THE INFLUENCE OF URBANIZATION AND GENDER ON THE HEALTH STATUS IN EUROPEAN UNION

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Abstract
In our endeavor to analyze the influence of urbanization and gender on self-perceived health status among the member states, we started by using an assessment scale, with a score ranging from 1 to 5 points for the 5 levels pertaining to the health status, as well as by determining an average score of the health status for each member state, by gender or by degree of urbanization. Ranking the scores, building Crosstabs and determining the Kendall and Spearman coefficients were the fundamental methods used in analyzing the influence of urbanization and gender on the health status in European Union (EU), and the results confirmed the fact that there is a connection between these variables. Thus, the population living in "cities" (where we have the highest degree of urbanization) tended to rate their health better than the population living in "rural" areas (where we have the lowest degree of urbanization), and the males tended to rate their health better than females.

Keywords
health status; gender; degree of urbanization; Kendall and Spearman coefficients.

JEL Classification
C10; I10

Introduction

The health status of the population is an important priority of the European Union (EU), its health policies involving, among others, improving the legislation in the field, promoting a healthy lifestyle, while determining certain factors that might influence the health status of the population has always been a topical issue.

Short methodological presentation

According to EUROSTAT, the data on self-perceived health come from EU statistics on income and living conditions (EU-SILC) which relate to 2021 as reference year and cover persons aged 18 years and over. These data focus on two key indicators describing the levels and distribution of health status: self-perceived health gives an overall assessment by respondents of their health in general; chronic morbidity assesses the presence of a long-standing illness or health problem. In the present study, we used the first indicator of the EU-SILC survey – self-perceived health – which gives an overall assessment by respondents of their health in general.

The distribution of population by health status, degree of urbanization and gender in EU-27

In 2021, according to the Eurostat data, on the level of the European Union (EU-27) – see Figure 1– most of the population over the age of 18 (68.2%) stated that they have

a good and very good health status (21.7% "very good" and 46.5% "good"), 22.8% have a "fair" state and only 9.0% of the population over the age of 18 believe they have a poor state of health, answering "bad" or "very bad".

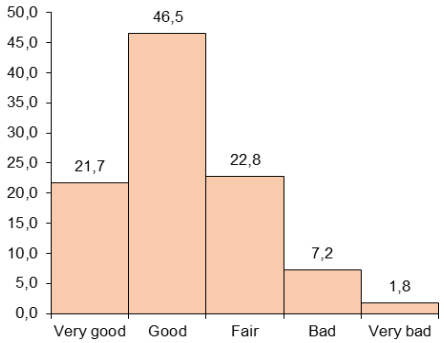

Figure 1. The distribution of population aged 18 and over by health status in EU-27 in 2021 (%)
Source: Personal processing of the EUROSTAT available data

From the point of view of the variable "gender", as we can see in in Figure 2, in EU-27 65.8% of the female population aged over 18 answered that their health is "good" and "very good", while the percentage of the male population which consider themselves to be healthy is 70.9%, by +5.1 pp higher than the female population. In contrast, when it comes to the poor state of health, 9.9% of the female population stated that they are in "bad" and "very bad" health, while only 8.0% of the male population believe their health is not good (by -1.9 pp lower than the percentage of the female population).

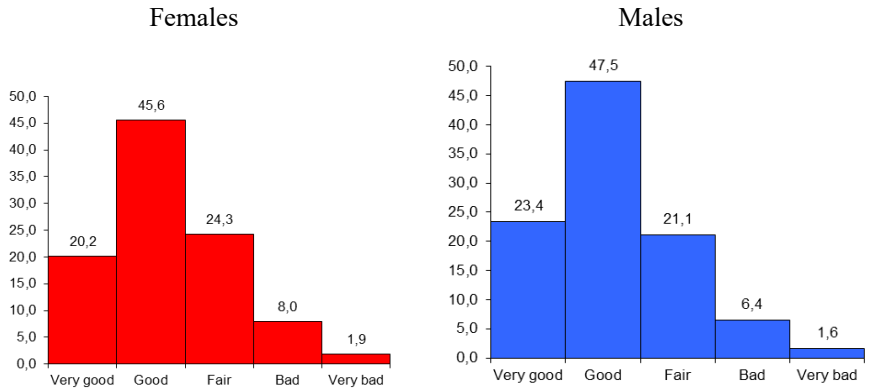

Figure 2. The distribution of population aged 18 and over by health status and gender in EU-27 in 2021 (%)
Source: Personal processing of the EUROSTAT available data

Considering the distribution of the population over 18 according to their health status and the degree of urbanization -see Figure 3- we can notice that 70.1% of the population living in "cities" state they are in "good" and "very good" health, which is by +1.8 pp higher than the percentage of the population living in "towns and suburbs" (68.3%) and by +4.8 pp higher than the population in "rural areas" (65.3%). The population over 18 which say that their health is "bad" and "very bad" represents

9.8% of the total population living in "rural areas" – the highest percentage compared to the other forms of urbanization, 8.9% of the population in "towns and suburbs" and only 8.4% of the population living in "cities".

