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## Report on the Self-perceived Health Condition of Minority Hungarians in Central and Eastern Europe

### Abstract

*In this article, we analyze the health condition of minority Hungarians in Romania, Slovakia, Serbia, and Ukraine using data from a transnational survey conducted in 2018-2019. The study's main focus is on assessing the subjective health status and behavior of adult Hungarians in each region, identifying key social determinants, and investigating whether minority Hungarians' health indicators are more similar to their respective countries or Hungary. Proxies for physical health, such as chronic illnesses, medication use, and hospitalizations, show marginal variations across regions. Age, financial status, living in rural areas, and living alone after marriage are linked to the onset of chronic diseases. Physical activity and healthy eating habits vary among regions, influenced by age, education, and marital status. Smoking rates range from 25% to 33%, with gender and age playing significant roles. Alcohol consumption patterns are affected by gender, education, income, and urban residence. In terms of mental health, we utilized the PHQ-8 depression scale, and have observed a higher prevalence of depression among minority Hungarians compared to their host countries and Hungary. Relationships and social interactions play vital roles in mental health outcomes. The subjective assessment of health reveals variations among regions, with social factors such as age, gender, education, and living arrangements influencing self-perceived health.*

**Keywords:** self-perceived health, socioeconomic status, health disparities, minority Hungarians, comparative research

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## INTRODUCTION

In this article, we aim to assess several self-reported aspects of the health condition of minority Hungarians living in Romania, Slovakia, Serbia, and Ukraine, using data from a transnational survey conducted in 2018-2019.<sup>4</sup> The purpose of this endeavor is multifold. Firstly, we aim to evaluate the subjective health status and health behavior of the adult Hungarian population in each of the mentioned regions. Secondly, we seek to identify the key social factors that influence self-perceived health status and health behavior, aligning our study with a series of recent analyses exploring this relationship in other countries (Bakhtiari et al 2018, Bakhtiari 2022). As we know, the *relative* social positions of the Hungarian minorities living outside Hungary have experienced a decline compared to the majority/titular ethnic groups over the past century (Bárdi et al., 2011). In this context, an important question is whether the minority experience, *ceteris paribus*, causes noticeable self-perceived health disadvantages, as has been shown in many cases for other ethnolinguistic minorities (Nielsen-Krasnik 2010; Kolarcik et al., 2009; Kocsis-Feith, 2022). Another question is to determine whether in terms of health behavior and health status, minority Hungarians are more similar to the averages of their respective countries or to the conditions in Hungary (Lampl, 2004; Bakos-Tamus, 2011; Pikó-Brassai, 2007; Pikó et al., 2013; Kovács, 2018). Therefore, where possible, we will compare our research results with national data from previous international studies (primarily the European Health Interview Survey).

To gain a deeper understanding of these questions, we use a wider range of explanatory variables. Along with traditional socio-economic indicators (gender, age, marital status, education, place of residence, income level), we also considered additional factors that might influence the success and well-being of individuals belonging to ethno-linguistic minorities. These factors include social relationships (emotional and functional), language proficiency (in the titular/official language of the country and English), and local-level ethno-demographic indicators (such as the number and proportion of Hungarians in the area).

Based on the above, our analysis covers the following main topics, and the structure of the study aligns accordingly. To operationalize self-perceived health, we utilized standardized measurement instruments from the EHIS (European Health Interview Survey). Regarding physical health, respondents were asked three questions: whether they had any chronic illnesses, whether they had taken any doctor-prescribed medication in the two weeks before the survey, and whether they had been hospitalized as inpatients in the past year. The questionnaire also

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4 The survey titled “Quality of Life and Well-being” was conducted as part of the project EFOP-1.12.1-17-2017-00003 “Macroregional Research in the Carpathian Basin to Strengthen Community Development and Social Responsibility,” under the guidance of the National Institute for Strategic Research in Budapest. The survey (referred to as RINS 2018 in this paper) received responses from a total of 1,100 individuals in Transylvania (Romania), 800 in Southern Slovakia, 800 in Vojvodina (Serbia), and 600 in Transcarpathia (Ukraine), all of whom identified themselves as Hungarians. The margin of measurement error for these samples was 3.1%, 3.5%, and 4%, respectively. The samples were designed to be representative of individuals (not households) by gender, age group, educational attainment, and the region of residence.

inquired about the use of health services (such as the last time they visited their GP and the frequency of check-ups) as well as various dimensions of preventive health behavior (exercise, consumption of fresh fruits and vegetables, smoking, and alcohol consumption). Additionally, the EHIS depression scale was employed to assess mental health complaints, and subjective perceptions of health were also explored. In the following chapters we will delve into each of these topics, paying special attention to their socio-economic and ethno-demographic determinants. The article will be rounded off with a summary and conclusions.

Similar analyses have been done in the past decades regarding minority Hungarians. However, these studies often focused on a single region (Bocskor, 2006; Kállay, 2013; 2017; Szabó, 2004; Lampl, 2004) or specific social groups like young people (Ádám et al., 2016), high school students (Szabó, 2004; Bakos-Tamus, 2011; Pikó et al., 2013), university students (Pikó-Brassai, 2007; Kovács, 2018), mothers (Sántha et al., 2020; Sántha, 2021) etc. Our analysis aims to complement these endeavors as it compares health indicators across adult minority samples and occasionally with those of the titular countries and Hungary.

## PHYSICAL HEALTH, HEALTH BEHAVIOR

In terms of *physical health*, similar proportions were reported across the four regions for having a long-standing or chronic illness (30-35%), having taken medication prescribed by a doctor in the two weeks prior to the survey (39-46%), and having had inpatient hospital care in the past year (8-14%). These differences between regions are not significant and fall within the margin of measurement error (Figure 1).

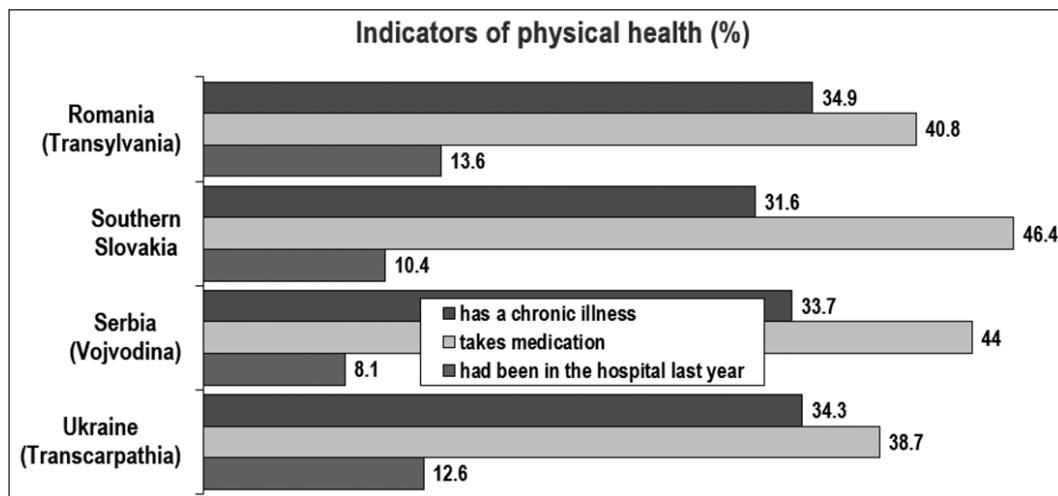


Figure 1.

The regions also exhibit similarities regarding the factors contributing to the higher frequency of these events/processes. The occurrence of *chronic diseases* shows a strong correlation

with age, exerting a much greater impact than any other factor (refer to Table 11 in the appendix). A significantly higher percentage of young people in Ukraine (15.3%) self-reported chronic diseases compared to their counterparts in Romania (6.2%), while the rates among the elderly are similar, standing at 55.1% in Ukraine and 59.4% in Romania. Apart from age, the prevalence of chronic diseases is also partly explained by the financial situation, though to a lesser extent. In Romania and Slovakia, they are significantly less frequent among individuals with higher household income per capita. Additionally, living in a rural area or living alone after marriage increases the incidence of chronic diseases, with both relationships being significant in Ukraine. Furthermore, there is a general negative association between better language skills and the incidence of chronic diseases. However, this relation is statistically significant only in Slovakia, where proficiency in the titular language may be linked to health benefits of this nature.

