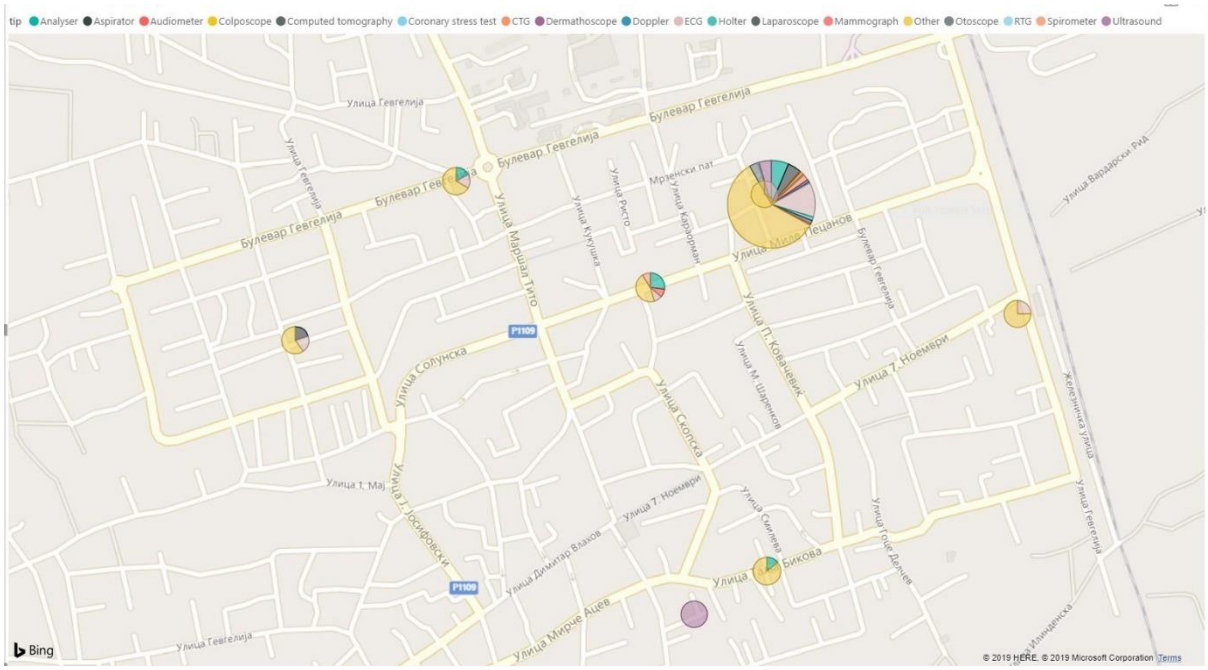
10.6.3.1. Gevgelija Region

In Gevgelija region according to the analytics, there were 2 X-rays available both in private and public sector. Also there were 2 Mammograms both in public and private sector.

Private	**177**
Other	120
ECG	21
Analyzer	12
Otoscope	8
Ultrasound	5
Spirometer	2
Aspirator	2
Audiometer	2
Colposcope	1
Computed tomography	1
Dermathoscope	1
RTG	1
Mammograph	1
Public	**187**

Other	110
ECG	22
Analyzer	15
Aspirator	10
Ultrasound	8
CTG	5
Otoscope	4
Laparoscope	3
Holter	3
Audiometer	1
RTG	1
Colposcope	1
Dermathoscope	1
Coronary stress test	1
Mammograph	1
Doppler	1

The distribution of the medical equipment is according the population density, but according to the analysis there are need of more Ultrasounds and also MRI.



According to the analysis of the Public Secondary and Tertiary Health Care System Effectiveness of the North Macedonia system PHI General Hospital with extended activities – Gevgelija had 4539 x-ray examinations in 2016, 4677 in 2017 and 4255 in 2018 for patients from the region. In the last years, the PHI General Hospital – Gevgelija have utilisation higher than the national average of 2018 - 2,549 examinations per unit.

10.6.3.2. Bitola Region

In Bitola region according to the analytics, there were 13 X-rays available both in private and public sector, there were 1 Mammogram only in private sector, two MRI both in private and public sector, and two CT in public sector.

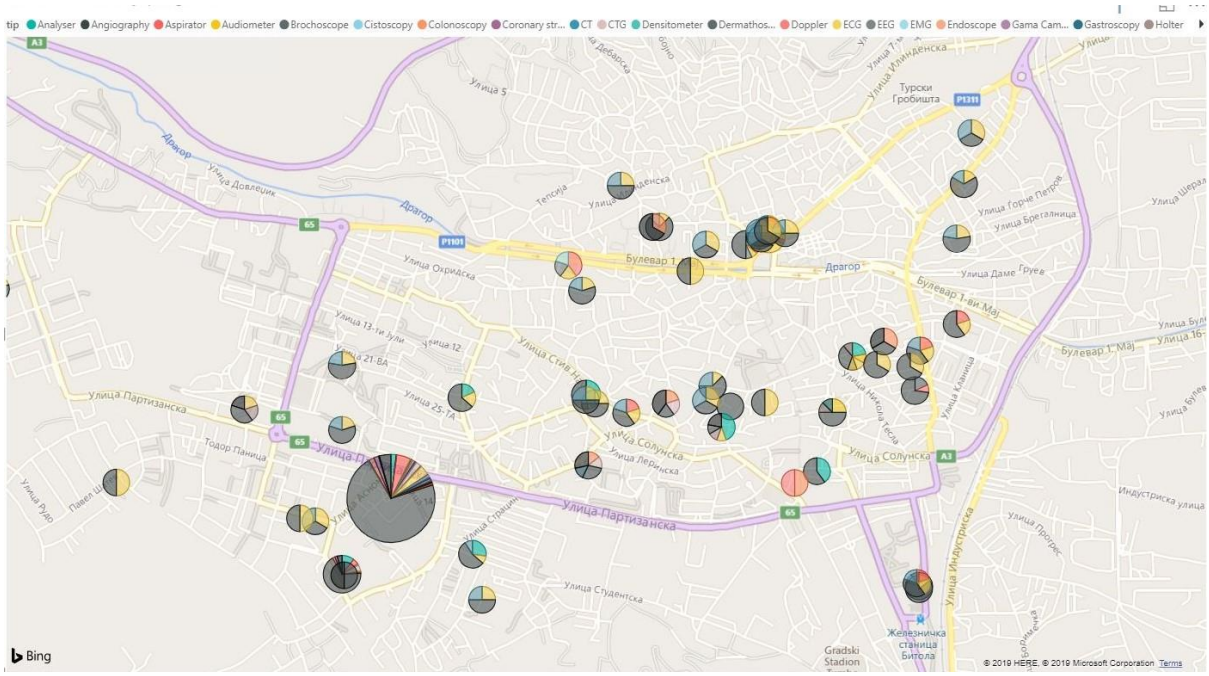
Private	**487**
Other	258
ECG	70
Otoscope	50
Analyzer	37
Ultrasound	20
Aspirator	10

CTG	8
Colonoscopy	7
Doppler	5
Holter	3
Laryngoscope	3
Respirator	2
Dermathoscope	2
RTG	2
Spirometer	2
EEG	2
Spermogram	1
Coronary stress test	1
Mammograph	1
MRI	1
Audiometer	1
EMG	1
Public	**626**
Other	433
ECG	33
Aspirator	28
Analyzer	27
Ultrasound	22

RTG	11
Respirator	10
CTG	10
Audiometer	7
Gastroscopy	5
Colonoscopy	4
Spirometer	4
Mammograph	3
EMG	3
Cistoscopy	2
Otoscope	2
EEG	2
Gama Camera	2
Doppler	2
Coronary stress test	2
Timpanometer	2
Holter	2
Laryngoscope	2
CT	2
Angiography	1
Brochoscope	1
MRI	1

Densitometer	1
Laporascopy	1
Endoscope	1

The distribution of the medical equipment is according the population density, but according to the analysis there are need of more MRI and Mammograms.



According to the analysis of the Public Secondary and Tertiary Health Care System Effectiveness of the North Macedonia system PHI Clinical Hospital - Bitola had 2793 x-ray examinations in 2016, 2513 in 2017 and 2588 in 2018 for patients from the region. In the last years, the PHI Clinical Hospital – Bitola have utilisation around the national average of 2018 - 2,549 examinations per unit. PHI Clinical Hospital - Bitola "Dr. Trifun Panovski" had 3558 MRI examinations in 2016, 3462 in 2017 and 3061 in 2018 for patients from the region. In the last years, the PHI Clinical Hospital – Bitola have utilisation of MRI higher than the national average of 2018 - 2,177 examinations per unit.

10.7. Core indicators

10.7.1. Proposal for a set of core Indicators that can be used for the monitoring of population's needs, the resources used and the performance of health services

Healthcare services are provided through public and private institutions. SHC and THC services are offered through different hospital categories, and include acute and chronic treatment. To propose

indicators which are traceable, we need some standardized form data from the National Health informational systems. Taking into consideration the importance of an integrated healthcare information system, because of the need of monitoring the population needs, MoH started with implementation of the Moj Termin in 2011 as a system for electronic managing of waiting lists, in order to reduce the waiting time that was 9-18 months at the moment, depending on the procedure. The implementation was intended only for diagnostic procedures that were critical at that time, such as Magnetic Resonance Imaging (MRI), Computerised Tomography (CT), Mammography, and so on. Only after few months of successful use of the system, the waiting time has drastically reduced, primarily due to transparency, as well as the removing of double and unrealistic patients. After successfully reducing the waiting time, the system was upgraded to all specialties at all three levels of health care. With the changes of the Law on medical evidences in 2013, an e-referral and an e-prescription is being introduced and the system was officially introduced as a National Integrated Health Information System – Moj Termin as a part of MoH. Because of increased activities due to quality controlled NIHIS in 2015 with the changes of the Law on Healthcare the MoH decided to establish a Directorate for e-Health responsible for health system data gathering and management and providing health statistics reports in collaboration with relevant institutions such as the State Statistical Office and the Institute of Public Health.

The data from the Moj Termin system, can be used to provide the decision-makers with comprehensive statistical information. Based on the analysis from the system, there is a place for the improvement of current utilization rates for all equipment; CT, MRI, Gama camera, mammography units etc.

The biggest advantage of the system is that policy makers can trace the population needs, in real time you can find the paths of movement for every single patients for every specialty.

The indicators can be divided in different categories: Financing indicators (cost-effectivness), Productivity indicators (for every institution separately), Utilization indicators (for every type of medical equipment), Cost indicators (investments in education), Integration indicators (eHealth) and Efficiency indicators as standard indicators for monitoring the effectiveness of the system. The state should establish defined by law standard form of indicator reporting tool (in the National system for electronic health records – Moj Termin) for automatic / semiautomatic collection of data.

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11. Annex

11.1 Annex 1: Analytic tables

Table 62. Accommodation in 2011

Accommodation in 2011						
	Age categories	households			Collective accommodation	homeless
		total	regular residence	not regular residence		
country total	**total age**	**97.66%**	97.27%	**0.40%**	**1.11%**	**0.03%**
	00-09	99.01%	98.31%	0.70%	0.13%	0.05%
	10-19	97.32%	96.80%	0.53%	1.63%	0.06%
	20-29	94.21%	93.57%	0.64%	3.89%	0.07%
	30-39	97.94%	97.47%	0.47%	0.75%	0.04%
	40-49	98.45%	98.10%	0.35%	0.52%	0.02%
	50-59	98.41%	98.12%	0.29%	0.45%	0.01%
	60-69	98.37%	98.20%	0.18%	0.46%	0.01%
	70-79	98.26%	98.13%	0.13%	0.64%	0.00%
	80+	96.81%	96.68%	0.13%	1.79%	0.01%
	males	97.10%	96.61%	0.50%	1.66%	0.04%
	00-09	99.01%	98.34%	0.67%	0.14%	0.05%
	10-19	96.38%	95.84%	0.53%	2.57%	0.08%
	20-29	91.46%	90.63%	**0.83%**	6.64%	**0.09%**
	30-39	97.37%	96.70%	0.67%	1.20%	0.05%
	40-49	98.14%	97.65%	0.49%	0.74%	0.03%
	50-59	98.26%	97.88%	0.37%	0.58%	0.02%
	60-69	98.38%	98.16%	0.22%	0.49%	0.02%
	70-79	98.46%	98.31%	0.15%	0.52%	0.01%
	80+	97.90%	97.76%	0.14%	1.02%	0.01%
	females	98.20%	97.91%	0.30%	0.58%	0.02%
	00-09	99.00%	98.27%	0.73%	0.13%	0.06%
	10-19	98.33%	97.81%	0.52%	0.62%	0.02%
	20-29	97.13%	96.70%	0.43%	0.95%	0.04%
	30-39	98.53%	98.26%	0.26%	0.28%	0.02%
	40-49	98.74%	98.53%	0.21%	0.31%	0.01%
	50-59	98.55%	98.34%	0.21%	0.33%	0.01%
	60-69	98.37%	98.23%	0.13%	0.42%	0.01%
	70-79	98.10%	97.98%	0.12%	0.74%	0.00%
	80+	96.09%	95.96%	0.12%	2.29%	0.01%

Accommodation in 2011						
	Age categories	households			Collective accommodation	homeless
		total	regular residence	not regular residence		
central nakedonia	**total age**	**98.13%**	97.84%	**0.28%**	**0.94%**	**0.00%**
	00-09	99.39%	99.04%	0.34%	0.08%	0.00%
	10-19	98.19%	97.89%	0.30%	1.09%	0.00%
	20-29	94.91%	94.48%	0.43%	3.45%	0.00%
	30-39	98.41%	98.00%	0.42%	0.57%	0.00%
	40-49	98.81%	98.50%	0.31%	0.54%	0.01%
	50-59	98.72%	98.51%	0.22%	0.48%	0.01%
	60-69	98.62%	98.48%	0.14%	0.43%	0.00%
	70-79	98.48%	98.37%	0.11%	0.54%	0.00%
	80+	97.10%	96.99%	0.11%	1.57%	0.01%
	males	97.73%	97.36%	0.37%	1.36%	0.01%
	00-09	99.37%	99.05%	0.32%	0.08%	0.00%
	10-19	97.71%	97.43%	0.28%	1.57%	0.01%
	20-29	92.57%	91.98%	0.59%	5.86%	0.00%
	30-39	97.97%	97.35%	0.63%	0.86%	0.01%
	40-49	98.51%	98.04%	0.47%	0.77%	0.01%
	50-59	98.64%	98.35%	0.29%	0.63%	0.01%
	60-69	98.68%	98.50%	0.18%	0.47%	0.01%
	70-79	98.69%	98.56%	0.13%	0.47%	0.00%
	80+	98.13%	98.00%	0.13%	0.93%	0.00%
	females	98.50%	98.30%	0.20%	0.54%	0.00%
	00-09	**99.41%**	99.04%	0.37%	0.07%	0.00%
	10-19	98.68%	98.36%	0.32%	0.58%	0.00%
	20-29	97.23%	96.95%	0.28%	1.07%	0.00%
	30-39	98.85%	98.65%	0.21%	0.28%	0.00%
	40-49	99.11%	98.95%	0.16%	0.32%	0.00%
	50-59	98.80%	98.65%	0.15%	0.34%	0.00%
	60-69	98.57%	98.46%	0.11%	0.38%	0.00%
	70-79	98.32%	98.22%	0.10%	0.60%	0.00%
	80+	96.42%	96.32%	0.10%	1.99%	0.01%
vestern Makedonia	**total age**	**97.89%**	97.75%	**0.14%**	**1.11%**	**0.00%**
	00-09	99.15%	99.04%	0.11%	0.05%	0.00%
	10-19	97.13%	97.00%	0.13%	1.71%	0.00%
	20-29	94.02%	93.83%	0.19%	4.10%	0.00%
	30-39	98.07%	97.89%	0.18%	0.96%	0.00%
	40-49	98.47%	98.33%	0.14%	0.76%	0.00%
	50-59	98.60%	98.48%	0.12%	0.57%	0.00%