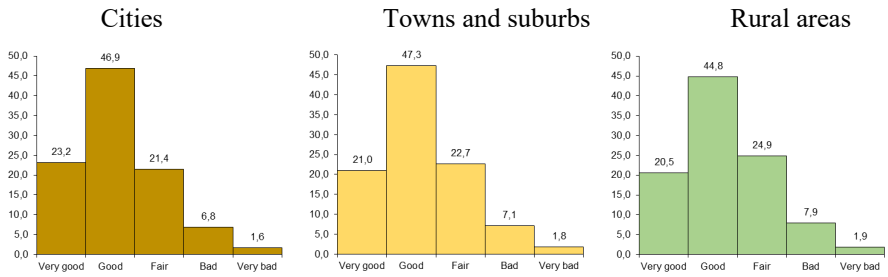

Figure 3. The distribution of population aged 18 and over by health status and degree of urbanization in EU-27 in 2021 (%)
Source: Personal processing of the EUROSTAT available data

In territorial aspect, on the level of the 27 EU member states there are differences concerning the distribution of the population according to their health status. Thus, in Ireland over 80.0% of the population aged over 18 (80.8%) stated that they are in "good" and "very good" health, and similar percentages (close to 80.0%) can be found in Greece (77.8%), Cyprus (76.7%) and Luxembourg (76.1%). On the other hand, in countries such as Lithuania, Latvia and Portugal, the percentage of the population with "good" and "very good" health is under 50.0%, more exactly 47.5%, 48.6% and 49.3% respectively. Consequently, there are great difference between the two countries (Ireland and Lithuania), where we registered the highest and respectively the lowest percentage of the healthy population, to be more specific 33.3 pp (see Figure 4).

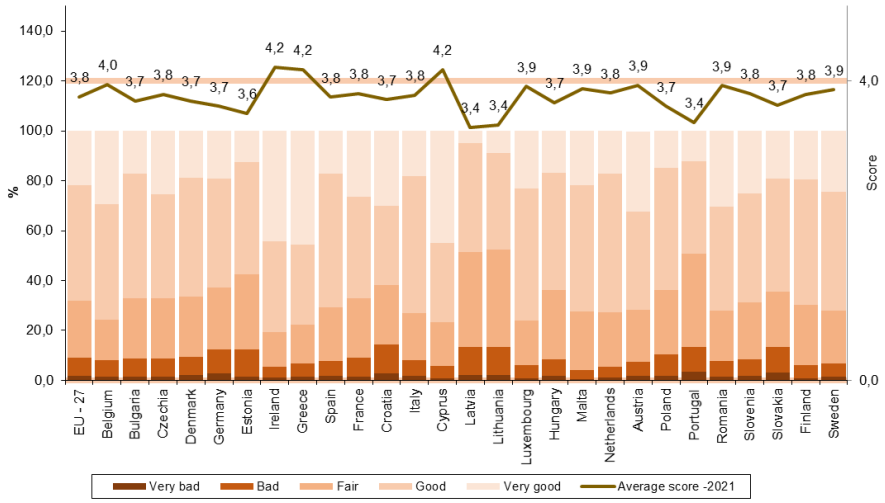

Figure 4. The distribution of population aged 18 and over by health status and average score in EU member state in 2021
Source: Personal processing of the EUROSTAT available data

A similar situation can be found in the case of the population which declared to be in poor health. In 8 member states, more than 10.0% of the population aged over 18 believe they are in "bad" and "very bad" health, with the highest percentages in Croatia (14.3%), Lithuania (13.5%) and Portugal (13.5%). In contrast, the lowest percentages of the population with poor health are registered, naturally, in the countries in which the percentage of the healthy population is higher, that is Malta (only 4.0% of the population over 18 stated they are in "bad" or "very bad" health), Netherlands (5.3%) and Ireland (5.3%) (see Figure 4).