Similar socio-demographic patterns are also observed when explaining the prevalence of *medication use* (see Table 12 in the appendix). Again, the effect of age remains the strongest, with a significantly higher proportion of older people taking medication prescribed by a doctor compared to young and middle-aged individuals. In Romania and Ukraine, education also plays a role: those with primary education tend to take less medication, although this relationship is significant only in Romania.

The odds of *hospitalization* are the least predictable using the included factors, as its occurrence varies more significantly across different groups and regions compared to chronic diseases or medication use – these latter being better indicators of a long-term poor health situation (Table 13 in the appendix). Hospitalization is more common among men (although the relationship is significant only in Romania and Ukraine), middle-aged individuals in Slovakia, the elderly in Romania, those living alone after marriage in Slovakia and Ukraine and those with higher education in Ukraine. The lower explanatory power of the models and the variability of their can likely be attributed to the fact that hospitalization may act as a proxy for both the presence of more serious illnesses and social differences in access to more complex healthcare services.

While chronic illness, medication, and hospital visits clearly show poor or worsening health, visiting a GP or attending a check-up can have two meanings. It might indicate a health problem, but it could also show that someone is proactive in seeking professional help, even when they are healthy or have minor complaints, as part of their health awareness. Around two-thirds of Hungarians in neighboring countries visited their *general practitioner* in the year before the survey (Figure 2). The proportion was slightly lower in Ukraine (60%) and higher in Slovakia (77%). The percentage of those who had never visited a general practitioner ranged from 1% to 6% (including Slovakia and Ukraine). In all regions, women, the elderly (significant in Romania and Serbia), and those with higher education were significantly more likely to visit their GP. Generally, there is a negative relationship between language skills and visits to the doctor, except in Ukraine, where a good knowledge of Ukrainian increases the chances of visiting the GP annually.

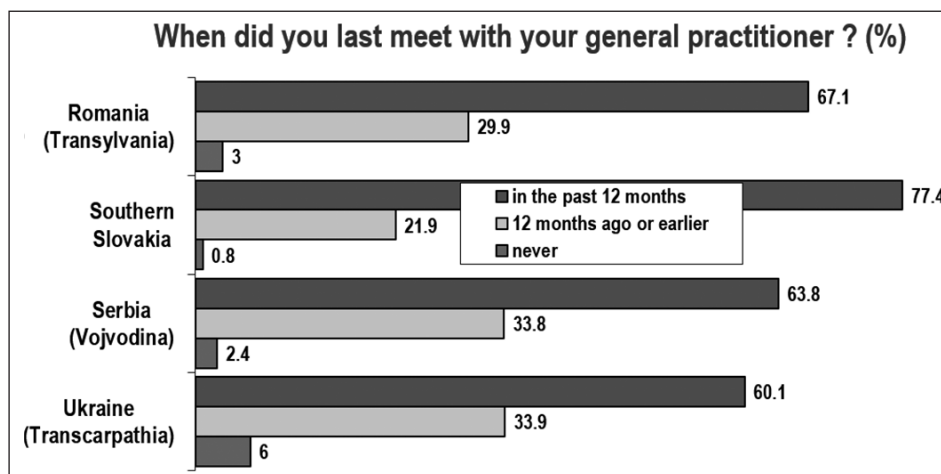


Figure 2.

Between 15 and 20 percent of minority Hungarians attend *screenings* every six months, while 42-63 percent undergo screening annually, with higher rates in Slovakia and Ukraine, and lower rates in Serbia and Romania. Approximately one-fifth of the Hungarian population in these regions has never had a screening test. The social determinants influencing this phenomenon are similar to those of doctor's visits, but fewer factors have a significant effect. In general, women, the elderly, and those with higher education tend to attend screenings more frequently. However, in Romania and Slovakia, the effect of language skills (especially English) surprisingly shows a negative correlation. It is possible that this association may be linked to a higher prevalence of self-diagnosis on the internet among those who speak languages other than Hungarian. While this study does not allow for further analysis and verification, considering that this effect is also present in doctor's visits, it may be worth investigating more closely in future research.

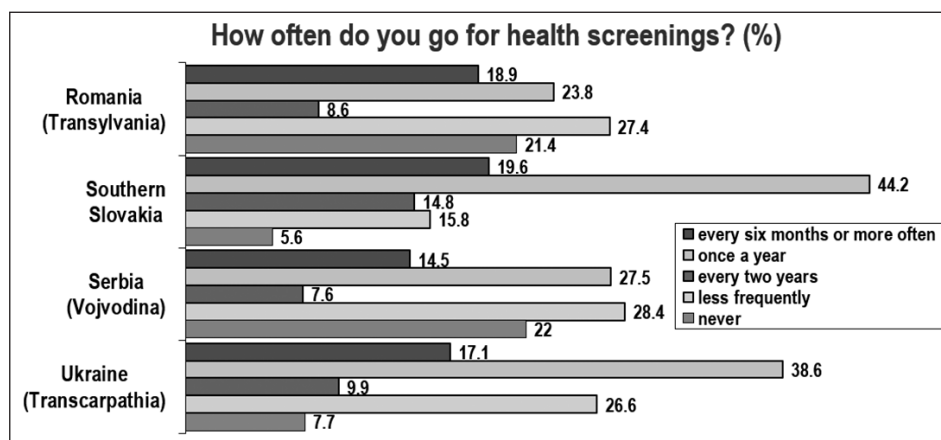


Figure 3.

In this research, we examined four behaviors that could indicate *health-conscious habits*. We inquired about exercise routines, frequency of consuming fruits and vegetables, smoking habits, and alcohol consumption. Among minority Hungarians, the percentage of those who have never exercised ranges from 34% (Serbia) to 53% (Romania), with a further one-fifth of the population taking part in less than weekly intense physical activity. According to these self-reports, Hungarians in Serbia have the highest proportion of people engaging in physical activity more than once a week (37%), while those in Slovakia have the lowest proportion (16%).

Table 1. *How often do you engage in sports activities such as swimming, running, cycling, playing football, doing aerobics, or other forms of physical exercise? (%)*

	Romania (N=1005)	Slovakia (N=799)	Serbia (N=795)	Ukraine (N=601)
never	53	46,5	34	42,2
less than once a week	19,5	22,4	18,1	22,7
once a week	9,9	15,3	10,6	10,3
several times a week	17,7	15,8	37,4	24,8
N	1005	799	795	601

Sporting habits exhibit higher social differentiation along socio-demographic factors than what we observed in the case of health status, screening tests, and doctor visits. In Table 16 (appendix), we estimate the likelihood of engaging in weekly sports within the usual social categories. According to this, in every region, there is a consistent trend that regular sports participation increases with education level – this relationship is particularly strong in Slovakia: a person with a university degree is nine times more likely to engage in intense physical activity compared to someone with only primary education. Age also plays a significant role, with 2-3 times fewer older individuals participating in sports compared to those under 35. In all regions, except for Slovakia, significantly fewer individuals who live alone after marriage (divorced or widowed) engage in physical activity. With slightly lower odds ratios, the same holds true for those who are married or in a long-term partnership. Generally, living in an urban area increases the likelihood of engaging in sports. The relationship with income is positive, though not statistically significant in any region; hence, a better financial situation alone does not significantly increase the likelihood of sports engagement. Contrary to common beliefs, regular intense physical activity is more characteristic of women, though this observation can be asserted with sufficient certainty only for those in Serbia.

There are large differences between regions in how often minority Hungarians *eat fruits and vegetables*. Interestingly, this phenomenon does not seem to be related to the economic development of the regions; at least, consuming vegetables or fruits every day is far less common among those in Slovakia (47%) compared to Ukraine (66%) or Romania (73%). While the phenomenon is far less socially differentiated than physical activity, there are significant differences between socio-demographic groups (Table 17 in the appendix). For example, in all regions, women are more likely to eat fruit or vegetables and this practice increases with age

and higher education (except in Ukraine), and better language skills also have a positive effect. Marital status also matters (with the exception of Serbia): those who are married or in a long-term partnership tend to consume vegetables and fruits more often. The effect of income and place of residence is not straightforward: in Romania, people with lower incomes eat fruit and vegetables less often, while in Slovakia, the opposite is observed. In Serbia, urban areas have higher rates of vegetable and fruit consumption, but in Slovakia and Ukraine, this habit is more prevalent in rural areas.