Accommodation in 2011						
	Age categories	households			Collective accommodation	homeless
		total	regular residence	not regular residence		
	60-69	98.64%	98.55%	0.09%	0.52%	0.00%
	70-79	98.90%	98.75%	0.14%	0.34%	0.00%
	80+	98.02%	97.90%	0.12%	0.91%	0.00%
	males	97.20%	97.02%	0.18%	1.85%	0.00%
	00-09	99.11%	98.99%	0.12%	0.04%	0.00%
	10-19	95.95%	95.79%	0.16%	2.93%	0.00%
	20-29	90.61%	90.32%	0.29%	**7.54%**	0.00%
	30-39	97.35%	97.11%	0.23%	1.71%	0.00%
	40-49	98.08%	97.87%	0.21%	1.17%	0.00%
	50-59	98.45%	98.32%	0.13%	0.76%	0.00%
	60-69	98.61%	98.50%	0.11%	0.65%	0.01%
	70-79	99.00%	98.83%	0.17%	0.35%	0.00%
	80+	98.61%	98.47%	0.14%	0.71%	0.00%
	females	98.58%	98.48%	0.09%	0.36%	0.00%
	00-09	99.19%	**99.10%**	0.09%	0.05%	0.00%
	10-19	98.39%	98.29%	0.10%	0.41%	0.00%
	20-29	97.68%	97.58%	0.09%	0.40%	0.00%
	30-39	98.81%	98.69%	0.12%	0.19%	0.00%
	40-49	98.87%	98.81%	0.07%	0.33%	0.00%
	50-59	98.75%	98.66%	0.10%	0.36%	0.00%
	60-69	98.66%	98.60%	0.06%	0.38%	0.00%
	70-79	98.81%	98.69%	0.12%	0.33%	0.00%
	80+	97.59%	97.49%	0.10%	1.05%	0.00%

Table 63. MORTALITY BY CAUSE, GENDER AND AGE, 2016

MORTALITY BY CAUSE, GENDER AND AGE, 2016																				
ICD10 CODE	REGION	GENDER	TOTAL MORTALITY	AGE																
				0	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85 +
	GREECE TOTAL	TOTAL	118788	387	75	58	48	133	226	265	412	621	981	1659	2573	3848	5318	7205	9054	14972	23441	47512
		MALES	60538	237	41	35	29	95	166	198	283	432	629	1094	1713	2611	3620	4776	5807	8479	11561	18732
		FEMALES	58250	150	34	23	19	38	60	67	129	189	352	565	860	1237	1698	2429	3247	6493	11880	28780
C00-C96	GREECE TOTAL	FEMALES	12095	1	5	6	8	9	9	19	47	90	184	294	504	695	903	1141	1259	1845	2312	2764
		MALES	18084	1	7	13	12	14	16	22	30	63	145	280	564	1001	1604	2252	2459	3082	3245	3274
		ALL	30179	2	12	19	20	23	25	41	77	153	329	574	1068	1696	2507	3393	3718	4927	5557	6038
	WESTERN MAKEDONIA	MALES	477	0	0	0	1	0	1	1	0	0	1	5	17	28	41	59	66	67	96	94
		FEMALES	291	0	0	1	0	0	0	1	2	2	1	6	11	17	22	24	23	39	71	71
		ALL	768	0	0	1	1	0	1	2	2	2	2	11	28	45	63	83	89	106	167	165
	CENTRAL MAKEDONIA	MALES	3421	0	2	0	3	2	8	7	3	11	26	56	88	184	295	399	490	636	656	555
		ALL	5560	0	3	1	6	3	11	11	11	28	63	108	166	287	452	575	724	1000	1088	1023
		FEMALES	2139	0	1	1	3	1	3	4	8	17	37	52	78	103	157	176	234	364	432	468
D50-D89	GREECE TOTAL	MALES	415	0	0	0	0	0	0	1	5	5	2	6	14	8	14	23	43	66	91	137
		FEMALES	314	0	1	0	0	0	0	0	2	2	2	5	3	11	9	15	16	51	78	119
		ALL	729	0	1	0	0	0	0	1	7	7	4	11	17	19	23	38	59	117	169	256

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
	WESTERN MAKEDONIA	MALES	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
		FEMALES	7	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	3
		ALL	15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	5	7
	CENTRAL MAKEDONIA	MALES	71	0	0	0	0	0	0	0	1	2	0	1	2	1	4	6	10	10	13	21
		FEMALES	62	0	0	0	0	0	0	0	0	2	0	2	0	8	0	5	4	6	16	19
		ALL	133	0	0	0	0	0	0	0	1	4	0	3	2	9	4	11	14	16	29	40
E00-E88	REECE TOTAL	MALES	1069	2	2	1	0	0	1	8	10	16	23	25	45	79	76	117	119	185	193	167
		FEMALES	1009	4	3	1	1	2	3	2	3	4	7	17	29	33	55	76	90	194	241	244
		ALL	2078	6	5	2	1	2	4	10	13	20	30	42	74	112	131	193	209	379	434	411
	WESTERN MAKEDONIA	MALES	23	0	0	0	0	0	0	0	0	0	1	2	1	4	1	0	3	5	2	4
		FEMALES	31	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	3	9	5	8
		ALL	54	0	0	0	0	0	0	0	0	0	2	3	2	5	2	1	6	14	7	12
	CENTRAL MAKEDONIA	MALES	225	1	0	0	0	0	0	0	1	2	4	3	8	16	12	20	29	36	57	36
		FEMALES	225	0	1	1	0	0	1	0	0	1	2	5	5	8	13	11	19	55	58	45
		ALL	450	1	1	1	0	0	1	0	1	3	6	8	13	24	25	31	48	91	115	81
F01-F99	GREECE TOTAL	MALES	507	0	0	0	0	0	0	0	2	7	3	9	8	17	27	26	38	104	164	102
		FEMALES	896	0	0	0	1	2	0	1	0	0	1	5	6	7	9	28	57	193	299	287

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
		ALL	1403	0	0	0	1	2	0	1	2	7	4	14	14	24	36	54	95	297	463	389
	WESTERN MAKEDONIA	MALES	26	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	3	9	5
		FEMALES	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	19	9
		ALL	65	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	2	13	28	14
	CENTRAL MAKEDONIA	MALES	115	0	0	0	0	0	0	0	0	1	1	3	0	3	5	8	7	29	35	23
		FEMALES	216	0	0	0	0	0	0	0	0	0	0	1	2	3	4	3	14	41	73	75
		ALL	331	0	0	0	0	0	0	0	0	1	1	4	2	6	9	11	21	70	108	98
G00-G98	REECE TOTAL	MALES	1588	2	6	3	2	16	6	8	12	14	20	33	49	59	99	119	156	291	354	339
		FEMALES	1670	5	3	2	3	7	5	9	11	17	10	31	25	39	58	93	141	276	441	494
		ALL	3258	7	9	5	5	23	11	17	23	31	30	64	74	98	157	212	297	567	795	833
	WESTERN MAKEDONIA	MALES	37	0	0	0	0	0	0	0	0	1	0	0	2	2	2	3	2	11	5	9
		FEMALES	50	0	0	0	0	1	0	0	0	0	0	0	1	2	2	3	3	9	13	16
		ALL	87	0	0	0	0	1	0	0	0	1	0	0	3	4	4	6	5	20	18	25
	CENTRAL MAKEDONIA	MALES	300	0	2	0	0	6	2	2	4	3	3	8	9	9	18	23	20	55	74	62
		FEMALES	305	1	0	0	0	0	1	2	2	5	2	5	3	7	13	16	33	42	89	84
		ALL	605	1	2	0	0	6	3	4	6	8	5	13	12	16	31	39	53	97	163	146
60-93	REE CE OTA	MALES	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

MORTALITY BY CAUSE, GENDER AND AGE, 2016																				
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																
		ALL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
I00-I99	REECE TOTAL	MALES	21378	0	1	1	1	7	5	26	45	104	220	422	647	960	1152	1416	1863	2788	4269	7451
		FEMALES	23532	0	0	1	1	4	8	5	18	29	69	110	154	256	391	604	985	2399	4965	13533
		ALL	44910	0	1	2	2	11	13	31	63	133	289	532	801	1216	1543	2020	2848	5187	9234	20984
	WESTERN MAKEDONIA	MALES	656	0	0	0	0	1	0	0	1	4	7	18	16	21	25	27	43	85	144	264
		FEMALES	678	0	0	0	0	0	0	0	0	0	3	1	5	5	11	12	19	62	186	374
		ALL	1334	0	0	0	0	1	0	0	1	4	10	19	21	26	36	39	62	147	330	638
	CENTRAL MAKEDONIA	MALES	3753	0	0	1	1	0	1	3	6	14	37	68	90	155	183	215	363	556	858	1202
		FEMALES	4067	0	0	0	0	0	1	0	1	4	8	20	20	40	56	103	188	483	950	2193
		ALL	7820	0	0	1	1	0	2	3	7	18	45	88	110	195	239	318	551	1039	1808	3395
J00-J98	REECE TOTAL	MALES	6576	15	4	3	1	3	3	5	14	17	21	34	67	91	164	255	404	745	1467	3263
		FEMALES	6836	14	3	1	3	1	1	2	5	6	10	16	27	47	78	144	202	527	1398	4351
		ALL	13412	29	7	4	4	4	4	7	19	23	31	50	94	138	242	399	606	1272	2865	7614
	WESTERN MAKEDONIA	MALES	144	0	0	0	1	0	0	0	0	0	0	3	1	2	2	10	12	15	27	71
		FEMALES	137	0	0	0	0	0	0	0	1	0	0	0	1	1	1	2	5	16	35	75
		ALL	281	0	0	0	1	0	0	0	1	0	0	3	2	3	3	12	17	31	62	146
	AL IAK ON	MALES	987	0	1	0	0	1	0	1	5	3	7	1	8	15	34	32	63	126	246	444

MORTALITY BY CAUSE, GENDER AND AGE, 2016																				
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																
		FEMALES	1028	3	0	0	0	0	1	0	0	0	2	5	6	4	16	31	41	96	231	592
		ALL	2015	3	1	0	0	1	1	1	5	3	9	6	14	19	50	63	104	222	477	1036
K00-K92	REECE TOTAL	MALES	1882	0	0	2	0	0	2	1	5	17	30	61	91	114	152	161	191	273	303	479
		FEMALES	1618	0	0	0	0	0	1	0	4	3	14	19	17	36	41	75	114	198	345	751
		ALL	3500	0	0	2	0	0	3	1	9	20	44	80	108	150	193	236	305	471	648	1230
	WESTERN MAKEDONIA	MALES	55	0	0	0	0	0	0	0	0	0	0	3	2	3	0	2	7	12	8	18
		FEMALES	39	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	1	4	10	19
		ALL	94	0	0	0	0	0	0	0	0	0	0	5	2	3	3	2	8	16	18	37
	CENTRAL MAKEDONIA	MALES	321	0	0	1	0	0	0	0	0	3	4	6	14	17	26	22	36	45	67	80
		FEMALES	308	0	0	0	0	0	0	0	1	0	4	3	7	3	9	13	24	44	69	131
		ALL	629	0	0	1	0	0	0	0	1	3	8	9	21	20	35	35	60	89	136	211
	GREECE TOTAL	MALES	314	0	0	0	0	0	0	1	1	1	0	1	3	8	8	14	21	61	76	119
		FEMALES	396	0	0	0	0	1	0	0	0	1	1	3	2	3	8	8	17	45	111	196
		ALL	710	0	0	0	0	1	0	1	1	2	1	4	5	11	16	22	38	106	187	315
L00-L98	WESTERN MAKEDONIA	MALES	12	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	3	3	2
		FEMALES	31	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	2	7	17
		ALL	43	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	4	5	10	19

The project is co-funded by the European Union and national funds of the participating countries

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
	CENTRAL MAKEDONIA	MALES	38	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	7	10	15
		FEMALES	64	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	14	14	30
		ALL	102	0	0	0	0	0	0	0	0	0	0	2	1	2	1	0	6	21	24	45
N00-N98	REECE TOTAL	MALES	1464	0	0	0	0	0	0	1	2	4	3	8	7	29	40	70	107	219	361	613
		FEMALES	1813	0	0	0	0	1	0	3	1	4	2	10	7	15	22	48	89	178	427	1006
		ALL	3277	0	0	0	0	1	0	4	3	8	5	18	14	44	62	118	196	397	788	1619
O00-O99	GREECE TOTAL	FEMALES	6	0	0	0	0	0	0	1	4	0	1	0	0	0	0	0	0	0	0	0
		ALL	6	0	0	0	0	0	0	1	4	0	1	0	0	0	0	0	0	0	0	0
	ENTRAL AKEDON IA	FEMALES	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		ALL	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
P00-P96	REECE TOTAL	MALES	145	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FEMALES	69	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ALL	214	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WESTERN MAKEDONIA	MALES	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FEMALES	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ALL	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AL IAK ON	MALES	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
		FEMALES	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ALL	51	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q00-Q99	REECE TOTAL	MALES	130	67	9	0	2	2	4	6	2	8	8	4	6	5	4	3	0	0	0
		FEMALES	110	46	11	7	1	1	2	2	1	3	1	4	8	8	8	6	1	0	0
		ALL	240	113	20	7	3	3	6	8	3	11	9	8	14	13	12	9	1	0	0
	WESTERN MAKEDONIA	MALES	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FEMALES	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ALL	5	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CENTRAL MAKEDONIA	MALES	24	13	3	0o	0	0	1	1	0	1	1	1	3	0	0	0	0	0	0
		FEMALES	16	7	1	1	1	0	1	0	0	0	0	0	0	1	3	1	0	0	0
		ALL	40	20	4	1	1	0	2	1	0	1	1	1	3	1	3	1	0	0	0
R00-R99	REECE TOTAL	MALES	4191	1	0	1	0	0	2	2	3	3	2	9	20	48	84	112	204	398	757	2545
		FEMALES	6587	3	0	0	0	0	1	4	0	5	5	9	15	24	44	90	150	416	1075	4746
		ALL	10778	4	0	1	0	0	3	6	3	8	7	18	35	72	128	202	354	814	1832	7291
	WESTERN MAKEDONIA	MALES	112	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6	6	18	79
		FEMALES	173	1	0	0	0	0	0	0	0	0	0	0	0	1	1	3	1	13	33	120
		ALL	285	1	0	0	0	0	0	0	0	0	0	0	0	1	2	5	7	19	51	199

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
	CENTRAL MAKEDONIA	MALES	634	0	0	0	0	0	0	0	0	0	2	2	4	8	19	17	28	57	147	350
		FEMALES	1036	0	0	0	0	0	0	1	0	1	0	4	5	4	5	16	29	63	222	686
		ALL	1670	0	0	0	0	0	0	1	0	1	2	6	9	12	24	33	57	120	369	1036
V01-Y89	REECE TOTAL	MALES	2794	0	9	11	11	52	122	117	149	167	148	188	183	182	181	198	195	273	314	294
		FEMALES	1268	2	7	5	1	11	30	17	31	25	44	39	55	48	67	64	101	156	215	350
		ALL	4062	2	16	16	12	63	152	134	180	192	192	227	238	230	248	262	296	429	529	644
	WESTERN MAKEDONIA	MALES	60	0	0	1	0	0	4	6	2	4	2	3	2	3	1	3	1	11	9	8
		FEMALES	37	0	0	1	0	0	0	1	0	2	1	1	0	0	1	0	1	5	8	16
		ALL	97	0	0	2	0	0	4	7	2	6	3	4	2	3	2	3	2	16	17	24
	CENTRAL MAKEDONIA	MALES	428	0	2	2	3	8	15	10	23	25	24	32	31	31	24	32	29	43	54	40
		FEMALES	234	0	1	1	0	3	8	4	4	4	12	7	6	7	11	13	25	21	41	66
		ALL	662	0	3	3	3	11	23	14	27	29	36	39	37	38	35	45	54	64	95	106
A00-B99	REECE TOTAL	MALES	239	4	3	0	0	0	4	1	1	7	4	14	9	15	17	20	17	35	33	55
		FEMALES	224	6	1	0	0	0	0	2	1	0	2	1	6	6	5	18	19	21	41	95
		ALL	463	10	4	0	0	0	4	3	2	7	6	15	15	21	22	38	36	56	74	150
	/ESTERN AKEDON IA	MALES	8	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1
		FEMALES	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