In order to synthesize the health status of the population in EU-27 and that of the member states, we used a 5-point assessment scale, with a health score ranging from 1 to 5 points as follows: 5 points for "very good" health, 4 points for "good" health, 3 points for "fair" health, 2 points for "bad" health and 1 point for "very bad" health. Determining the average score for the health status on member state, gender or degree of urbanization can provide an overall picture of self-declared health status, the values closer to five indicating the fact that the population perceive themselves as being in good health, while values closer to 1 indicate poor health.

On the level of the EU and the member states, we can notice in Figure 4 an average scores between 3 and 4, which means that the health status is between "good" and "fair". On the average, the health status of the population over 18 living in the European Union is almost "good", as the average score is closer to 4 (3.8 points). In territorial aspect, the countries with the highest scores, over 4.0, meaning that their population is in "good" health, are Ireland (4.2 points), Greece (4.2 points) and Cyprus (4.2 points), while the countries with the lowest score, that is 3.4 points, are Lithuania, Latvia and Portugal, fact which means that in these countries the health status of the population is a little higher than "fair".

The influence of urbanization on the health status

In order to analyze the influence of urbanization on the health status of the population, we calculated the average score of the health status for each EU member state according to the variables pertaining to urbanization: "cities" (the highest degree of urbanization), "towns and suburbs" (medium degree) and "rural" (low degree).

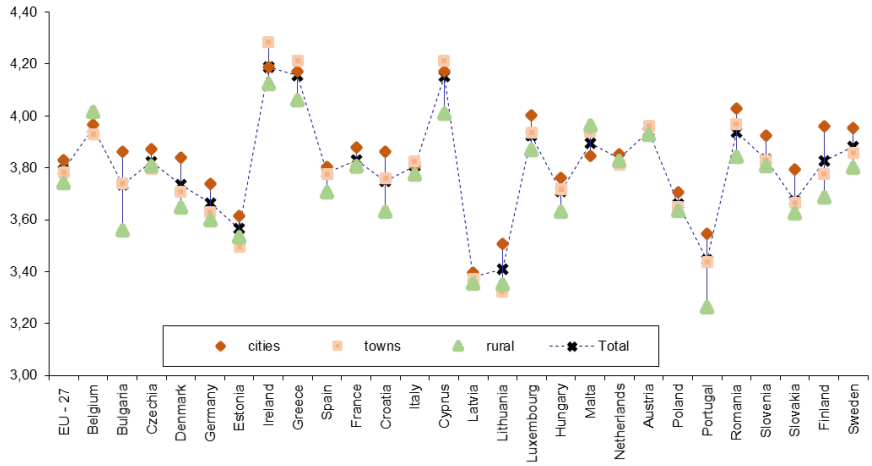

Figure 5. The average score of health status by degree of urbanization in EU member state in 2021
Source: Personal processing of the EUROSTAT available data

Thus, we can notice in Figure 5, in EU-27 the highest score is the one in “cities” (3.83 points), followed by “towns” (3.78 points), and the lowest score can be found in “rural” areas (3.74 points). Such ranking of the variables pertaining to urbanization shows the fact that the percentage of people who consider themselves to be healthy is higher in “cities” compared to the “rural” areas; on the average, we can conclude that, according to their own assessment, the health status of the population living in ”cities” is better than that of the ones living in ”rural” areas.

The highest scores of the health status by degree of urbanization are registered, as expected, in Ireland, as in this country we also have the highest total score. The results are as follows: for “towns and suburbs” 4.28 points, for “cities” 4.19 points and for “rural” 4.12 points. It should be noted that in the countries with the highest total average scores, Ireland, Greece and Cyprus, the ranking of the variables pertaining to urbanization is slightly different from the EU-27 average. Thus, on the first place, with the highest score are the “towns and suburbs” and not the “cities” as it is the case in the EU-27, on the second place are the “cities” and on the third place the “rural” (see Figure 5).

A first step in analyzing the connection between the degree of urbanization and the self-perceived health status for the population over the age of 18 was building a Crosstab, in SPSS, between the degree of urbanization and the hierarchy of the degree of urbanization according to the health status score (see Table 1 and Annex), and it points out the following aspects:

- In most EU member states (20 states) the variable “*cities*” is on the first place with the highest score of the health status, in 6 member states it is on the second place of the hierarchy, while in only one members state it has the lowest value, thus being on the third place.