Table 2. *How often do you eat fruits or vegetables? (%)*

	<b>Romania (N=1009)</b>	<b>Slovakia (N=798)</b>	<b>Serbia (N=799)</b>	<b>Ukraine (N=604)</b>
twice or more a day	39,9	17,5	24,5	28,3
once a day	33,4	29,8	33,8	38
4-6 times a week	12,5	17,8	14,7	14,2
1-3 times a week	9,7	23,4	20,6	15,6
less than once a week	4,2	10,6	6	3,3
never	0,4	0,9	0,5	0,6

Regarding *addiction/substance use*, we first inquired about smoking habits. The differences between regions are not substantial: the lowest percentage of smokers is in Ukraine (25%) while the highest in Slovakia (33%). Approximately 58% of those in Romania and Ukraine, and half of those in Slovakia have never smoked. About 15-17% of respondents reported being former smokers, with the majority having quit more than a year before the survey (Table 3).

Compared to the previous indicators on health and health awareness, smoking appears to be less socially differentiated, with fewer general patterns common across all regions. Only gender and age consistently have an impact in all locations: women and older individuals are less affected. The gender differences are most significant in Ukraine, while the age disparities are most pronounced in Romania (refer to Table 18 in the appendix). In Romania, a young person is four times more likely to smoke than an older person, while in Ukraine, a man is six times more likely to smoke than a woman. A higher income does not confer any advantage regarding smoking habits in any region, and higher education is only a protective factor in Slovakia. In Serbia and Ukraine, the relationship with education is negative but not significant, while in Romania, the opposite holds true: more individuals with secondary and higher education smoke. The likelihood of smoking is higher in urban areas (Romania and Serbia) and among those living alone (Romania).



Table 3. Which statement best describes you in relation to smoking? (%)

	Romania (N=1009)	Slovakia (N=798)	Serbia (N=799)	Ukraine (N=604)
currently smoking	26,7	33,2	29,2	25
quit smoking less than a year ago	1,3	2	2,7	2,4
quit smoking more than a year ago	13,9	14,7	14,3	14,4
never smoked	58,1	50,1	53,8	58,2
N	998	791	792	594

According to self-reported data, 4-6% of minority Hungarians *consume alcohol* daily, and 34-34% weekly. The highest proportions are in Slovakia and the lowest in Romania, where 15, respectively 36 per cent of the population said they had never consumed alcohol or had only a few sips in their lifetime (Table 4). In all regions, men tend to drink more heavily, and living alone after marriage significantly increases the odds. However, Hungarians in Romania are an exception in the latter case, where the influence of age is positive: older individuals consume alcohol in greater proportions. Having a higher level of education offers relative protection against heavy alcohol consumption (the relationship is significant in Slovakia and Serbia), as does having a higher income (Slovakia and Ukraine), and living in urban areas (Slovakia).

Table 4. How often do you drink alcohol?

	Romania (N=1009)	Slovakia (N=798)	Serbia (N=799)	Ukraine (N=604)
every day or almost every day	5,5	6,3	4,2	5,8
5-6 days a week	1,7	1,6	1	1,5
3-4 days a week	5,3	7,6	5,7	3,5
1-2 days a week	11,4	19,4	16,7	13,6
2-3 days per month	8,7	12,1	9,6	15,7
once a month	7,8	12,9	13,6	13,1
less than once a month	21,3	21,7	15,7	22,7
not in the last 12 months, as I no longer drink alcohol	5,8	2,9	8	6,1
never, or in my whole life, only had a few sips	32,5	15,4	25,5	18,1
N	998	795	788	592

Finally, in relation to physical health, the results on *body mass index* (BMI) were discussed. The BMI index is widely used as a general indicator of whether a person's body weight is healthy in relation to their height. It is a priority area of public health research because obesity is a serious public health problem: significantly increases the risk of chronic diseases such as cardiovascular disease, type 2 diabetes and certain cancers, and can also be associated with



various psychological problems. In addition to the individual risks, the treatment of diseases related to obesity is costly, imposing a significant burden on health system resources. (Eurostat – Overweight and Obesity, 2021: 1).

Because BMI is a simple and widely used measure, it was included in various studies, including the European Health Interview Survey (EHIS). The EHIS's 3rd wave coincided with our research (2018-2020), and in 2021, EUROSTAT published essential national distributions,<sup>5</sup> allowing us to compare them with the data collected for minority Hungarians.

The most important indicator derived from BMI is the proportion of overweight and obese individuals in a population, classified based on BMI values above 25 and 30, respectively. In the EU, the percentage of overweight and obese women in the adult female population in 2019 was 45% and 16% (Figure 4). These figures closely match the national averages in Slovakia and Serbia. In Romania, the overweight rate is significantly higher than the EU average (51%), while the obese rate is notably lower (10%). In Hungary, both the overweight and obese rates are considerably higher than the EU average (52% and 23%, respectively). For men, the obese rate is the same as for women (16%), but the overweight rate is significantly higher (58%). Nevertheless, the differences between countries closely resemble those measured for women, with only slight percentage variations.

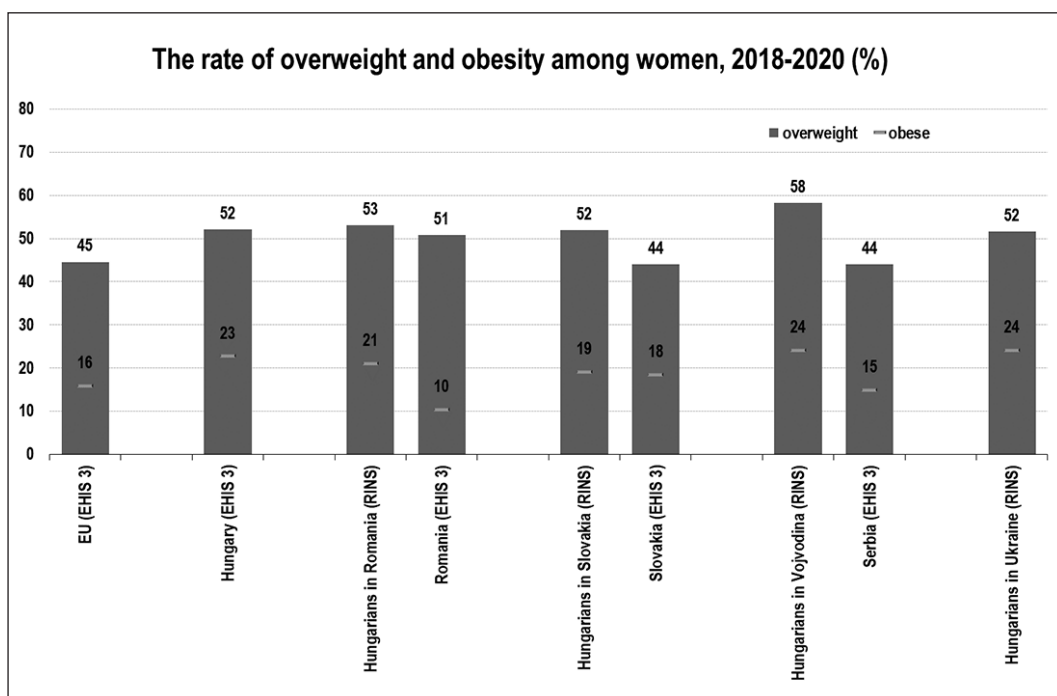


Figure 4.

<sup>5</sup> Source of EHIS data: [https://ec.europa.eu/eurostat/statistics-explained/images/5/59/Overweight\\_and\\_obesity\\_Health2019\\_-\\_update.xlsx](https://ec.europa.eu/eurostat/statistics-explained/images/5/59/Overweight_and_obesity_Health2019_-_update.xlsx), retrieved on 10 December 2021.