MORTALITY BY CAUSE, GENDER AND AGE, 2016																					
D10 ODE	EGI ON	GENDER	L IOR ALIT	AGE																	
		ALL	11	3	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	2
	CENTRAL MAKEDONIA	MALES	33	0	0	0	0	0	1	0	0	1	0	2	1	1	3	1	5	5	6	7
		FEMALES	28	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	3	6	6	8
		ALL	61	0	0	0	0	0	1	0	0	1	0	2	2	2	3	4	8	11	12	15
M00-M99	REECE TOTAL	MALES	63	0	0	0	0	1	1	0	3	0	0	1	3	2	4	4	10	17	7	10
		FEMALES	172	0	0	0	0	0	0	0	1	1	0	5	4	12	7	26	20	37	36	23
		ALL	235	0	0	0	0	1	1	0	4	1	0	6	7	14	11	30	30	54	43	33
	WESTERN MAKEDONIA	MALES	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
		FEMALES	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0
		ALL	6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	1	0
	CENTRAL MAKEDONIA	MALES	15	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	4	3	3	1
		FEMALES	16	0	0	0	0	0	0	0	0	0	0	1	1	0	1	5	1	3	2	2
		ALL	31	0	0	0	0	1	0	0	1	0	0	1	1	0	3	5	5	6	5	3

Table 64. Mortality by Cause, 2000-2016

Mortality by Cause, 2000-2016																	
Cause	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**% change (2000-2016)**
Malignant neoplasms	23.513	24.402	24.380	24.789	25.438	25.884	25.707	26.862	27.379	27.328	27.159	27.341	28.177	28.844	29.058	29.656	30.020	**27.67**
Diseases of the circulatory system	52.283	51.515	51.763	52.763	51.150	49.738	50.513	50.139	49.214	48.453	47.709	47.741	49.728	46.342	45.859	47.246	44.910	**-14.10**
Diseases of the respiratory system	7.995	7.023	7.650	7.430	7.611	8.209	8.874	10.229	6.890	10.770	10.341	10.335	11.384	10.924	12.231	14.513	13.412	**67.75**
Mental & nervous system Diseases	1.353	1.373	1.343	1.318	1.350	1.299	1.330	1.525	1.490	1.626	1.627	1.643	2.079	1.967	3.202	4.138	4.661	**244.49**
Accidents	1.293	1.371	1.278	1.297	1.244	1.192	1.169	1.432	1.255	1.210	1.167	1.093	1.166	1.194	1.191	1.611	1.767	**36.66**
Other Causes	18.733	16.875	17.501	17.932	18.149	18.769	17.883	19.708	21.751	18.929	21.081	22.946	24.134	22.523	22.199	24.019	24.018	**28.21**

Mortality by Cause, 2000-2016																		
Cause	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	% change (2000-
All causes of death	105.170	102.559	103.915	105.529	104.942	105.091	105.476	109.895	107.979	108.316	109.084	111.099	116.668	111.794	113.740	121.183	118.788	**12.95**

Table 65. Mortability by age, sex and place of permanent residence, 2017

Mortability by age, sex and place of permanent residence, 2017														
Gender	Region	Total deaths	%	Age										
				0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	>90	Not declared
Both genders	Country's total	124.501	100.00%	420	193	481	923	2.456	6.479	12.730	24.336	52.209	24.261	13
	Cental Makedonia	21.523	17.29%	67	32	69	144	449	1.062	2.205	4.567	9.631	3.297	-
	Thessaloniki	11.187	8.99%	41	18	43	91	236	593	1.226	2.363	4.810	1.766	-
	Kilkis	1.240	1.00%	3	1	4	7	25	53	102	235	615	195	-
	Pella	1.877	1.51%	2	1	1	9	39	90	169	387	892	287	-
	Serres	2.677	2.15%	2	4	4	10	47	126	239	583	1.249	413	-
	Western Makedonia	3.386	2.72%	10	4	6	19	50	172	267	630	1.575	653	-

Mortability by age, sex and place of permanent residence, 2017														
Gender	**Region**	**Total deaths**	**%**	**Age**										
	Florina	636	0.51%	3	-	1	2	12	33	37	131	304	113	-
Males	**Country's total**	63.168	100.00%	221	137	387	662	1.655	4.350	8.588	14.498	23.974	8.686	10
	Cental Makedonia	10.900	17.26%	30	18	52	102	293	720	1.497	2.660	4.334	1.194	-
	Thessaloniki	5.541	8.77%	18	11	34	64	156	376	811	1.361	2.108	602	-
	Kilkis	635	1.01%	3	1	4	5	16	35	73	135	299	64	-
	Pella	988	1.56%	-	1	1	4	26	62	117	241	420	116	-
	Serres	1.334	2.11%	1	3	1	5	33	90	170	327	553	151	-
	Western Makedonia	1.764	2.79%	4	4	4	16	34	120	182	398	755	247	-
	Florina	322	0.51%	1	-	1	2	7	22	20	89	140	40	-
Females	**Country's total**	61.333	100.00%	199	56	94	261	801	2.129	4.142	9.838	28.235	15.575	3
	Cental Makedonia	10.623	17.32%	37	14	17	42	156	342	708	1.907	5.297	2.103	-
	Thessaloniki	5.646	9.21%	23	7	9	27	80	217	415	1.002	2.702	1.164	-

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the participating countries and the Managing Authority .163 | P a g e

Mortability by age, sex and place of permanent residence, 2017														
Gender	**Region**	**Total deaths**	**%**	**Age**										
	Kilkis	605	0.99%	-	-	-	2	9	18	29	100	316	131	-
	Pella	889	1.45%	2	-	-	5	13	28	52	146	472	171	-
	Serres	1.343	2.19%	1	1	3	5	14	36	69	256	696	262	-
	Western Makedonia	1.622	2.64%	6	-	2	3	16	52	85	232	820	406	-
	Florina	314	0.51%	2	-	-	-	5	11	17	42	164	73	-

Table 66. Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017

Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017														
Region	Duration	Total	%	Infant's weight in gram										
				Less than 501	501 - 1000	1001 - 1500	1501 - 2000	2001 - 2500	2501 - 3000	3001 - 3500	3501 - 4000	4001 - 4500	4501 - 5000	More than 5001	Not declared
Greece	total	88.553	100.0%	13	266	703	1.788	5.486	21.601	37.803	17.417	2.737	200	19	520
	20-27	275	0.31%	11	163	79	3	2	8	2	5	-	-	-	2
	28-31	804	0.91%	-	85	383	278	40	7	5	3	1	-	-	2
	32-35	4.442	5.02%	1	7	195	1.153	1.859	1.015	168	31	3	-	-	10
	36	4.691	5.30%	-	-	9	193	1.238	2.158	919	144	18	-	1	11
	37 - 39	58.763	66.36%	1	9	29	147	2.164	15.961	27.781	10.852	1.377	87	14	341
	>40	19.387	21.89%	-	2	7	14	183	2.433	8.842	6.322	1.317	111	4	152
	No response	191	0.22%	-	-	1	-	-	19	86	60	21	2	-	2
Central Makedonia	total	14423	100.0%		39	95	244	859	3.272	6.090	3.175	537	45	9	58
	20-27	36	0.25%	-	21	13	-	-	1	-	1	-	-	-	-
	28-31	120	0.83%	-	16	53	45	3	2	-	-	1	-	-	-
	32-35	631	4.37%	-	-	23	149	283	149	24	3	-	-	-	-
	36	667	4.62%	-	-	2	28	193	298	124	18	2	-	1	1

Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017															
Region	Duration	Total	%	Infant's weight in gram											
				Less than 501	501 - 1000	1001 - 1500	1501 - 2000	2001 - 2500	2501 - 3000	3001 - 3500	3501 - 4000	4001 - 4500	4501 - 5000	More than 5001	Not declared
	37 - 39	9.017	62.52%	-	2	2	21	357	2.392	4.181	1.784	226	16	5	31
	>40	3.952	27.40%	-	-	2	1	23	430	1.761	1.369	308	29	3	26
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thessaloniki	total	9.145	100.0%	-	29	64	143	518	2.063	3.866	2.040	345	32	7	38
	20-27	26	0.28%	-	15	10	-	-	-	-	1	-	-	-	-
	28-31	76	0.83%	-	14	34	25	2	1	-	-	-	-	-	-
	32-35	384	4.20%	-	-	17	90	175	88	13	1	-	-	-	-
	36	398	4.35%	-	-	-	17	109	183	75	13	1	-	-	-
	37 - 39	5.693	62.25%	-	-	2	10	217	1.522	2.622	1.131	155	10	4	20
	>40	2.568	28.08%	-	-	1	1	15	269	1.156	894	189	22	3	18
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kilkis	total	499	100.0%	-	-	3	9	26	124	220	100	14	-	-	3
	20-27	-		-	-	-	-	-	-	-	-	-	-	-	-

Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017															
Region	Duration	Total	%	Infant's weight in gram											
				Less than 501	501 - 1000	1001 - 1500	1501 - 2000	2001 - 2500	2501 - 3000	3001 - 3500	3501 - 4000	4001 - 4500	4501 - 5000	More than 5001	Not declared
	28-31	5	1.00%	-	-	3	2	-	-	-	-	-	-	-	-
	32-35	19	3.81%	-	-	-	5	9	5	-	-	-	-	-	-
	36	21	4.21%	-	-	-	1	7	6	7	-	-	-	-	-
	37 - 39	344	68.94%	-	-	-	1	9	99	164	67	4	-	-	-
	>40	110	22.04%	-	-	-	-	1	14	49	33	10	-	-	3
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pella	total	1.013	100.0%	-	3	3	18	70	228	430	219	35	4	-	3
	20-27	4	0.39%	-	3	-	-	-	1	-	-	-	-	-	-
	28-31	3	0.30%	-	-	2	-	-	-	-	-	1	-	-	-
	32-35	56	5.53%	-	-	1	14	25	14	2	-	-	-	-	-
	36	50	4.94%	-	-	-	2	19	19	9	1	-	-	-	-
	37 - 39	645	63.67%	-	-	-	2	25	167	303	131	13	2	-	2
	>40	255	25.17%	-	-	-	-	1	27	116	87	21	2	-	1

Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017															
Region	Duration	Total	%	Infant's weight in gram											
				Less than 501	501 - 1000	1001 - 1500	1501 - 2000	2001 - 2500	2501 - 3000	3001 - 3500	3501 - 4000	4001 - 4500	4501 - 5000	More than 5001	Not declared
	No response	-		-	-	-	-	-	-	-	-	-	-	-	-
Serres	total	984	100.0%	-	2	6	21	73	227	412	207	32	1	-	3
	20-27	1	0.10%	-	1	-	-	-	-	-	-	-	-	-	-
	28-31	12	1.22%	-	1	4	7	-	-	-	-	-	-	-	-
	32-35	40	4.07%	-	-	1	10	22	5	-	2	-	-	-	-
	36	44	4.47%	-	-	-	1	17	20	6	-	-	-	-	-
	37 - 39	594	60.37%	-	-	-	3	32	167	270	109	12	-	-	1
	>40	293	29.78%	-	-	1	-	2	35	136	96	20	1	-	2
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Makedonia	total	1.986	100.0%		6	14	31	102	514	865	355	84	4		11
	20-27	5	0.25%	-	3	2	-	-	-	-	-	-	-	-	-
	28-31	15	0.76%	-	3	9	3	-	-	-	-	-	-	-	-
	32-35	70	3.52%	-	-	2	16	33	13	5	-	-	-	-	1

Births of alive infants by pregnacy's duration, infant's weight and mother's place of permanent residence, 2017															
Region	Duration	Total	%	Infant's weight in gram											
				Less than 501	501 - 1000	1001 - 1500	1501 - 2000	2001 - 2500	2501 - 3000	3001 - 3500	3501 - 4000	4001 - 4500	4501 - 5000	More than 5001	Not declared
	36	95	4.78%	-	-	1	11	29	30	21	2	1	-	-	-
	37 - 39	1.310	65.96%	-	-	-	-	38	404	604	221	37	-	-	6
	>40	491	24.72%	-	-	-	1	2	67	235	132	46	4	-	4
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florina	**total**	371	100.0%	-	2	-	7	17	84	159	78	23	1	-	-
	20-27	1	0.27%	-	1	-	-	-	-	-	-	-	-	-	-
	28-31	2	0.54%	-	1	-	1	-	-	-	-	-	-	-	-
	32-35	9	2.43%	-	-	-	3	5	1	-	-	-	-	-	-
	36	14	3.77%	-	-	-	3	3	5	3	-	-	-	-	-
	37 - 39	241	64.96%	-	-	-	-	9	67	114	42	9	-	-	-
	>40	104	28.03%	-	-	-	-	-	11	42	36	14	1	-	-
	No response	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 28 Aging population in Greece 1991 - 2018