- The variable “*towns and suburbs*” is on the first place of the hierarchy in 5 member states, while in most states (16 of them) it is on the second place, and in 6 states it is on the third place.

- The population in the “*rural*” areas in most EU member states (in 20 states) has the lowest score of the health status in the hierarchy of the degree of urbanization, thus being on the third place, while in only 2 states it is on the first place, and in 5 states it is on the second place.

Table 1. Crosstabulation between degree of urbanization and the hierarchy of the degree of urbanization according to the health status score; The report from SPSS.

the hierarchy of health status * degree of urbanization Crosstabulation

Count

		degree of urbanization			
		cities	towns	rural	Total
the hierarchy of health status	first place	20	5	2	27
	2nd place	6	16	5	27
	3rd place	1	6	20	27
Total		27	27	27	81

Source: Personal processing of the EUROSTAT available data

A first conclusion of the Crosstabulation analysis would be that there is a direct connection between the 2 variables considered - the degree of urbanization and the health status of the population aged over 18-, meaning that the higher the degree of urbanization, the better is the health status of the population.

Table 2. Correlation between degree of urbanization and the hierarchy of the degree of urbanization according to the health status score; The Kendall and Spearman coefficients - report form SPSS

Correlations

			degree of urbanization	the hierarchy of health status
Kendall's tau_b	degree of urbanization	Correlation Coefficient	1,000	,639**
		Sig. (2-tailed)	.	,000
		N	81	81
	the hierarchy of health status	Correlation Coefficient	,639**	1,000
		Sig. (2-tailed)	,000	.
		N	81	81
Spearman's rho	degree of urbanization	Correlation Coefficient	1,000	,685**
		Sig. (2-tailed)	.	,000
		N	81	81
	the hierarchy of health status	Correlation Coefficient	,685**	1,000
		Sig. (2-tailed)	,000	.
		N	81	81

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Personal processing of the EUROSTAT available data

A second step in analyzing, for a scientific substantiation of the correlation between the two variables, we determined the Kendall's and Spearman's rank correlation coefficients in SPSS (see Table 2). As a result of the analysis, we can state with 100% probability that there is quite a close direct connection between the degree of urbanization and the health status of the population, the degree of urbanization determining the health status of the population at a rate of 68.5% (Spearman coefficient).

The influence of gender on the health status

Using the same methodology as the one used in analyzing the influence of the degree of urbanization on the health status of the population, we determined the average score of the health status by gender (for "males" and "females" respectively) for each one of the EU member states.

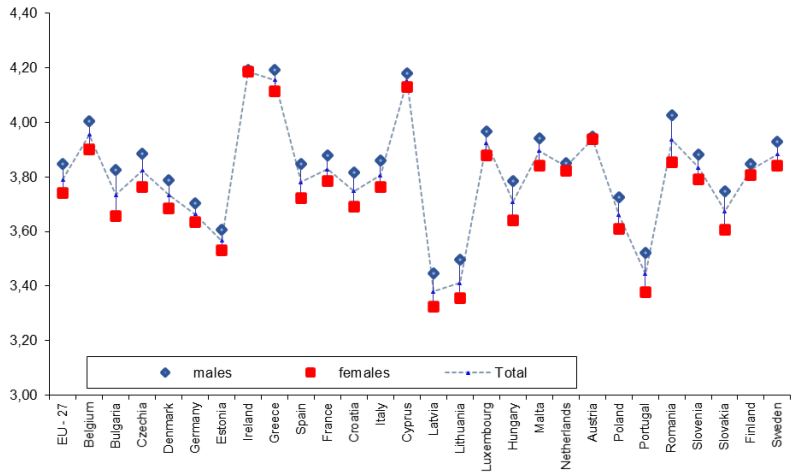

Figure 6. The average score of health status by gender in EU member state in 2021

Source: Personal processing of the EUROSTAT available data

On European Union level, the highest score can be found in the case of "males" (3.82 points), while in the case of "females" there is a lower score (3.74 points). Such a hierarchy of the gender variables shows us the fact that the percentage of the male population that consider themselves to be healthy is higher than the one of the females; on the average, we can state that the health status of the male population, according to their own statements, is better that the one of the females (see Figure 6).
As it can be seen in Figure 6 and in Table 3, in all the EU member states, the highest scores of the health status are in the case of the male population, thus maintaining, in territorial aspect, the conclusion drawn on the level of the whole European Union, that the health status of the male population, according to their own statements, is better that the one of the females.