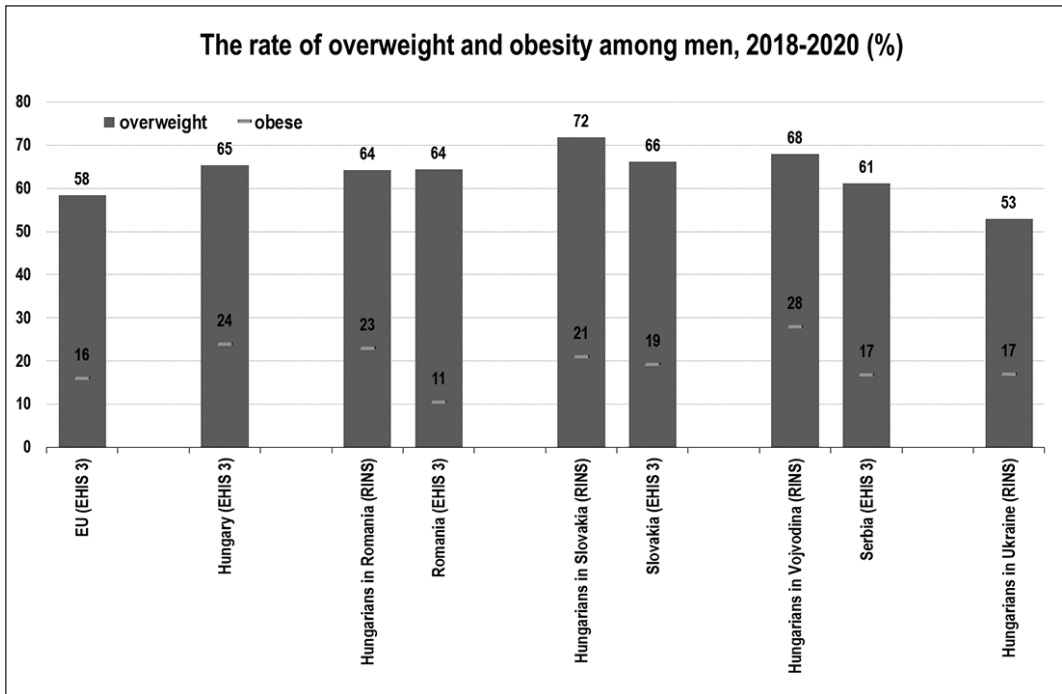


Figure 5.

In the case of minority Hungarians, the prevalence of overweight and obesity generally falls between the average for their own country and the Hungarian average (and even surpasses it for Hungarians in Serbia), but overall, they are closer to the Hungarian average.<sup>6</sup> An important question to explore in the future is whether the specific linguistic and cultural connections between Hungarians in Hungary and those in the neighboring countries play a role in shaping health awareness and behaviors that could also impact changes in body weight.

Body mass index increases with age and generally follows a linear growth pattern until the age of 60-65. After this point, it generally starts to decline due to higher age-specific mortality in overweight/obese individuals (Table 5). There are no significant differences in this regard between countries or among minority Hungarians from different regions. For instance, the proportion of overweight and obese Hungarians in the 18-24 age group in Romania was 25% and 10% respectively, whereas in the 65-75 age group, these proportions increased to 70% and 24% respectively. To fully understand whether these differences are due to cohort or generational effects, longitudinal data would be necessary. Among the regions included in our study, the highest rates of overweight (35% and 31%) were found among Hungarians in Slovakia and Hungary. As for obesity, the highest rates were observed among Hungarians in Hungary (11%) and Romania (10%).

<sup>6</sup> For a better illustration of the distances, see Figures 10 and 11 in the appendix.

Table 5. *Proportion of overweight and obese individuals by age group*

	18-24	25-34	35-44	45-54	55-64	65-74	75+	total
	<b>overweight</b>							
EU (EHIS 3)	25	39,3	49,7	57,1	62,7	65,7	59,3	51,3
Hungary (EHIS 3)	31,3	43,9	55,4	65,9	71,2	76,4	67,3	58,3
Romania (EHIS 3)	25,4	42,8	55,4	66,5	74,7	72,3	62,3	56,4
Hungarians in Romania (RINS)	29,5	38	57,6	66,4	72,1	70,3	61,3	58,4
Slovakia (EHIS 3)	23,8	42	58	64,4	72,4	77,3	73	57,8
Hungarians in Slovakia (RINS)	34,6	46	60,4	72,4	64,4	75	86	61,9
Serbia (EHIS 3)	24,1	42,1	51,8	58,8	65,9	65,1	53,8	52,4
Hungarians in Serbia (RINS)	31,3	52	59,5	62,2	81,7	70,5	72	62,9
Hungarians in Ukraine (RINS)	12,9	51	43,1	62,5	70,3	63,6	67,7	52,1
	<b>obese</b>							
EU (EHIS 3)	6	10,5	14,8	18,2	22,2	22,3	17,3	16
Hungary (EHIS 3)	10,5	14,5	21,1	27,5	34,6	33,6	24,6	23,9
Romania (EHIS 3)	1,4	4,8	6,9	12,5	19	16,5	13,9	10,5
Hungarians in Romania (RINS)	10,3	9,5	15,2	32,7	27	30,9	25,4	22,2
Slovakia (EHIS 3)	3,1	10,9	16,6	21,9	28,7	32,4	25,7	19,3
Hungarians in Slovakia (RINS)	6,5	12,8	17,5	25,2	19	23,2	46,4	20,1
Serbia (EHIS 3)	4	9,6	17,6	19,5	23,3	24	16,2	16,8
Hungarians in Serbia (RINS)	10	18,2	22,1	22,9	36,2	32,8	30,5	25,5
Hungarians in Ukraine (RINS)	2,9	16,3	15,4	27,4	31,9	18,2	48,4	20,6

As we have seen earlier, higher levels of education are generally associated with increased health awareness and preventive health behaviors. This would lead us to expect that the proportion of overweight individuals would be lower among the more educated. However, this association is only consistently seen among women in all regions (and in all EU Member States, as stated in *Overweight and Obesity, 2021: 1*), but not among men (Figures 6 and 7). Surprisingly, in the four countries where the EHIS survey was conducted (Hungary, Romania, Slovakia, and Serbia), we consistently found that men with lower education had the lowest rates of overweight. This gender difference can likely be explained by a higher proportion of men with lower education being engaged in physically demanding jobs that require more intensive physical activity.

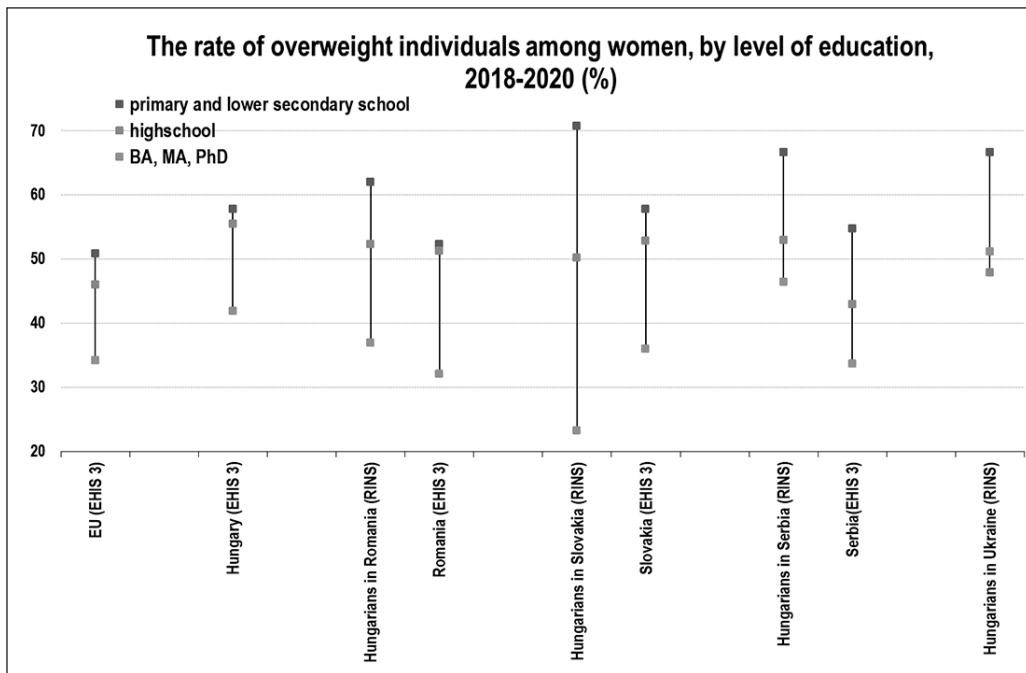


Figure 6.