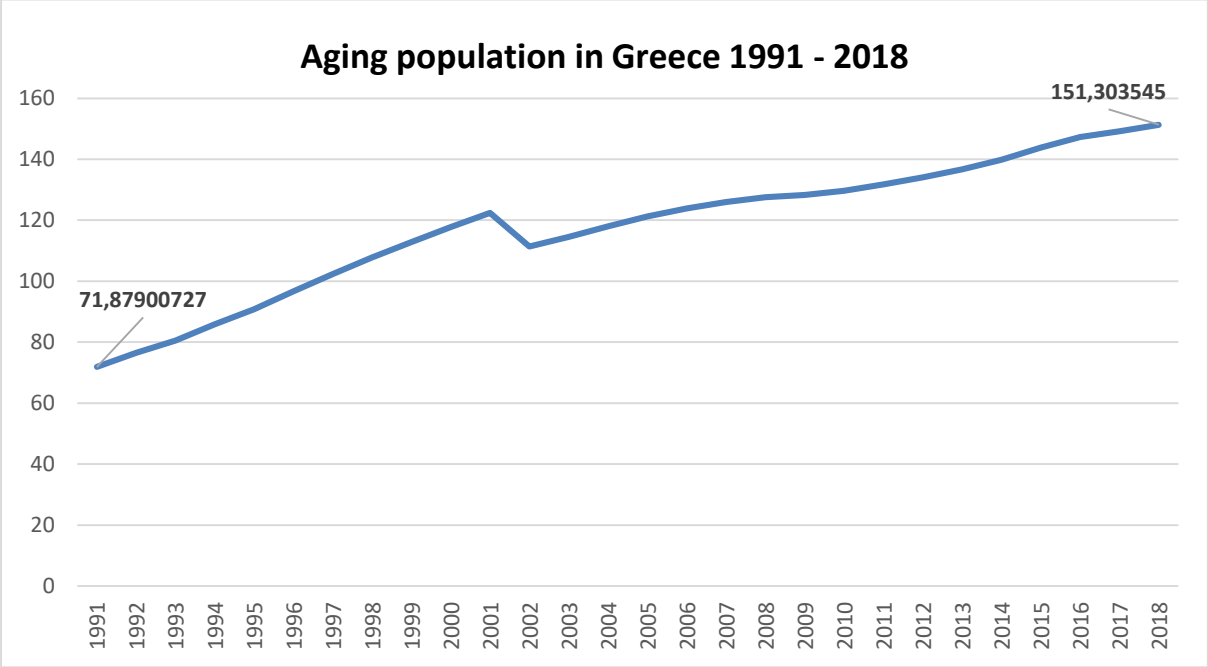

Figure 29 Aging population in Greece by NUTS II 1991 -2018

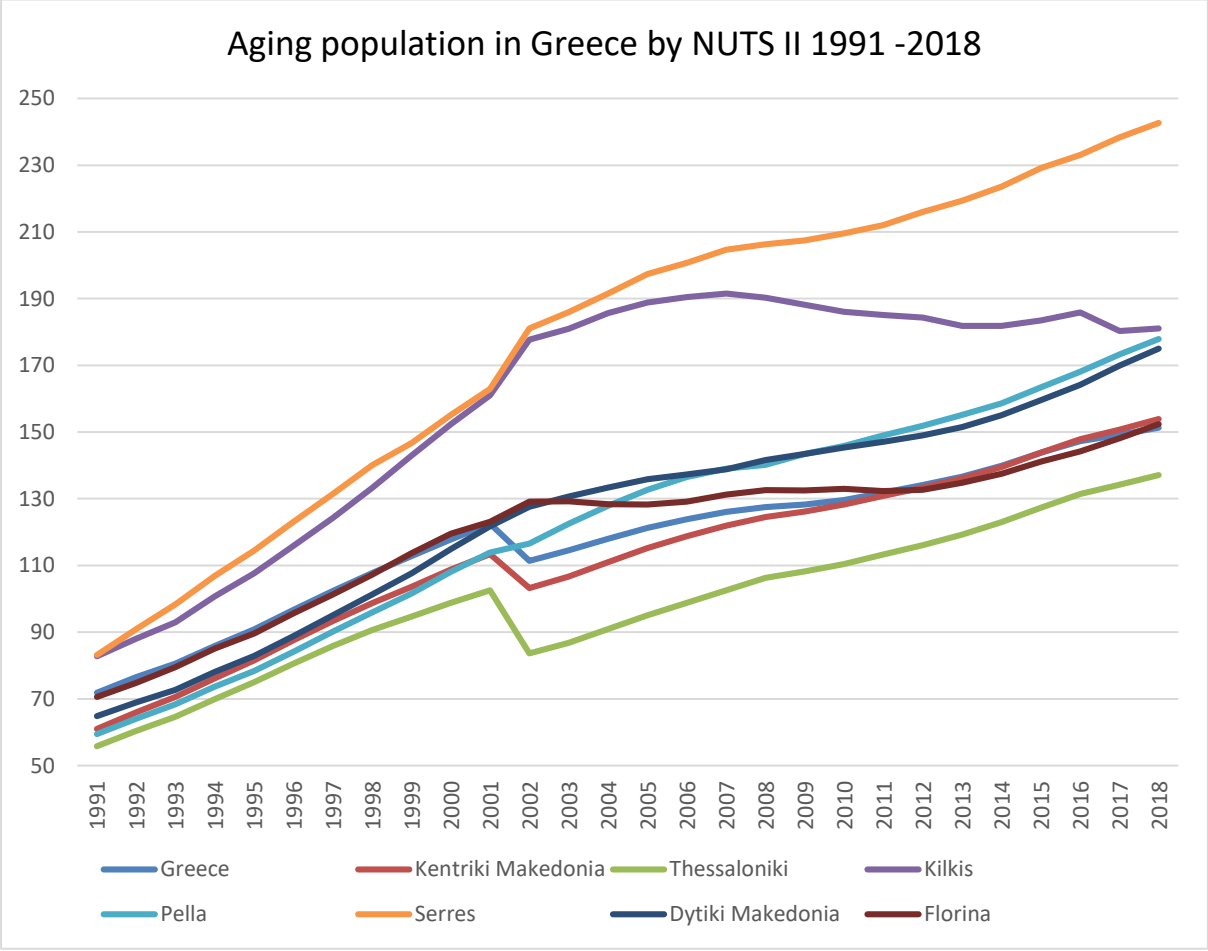

Table 67. Body Mass Index (BMI) by sex of Greek population

Gender	Underweight	Normal range	Overweight	Obese
Men	0.4%	31.4%	47.2%	21.0%
Women	2.9%	47.4%	31.8%	17.9%
Total	1.7%	39.7%	39.2%	19.4%

Table 68. Body Mass Index (BMI) of European population, Eurostat, 2014

Gender	Age	Underweight	Normal range	Overweight	Obese
Men	18 - 24	4.0%	69.1%	21.4%	5.5%
	25-64	0.6%	38.4%	44.2%	16.8%
	65 +	0.7%	31.9%	48.6%	18.8%
	Total	1.5%	41.2%	41.7%	15.6%
Women	18 - 24	10.8%	70.4%	12.7%	6.0%
	25-64	3.1%	54%	27.7%	15.2%
	65 +	2.0%	38.9%	38.4%	20.7%
	Total	4.0%	52.3%	28.4%	15.3%
Total	18-24	7.4%	69.8%	17.1%	5.8%
	25-64	1.9%	46.4%	35.8%	15.9%
	65 +	1.5%	35.8%	42.9%	19.9%
	Total	2.8%	47%	34.8%	15.4%

Table 69. Body Mass Index (BMI) of Greek population according to the Health Interview Survey of Hellenic Statistical Authority, 2014

Gender	Underweight	Normal range	Overweight	Obese
Men	0.9%	33.4%	47.6%	18.1%
Women	3.4%	48.8%	31.7%	16.1%
Total	2.2%	41.6%	39.2%	17.0%

Table 70. Alcohol consumption by sex of Greek population

Gender	Never	Occasionally	1-2 days per week	3-4 days per week	5-6 days per week	Every day
Men	17.9%	22.4%	29.6%	10.1%	5.2%	14.8%
Women	41.4%	31.2%	19.2%	3.7%	1.6%	2.9%
Total	30.1%	27.0%	24.2%	6.8%	3.3%	8.6%

Table 71. Alcohol consumption by sex of European and Greek population, Eurostat, 2014

Counry	Gender	Every day	Every week	Every month	Less than once a month	Never or not in the last 12 months
European Union 28	Men	13.9%	37.3%	22.6%	10.1%	16.0%
	Women	4.9%	22.5%	23.4%	17.9%	31.2%
	Total	9.2%	29.6%	23.1%	14.2%	23.9%
Greece	Men	11.7%	32.2%	27.0%	8.8%	20.2%
	Women	2.5%	16.0%	24.7%	14.0%	42.9%

	Total	6.9%	23.7%	25.8%	11.5%	32.1%

Table 72. Daily consumption of fruits and vegetables, by sex of European and the Greek population, Eurostat, 2014

Country	Gender	Less than 5 portions	5 portions or 5 more
European Union - 28 countries	Men	88.9%	11.1%
	Women	82.8%	17.2%
	Total	85.8%	14.3%
Greece	Men	92.6%	7.4%
	Women	92.0%	8.1%
	Total	92.2%	7.8%

Table 73. Daily consumption of fruits and vegetables, by sex of Greek population.

Gender	Less than 5 portions	5 portions or more
Men	81.3%	18.7%
Women	81.0%	19.0%
Total	81.2%	18.8%

Table 74. Fatty fish consumption, by sex of Greek population

Gender	Less than 2 times per week	2 or more times per week
Men	82.9%	17.1%
Women	86.3%	13.7%
Total	84.6%	15.4%

Table 75. Red meat consumption, by sex of Greek population

Gender	Less than once per week	Once per week	Twice per week	Three or more times per week
Men	11.0%	28.2%	35.2%	25.6%
Women	12.2%	33.4%	36.1%	18.4%
Total	11.6%	30.9%	35.6%	21.8%

Table 76. Performing non-work related physical activity per week, of Greece population

Gender	Age	5-7 times	3-4 times	2 times	1 time	Less than 1 time	never
Men	18 - 24	35.6%	24.1%	16.1%	3.4%	0.0%	20.7%
	25 - 39	21.4%	25.2%	18.0%	4.9%	1.5%	28.9%
	40 - 54	20.3%	22.0%	14.1%	6.2%	3.7%	33.6%
	55- 64	19.1%	22.0%	9.9%	5.7%	2.1%	41.1%
	65 +	33.3%	17.1%	6.4%	3.4%	5.6%	34.2%
	Total	25.0%	21.9%	12.9%	4.9%	3.0%	32.4%
Women	18 - 24	16.5%	20.3%	13.9%	7.6%	1.3%	40.5%
	25 - 39	14.1%	21.4%	16.9%	3.6%	2.8%	41.1%
	40 - 54	19.6%	18.2%	13.4%	7.9%	4.5%	36.4%
	55- 64	23.7%	22.2%	13.3%	0.7%	2.2%	37.8%
	65 +	22.9%	6.4%	8.9%	3.6%	1.8%	56.4%

	Total	19.5%	16.5%	13.1%	4.7%	2.8%	43.5%
Total	18 - 24	26.5%	22.3%	15.1%	5.4%	0.6%	30.1%
	25 - 39	17.9%	23.3%	17.5%	4.3%	2.1%	34.8%
	40 - 54	19.9%	19.9%	13.7%	7.1%	4.1%	35.2%
	55- 64	21.4%	22.1%	11.6%	3.3%	2.2%	39.5%
	65 +	27.6%	11.3%	7.8%	3.5%	3.5%	46.3%
	Total	22.1%	19.1%	13.0%	4.8%	2.9%	38.1%

Table 77. Tobacco consumption, by sex and age of Greek population

Gender	Age	Non smoker	Smoker	Used to smoke in the past
Men	18 - 24	59.6%	35.9%	4.4%
	25 - 39	41.6%	48.7%	9.7%
	40 - 54	36.3%	46.2%	17.5%
	55- 64	37.6%	34.1%	28.3%
	65 +	45.6%	19.0%	35.3%
	Total	42.0%	37.4%	20.6%
Women	18 - 24	68.9%	27.3%	3.9%
	25 - 39	51.7%	39.6%	8.7%
	40 - 54	48.7%	42.7%	8.6%
	55- 64	59.7%	31.6%	8.6%
	65 +	76.2%	15.5%	8.2%
	Total	58.8%	32.9%	8.2%
Total	18 - 24	64.1%	31.7%	4.1%
	25 - 39	47.0%	43.8%	9.2%
	40 - 54	43.0%	44.3%	12.7%
	55- 64	48.8%	32.8%	18.4%
	65 +	61.0%	17.3%	21.7%
	Total	50.8%	35.1%	14.2%

Table 78. Tobacco consumption, by sex of Greek population, according to the Health Interview Survey of of Hellenic Statistical Authority, 2014

Gender	Smoke daily	Smoke occasionally	Used to smoke in the past	Not at all
Men	33.8%	5.6%	22.9%	37.7%
Women	21.4%	5.0%	9.7%	63.9%
Total	27.3%	5.3%	16.0%	51.4%

Table 79. Daily consumption of cigarettes, by sex and of smokers of Greek population

Gender	Age	1-10 cigarettes per day	11-20 cigarettes per day	21-40 cigarettes per day
Men	29.5%	43.2%	22.7%	4.6%
Women	43.9%	41.9%	13.0%	1.2%
Total	36.5%	42.6%	18.0%	2.9%

Table 80. Self-perceived health status, by sex and age of Greek population

Gender	Age	Very Bad	Bad	Fair	Good	Very Good
Men	18 - 24	0.2%	0.3%	10.2%	40.3%	49.0%
	25 - 39	0.8%	1.4%	11.9%	41.7%	44.2%
	40 - 54	1.7%	3.5%	17.9%	45.5%	31.4%
	55- 64	3.5%	6.1%	25.3%	45.3%	19.9%
	65 +	3.0%	7.5%	31.8%	43.9%	13.7%
	Total	2.0%	4.1%	20.3%	43.7%	30.0%
Women	18 - 24	0.2%	1.1%	12.3%	42.2%	44.2%
	25 - 39	0.5%	2.0%	15.9%	41.2%	40.4%
	40 - 54	1.3%	4.9%	24.7%	42.7%	26.5%
	55- 64	3.3%	7.8%	33.9%	39.1%	15.9%
	65 +	4.1%	11.4%	41.3%	33.5%	9.7%
	Total	1.9%	5.8%	26.7%	39.6%	25.9%
Total	18 - 24	0.2%	0.7%	11.2%	41.2%	46.7%
	25 - 39	0.6%	1.7%	14.0%	41.4%	42.2%
	40 - 54	1.5%	4.2%	21.6%	44.0%	28.7%
	55- 64	3.4%	7.0%	29.7%	42.1%	17.8%
	65 +	3.6%	9.5%	36.6%	38.6%	11.7%
	Total	2.0%	5.0%	23.6%	41.6%	27.9%

Table 81. Self-perceived health status, by sex of Greek population according to the Health Interview Survey of Hellenic Statistical Authority, 2014

Gender	Very Bad	Bad	Fair	Good	Very Good
Men	1.7%	4.2%	15.2%	35.4%	43.5%
Women	2.0%	6.0%	21.0%	36.4%	34.6%
Total	1.8%	5.2%	18.2%	36.0%	38.8%

Table 82. Self-perceived health status, by sex of European population, Eurostat, 2017

Gender	Very Bad	Bad	Fair	Good	Very Good
Men	1.4%	5.9%	20.4%	47.5%	24.8%
Women	1.7%	7.5%	23.6%	46.0%	21.2%
Total	1.6%	6.7%	22.0%	46.8%	22.9%

Table 83. Population of Greece, suffering from chronic health problem or chronic disease

Gender	Age	Suffering from chronic disease
Men	18 - 24	9.20%
	25 - 39	15.20%
	40 - 54	29.30%
	55- 64	52.60%
	65 +	66.10%
	Total	36.70%
Women	18 - 24	17.50%
	25 - 39	24.20%
	40 - 54	41.60%
	55- 64	62.40%

Gender	Age	Suffering from chronic disease
	65 +	72.70%
	Total	45.60%
Total	18 - 24	13.20%
	25 - 39	20.00%
	40 - 54	35.90%
	55- 64	57.60%
	65 +	69.40%
	Total	41.40%

Table 84. Population of Greece, suffering from chronic health problem or chronic disease, according to the Health Interview Survey of Hellenic Statistical Authority, 2014

Gender	Suffering from chronic disease
Men	44.8%
Women	54.1%
Total	49.7%

Table 85. Population of E.U., suffering from chronic health problem or chronic disease, 2017

Gender	Suffering from chronic disease
Men	35.0%
Women	38.9%
Total	37.0%

Table 86. Mobility disorders, by sex and age of Greek population

Gender	Age	Very Severe	Severe	Moderate	Mild	None
Men	18 - 24	0.3%	0.3%	0.9%	1.9%	96.6%
	25 - 39	0.2%	1.4%	2.0%	2.4%	94.0%
	40 - 54	0.6%	1.5%	3.0%	2.3%	92.6%
	55- 64	1.4%	3.5%	4.6%	3.0%	87.6%
	65 +	1.6%	4.0%	6.8%	6.9%	80.7%
	Total	0.9%	2.3%	3.8%	3.5%	89.4%
Women	18 - 24	0.3%	2.0%	4.3%	1.6%	91.8%
	25 - 39	0.3%	2.0%	3.4%	2.3%	91.9%
	40 - 54	0.6%	2.3%	5.2%	2.9%	89.0%
	55- 64	2.3%	4.5%	7.3%	4.6%	81.3%
	65 +	2.3%	7.7%	11.4%	9.2%	69.3%
	Total	1.1%	3.7%	6.3%	4.3%	84.6%
Total	18 - 24	0.3%	1.1%	2.5%	1.8%	94.3%
	25 - 39	0.3%	1.7%	2.8%	2.4%	92.9%
	40 - 54	0.6%	1.9%	4.2%	2.6%	90.6%
	55- 64	1.8%	4.0%	6.0%	3.8%	84.4%
	65 +	1.9%	5.8%	9.0%	8.0%	75.3%
	Total	1.0%	3.0%	5.1%	3.9%	86.9%