Table 3. Crosstabulation between gender and the hierarchy of the sexes according to the health status score; The report from SPSS.

the hierarchy of health status * gender Crosstabulation

Count

		gender		
		males	females	Total
the hierarchy of health status	first place	27	0	27
	2nd place	0	27	27
Total		27	27	54

Source: Personal processing of the EUROSTAT available data

Even if the scores of the male population are higher than the ones of the female population, we should notice that, in territorial aspect, there are great differences between the scores of the "males" and those of the "females". Thus, in countries such as Bulgaria and Romania the differences between the scores of the "males" and those of the "females" are quite large (of 0.17 points), while in Ireland and Austria the difference is insignificant (of only 0.01 points).

Table 4. Correlation between gender and the hierarchy of the sexes according to the health status score; The Kendall and Spearman coefficients - report form SPSS

Correlations

			gender	the hierarchy of health status
Kendall's tau_b	gender	Correlation Coefficient	1,000	1,000**
		Sig. (2-tailed)	.	.
		N	54	54
	the hierarchy of health status	Correlation Coefficient	1,000**	1,000
		Sig. (2-tailed)	.	.
		N	54	54
Spearman's rho	gender	Correlation Coefficient	1,000	1,000**
		Sig. (2-tailed)	.	.
		N	54	54
	the hierarchy of health status	Correlation Coefficient	1,000**	1,000
		Sig. (2-tailed)	.	.
		N	54	54

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Personal processing of the EUROSTAT available data

Since in all the EU member states the score of the males is higher than the one of the females (see Table 3 – males are on the first place, while females are on the second place), the Kendall's and Spearman's rank correlation coefficients (see Table 4) determined in SPSS, confirm, with 100% probability, that there is a direct

determining connection between the gender variable and the health status of the population, the gender of the interviewee determining the health status declared at a rate of 100% (Spearman coefficient).

Conclusions

In 2021, most of the population aged over 18 in the EU (68.2%) declared that they are in good and very good health, from the perspective of the "gender" variable, 70.9% of the male population declared that the are in "good" and "very good" health, while the rate of the female population with the same answer is lower; according to the degree of urbanization, 70.1% of the population living in "cities" stated that their health is "good" and "very good", percentage which is higher that the one of the population living in "towns and suburbs" or ofthe ones in the "rural areas".

Determining the average score of he health status provides us with a synthetic view of the self-declared health status, and thus we can state that, on the average, the health status of the population aged over 18 in the European Union is almost "good", as the average score is close to 4 (3.8 points). The states with the highest scores, over 4, are Ireland, Greece and Cyprus, while the states with the lowest score (3.4 points) are Lithuania, Latvia and Portugal, fact which shows that in these states the health state of the population a little higher than "fair".

Analyzing the influence of the degree of urbanization and of gender on the self-perceived health status of the population, analysis performed by building a crosstab and determining the Kendall and Spearman coefficients, certifies the fact that there is a connection between these two variables and the health status. Thus, the population in "cities" tended to rate their health better than the population in the "rural" areas, the degree of urbanization determining the health status of the population at a rate of 68.5% , and males tended to rate their health better than females, the gender of the person determining the self-declared health status at a rate of 100%.

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Annex:

The hierarchy of health status by degree of urbanization and gender in EU member state in 2021

	Hierarchy of health status by				
	degree of urbanization			gender	
	cities	towns	rural	males	females
EU - 27	**1**	**2**	**3**	**1**	**2**
Belgium	2	3	1	1	2
Bulgaria	1	2	3	1	2
Czechia	1	3	2	1	2
Denmark	1	2	3	1	2
Germany	1	2	3	1	2
Estonia	1	3	2	1	2
Ireland	2	1	3	1	2
Greece	2	1	3	1	2
Spain	1	2	3	1	2
France	1	3	2	1	2
Croatia	1	2	3	1	2
Italy	2	1	3	1	2
Cyprus	2	1	3	1	2
Latvia	1	2	3	1	2
Lithuania	1	3	2	1	2
Luxembourg	1	2	3	1	2
Hungary	1	2	3	1	2
Malta	3	2	1	1	2
Netherlands	1	3	2	1	2
Austria	2	1	3	1	2
Poland	1	2	3	1	2
Portugal	1	2	3	1	2
Romania	1	2	3	1	2
Slovenia	1	2	3	1	2
Slovakia	1	2	3	1	2
Finland	1	2	3	1	2
Sweden	1	2	3	1	2

Source: Personal processing of the EUROSTAT available data