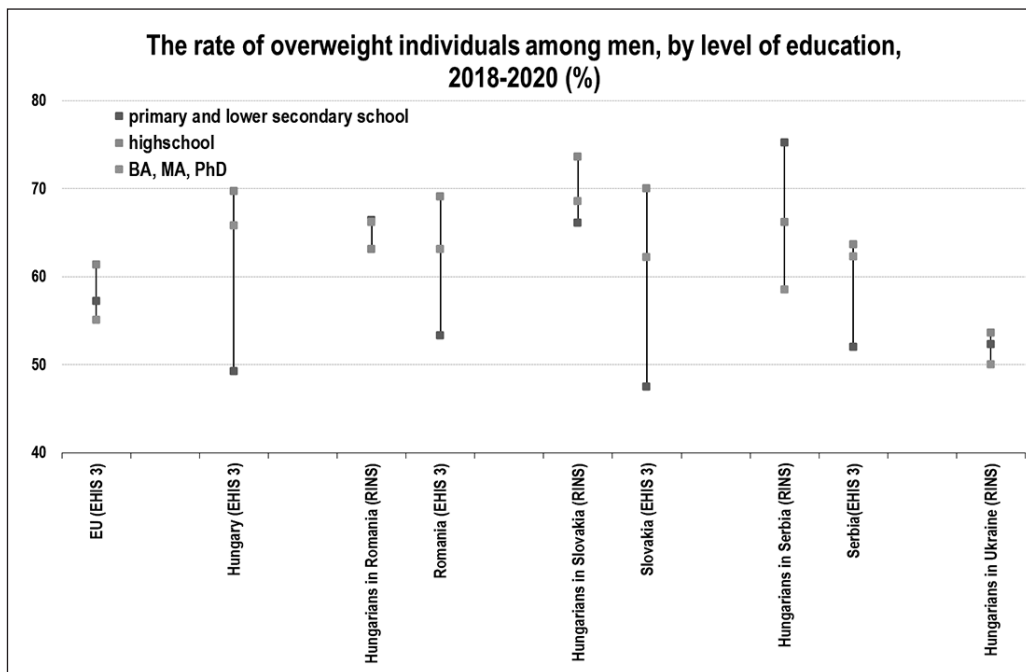


Figure 7.

When examining the effects of age and education together with other sociodemographic factors in joint explanatory models, we gain a clearer understanding. Because of gender-specific differences, separate models were constructed for women and men (see tables 20 and 21 in the appendix). For women, one consistent finding across all regions is that the proportion of overweight individuals increases with age. In other words, as women get older, their likelihood of being overweight is nearly three times higher in Romania and can go up to seven times higher in Serbia compared to younger women. The impact of higher education, presented earlier, is only strong enough in Slovakia to be able to say with sufficient certainty that education reduces the chances of being overweight. A noteworthy finding compared to our previous observations is that marital status is associated with body mass index (BMI). In Romania, for instance, a person with a family or in a long-term relationship – all other factors being equal – is three times more likely to be overweight compared to someone who is single. Moreover, those who live alone after marriage have an even higher likelihood of being overweight, with odds of more than four times. In Ukraine, the situation is quite similar, but the connection is even stronger. Additionally, the desirable weight is more prevalent among women whose families have a higher per capita income (in Serbia and Ukraine) and among those living in urban areas (in Romania). In Serbia, having a higher proportion of ethnic Serbian acquaintances and friends is associated with a lower likelihood of being overweight. While this alone is not conclusive evidence of ethno-specific overweight patterns, given the significant differences between the results obtained from the national (EHIS) and minority Hungarian sample of this study, it holds important hypothesis value that worths to be explored in the future.

For men, we see similar patterns as in case of women: age matters (though only significant in Romania and Serbia), as well as education and place of residence (Serbia). The impact of marital status is even more evident for men: except for Hungarians in Serbia, men with a family or having a partner are more likely to be overweight compared to those who are single. Lastly, having more direct connections with members of the majority ethnic group also plays a role: in Serbia, this significantly reduces, while in Ukraine, it increases the chances of being overweight.

We also looked into the social factors influencing obesity separately, but they didn't show significant differences compared to the trends we observed for overweight (Tables 22 and 23 in the appendix). Living in an urban area (for men in Slovakia and for women in Serbia) and having a lower income (for men in Serbia) reduce the likelihood of obesity. Additionally, in some regions, the extent and ethnically segmented nature of social connections also have a significant impact, although these effects do not consistently point in the same direction across regions. Therefore, a more detailed exploration of these factors would require further analysis.

## MENTAL HEALTH

To measure *mental health complaints* in our study, we used the Hungarian version of the Patient Health Questionnaire (PHQ-8) depression scale, which has been validated in several studies (Gilbody et al., 2007; Kósa-Bíró, 2018). This scale aligns with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and inquires about depression symptoms experienced

in the two weeks preceding the assessment: sadness or depression, reduced interest, difficulties with sleep (insomnia or hypersomnia), fatigue or loss of energy, changes in appetite (poor appetite or overeating), excessive guilt or numbness, reduced ability to think or concentrate, psychomotor agitation or “slowing down”. Each of these symptoms is individually rated on a scale from 0 to 3, based on their frequency during the reference period (0 – not at all, 1 – a few days, 2 – more than half of the two weeks, 3 – almost every day). By summing up the scores of the eight items, a total score of 10 or higher indicates the presence of depressive symptoms (prevalence): scores between 10 and 14 suggest “mild” depression, while scores above 14 indicate depression of “moderate to severe” intensity (Hapke et al., 2019: 58).

The PHQ-8 scale, originally used in clinical studies, has also proven effective in epidemiological surveys of broader populations (Kroenke et al., 2009). Among these, the most comprehensive is the EHIS (European Health Interview Survey), conducted in all EU member states, including Hungary, Romania, and Slovakia. The results of the depression scale are only available for the second wave of surveys,<sup>7</sup> conducted between 2013 and 2015. Several international comparative analyses have utilized these results, though the reported prevalence of depression varies slightly, likely due to different weighting methodologies. According to Hapke and colleagues (2019), the estimated proportion of people with symptoms of depression in the EU was 7.9% in 2019, with higher rates in Hungary (9.6%) and lower rates in Romania (5.1%). Slovakia had the lowest prevalence of depression among EU countries, at 3.4%. In contrast, a recent study by Arias-de la Torre and colleagues (2021) reported different figures, estimating the prevalence of depression at 8% in Hungary, 4.4% in Romania, and 2.6% in Slovakia (with only the Romanian data not significantly differing from the EU average). Although the differences between the results of the two surveys are not trivial, they are less relevant for our analysis because the values we measured among minority Hungarians are much higher: 11.8 percent in Romania, 13.1 percent in Slovakia, 13.7 percent in Serbia and 17.8 percent in Ukraine. Given these major differences, a valid concern arises about the potential presence of some form of systematic error in the data collection or processing methodology.

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<sup>7</sup> The third wave of the EHIS data collection took place between 2019-2020, on which EUROSTAT provided only some basic data, such as the BMI index discussed earlier

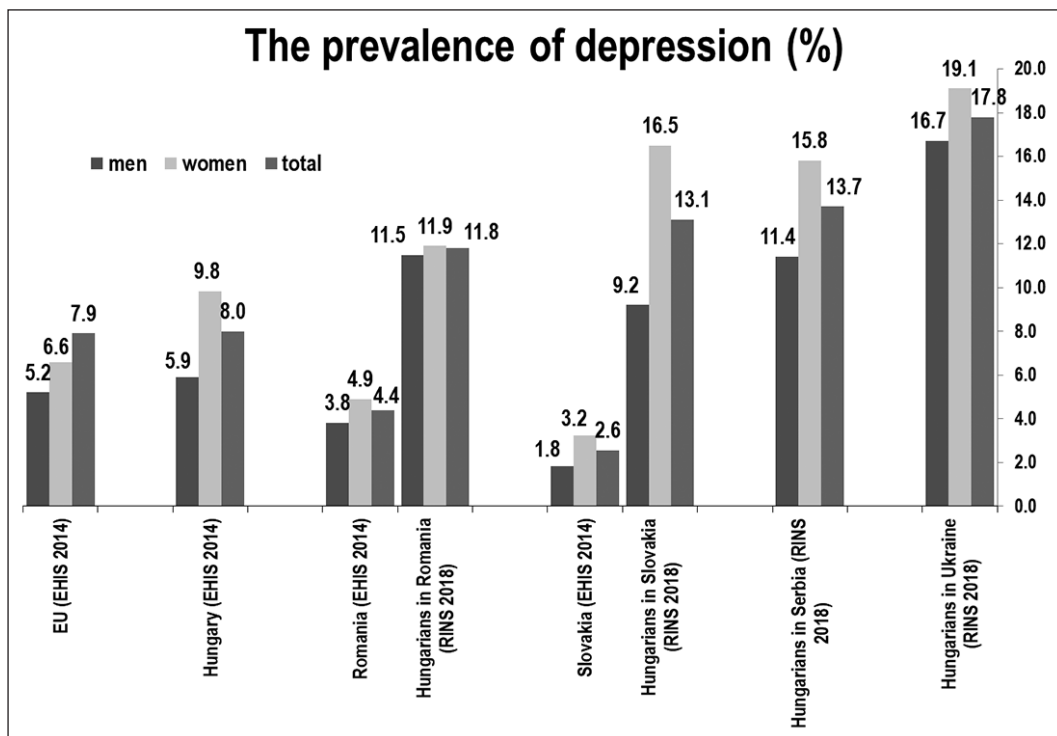


Figure 8.