Table 87. Personal care difficulties by sex and age of Greek population

Gender	Age	Very Severe	Severe	Moderate	Mild	None
Men	18 - 24	0.0%	0.0%	0.9%	1.2%	97.8%
	25 - 39	0.0%	0.5%	0.4%	1.4%	97.7%
	40 - 54	0.6%	1.1%	0.7%	0.8%	96.8%
	55- 64	0.6%	1.5%	1.9%	1.5%	94.5%
	65 +	1.3%	1.1%	2.8%	4.2%	90.6%
	Total	0.6%	1.0%	1.4%	1.9%	95.2%
Women	18 - 24	0.3%	1.0%	1.6%	2.3%	94.8%
	25 - 39	0.4%	1.1%	1.9%	1.6%	95.0%
	40 - 54	0.3%	1.2%	2.1%	2.1%	94.2%
	55- 64	1.5%	2.7%	3.5%	3.0%	89.3%
	65 +	1.3%	3.8%	6.3%	5.8%	82.8%
	Total	0.7%	1.9%	3.1%	2.9%	91.3%
Total	18 - 24	0.2%	0.5%	1.3%	1.8%	96.3%
	25 - 39	0.2%	0.8%	1.3%	1.5%	96.2%
	40 - 54	0.4%	1.1%	1.5%	1.5%	95.4%
	55- 64	1.0%	2.1%	2.7%	2.3%	91.8%
	65 +	1.3%	2.4%	4.5%	4.9%	86.9%
	Total	0.7%	1.5%	2.3%	2.4%	93.1%

Table 88. Use of any health service due to a health problem, during the month before the interview, of Greek population

Gender	Age	Use of health service
Men	18 - 24	19,6%
	25 - 39	17,2%
	40 - 54	23,2%
	55- 64	31,7%
	65 +	39,8%
	Total	26,8%
Women	18 - 24	31,2%
	25 - 39	31,7%
	40 - 54	33,5%
	55- 64	41,7%
	65 +	41,3%
	Total	35,9%
Total	18 - 24	25,2%
	25 - 39	24,9%
	40 - 54	28,7%
	55- 64	36,8%
	65 +	40,6%
	Total	31,5%

Table 89. Hospitalization rates of Greece population, stratified by age and sex

Gender	Age	Hospitalization
Men	18 - 24	8.1%
	25 - 39	7.5%
	40 - 54	6.8%
	55- 64	11.3%
	65 +	14.4%
	Total	9.6%
Women	18 - 24	7.2%
	25 - 39	11.1%
	40 - 54	8.5%
	55- 64	9.6%
	65 +	12.2%
	Total	10.1%
Total	18 - 24	7.7%
	25 - 39	9.4%
	40 - 54	7.7%
	55- 64	10.5%
	65 +	13.3%
	Total	9.9%

Table 90. Ratio of hospitalization to public and private hospitals of Greece population

Gender	Age	Public	Private
Men	18 - 24	72.9%	29.2%
	25 - 39	80.0%	22.3%
	40 - 54	75.2%	26.4%
	55- 64	83.8%	16.2%
	65 +	81.3%	20.7%
	Total	79.8%	21.8%
Women	18 - 24	80.0%	27.5%
	25 - 39	55.3%	48.9%
	40 - 54	65.7%	37.6%
	55- 64	78.3%	24.3%
	65 +	86.6%	15.8%
	Total	71.1%	32.3%
Total	18 - 24	76.1%	28.4%
	25 - 39	64.5%	39.0%
	40 - 54	69.6%	33.0%
	55- 64	81.2%	20.0%
	65 +	83.8%	18.4%
	Total	75.2%	27.4%

Table 91. Total number of visits to physicians by patients of Greece population, who had to visit physicians

Gender	Age	one time	two times	three or more times
Men	18 - 24	76.1%	15.2%	8.7%
	25 - 39	67.9%	22.6%	9.5%
	40 - 54	66.8%	20.5%	12.8%
	55- 64	62.7%	21.6%	15.7%
	65 +	61.1%	23.3%	15.6%
	Total	64.7%	21.7%	13.6%
Women	18 - 24	65.5%	21.6%	12.9%
	25 - 39	60.5%	23.3%	16.1%
	40 - 54	57.3%	24.5%	18.2%
	55- 64	59.2%	27.1%	13.8%
	65 +	56.9%	25.1%	18.0%
	Total	58.8%	24.7%	16.5%
Total	18 - 24	69.7%	19.0%	11.3%
	25 - 39	62.7%	23.1%	14.2%
	40 - 54	60.9%	23.0%	16.1%
	55- 64	60.7%	24.7%	14.6%
	65 +	58.9%	24.2%	16.9%
	Total	61.2%	23.5%	15.4%

Table 92. Self-reported unmet needs for health care of Greece population,, stratified by age and sex

Gender	Age	Self-reported unmet needs
Men	18 - 24	41.0%
	25 - 39	39.6%
	40 - 54	33.1%
	55- 64	26.3%
	65 +	16.8%
	Total	30.0%
Women	18 - 24	41.9%
	25 - 39	45.9%
	40 - 54	42.4%
	55- 64	38.4%
	65 +	26.8%
	Total	39.4%
Total	18 - 24	41.4%
	25 - 39	43.2%
	40 - 54	38.4%
	55- 64	32.8%
	65 +	21.8%
	Total	35.1%

Table 93. Times that patients of Greece population reported unmet needs for health care

Gender	One time	Two times	Three-four times	Five times or more
Men	34.7%	33.3%	19.2%	12.8%
Women	26.1%	29.7%	26.0%	18.3%
Total	29.4%	31.1%	23.4%	16.1%

Table 94. Medicine use rate during the previous three month before the survey, of Greece population, stratified by age and sex

Gender	Age	Medicine use
Men	18 - 24	30,6%
	25 - 39	35,5%
	40 - 54	45,0%
	55- 64	62,4%
	65 +	80,2%
	Total	51,7%
Women	18 - 24	44,9%
	25 - 39	45,6%
	40 - 54	57,2%
	55- 64	71,2%
	65 +	83,4%
	Total	62,1%
Total	18 - 24	37,5%
	25 - 39	40,5%
	40 - 54	51,5%
	55- 64	67,0%
	65 +	81,9%
	Total	57,1%

Table 95. Prescribed and non-prescribed drug use rates from the population of Central and Western Macedonia, who use drugs during the previous three months of survey

Gender	Age	Prescribed	Non-prescribed	Both
Men	18 - 24	54.4%	43.9%	1.8%
	25 - 39	45.1%	45.1%	9.7%
	40 - 54	56.2%	28.6%	15.2%
	55- 64	81.2%	12.7%	6.1%
	65 +	81.8%	6.0%	12.2%
	Total	68.2%	21.1%	10.7%
Women	18 - 24	45.7%	38.6%	15.7%
	25 - 39	43.1%	45.6%	11.3%
	40 - 54	51.6%	36.8%	11.6%
	55- 64	64.1%	22.6%	13.4%
	65 +	78.7%	8.6%	12.7%
	Total	61.0%	26.6%	12.4%
Total	18 - 24	49.6%	40.9%	9.4%

	25 - 39	44.0%	45.4%	10.6%
	40 - 54	53.4%	33.5%	13.1%
	55- 64	71.9%	18.1%	10.1%
	65 +	80.1%	7.4%	12.5%
	Total	64.1%	24.2%	11.7%

Table 96. Time since last health check-up of Greek population

Gender	Age	Within previous year	More than 1 year before and less or equal to 2	More than 2 years before and less or equal to 5	More than 5 years before	Never
Men	18 - 24	71.3%	19.3%	5.3%	0.6%	3.5%
	25 - 39	61.1%	20.5%	8.6%	6.8%	2.9%
	40 - 54	63.8%	17.2%	11.9%	4.8%	2.4%
	55- 64	75.6%	12.0%	7.4%	2.5%	2.5%
	65 +	79.9%	7.6%	4.5%	5.1%	2.9%
	Total	69.2%	15.3%	8.0%	4.7%	2.8%
Women	18 - 24	79.1%	13.3%	1.9%	1.3%	4.4%
	25 - 39	75.3%	15.1%	7.4%	1.9%	0.2%
	40 - 54	75.3%	13.3%	7.3%	2.4%	1.6%
	55- 64	81.1%	7.9%	5.2%	3.8%	2.1%
	65 +	83.0%	10.4%	2.8%	2.6%	1.3%
	Total	78.4%	12.2%	5.4%	2.5%	1.4%
Total	18 - 24	75.1%	16.4%	3.6%	0.9%	4.0%
	25 - 39	68.2%	17.8%	8.0%	4.4%	1.6%
	40 - 54	69.9%	15.1%	9.5%	3.5%	1.9%
	55- 64	78.4%	9.9%	6.3%	3.1%	2.3%
	65 +	81.6%	9.1%	3.5%	3.7%	2.0%
	Total	74.0%	13.7%	6.7%	3.5%	2.1%

Table 97. Reason of preventive health check of Greek population

Gender	Age	Doctor or pharmacist' recommendation	Provide by employer	chronic patient that need to be checked regularly	Wanted an early diagnosis before it's too late	Family history
Men	18 - 24	21.5%	2.5%	5.7%	67.7%	2.5%
	25 - 39	15.6%	9.9%	8.4%	64.8%	1.3%
	40 - 54	13.2%	5.1%	14.2%	64.5%	3.0%
	55- 64	14.9%	3.0%	26.4%	53.9%	1.9%
	65 +	18.8%	0.2%	32.6%	46.9%	1.4%
	Total	16.1%	4.6%	18.2%	59.1%	2.0%
Women	18 - 24	18.5%	1.4%	8.9%	66.4%	4.8%
	25 - 39	16.2%	2.9%	9.6%	68.3%	3.1%

	40 - 54	15.7%	1.1%	15.0%	64.7%	3.5%
	55- 64	23.0%	0.0%	23.7%	51.8%	1.4%
	65 +	24.2%	0.2%	29.4%	44.7%	1.5%
	Total	19.3%	1.2%	18.2%	58.7%	2.7%
Total	18 - 24	20.1%	2.0%	7.2%	67.1%	3.6%
	25 - 39	15.9%	6.3%	9.0%	66.6%	2.2%
	40 - 54	14.5%	3.0%	14.6%	64.6%	3.3%
	55- 64	19.0%	1.5%	25.0%	52.8%	1.6%
	65 +	21.8%	0.2%	30.8%	45.7%	1.5%
	Total	17.8%	2.8%	18.2%	58.9%	2.4%

Table 98. Reasons of unmet needs for health care in E.U. and Greece, Eurostat, 2014

Country	Financial reasosns	Distance	Waiting list
E.U.	14.8%	3.6%	18.7%
Greece	25.3%	6.9%	15.0%

Table 99. Colonoscopy screen rates of Greek population

Gender	Age	Colonoscopy screen rates
Men	18 - 24	4.6%
	25 - 39	4.1%
	40 - 54	14.9%
	55- 64	23.4%
	65 +	41.9%
	Total	18.8%
Women	18 - 24	1.3%
	25 - 39	8.9%
	40 - 54	16.5%
	55- 64	27.4%
	65 +	33.9%
	Total	19.7%
Total	18 - 24	3.0%
	25 - 39	6.4%
	40 - 54	15.8%
	55- 64	25.4%
	65 +	37.5%
	Total	19.2%

Table 100. Protective Antigen (PA) screen rates of Greek population (men)

Gender	Age	Protective Antigen (PA) screen rates
Total (Men only)	18 - 24	0,0%
	25 - 39	2,6%
	40 - 54	27,3%

	55- 64	66,4%
	65 +	71,5%
	Total	34,7%

Table 101. Mammography screen rates of Greek population (women)

Gender	Age	Mammography screen rates
Total (Women)	18 - 24	10,1%
	25 - 39	34,3%
	40 - 54	85,9%
	55- 64	85,9%
	65 +	80,4%
	Total	66,2%

Table 102. Palpation examination of the breast (screen rates) of Greek population (women)

Gender	Age	Palpation examination of the breast
Total (Women)	18 - 24	49.4%
	25 - 39	78.6%
	40 - 54	81.8%
	55- 64	78.5%
	65 +	62.1%
	Total	72.8%

Table 103. HPV DNA Test screening rates of Greek population (women)

Gender	Age	HPV DNA Test screening rates
Total (Women)	18 - 24	35.4%
	25 - 39	36.2%
	40 - 54	30.4%
	55- 64	20.9%
	65 +	8.4%
	Total	25.2%

Table 104. Pap smear screen rates of Greek population (women)

Gender	Age	Pap smear screen rates
Total (Women)	18 - 24	65.8%
	25 - 39	91.5%
	40 - 54	93.4%
	55- 64	87.4%
	65 +	66.4%
	Total	82.8%

Table 105. Time since last Pap smear (for the population who have the examination some time at the past), Eurostat, 2014

Country	Within The previous year	1 - 2 years before	2 - 3 years before	3 years + before

.U.	38.2%	25.4%	11.9%	24.5%
Greece	49.9%	20.6%	7.6%	21.9%

Table 106. Influenza vaccination rate of Greek population

Gender	Age	Influenza vaccination rate
Men	18 - 24	13.3%
	25 - 39	8.2%
	40 - 54	8.1%
	55- 64	22.3%
	65 +	54.0%
	Total	21.4%
Women	18 - 24	8.9%
	25 - 39	6.0%
	40 - 54	7.3%
	55- 64	18.6%
	65 +	43.8%
	Total	18.2%
Total	18 - 24	11.2%
	25 - 39	7.1%
	40 - 54	7.7%
	55- 64	20.4%
	65 +	48.4%
	Total	19.7%

Table 107.Using rates of tools or devices to monitor chronic condition (blood sugar, cholesterol, blood pressure)

Gender	Age	Rarely/sometimes		Often/most of the times		Dai;y/almost daily	
		Proportion	Count	Proportion	Count	Proportion	Count
Men	18 - 24	100.0%	1	0.0%	0	0.0%	0
	25 - 39	68.6%	24	22.9%	8	8.6%	3
	40 - 54	54.9%	39	29.6%	21	15.5%	11
	55- 64	36.8%	25	44.1%	30	19.1%	13
	65 +	31.2%	39	40.0%	50	28.8%	36
	Men	42.7%	128	36.3%	109	21.0%	63
Women	18 - 24	66.7%	6	33.3%	3	0.0%	0
	25 - 39	66.7%	28	21.4%	9	11.9%	5
	40 - 54	52.6%	51	26.8%	26	20.6%	20
	55- 64	53.2%	42	35.4%	28	11.4%	9
	65 +	36.8%	57	41.3%	64	21.9%	34
	Women	48.2%	184	34.0%	130	17.8%	68
Total	18 - 24	70.0%	7	30.0%	3	0.0%	0
	25 - 39	67.5%	52	22.1%	17	10.4%	8
	40 - 54	53.6%	90	28.0%	47	18.5%	31

	55- 64	45.6%	67	39.5%	58	15.0%	22
	65 +	34.3%	96	40.7%	114	25.0%	70
	Total	45.7%	312	35.0%	239	19.2%	131

Table 108. Prevalence of chronic conditions groups to population of Central and Western Macedonia, who suffering from chronic condition

Gender	Age	Cardiac & circulatory disorders	Respiratory disorders	Metabolic & endocrine disorders	strointestinal disorders	Kidney & Urologic disorders	Vascular disorders	Orthopedic disorders	kin disorders	eurological & ain disorders	Psychiatric disorders	ynecological disorders	ye disorders	torhinolaryng ogic disorders	Malignant neoplasm	ther disorders
Men	18 - 24	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	50.0%
	25 - 39	5.6%	16.7%	19.4%	16.7%	2.8%	0.0%	11.1%	0.0%	8.3%	5.6%	0.0%	2.8%	0.0%	0.0%	16.7%
	40 - 54	27.3%	3.9%	19.5%	14.3%	1.3%	0.0%	19.5%	3.9%	5.2%	1.3%	0.0%	0.0%	1.3%	3.9%	6.5%
	55-64	51.8%	8.2%	17.6%	17.6%	9.4%	2.4%	11.8%	2.4%	3.5%	2.4%	0.0%	4.7%	1.2%	4.7%	5.9%
	65 +	68.6%	11.8%	21.6%	7.2%	15.0%	2.6%	11.8%	0.0%	5.9%	0.7%	0.0%	4.6%	0.0%	2.0%	1.3%
	Total	48.5%	9.6%	19.7%	12.4%	9.3%	1.7%	13.2%	1.4%	5.4%	2.0%	0.0%	3.4%	0.6%	2.8%	5.6%
Women	18 - 24	5.9%	23.5%	17.6%	5.9%	0.0%	0.0%	29.4%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%
	25 - 39	9.9%	15.5%	38.0%	9.9%	1.4%	1.4%	15.5%	0.0%	8.5%	4.2%	2.8%	0.0%	0.0%	1.4%	14.1%
	40 - 54	20.9%	4.5%	29.1%	12.7%	0.0%	2.2%	22.4%	1.5%	6.0%	5.2%	3.0%	0.7%	0.7%	4.5%	10.4%
	55-64	41.7%	5.6%	38.9%	18.5%	0.0%	5.6%	32.4%	0.9%	4.6%	6.5%	0.9%	0.0%	0.0%	3.7%	2.8%
	65 +	50.3%	7.3%	36.4%	14.6%	1.3%	1.3%	35.1%	0.7%	8.6%	3.3%	2.6%	4.6%	0.7%	4.0%	4.6%
	Total	32.6%	7.9%	34.5%	13.9%	0.6%	2.5%	27.9%	1.0%	6.7%	4.6%	2.3%	1.7%	0.4%	3.5%	7.5%
Total	18 - 24	4.8%	19.0%	14.3%	9.5%	0.0%	0.0%	23.8%	4.8%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	19.0%
	25 - 39	8.4%	15.9%	31.8%	12.1%	1.9%	0.9%	14.0%	0.0%	8.4%	4.7%	1.9%	0.9%	0.0%	0.9%	15.0%
	40 - 54	23.2%	4.3%	25.6%	13.3%	0.5%	1.4%	21.3%	2.4%	5.7%	3.8%	1.9%	0.5%	0.9%	4.3%	9.0%
	55-64	46.1%	6.7%	29.5%	18.1%	4.1%	4.1%	23.3%	1.6%	4.1%	4.7%	0.5%	2.1%	0.5%	4.1%	4.1%
	65 +	59.5%	9.5%	28.9%	10.9%	8.2%	2.0%	23.4%	0.3%	7.2%	2.0%	1.3%	4.6%	0.3%	3.0%	3.0%
	Total	39.4%	8.6%	28.2%	13.3%	4.3%	2.2%	21.7%	1.2%	6.1%	3.5%	1.3%	2.4%	0.5%	3.2%	6.7%

Table 109. Prevalence of chronic conditions groups to total population of Central and Western Macedonia

ender	Age	Cardiac & circulatory disorders	Respiratory disorders	Metabolic & endocrine disorders	Gastrointestinal disorde	Kidney & Urologic disorders	Vascular disorders	Orthopedic disorders	Skin disorders	Neurological & Brain disorders	Psychiatric disorders	Gynecological disorders	Eye disorders	Otorhinolaryngologic disorders	Malignant neoplasm	Other disorders
Men	8 - 24	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	2.2%
	5 - 39	0.8%	2.5%	3.0%	2.5%	0.4%	0.0%	1.7%	0.0%	1.3%	0.8%	0.0%	0.4%	0.0%	0.0%	2.5%
	0 - 54	7.4%	1.1%	5.3%	3.9%	0.4%	0.0%	5.3%	1.1%	1.4%	0.4%	0.0%	0.0%	0.4%	1.1%	1.8%
	5- 64	26.2%	4.2%	8.9%	8.9%	4.8%	1.2%	6.0%	1.2%	1.8%	1.2%	0.0%	2.4%	0.6%	2.4%	3.0%
	5 +	43.9%	7.5%	13.8%	4.6%	9.6%	1.7%	7.5%	0.0%	3.8%	0.4%	0.0%	2.9%	0.0%	1.3%	0.8%
	Men	16.9%	3.3%	6.9%	4.3%	3.2%	0.6%	4.6%	0.5%	1.9%	0.7%	0.0%	1.2%	0.2%	1.0%	2.0%
Women	8 - 24	1.2%	4.9%	3.7%	1.2%	0.0%	0.0%	6.1%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%
	5 - 39	2.4%	3.8%	9.3%	2.4%	0.3%	0.3%	3.8%	0.0%	2.1%	1.0%	0.7%	0.0%	0.0%	0.3%	3.5%
	0 - 54	8.5%	1.8%	11.8%	5.1%	0.0%	0.9%	9.1%	0.6%	2.4%	2.1%	1.2%	0.3%	0.3%	1.8%	4.2%
	5- 64	25.6%	3.4%	23.9%	11.4%	0.0%	3.4%	19.9%	0.6%	2.8%	4.0%	0.6%	0.0%	0.0%	2.3%	1.7%
	5 +	38.0%	5.5%	27.5%	11.0%	1.0%	1.0%	26.5%	0.5%	6.5%	2.5%	2.0%	3.5%	0.5%	3.0%	3.5%
	Vomen	14.6%	3.5%	15.4%	6.2%	0.3%	1.1%	12.4%	0.5%	3.0%	2.0%	1.0%	0.7%	0.2%	1.6%	3.3%
Total	8 - 24	0.6%	2.3%	1.7%	1.1%	0.0%	0.0%	2.9%	0.6%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	2.3%
	5 - 39	1.7%	3.2%	6.5%	2.5%	0.4%	0.2%	2.9%	0.0%	1.7%	1.0%	0.4%	0.2%	0.0%	0.2%	3.0%
	0 - 54	8.0%	1.5%	8.8%	4.6%	0.2%	0.5%	7.3%	0.8%	2.0%	1.3%	0.7%	0.2%	0.3%	1.5%	3.1%
	5- 64	25.9%	3.8%	16.6%	10.2%	2.3%	2.3%	13.1%	0.9%	2.3%	2.6%	0.3%	1.2%	0.3%	2.3%	2.3%
	5 +	41.2%	6.6%	20.0%	7.5%	5.7%	1.4%	16.2%	0.2%	5.0%	1.4%	0.9%	3.2%	0.2%	2.1%	2.1%
	otal	15.7%	3.4%	11.3%	5.3%	1.7%	0.9%	8.6%	0.5%	2.4%	1.4%	0.5%	1.0%	0.2%	1.3%	2.7%

Table 110. Prevalence of chronic conditions groups to Greek population, who suffering from chronic condition

Gender	Age	Cardiac & circulatory disorders	Respiratory disorders	Metabolic & endocrine disorders	Gastrointestinal disorders	dney & Urologic disorders	Vascular disorders	Orthopedic disorders	Skin disorders	Neurological & Brain disorders	Psychiatric disorders	Gynecological disorders	Eye disorders	Otorhinolaryngologic disorders	Malignant neoplasm	Other disorders
Men	8 - 24	5.6%	30.6%	16.7%	5.6%	0.0%	0.0%	11.1%	0.0%	2.8%	8.3%	0.0%	0.0%	0.0%	0.0%	25.0%
	5 - 39	10.0%	11.3%	15.0%	11.3%	5.0%	3.1%	15.0%	5.6%	8.8%	6.3%	0.0%	1.9%	1.9%	2.5%	10.0%
	0 - 54	33.4%	5.9%	18.1%	12.4%	4.6%	1.9%	13.7%	1.6%	6.2%	4.3%	0.3%	1.3%	0.8%	2.2%	5.9%
	5- 64	48.0%	7.9%	21.8%	10.4%	8.8%	2.5%	11.5%	1.1%	3.2%	2.0%	0.0%	2.9%	0.9%	4.3%	5.2%
	5 +	60.9%	12.5%	20.8%	7.6%	12.0%	2.8%	10.0%	1.0%	4.5%	0.8%	0.0%	4.9%	0.5%	3.6%	2.5%
	otal	46.5%	10.3%	19.9%	9.6%	8.8%	2.5%	11.6%	1.5%	4.9%	2.4%	0.1%	3.3%	0.8%	3.3%	5.0%
Vomen	8 - 24	4.3%	18.6%	38.6%	7.1%	2.9%	0.0%	11.4%	4.3%	4.3%	2.9%	2.9%	0.0%	1.4%	0.0%	7.1%
	5 - 39	8.1%	10.6%	37.7%	9.7%	1.2%	1.9%	15.3%	1.6%	5.9%	2.5%	4.0%	1.6%	1.6%	1.6%	10.6%
	0 - 54	16.6%	8.5%	36.2%	9.4%	0.9%	1.3%	17.1%	1.6%	6.1%	5.5%	4.1%	1.4%	0.6%	4.4%	9.7%
	5- 64	35.3%	7.0%	35.5%	12.2%	2.1%	3.7%	26.6%	0.5%	4.2%	5.2%	1.7%	2.3%	0.3%	7.2%	3.7%
	5 +	52.1%	9.9%	31.5%	11.5%	3.8%	2.5%	36.6%	0.7%	4.3%	3.5%	1.7%	5.3%	0.8%	5.6%	4.1%
	otal	32.0%	9.2%	34.6%	10.8%	2.3%	2.3%	25.7%	1.1%	4.9%	4.2%	2.7%	3.0%	0.8%	5.0%	6.4%
Total	8 - 24	4.7%	22.6%	31.1%	6.6%	1.9%	0.0%	11.3%	2.8%	3.8%	4.7%	1.9%	0.0%	0.9%	0.0%	13.2%
	5 - 39	8.7%	10.8%	30.1%	10.2%	2.5%	2.3%	15.2%	2.9%	6.9%	3.7%	2.7%	1.7%	1.7%	1.9%	10.4%
	0 - 54	22.8%	7.5%	29.5%	10.5%	2.3%	1.5%	15.8%	1.6%	6.1%	5.0%	2.7%	1.4%	0.7%	3.6%	8.3%
	5- 64	40.8%	7.4%	29.5%	11.4%	5.0%	3.1%	20.0%	0.8%	3.7%	3.8%	1.0%	2.6%	0.6%	5.9%	4.3%
	5 +	56.3%	11.1%	26.4%	9.6%	7.7%	2.6%	23.8%	0.8%	4.4%	2.2%	0.9%	5.1%	0.7%	4.7%	3.4%
	otal	38.1%	9.6%	28.4%	10.3%	5.1%	2.4%	19.8%	1.3%	4.9%	3.5%	1.6%	3.1%	0.8%	4.3%	5.8%

Table 111. Prevalence of chronic conditions groups to Greek population

Gender	Age	Cardiac & circulatory disorders	Respiratory disorders	Metabolic & endocrine disorders	Gastrointestinal disorders	Kidney & Urologic disorders	Vascular disorders	Orthopedic disorders	Skin disorders	Neurological & Brain disorders	Psychiatric disorders	ynecological disorders	Eye disorders	Otorhinolaryngologic disorders	Malignant neoplasm	Other disorders
Men	8 - 24	0.5%	2.6%	1.4%	0.5%	0.0%	0.0%	0.9%	0.0%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	2.1%
	5 - 39	1.3%	1.5%	2.0%	1.5%	0.7%	0.4%	2.0%	0.7%	1.1%	0.8%	0.0%	0.2%	0.2%	0.3%	1.3%
	0 - 54	9.3%	1.6%	5.0%	3.4%	1.3%	0.5%	3.8%	0.4%	1.7%	1.2%	0.1%	0.4%	0.2%	0.6%	1.6%
	5- 64	24.5%	4.0%	11.1%	5.3%	4.5%	1.3%	5.9%	0.6%	1.6%	1.0%	0.0%	1.5%	0.5%	2.2%	2.6%
	5 +	39.8%	8.2%	13.6%	5.0%	7.8%	1.8%	6.5%	0.7%	2.9%	0.5%	0.0%	3.2%	0.3%	2.4%	1.6%
	otal	16.6%	3.7%	7.1%	3.4%	3.2%	0.9%	4.1%	0.6%	1.7%	0.9%	0.0%	1.2%	0.3%	1.2%	1.8%
Vomen	8 - 24	0.8%	3.3%	6.8%	1.3%	0.5%	0.0%	2.0%	0.8%	0.8%	0.5%	0.5%	0.0%	0.3%	0.0%	1.3%
	5 - 39	1.8%	2.3%	8.3%	2.1%	0.3%	0.4%	3.4%	0.3%	1.3%	0.5%	0.9%	0.3%	0.3%	0.3%	2.3%
	0 - 54	6.7%	3.4%	14.7%	3.8%	0.4%	0.5%	6.9%	0.6%	2.5%	2.2%	1.7%	0.6%	0.3%	1.8%	3.9%
	5- 64	22.4%	4.4%	22.5%	7.8%	1.3%	2.3%	16.9%	0.3%	2.7%	3.3%	1.1%	1.4%	0.2%	4.5%	2.3%
	5 +	38.4%	7.3%	23.2%	8.5%	2.8%	1.9%	26.9%	0.5%	3.1%	2.5%	1.3%	3.9%	0.6%	4.2%	3.1%
	otal	14.4%	4.1%	15.6%	4.8%	1.0%	1.0%	11.6%	0.5%	2.2%	1.9%	1.2%	1.3%	0.3%	2.2%	2.9%
Total	8 - 24	0.6%	2.9%	4.0%	0.9%	0.2%	0.0%	1.5%	0.4%	0.5%	0.6%	0.2%	0.0%	0.1%	0.0%	1.7%
	5 - 39	1.6%	1.9%	5.4%	1.8%	0.4%	0.4%	2.7%	0.5%	1.2%	0.7%	0.5%	0.3%	0.3%	0.3%	1.9%
	0 - 54	7.9%	2.6%	10.3%	3.6%	0.8%	0.5%	5.5%	0.6%	2.1%	1.8%	0.9%	0.5%	0.2%	1.2%	2.9%
	5- 64	23.4%	4.2%	16.9%	6.5%	2.9%	1.8%	11.5%	0.5%	2.1%	2.2%	0.6%	1.5%	0.3%	3.4%	2.5%
	5 +	39.1%	7.7%	18.3%	6.7%	5.4%	1.8%	16.5%	0.6%	3.0%	1.5%	0.6%	3.5%	0.5%	3.2%	2.3%
	otal	15.4%	3.9%	11.5%	4.1%	2.1%	1.0%	8.0%	0.5%	2.0%	1.4%	0.6%	1.3%	0.3%	1.7%	2.3%

Table 112. Prevalence of comorbidity among patient in the Regions of Central and Western Macedonia, with chronic conditions

Gender	Age	Number of chronic conditions						
		1	2	3	4	5	6	7

Gender	Age	Number of chronic conditions						
		1	2	3	4	5	6	7
Men	.8 - 24	100 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	:5 - 39	94 .4%	5 .6%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	40 - 54	91 .0%	7 .7%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	55- 64	73 .3%	15 .1%	8 .1%	0 .0%	1 .2%	0 .0%	1 .2%
	65 +	62 .8%	23 .7%	8 .3%	2 .6%	0 .0%	0 .0%	0 .6%
	Total	75 .0%	16 .1%	5 .6%	1 .1%	0 .3%	0 .0%	0 .6%
Women	.8 - 24	100 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	:5 - 39	83 .3%	11 .1%	2 .8%	0 .0%	1 .4%	0 .0%	0 .0%
	40 - 54	81 .3%	14 .9%	2 .2%	1 .5%	0 .0%	0 .0%	0 .0%
	55- 64	59 .3%	25 .0%	10 .2%	5 .6%	0 .0%	0 .0%	0 .0%
	65 +	55 .0%	23 .8%	13 .9%	6 .0%	0 .7%	0 .7%	0 .0%
	Total	69 .1%	18 .9%	7 .7%	3 .5%	0 .4%	0 .2%	0 .0%
Total	.8 - 24	100 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	:5 - 39	87 .0%	9 .3%	1 .9%	0 .0%	0 .9%	0 .0%	0 .0%
	40 - 54	84 .9%	12 .3%	1 .4%	0 .9%	0 .0%	0 .0%	0 .0%
	55- 64	65 .5%	20 .6%	9 .3%	3 .1%	0 .5%	0 .0%	0 .5%
	65 +	59 .0%	23 .8%	11 .1%	4 .2%	0 .3%	0 .3%	0 .3%
	Total	71 .6%	17 .7%	6 .8%	2 .5%	0 .4%	0 .1%	0 .2%