However, even after repeated checks, we did not find such errors. Four alternative explanations for the difference seem plausible. The first reason is related to the time gap of nearly 5 years between EHIS-2 and the current survey. During this period, the prevalence of depression might have increased in all populations, potentially diminishing the observed differences with minority Hungarians. Furthermore, it is a common trend of increasing mental health literacy, with people becoming more informed about depression, recognizing its symptoms in themselves, and seeking help when needed. The results of the EHIS 3rd wave conducted in 2019-2020 will soon shed light on this matter. Another explanation is that the EHIS survey covered the population aged 15 and older, while the present survey focused on the 18+ population. This means that young individuals who are less susceptible to depression (see below) are slightly overrepresented in the EHIS study, which could lead to lower prevalence values. The third explanation concerns the missing responses, suggesting that those among the minority Hungarians who are less prone to depression might have skipped the question. However, the data does not support this claim. In fact, the groups with the highest non-response rates were those where depression is generally more prevalent: the elderly, individuals with lower education, and men (see the relevant regression tables below). This suggests that our study may actually underestimate, rather than overestimate, the proportion of people with depression. (At the same time, we have little reason to assume that among the elderly or those with lower education – especially those with good mental health – would have declined to respond). Finally,



the fourth alternative explanation pertains to the possibility of slight, but non-trivial, differences in the wording of the PHQ-8 questionnaire in different language versions. However, this issue is not exclusive to language minority surveys; it may also arise in international comparative studies. Nevertheless, when comparing the Hungarian and Romanian versions of the PHQ-8 question, no meaningful differences in interpretation were identified.

This suggests that the disparities in prevalence values between the majority (EHIS-2) and minority (RINS, 2018) samples can only be partially explained by the alternative factors mentioned earlier. It is more likely that these differences actually exist in reality, and that minority Hungarians show a higher prevalence of depressive symptoms compared to members of the titular ethnic groups. Moreover, these indicators are even worse for minority Hungarians when compared to Hungarians living in Hungary, suggesting that besides specific socialization patterns stemming from cultural closeness and language community, structural aspects of minority existence (such as possible disadvantages in chance opportunities, worse social positions, etc.) also might contribute to the higher reporting of depressive symptoms among the Hungarians outside Hungary. These hypotheses certainly warrant further investigation.

The comparison between regions also reveals that, while differences in mild symptoms of depression are apparent (a significant contrast between Romania – 7.7 percent, and Ukraine – 13.2 percent), the prevalence of moderate or more severe depression remains relatively consistent across all regions: approximately 4-5 percent of the Hungarian population living outside Hungary, in the neighboring countries, is affected.

Table 6. *Prevalence of depressive symptoms among minority Hungarians (%)*

	<b>Romania (N=906)</b>	<b>Slovakia (N=750)</b>	<b>Serbia (N=753)</b>	<b>Ukraine (N=552)</b>
no depression	88,2	86,9	86,3	82,1
mild depression	7,7	9	10,1	13,2
moderate or more severe depression	4,1	4,1	3,6	4,6
total	100	100	100	100

We also looked into which of the eight symptoms listed in the scale were most commonly reported (Table 7). It was found that people mostly complained about fatigue and low energy (with average scores ranging between 1 and 1.4 on the scale of 0 to 3). Sleep disturbances were also frequently mentioned, with scores around 0.8 to 1. On the other hand, psychosomatic complaints were the least common, with average scores ranging from 0.2 to 0.4 for difficulties in concentration, and from 0.1 to 0.3 for slowed or accelerated speech or movement.

Table 7. *Depressive symptoms among minority Hungarians*  
(Mean values on a scale from 0 to 3: 0 – never, 3 – every day)

	<b>Romania</b> (N=906)	<b>Slovakia</b> (N=750)	<b>Serbia</b> (N=753)	<b>Ukraine</b> (N=552)
Feeling tired or having little energy	1,02	1,18	1,28	1,40
Trouble falling or staying asleep, or sleeping too much	0,81	0,98	0,86	1,01
Feeling down, depressed, or hopeless	0,59	0,70	0,74	0,83
Little interest or pleasure in doing things	0,52	0,62	0,65	0,69
Poor appetite or overeating	0,34	0,50	0,46	0,60
Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0,33	0,51	0,40	0,52
Trouble concentrating on things, such as reading the newspaper or watching television	0,24	0,44	0,33	0,36
Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0,17	0,25	0,22	0,26

Finally, in relation to mental health, we examined the social groups most likely to experience symptoms of depression. Looking at the simple uncontrolled distributions, we observe that depression is more prevalent among individuals with lower levels of education and significantly less common among those with higher education levels. Additionally, in Romania and Ukraine, the prevalence of depression among individuals with secondary education is lower than the regional average. Given these findings, it is unlikely that mental health awareness, which tends to be associated with higher education, would generally contribute to an increase in depression among minority Hungarians. However, this trend is not yet apparent in Eastern European countries, including among minority Hungarians. In regions like Romania, Serbia, and Ukraine, it is the elderly who reported significantly higher rates of depressive symptoms compared to the regional average (in Slovakia, the differences by age are not significant). The general European trend that depression is more common among women is not confirmed everywhere: this gender difference is significant only in Slovakia and Serbia. Similar variations were observed across regions when considering the effects of marital status. Being single after marriage (due to divorce, widowhood, or separation from a spouse) is associated with significant psychological burdens everywhere. By economic activity, the prevalence of depression is generally lower among employed people and higher among the retired. As almost all retired people fall into the elderly category (55+), it is difficult to determine whether the higher prevalence is related to advanced age (with its accompanying health and lifestyle issues) or if it is also influenced by the fact that they are no longer working and are not engaged in remunerated

economic activities.<sup>8</sup> By place of residence, we only observed significantly higher prevalence rates among those in Ukraine, where individuals living in villages reported more depressive symptoms. At first glance, language proficiency also plays a role: the prevalence is lower among those who speak English well in every region, and poorer knowledge of the majority/titular language is associated with higher rates of depression in Romania and Serbia. Perhaps one of the most important observations is that symptoms are more prevalent among those who socialize less, but it also matters whether they have friends, relatives or acquaintances to whom they can turn for financial assistance (Romania, Serbia) or ask for help in official matters (Romania). Surprisingly, however, the prevalence of depression is not lower among those who have confidants with whom they can discuss their personal problems, and a better household income situation only reduces the prevalence in Romania, not in the other regions.

Table 8. *Prevalence of depression (odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,182	0,296	1,04	1,502
middle aged (35-54 years)	1,969	0,389*	0,999	3,231*
elderly (55+)	1,914	0,455	2,075	2,432
upper secondary education (high school)	0,219‡	0,547	1,031	0,179‡
tertiary education	0,321*	0,393	0,967	0,104†
married or in a long-term relationship	0,381*	0,774	2,012	0,294*
living alone after marriage (divorced, widowed)	0,573	0,361	1,71	1,765
household per capita income	0,999	1	1,002	1,006*
urban residence	0,666	0,868	0,896	0,513
proportion of Hungarians in the municipality	0,994	1	1	1,004
number of Hungarians in the municipality	1†	1	1	1
number of trust relationships	1,555	0,884	1,321	2,485*
number of recreational contacts	0,548	0,321†	0,423†	0,294†
number of functional relationship (money lending)	0,492*	1,351	0,68	0,532
number of functional relationship (handling official matters)	0,512*	1,307	1,113	1,042
has relationship with members of the majority/titular ethnic group	1,306	0,405*	2,619†	0,894
speaks the titular language well	0,613	2,044*	0,485*	1,764
speaks English well	0,722	0,372	0,956	2,526
Nagelkerke R <sup>2</sup>	0,247	0,150	0,108	0,351
N	577	511	524	346

8 We cannot answer these questions in our regression models below: due to a collinearity problem, the economic activity variable is omitted from the model.