Table 113. Prevalence of comorbidity among patient of Greek population, with chronic conditions

Gender	Age	Number of chronic conditions								
		1	2	3	4	5	6	7	8	9
Men	.8 - 24	94 .4%	5 .6%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	:5 - 39	89 .2%	6 .0%	0 .6%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	40 - 54	87 .3%	10 .1%	0 .8%	0 .3%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	55- 64	75 .4%	17 .7%	4 .0%	0 .7%	0 .2%	0 .0%	0 .2%	0 .0%	0 .0%
	65 +	67 .7%	22 .1%	7 .3%	1 .5%	0 .5%	0 .0%	0 .1%	0 .0%	0 .0%

Gender	Age	Number of chronic conditions								
		1	2	3	4	5	6	7	8	9
	Total	76 .1%	16 .7%	4 .4%	0 .9%	0 .3%	0 .0%	0 .1%	0 .0%	0 .0%
Women	18 - 24	94 .3%	5 .7%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	25 - 39	87 .7%	8 .6%	1 .8%	0 .0%	0 .3%	0 .0%	0 .0%	0 .0%	0 .0%
	40 - 54	81 .1%	15 .3%	2 .8%	0 .5%	0 .0%	0 .2%	0 .0%	0 .0%	0 .0%
	55- 64	68 .1%	21 .8%	6 .3%	2 .6%	0 .0%	0 .5%	0 .0%	0 .2%	0 .2%
	65 +	54 .1%	26 .3%	13 .1%	4 .4%	0 .8%	0 .6%	0 .3%	0 .0%	0 .0%
	Total	69 .8%	19 .5%	7 .0%	2 .3%	0 .3%	0 .4%	0 .1%	0 .0%	0 .0%
Total	18 - 24	94 .3%	5 .7%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%	0 .0%
	25 - 39	88 .2%	7 .7%	1 .4%	0 .0%	0 .2%	0 .0%	0 .0%	0 .0%	0 .0%
	40 - 54	83 .4%	13 .4%	2 .1%	0 .4%	0 .0%	0 .1%	0 .0%	0 .0%	0 .0%
	55- 64	71 .3%	20 .0%	5 .3%	1 .8%	0 .1%	0 .3%	0 .1%	0 .1%	0 .1%
	65 +	60 .6%	24 .3%	10 .3%	3 .0%	0 .7%	0 .3%	0 .2%	0 .0%	0 .0%
	Total	72 .5%	18 .3%	5 .9%	1 .7%	0 .3%	0 .2%	0 .1%	0 .0%	0 .02%

Table 114. Frequency of blood pressure control by patients with arterial hypertension in in the Regions of Central and Western Macedonia

Gender	Age	Daily		Weekly		Montly		Less than once in a month		Almost never	
		Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count
Men	18 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	1
	25 - 39	0.0%	0	50.0%	1	50.0%	1	0.0%	0	0.0%	0
	40 - 54	10.0%	1	50.0%	5	30.0%	3	10.0%	1	0.0%	0
	55- 64	12.5%	1	62.5%	5	25.0%	2	0.0%	0	0.0%	0
	65 +	31.2%	5	50.0%	8	12.5%	2	6.2%	1	0.0%	0
	Total	18.9%	7	51.4%	19	21.6%	8	5.4%	2	2.7%	1
Women	18 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
	25 - 39	0.0%	0	33.3%	1	33.3%	1	33.3%	1	0.0%	0
	40 - 54	14.3%	1	42.9%	3	14.3%	1	14.3%	1	14.3%	1
	55- 64	0.0%	0	30.0%	3	50.0%	5	0.0%	0	20.0%	2

	65 +	30.8%	8	46.2%	12	15.4%	4	3.8%	1	3.8%	1
	Total	19.6%	9	41.3%	19	23.9%	11	6.5%	3	8.7%	4
Total	18 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	1
	25 - 39	0.0%	0	40.0%	2	40.0%	2	20.0%	1	0.0%	0
	40 - 54	11.8%	2	47.1%	8	23.5%	4	11.8%	2	5.9%	1
	55- 64	5.6%	1	44.4%	8	38.9%	7	0.0%	0	11.1%	2
	65 +	31.0%	13	47.6%	20	14.3%	6	4.8%	2	2.4%	1
	Total	19.3%	16	45.8%	38	22.9%	19	6.0%	5	6.0%	5

Table 115. Frequency of blood pressure control by patients with arterial hypertension of Greek population

Gender	Age	Daily		Weekly		Montly		Less than once in a month		Almost never	
		Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count
Men	.8 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	2
	:5 - 39	23.5%	4	47.1%	8	11.8%	2	17.6%	3	0.0%	0
	0 - 54	30.4%	14	39.1%	18	21.7%	10	6.5%	3	2.2%	1
	5- 64	22.6%	12	62.3%	33	9.4%	5	1.9%	1	3.8%	2
	5 +	31.9%	36	44.2%	50	16.8%	19	5.3%	6	1.8%	2
	otal	28.6%	66	47.2%	109	15.6%	36	5.6%	13	3.0%	7
Women	.8 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
	:5 - 39	21.4%	3	35.7%	5	21.4%	3	14.3%	2	7.1%	1
	0 - 54	21.9%	7	53.1%	17	12.5%	4	6.2%	2	6.2%	2
	5- 64	21.2%	11	36.5%	19	15.4%	8	21.2%	11	5.8%	3
	5 +	28.4%	40	39.7%	56	14.9%	21	12.1%	17	5.0%	7
	otal	25.5%	61	40.6%	97	15.1%	36	13.4%	32	5.4%	13
Total	.8 - 24	0.0%	0	0.0%	0	0.0%	0	0.0%	0	100.0%	2
	:5 - 39	22.6%	7	41.9%	13	16.1%	5	16.1%	5	3.2%	1
	0 - 54	26.9%	21	44.9%	35	17.9%	14	6.4%	5	3.8%	3
	5- 64	21.9%	23	49.5%	52	12.4%	13	11.4%	12	4.8%	5
	5 +	29.9%	76	41.7%	106	15.7%	40	9.1%	23	3.5%	9

Gender	Age	Daily		Weekly		Montly		Less than once in a month		Almost never	
		Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count
	Total	27.0%	127	43.8%	206	15.3%	72	9.6%	45	4.3%	20

Table 116. Frequency of blood pressure control by people who have not been diagnosed with hypertension in the Western and Central Macedonia Regions

Gender	Age	Montly		Every 6 months		Yearly		Almost never	
		Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count
Men	18 - 24	11.8%	2	17.6%	3	0.0%	0	70.6%	12
	25 - 39	20.5%	9	13.6%	6	15.9%	7	50.0%	22
	40 - 54	24.0%	12	24.0%	12	10.0%	5	42.0%	21
	55- 64	66.7%	12	5.6%	1	5.6%	1	22.2%	4
	65 +	63.0%	17	22.2%	6	0.0%	0	14.8%	4
	Total	33.3%	52	17.9%	28	8.3%	13	40.4%	63
Women	18 - 24	16.7%	3	11.1%	2	0.0%	0	72.2%	13
	25 - 39	28.9%	13	24.4%	11	13.3%	6	33.3%	15
	40 - 54	35.6%	16	20.0%	9	4.4%	2	40.0%	18
	55- 64	31.8%	7	22.7%	5	18.2%	4	27.3%	6
	65 +	61.5%	16	11.5%	3	0.0%	0	26.9%	7
	Total	35.3%	55	19.2%	30	7.7%	12	37.8%	59
Total	18 - 24	14.3%	5	14.3%	5	0.0%	0	71.4%	25
	25 - 39	24.7%	22	19.1%	17	14.6%	13	41.6%	37
	40 - 54	29.5%	28	22.1%	21	7.4%	7	41.1%	39
	55- 64	47.5%	19	15.0%	6	12.5%	5	25.0%	10
	65 +	62.3%	33	17.0%	9	0.0%	0	20.8%	11
	Total	34.3%	107	18.6%	58	8.0%	25	39.1%	122

Table 117. Frequency of blood pressure control by people of Greek population, who have not been diagnosed with hypertension

Gender	Age	Montly		Every 6 months		Yearly		Almost never	
		Proportion	Count	Proportion	Count	Proportion	Count	Proportion	Count
Men	18 - 24	7.2%	6	14.5%	12	7.2%	6	71.1%	59
	25 - 39	21.8%	54	17.7%	44	8.5%	21	52.0%	129
	40 - 54	35.9%	69	22.4%	43	9.9%	19	31.8%	61
	55- 64	50.6%	44	19.5%	17	9.2%	8	20.7%	18
	65 +	67.8%	80	16.9%	20	4.2%	5	11.0%	13
	Total	34.8%	253	18.7%	136	8.1%	59	38.5%	280
Women	18 - 24	10.3%	8	17.9%	14	6.4%	5	65.4%	51
	25 - 39	20.2%	47	18.0%	42	11.6%	27	50.2%	117
	40 - 54	35.9%	93	20.8%	54	6.2%	16	37.1%	96
	55- 64	43.4%	36	18.1%	15	9.6%	8	28.9%	24
	65 +	62.2%	84	14.8%	20	5.2%	7	17.8%	24
	Total	34.0%	268	18.4%	145	8.0%	63	39.6%	312
Total	18 - 24	8.7%	14	16.1%	26	6.8%	11	68.3%	110
	25 - 39	21.0%	101	17.9%	86	10.0%	48	51.1%	246
	40 - 54	35.9%	162	21.5%	97	7.8%	35	34.8%	157
	55- 64	47.1%	80	18.8%	32	9.4%	16	24.7%	42
	65 +	64.8%	164	15.8%	40	4.7%	12	14.6%	37
	Total	34.4%	521	18.5%	281	8.0%	122	39.1%	592

Table 118. Reason for using health services of the population of Central and Western Macedonia

Gender	Age	Preventive examinations	Transient illness	Treatment of chronic disease	Prescription	Medical examinations	Other
Men	18 - 24	33.3%	54.2%	4.2%	0.0%	16.7%	0.0%
	25 - 39	31.0%	48.3%	15.5%	20.7%	20.7%	1.7%
	40 - 54	31.0%	44.0%	25.0%	26.0%	24.0%	3.0%
	55- 64	29.7%	14.9%	43.2%	47.3%	31.1%	0.0%
	65 +	26.5%	22.1%	26.5%	57.4%	19.1%	0.7%

Gender	Age	Preventive examinations	Transient illness	Treatment of chronic disease	Prescription	Medical examinations	Other
	Total	29.3%	32.1%	26.3%	38.5%	22.7%	1.3%
Women	18 - 24	29.3%	73.2%	9.8%	19.5%	24.4%	0.0%
	25 - 39	34.1%	49.6%	16.3%	25.6%	24.0%	2.3%
	40 - 54	32.6%	40.3%	25.0%	29.9%	20.8%	1.4%
	55- 64	36.7%	34.9%	23.9%	46.8%	29.4%	0.0%
	65 +	19.7%	32.6%	36.4%	48.5%	15.9%	1.5%
	Total	30.5%	42.0%	24.3%	35.9%	22.3%	1.3%
Total	18 - 24	30.8%	66.2%	7.7%	12.3%	21.5%	0.0%
	25 - 39	33.2%	49.2%	16.0%	24.1%	23.0%	2.1%
	40 - 54	32.0%	41.8%	25.0%	28.3%	22.1%	2.0%
	55- 64	33.9%	26.8%	31.7%	47.0%	30.1%	0.0%
	65 +	23.1%	27.2%	31.3%	53.0%	17.5%	1.1%
	Total	30.0%	37.9%	25.1%	37.0%	22.5%	1.3%

Table 119. Reason for using health services of Greek population

Gender	Age	Preventive examinations	Transient illness	Treatment of chronic disease	Prescription	Medical examinations	Other
Men	18 - 24	33.3%	49.6%	9.4%	11.1%	18.8%	1.7%
	25 - 39	29.1%	51.8%	14.7%	19.1%	24.7%	4.3%
	40 - 54	30.8%	41.9%	21.4%	29.6%	26.6%	2.6%
	55- 64	30.4%	24.4%	27.7%	49.0%	24.1%	2.5%
	65 +	28.7%	25.3%	26.0%	54.9%	24.2%	0.6%
	Total	29.9%	34.6%	22.4%	39.6%	24.5%	2.1%
Women	18 - 24	30.6%	63.6%	11.0%	19.1%	20.2%	2.9%
	25 - 39	33.1%	50.3%	12.9%	24.3%	28.8%	3.8%
	40 - 54	33.3%	42.0%	21.9%	34.4%	27.1%	2.0%
	55- 64	30.0%	27.2%	29.2%	50.7%	27.4%	3.2%
	65 +	22.4%	28.4%	34.6%	54.6%	22.4%	0.6%
	Total	29.6%	39.0%	23.8%	39.4%	25.8%	2.3%

Gender	Age	Preventive examinations	Transient illness	Treatment of chronic disease	Prescription	Medical examinations	Other
Total	.8 - 24	31.7%	57.9%	10.3%	15.9%	19.7%	2.4%
	:5 - 39	31.8%	50.8%	13.5%	22.6%	27.5%	4.0%
	40 - 54	32.4%	41.9%	21.7%	32.7%	26.9%	2.2%
	55- 64	30.2%	26.0%	28.5%	50.0%	26.0%	2.9%
	65 +	25.4%	26.9%	30.5%	54.7%	23.3%	0.6%
	Total	29.7%	37.2%	23.2%	39.4%	25.3%	2.2%

Table 120. Type of health provider visited by the population of Central and Western Macedonia, during the month before the interview

Gender	Age	Private doctor affiliated with patient's insurance fund	Private doctor not affiliated with patient's insurance fund	Private diagnostic center	Outpatient Clinic or Emergency Department of a Private Hospital / Clinic	Outpatient Department or Emergency Department of a Public Hospital / Clinic	Health Center	Polyclinics of Social insurance	Social solidarity clinics
Men	18 - 24	45.8%	25.0%	20.8%	0.0%	25.0%	0.0%	0.0%	0.0%
	25 - 39	35.5%	22.6%	21.0%	9.7%	32.3%	11.3%	6.5%	1.6%
	40 - 54	41.7%	21.4%	23.3%	1.9%	23.3%	9.7%	7.8%	0.0%
	55- 64	42.7%	17.3%	18.7%	1.3%	26.7%	13.3%	17.3%	0.0%
	65 +	44.1%	25.0%	12.5%	1.5%	15.4%	11.0%	10.3%	0.0%
	Men	42.0%	22.2%	18.2%	2.8%	22.8%	10.5%	9.8%	0.2%
Women	18 - 24	54.8%	31.0%	28.6%	0.0%	14.3%	7.1%	7.1%	0.0%
	25 - 39	39.0%	41.2%	19.1%	1.5%	20.6%	11.8%	5.9%	0.0%
	40 - 54	43.4%	34.3%	14.7%	1.4%	15.4%	13.3%	11.9%	1.4%
	55- 64	43.6%	22.7%	13.6%	0.9%	25.5%	18.2%	17.3%	0.0%
	65 +	30.7%	24.1%	12.4%	2.9%	13.1%	21.9%	18.2%	0.0%
	Women	40.1%	31.0%	16.0%	1.6%	18.0%	15.5%	12.7%	0.4%
Total	18 - 24	51.5%	28.8%	25.8%	0.0%	18.2%	4.5%	4.5%	0.0%
	25 - 39	37.9%	35.4%	19.7%	4.0%	24.2%	11.6%	6.1%	0.5%
	40 - 54	42.7%	28.9%	18.3%	1.6%	18.7%	11.8%	10.2%	0.8%