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

We conducted a multivariate logistic regression with the listed variables, where we included the prevalence of depression as the dependent variable and the usual socio-demographic variables as independent variables (Table 8). According to this model, gender differences do not matter anywhere; the apparent correlation is likely explained by underlying factors that show a connection both with gender and the occurrence of depression. One such factor could be the more frequent social interactions among women, which apparently reduces the likelihood of depression. Indeed, among those who have regular companions to go out for entertainment, clubbing, hiking etc. have a significantly lower prevalence of depression. However, there is an exception among Hungarians in Romania, where functional relationships (such as assistance with lending money and handling official matters) seem to be beneficial in this regard. Therefore, it has been clearly confirmed that in large-scale studies of mental health, it is important to collect data on various aspects of social cohesion (Kósa-Bíró, 2018: 108); otherwise, the real relationships may remain unclear. The effect of age is not as straightforward as initially appeared. Although in Romania, Slovakia, and Serbia, an elderly person is twice as likely to experience depressive symptoms compared to a young person, these odds ratios are not statistically significant.<sup>9</sup> In comparison, in Slovakia it seems that middle-aged individuals are less likely to exhibit depressive symptoms, while in Ukraine, they are more likely. The model's fit is strongest in Ukraine, indicating that, in this region, the occurrence of depression can be best predicted based on the considered factors.

## SELF-PERCEIVED HEALTH

Finally, we have collected data on the *overall health assessments* of minority Hungarians. This was measured on both a five-point scale (as used by EHIS) and a ten-point scale.<sup>10</sup> According to EHIS standards, the health situation of the minority Hungarians is the worst in Ukraine, where just over one third of Hungarians rate their health situation as good or very good, compared to about half of adult Hungarians in the other regions. Specifically, 9% of Hungarians in Slovakia, 13% in Serbia, 14% in Romania, and 17% in Ukraine reported a particularly poor

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9 The smaller number of significant relationships in the regression table could be attributed to the fact that these models have a lower number of cases (only those who answered all questions could be included), leading to an increased chance of measurement error and wider confidence intervals.

10 The question used in the EHIS/EVS/ESS survey was: "How is your health in general?", and one could choose between the alternatives "very good", "good", "satisfactory", "poor" and "very poor". The other question was "How satisfied are you with your health?" where 0 was coded as "not at all satisfied" and 10 as "very satisfied". The correlation value between the two questions ranged from 0.644 (Southern Slovakia) to 0.671 (Romania).

or very poor health status (Figure 9). On the 10-point scale, Hungarians in Romania expressed the highest satisfaction with their health (with an average score of 7.18), while those in Ukraine were the least satisfied (with an average score of 6.26).

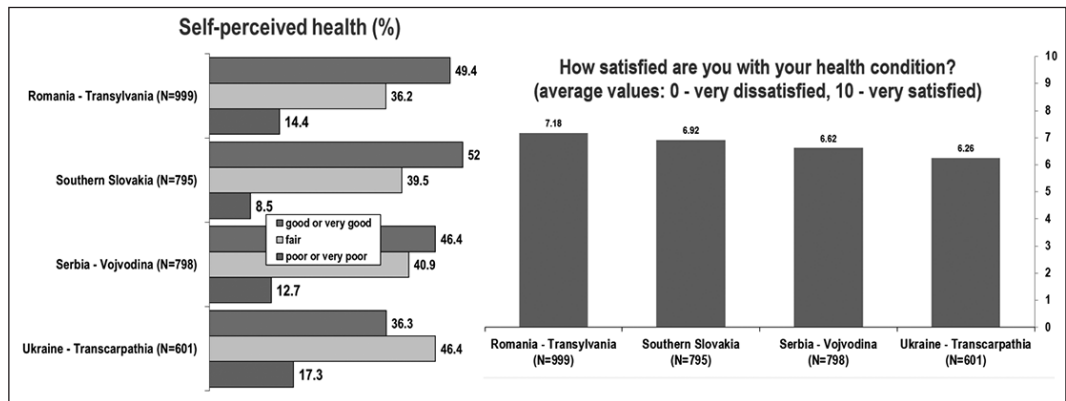


Figure 9. *Self-perceived health*

Social differences play a significant role in the assessment of health status (Table 9). The elderly (in Ukraine, Romania, and Serbia), men (in Slovakia and Ukraine), individuals with lower educational attainment (in Romania), and those living alone after marriage (in Ukraine) reported less frequently that their health status was good or satisfactory. More important than these expected correlations is the observation that social relationships are not indifferent when it comes to good health: in all regions except Ukraine, there are significant health benefits of having more friends, acquaintances and relatives to rely on. With the exception of Romania, being proficient in the language of the majority is also associated with increased satisfaction with the health situation (this positive association is significant only in Serbia). Using linear regression, we conducted the analysis on the ten-point scale as well, which yielded similar results (Table 26 in the appendix), but further highlighted the prominent role of age and, for the ones living in Slovakia, the positive effect of income. In fact, higher income positively correlates with health status in all regions, but these relationships are not significant.

Table 9. *Determinants of good or satisfactory health conditions (odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
middle aged (35-54 years)	1,018	0,458*	0,878	0,512*
elderly (55+)	0,551	1,491	0,245	0,397
upper secondary education (high school)	0,110*	0,979	0,034*	0,173†
tertiary education	2,118*	1,448	0,981	1,713
married or in a long-term relationship	6,586*	1,716	2,587	1,414
living alone after marriage (divorced, widowed)	1,259	0,698	1,085	0,289

	Romania	Slovakia	Serbia	Ukraine
household per capita income	0,776	0,445	1,143	0,132*
urban residence	1,001	1,001	1,001	1,003
proportion of Hungarians in the municipality	1,682	0,471	1,787	5,102
number of Hungarians in the municipality	1,003	0,980	1,005	1,033
middle aged (35-54 years)	1,000	1,000	1,000	1,000
number of relationships	1,189*	1,307*	1,187*	0,955
has relationship with members of the majority/ titular ethnic group	1,035	0,628	0,94	0,962
speaks the titular language well	0,624	1,533	2,483*	1,091
speaks English well	n.a.	1,239	0,236	n.a.
Nagelkerke R <sup>2</sup>	0,277	0,122	0,259	0,329
N	611	541	553	363

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: female, young (18-34 years), primary education, unmarried (living alone), economically active, living in a village, no majority contacts, not proficient in the titular language or English.

Finally, we have also examined which of the previous indicators of health status and health-conscious behavior has a greater influence when it comes to subjective perceptions of health (Table 27 in the appendix). The findings reveal that the strongest association is observed almost everywhere with depression: a 5-point increase in the depression scale raises the likelihood of someone rating their health as satisfactory or good by at least 50%. Another notable predictor is medication use, followed surprisingly by engagement in sports, which has a greater impact than hospitalization or the occurrence of chronic diseases. In Romania, excessive alcohol consumption worsens, while regular consumption of vegetables and fruits improves health perceptions. These associations suggest that besides the presence of illnesses, lifestyle habits also significantly influence how people perceive their own health.<sup>11</sup>

Table 10. *Good or satisfactory health status according to health indicators (odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
BMI index	0,987	0,976	0,938	,967
alcohol consumption scale	0,770‡	0,951	0,945	1,020
currently not smoking	1,473	1,491	1,585	1,225
engages in sports or physical activity at least once a week	3,906‡	2,086*	2,459†	2,811†

<sup>11</sup> In this context, it is important to point to the possibility of reverse causality, as it is equally plausible that depression could be a consequence of poor health. Similarly, people may engage in sports because they perceive themselves to be healthy and fit.