Gender	Age	Private doctor affiliated with patient's insurance fund	Private doctor not affiliated with patient's insurance fund	Private diagnostic center	Outpatient Clinic or Emergency Department of a Private Hospital / Clinic	Outpatient Department or Emergency Department of a Public Hospital / Clinic	Health Center	Polyclinics of Social insurance	Social solidarity clinics
	55- 64	43.2%	20.5%	15.7%	1.1%	25.9%	16.2%	17.3%	0.0%
	65 +	37.4%	24.5%	12.5%	2.2%	14.3%	16.5%	14.3%	0.0%
	Total	40.9%	27.4%	16.9%	2.1%	19.9%	13.4%	11.5%	0.3%

Table 121. Type of health provider visited by the Greek population, during the month before the interview

Gender	Age	Private doctor affiliated with patient's insurance fund	Private doctor not affiliated with patient's insurance fund	Private diagnostic center	Outpatient Clinic or Emergency Department of a Private Hospital / Clinic	Outpatient Department or Emergency Department of a Public Hospital / Clinic	Health Center	Polyclinics of Social insurance	Social solidarity clinics
Men	18 - 24	39.5%	23.5%	14.3%	5.9%	24.4%	5.9%	6.7%	0.0%
	25 - 39	33.3%	27.7%	19.0%	5.9%	28.0%	8.7%	6.5%	0.3%
	40 - 54	41.7%	23.8%	19.7%	2.8%	20.5%	9.4%	9.2%	0.0%
	55- 64	44.9%	20.8%	16.4%	2.9%	20.3%	11.3%	15.8%	0.3%
	65 +	45.8%	20.9%	13.3%	2.7%	18.7%	14.0%	11.8%	0.3%
	Men	42.2%	22.9%	16.4%	3.5%	21.3%	11.0%	10.8%	0.2%
Women	18 - 24	46.3%	30.9%	21.7%	2.3%	21.7%	8.0%	6.9%	0.0%
	25 - 39	37.6%	42.4%	18.8%	3.3%	20.2%	8.0%	5.4%	0.5%
	40 - 54	44.1%	29.6%	21.2%	2.8%	18.0%	10.7%	12.3%	0.4%
	55- 64	44.0%	23.9%	13.8%	2.0%	22.1%	14.0%	17.0%	0.8%
	65 +	40.1%	24.1%	13.7%	2.9%	19.4%	18.1%	14.0%	0.0%
	Women	41.6%	30.3%	17.4%	2.8%	19.8%	12.4%	11.6%	0.4%
Total	18 - 24	43.5%	27.9%	18.7%	3.7%	22.8%	7.1%	6.8%	0.0%
	25 - 39	36.2%	37.6%	18.9%	4.2%	22.7%	8.2%	5.8%	0.4%

Gender	Age	Private doctor affiliated with patient's insurance fund	Private doctor not affiliated with patient's insurance fund	Private diagnostic center	Outpatient Clinic or Emergency Department of a Private Hospital / Clinic	Outpatient Department or Emergency Department of a Public Hospital / Clinic	Health Center	Polyclinics of Social insurance	Social solidarity clinics
	40 - 54	43.2%	27.4%	20.6%	2.8%	19.0%	10.2%	11.1%	0.3%
	55- 64	44.4%	22.6%	14.9%	2.4%	21.3%	12.8%	16.5%	0.6%
	65 +	42.9%	22.6%	13.5%	2.8%	19.0%	16.1%	12.9%	0.1%
	Total	41.9%	27.2%	17.0%	3.1%	20.5%	11.8%	11.3%	0.3%

11.2 Annex 2: Complete lists of suggested core health indicators.

Global Reference List of 100 Core Health Indicators of WHO[9]	European Core Health Indicators (ECHI)[10]	Observatory of Socioeconomic & Epidemiological Indicators of ESDY[11]
Health status indicators 1. Life expectancy at birth 2. Adult mortality rate between 15 and 60 years of age 3. Under-five mortality rate 4. Infant mortality rate 5. Neonatal mortality rate 6. Stillbirth rate 7. Maternal mortality ratio 8. TB mortality rate 9. AIDS-related mortality rate 10. Malaria mortality rate 11. Mortality between 30 and 70 years of age from cardiovascular 12. diseases, cancer, diabetes or chronic respiratory diseases 13. Suicide rate 14. Mortality rate from road traffic injuries 15. Adolescent fertility rate 16. Total fertility rate 17. New cases of vaccine-preventable diseases 18. New cases of IHR-notifiable diseases and other notifiable diseases 19. HIV incidence rate	**Demography and socio-economic situation** 1. Population by sex / age - Old-age-dependency ratio 2. Birth rate, crude 3. Mother's age distribution 4. Total fertility rate 5. Population projections 6. Population by education 7. Population by occupation 8. Total unemployment 9. Population below poverty line and income inequality **Health status** 10. Life expectancy 11. Infant mortality 12. Perinatal mortality 13. Disease-specific mortality 14. Drug-related deaths 15. Smoking-related deaths 16. Alcohol-related deaths 17. Excess mortality by heat waves 18. Selected communicable diseases 19. HIV/AIDs	**Demography and socio-economic situation** 1. Population by sex / age - Old-age-dependency ratio 2. Birth rate, crude 3. Mother's age distribution 4. Total fertility rate 5. Population projections 6. Population by education 7. Population by occupation 8. Total unemployment 9. Population below poverty line and income inequality 10. Percentage of Legal Foreigners 11. Wedding Index 12. Divorce Index 13. Degree of Urbanization 14. General fertility index 15. Index of dependency of economically active population 16. Percentage of privately-owned housing by county 17. Average household size

[9] https://www.who.int/healthinfo/indicators/2018/en/
[10] https://ec.europa.eu/health/indicators/echi/list_en
[11] Available upon request in Greek language only.

Global Reference List of 100 Core Health Indicators of WHO[9]	European Core Health Indicators (ECHI)[10]	Observatory of Socioeconomic & Epidemiological Indicators of ESDY[11]
20. HIV prevalence rate 21. Hepatitis B surface antigen prevalence 22. Sexually transmitted infections (STIs) incidence rate 23. TB incidence rate 24. TB notification rate 25. TB prevalence rate 26. Malaria parasite prevalence among children aged 6–59 months 27. Malaria incidence rate 28. Cancer incidence, by type of cancer **Risk factors indicators** 29. Exclusive breastfeeding rate 0–5 months of age 30. Early initiation of breastfeeding 31. Incidence of low birth weight among newborns 32. Children under 5 years who are stunted 33. Children under 5 years who are wasted 34. Anaemia prevalence in children 35. Anaemia prevalence in women of reproductive age 36. Condom use at last sex with high-risk partner 37. Population using safely managed drinking-water services 38. Population using safely managed sanitation services 39. Population using modern fuels for cooking/heating/lighting 40. Air pollution level in cities 41. Total alcohol per capita (age 15+ years) consumption 42. Tobacco use among persons aged 18+ years	20. Cancer incidence 21. (a) Diabetes: self-reported prevalence (b) Diabetes: register-based prevalence 22. Dementia 23. (a) Depression: self-reported prevalence (b) Depression: register-based prevalence 24. Acute myocardial infarction (AMI) 25. Stroke 26. (a) Asthma: self-reported prevalence (b) Asthma: register-based prevalence 27. (a) Chronic obstructive pulmonary disease (COPD): self-reported prevalence (b) Chronic obstructive pulmonary disease (COPD): register-based prevalence 28. Low birth weight 29. (a). Injuries: home, leisure, school: self-reported incidence (b). Injuries: home, leisure, school: register-based incidence 30. (a). Injuries: road traffic: self-reported incidence (b). Injuries: road traffic: register-based incidence 31. Injuries: workplace 32. Suicide attempt 33. Self-perceived health 34. Self-reported chronic morbidity 35. Long-term activity limitations 36. Physical and sensory functional limitations 37. General musculoskeletal pain 38. Psychological distress 39. Psychological well-being	**Health status** 18. Life expectancy 19. Infant mortality 20. Perinatal mortality 21. Disease-specific mortality 22. Drug-related deaths 23. Smoking-related deaths 24. Alcohol-related deaths 25. Excess mortality by heat waves 26. Selected communicable diseases 27. HIV/AIDs 28. Cancer incidence 29. (a) Diabetes: self-reported prevalence (b) Diabetes: register-based prevalence 30. Dementia 31. (a) Depression: self-reported prevalence (b) Depression: register-based prevalence 32. Acute myocardial infarction (AMI) 33. Stroke 34. (a) Asthma: self-reported prevalence (b) Asthma: register-based prevalence 35. (a)Chronic obstructive pulmonary disease (COPD): self-reported prevalence (b) Chronic obstructive pulmonary disease (COPD): register-based prevalence 36. Low birth weight 37. (a) Injuries: home, leisure, school: self-reported incidence (b) Injuries: home, leisure, school: register-based incidence 38. (a) Injuries: road traffic: self-reported incidence

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43. Children aged under 5 years who are overweight 44. Overweight and obesity in adults (Also: adolescents) 45. Raised blood pressure among adults 46. Raised blood glucose/diabetes among adults 47. Salt intake 48. Insufficient physical activity in adults (Also: adolescents) 49. Intimate partner violence prevalence **Service coverage indicators** 50. Demand for family planning satisfied with modern methods 51. Contraceptive prevalence rate 52. Antenatal care coverage 53. Births attended by skilled health personnel 54. Postpartum care coverage 55. Care-seeking for symptoms of pneumonia 56. Children with diarrhoea receiving oral rehydration solution (ORS) 57. Vitamin A supplementation coverage 58. Immunization coverage rate by vaccine for each vaccine in the national schedule 59. People living with HIV who have been diagnosed 60. Prevention of mother-to-child transmission 61. HIV care coverage 62. Antiretroviral therapy (ART) coverage 63. HIV viral load suppression 64. TB preventive therapy for HIV-positive people newly enrolled in HIV care	40. Health expectancy: Healthy Life Years (HLY) 41. Health expectancy, others **Determinants of health** 42. Body mass index 43. Blood pressure 44. Regular smokers 45. Pregnant women smoking 46. Total alcohol consumption 47. Hazardous alcohol consumption 48. Use of illicit drugs 49. Consumption of fruit 50. Consumption of vegetables 51. Breastfeeding 52. Physical activity 53. Work-related health risks 54. Social support 55. PM (particulate matter) exposure **Health interventions: health services** 56. Vaccination coverage in children 57. Influenza vaccination rate in elderly 58. Breast cancer screening 59. Cervical cancer screening 60. Colon cancer screening 61. Timing of first antenatal visits among pregnant women 62. Hospital beds 63. Practicing physicians 64. Practicing nurses 65. Mobility of professionals 66. Medical technologies: MRI units and CT	(b) Injuries: road traffic: register-based incidence 39. Injuries: workplace 40. Suicide attempt 41. Self-perceived health 42. Self-reported chronic morbidity 43. Long-term activity limitations 44. Physical and sensory functional limitations 45. General musculoskeletal pain 46. Psychological distress 47. Psychological well-being 48. Health expectancy: Healthy Life Years (HLY) 49. Health expectancy, others 50. Gross Mortality Index 51. (a) Standardized Mortality Indicators (b) Standard Mortality Ratio **Determinants of health** 52. Body mass index 53. Blood pressure 54. Regular smokers 55. Pregnant women smoking 56. Total alcohol consumption 57. Hazardous alcohol consumption 58. Use of illicit drugs 59. Consumption of fruit 60. Consumption of vegetables 61. Breastfeeding 62. Physical activity 63. Work-related health risks 64. Social support

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65. HIV test results for registered new and relapse TB patients 66. HIV-positive new and relapse TB patients on ART during TB treatment 67. TB patients with results for drug susceptibility testing 68. TB case detection rate 69. Second-line treatment coverage among multidrug-resistant tuberculosis (MDR-TB) cases 70. Intermittent preventive therapy for malaria during pregnancy (IPTp) 71. Use of insecticide treated nets (ITNs) 72. Treatment of confirmed malaria cases 73. Indoor residual spraying (IRS) coverage 74. Coverage of preventive chemotherapy for selected neglected tropical diseases 75. Cervical cancer screening 76. Coverage of services for severe mental health disorders **Health systems indicators** 77. Perioperative mortality rate 78. Obstetric and gynaecological admissions owing to abortion 79. Institutional maternal mortality ratio 80. Maternal death reviews 81. ART retention rate 82. TB treatment success rate 83. Service-specific availability and readiness 84. Service utilization 85. Health service access	scanners 67. Hospital in-patient discharges, limited diagnosis 68. Hospital day cases, limited diagnoses 69. Hospital day-cases as percentage of total patient population (in-patients & day-cases), selected diagnoses 70. Average length of stay (ALOS), limited diagnoses 71. General practitioner (GP) utilisation 72. Selected outpatient visits 73. Selected surgeries 74. Medicine use 75. Patient mobility 76. Insurance coverage 77. Expenditures on health care 78. Survival rates cancer 79. 30-day in-hospital case-fatality of acute myocardial infarction (AMI) and ischemic stroke 80. Equity of access to health care services 81. Waiting times for elective surgeries 82. Surgical wound infections 83. Cancer treatment quality 84. Diabetes control **Health interventions: health promotion** 85. Policies on environmental tobacco smoke (ETS) exposure 86. Policies on healthy nutrition 87. Policies and practices on healthy lifestyles 88. Integrated programmes in setting, including	65. PM10 (particulate matter) exposure **Health interventions: health services** 66. Vaccination coverage in children 67. Influenza vaccination rate in elderly 68. Breast cancer screening 69. Cervical cancer screening 70. Colon cancer screening 71. Timing of first antenatal visits among pregnant women 72. Hospital beds 73. Practicing physicians 74. Practicing nurses 75. Mobility of professionals 76. Medical technologies: MRI units and CT scanners 77. Hospital in-patient discharges, limited diagnosis 78. Hospital day cases, limited diagnoses 79. Hospital day-cases as percentage of total patient population (in-patients & day-cases), selected diagnoses 80. Average length of stay (ALOS), limited diagnoses 81. (a) Average visits to GPs: self-reported visits (b) Average visits to GPs: recorded visits 82. (a) Average number of visits to doctors of selected specialties: self-reported visits (b) Average number of visits to doctors of selected specialties: recorded visits 83. Selected surgeries

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86. Hospital bed density 87. Availability of essential medicines and commodities 88. Health worker density and distribution 89. Output training institutions 90. Birth registration coverage 91. Death registration coverage 92. Completeness of reporting by facilities 93. Total current expenditure on health (% of gross domestic product) 94. Current expenditure on health by general government and compulsory schemes (% of current expenditure on health) 95. Out-of-pocket payment for health (% of current expenditure on health) 96. Externally sourced funding (% of current expenditure on health) 97. Total capital expenditure on health (% current + capital expenditure on health) 98. Headcount ratio of catastrophic health expenditure) 99. Headcount ratio of impoverishing health expenditure 100. International Health Regulations (IHR) core capacity index	workplace, schools, hospital	84. Medicine use 85. Patient mobility 86. Insurance coverage 87. Expenditures on health care 88. Survival rates cancer 89. 30-day in-hospital case-fatality of acute myocardial infarction (AMI) and ischemic stroke 90. Equity of access to health care services 91. Waiting times for elective surgeries 92. Surgical wound infections 93. Cancer treatment quality 94. Diabetes control 95. Average bed coverage 96. Average bed idle time (Rotation interval) 97. Productivity of a sanitary unit 98. Profitability of a sanitary unit 99. Average length of hospitalization 100. Patients per bed 101. Doctors' ratio per bed 102. Nurses' ratio per Bed **Health interventions: health promotion** 103. Policies on environmental tobacco smoke (ETS) exposure 104. Policies on healthy nutrition 105. Policies and practices on healthy lifestyles 106. Integrated programmes in setting, including workplace, schools, hospital