	Romania	Slovakia	Serbia	Ukraine
eats fruit and vegetables daily	2,765†	0,884	0,735	0,851
was hospitalized in the last year	0,198‡	0,480*	0,576	0,200‡
has a chronic illness	0,568	0,629	0,198‡	0,684
is taking any medications	,150‡	0,207†	0,527	0,274†
attends screening tests at least every two years	0,605	1,052	0,997	0,834
has seen their GP in the last year	1,204	0,902	0,714	0,672
depression-score	0,832‡	0,870‡	0,830‡	0,840‡
Nagelkerke R <sup>2</sup>	0,559	0,286	0,441	0,436
N	809	657	690	513

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: currently not smoking, exercising less than weekly, not eating vegetables daily, no chronic diseases, no medication in the last two weeks, no check-ups in the last two years, no appointments with GP in the last one year.

## SUMMARY AND CONCLUSIONS

In this article we focused on the assessment of the health status of minority Hungarians in Romania (Transylvania), Slovakia (Southern Slovakia), Serbia (Vojvodina) and Ukraine (Transcarpathia).

As for *physical health*, similar proportions were reported across regions regarding individuals suffering from long-standing or chronic illnesses (30-35%), taking doctor-prescribed medication in the two weeks prior to the survey (39-46%), or receiving inpatient hospital care in the past year (8-14%). The regions also show similarities in terms of the factors that explain the higher incidence of these events or processes. The onset of chronic diseases is most strongly associated with age but is also linked to poorer financial status, living in rural areas, and living alone after marriage. While medication use and hospitalization may both indicate the presence of a more serious illness, they also suggest access to preventive or more complex healthcare. The same applies to doctor visits and the use of screening tests. In terms of health awareness and preventive behavior, we asked about the frequency of physical activity, healthy eating habits, and the occurrence of substance use or addiction. Among minority Hungarians, the proportion of those who have never engaged in exercise varies between 34% (in Serbia) and 53% (in Romania), with an additional one-fifth of the population doing exercise less than once in a week. In each region, regular physical activity tends to be more prevalent among those with higher education and decreases as people age. In general, living in an urban area also increases the likelihood of doing sports, with a positive correlation with income, although this is not significant in any of the regions. Fruit and vegetable consumption is more common among women and this habit increases with age and higher education levels, except for Ukraine. Marital status is also important, individuals in a long-term partnership/marriage tend to consume fruits and vegetables more frequently. Among minority Hungarians, the smoking rate ranges from 25% (in Ukraine) to 33% (in Slovakia). This habit is less specific to certain groups, with



only gender and age showing clear effects: women and older individuals are less affected in all regions. Higher income does not seem to provide any advantage in terms of smoking prevalence, and higher educational attainment appears to be a protective factor only in Slovakia. Based on self-reported data, approximately 4-6% of minority Hungarians consume alcohol daily, and about 34-34% consume it on a weekly basis. The highest proportion is observed in Slovakia, the lowest in Romania. Men tend to have higher rates of more intensive alcohol consumption across all regions, and living alone after marriage significantly increases the odds. In some of the regions, having a higher education, higher income, and living in urban areas seem to provide some protection against more intensive alcohol consumption.

Regarding physical health, we finally analyzed the results related to body mass index (BMI). BMI is widely studied in international research and is a significant area of interest in public health surveys, as obesity poses a major health concern, significantly increasing the risk of chronic diseases and certain types of cancer. We compared our data with the results from the third wave of the EHIS survey, conducted in 2018-19. The findings indicate that among minority Hungarians, the occurrence of overweight and obesity generally falls between the average of their own country and the average of Hungary (in the case of Hungarians in Serbia, it even exceeds the Hungarian average), but overall, they are closer to the conditions observed in Hungary. An important question to explore in the future is the potential role of linguistic and cultural connections between Hungarians in Hungary and those in neighboring countries in shaping health awareness and behaviors that could also influence changes in body weight. In terms of social differences, we find that for women in all regions, the likelihood of being overweight increases with age. However, significant differences based on educational attainment are only observed among Hungarian women in Slovakia, where higher education reduces the chances of being overweight. Moreover, women from families with higher per capita income (in Serbia and Ukraine) and those living in urban areas (in Romania) are more likely to maintain a desirable body weight. Similar patterns emerge for men, where age (in Romania and Serbia), educational attainment, and place of residence (in Serbia) play a role in overweight tendencies. The impact of relationship status is even more pronounced for men compared to women: except in Serbia, the likelihood of being overweight is consistently higher among those in long-term relationship/marriage.

To measure *mental health complaints*, we used the Hungarian version of the Patient Health Questionnaire (PHQ-8) depression scale, which has been validated in several previous international studies. Comparison with national data shows that the prevalence of depression among minority Hungarians is significantly higher than both in the country where they live and the national average in Hungary. These findings indicate that structural aspects of minority existence (such as potential disadvantages in opportunities, lower social positions) may play a role in the increased reporting of depressive symptoms among Hungarians living outside Hungary. Certainly, these assumptions need to be further explored and studied. One of the key findings about the social factors influencing depression is the importance of relationships: in all regions, depressive symptoms are more common among people with fewer social interactions. Additionally, having someone to turn to for financial assistance (in Romania and Serbia) or for help with official matters (in Romania) also has a protective effect.

Regarding the health status of minority Hungarians, lastly, we collected data on the *overall subjective assessment of their health*. According to EHIS standards, the perception of health is worst in Ukraine, where barely over a third of the population rates it as good or very good, while in the other regions, this percentage is about half among adult Hungarians. Social differences play a significant role in the assessment of health status. Older individuals, men, those with lower education, and those living alone after marriage less frequently reported having good or satisfactory health. What's even more important than these expected correlations is the observation that social relationships are not indifferent to good health: in all regions except Ukraine, there are significant health benefits of having more friends, acquaintances and relatives to rely on. It was also revealed that self-assessment of health status is most strongly associated with symptoms of depression. Furthermore, apart from the presence of diseases, lifestyle habits also play a significant role in shaping people's perception of their own health.

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APPENDIX

Table 11. *Do you have any longstanding illness or (longstanding) health problem? (By longstanding I mean illnesses or health problems which have lasted, or are expected to last, for 6 months or more)? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,280	1,353	0,861	1,021
middle aged (35-54 years)	6,618‡	3,522‡	2,069*	2,618†
elderly (55+)	36,349‡	6,879‡	8,674‡	5,334‡
upper secondary education (high school)	1,248	0,947	0,769	1,157
tertiary education	0,96	1,156	1,095	1,138
married or in a long-term relationship	0,719	1,264	1,487	1,482
living alone after marriage (divorced, widowed)	0,91	1,502	1,271	2,717*
household per capita income	0,998*	0,999†	1	0,999
urban residence	0,641	0,387	0,655	0,287*
proportion of Hungarians in the municipality	0,999	0,986†	0,996	0,984*
number of Hungarians in the municipality	1	1*	1	1
has relationship with members of the majority/ titular ethnic group	0,847	1,631	0,953	1,484
speaks the titular language well	0,779	0,407‡	0,986	1,064
speaks English well	0,494	0,873	0,894	0,779
Nagelkerke R <sup>2</sup>	0,363	0,239	0,247	0,208
N	629	579	563	388

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 12. *During the past two weeks, have you used any medicines that were prescribed for you by a doctor? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,034	1,16	0,778	0,597*
middle aged (35-54 years)	1,586	1,534	2,323*	1,646
elderly (55+)	12,372‡	5,953‡	9,366‡	4,525‡
upper secondary education (high school)	1,731*	0,669	0,733	1,273
tertiary education	1,581*	0,578	0,932	1,924
married or in a long-term relationship	0,821	1,43	1,537	1,443
living alone after marriage (divorced, widowed)	0,755	1,469	1,267	1,598
household per capita income	0,998	1	1	1,001

	Romania	Slovakia	Serbia	Ukraine
urban residence	0,924	1,335	0,759	0,596
proportion of Hungarians in the municipality	0,994	1,003	0,998	0,998
number of Hungarians in the municipality	1	1	1	1
has relationship with members of the majority/ titular ethnic group	0,934	1,527	0,766	0,956
speaks the titular language well	0,838	0,515†	0,857	1,095
speaks English well	0,565	0,895	0,469	0,264
Nagelkerke R <sup>2</sup>	0,291	0,254	0,297	0,162
N	633	579	568	395

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 13. *During the past 12 months, have you been in hospital as an inpatient, that is over-night or longer? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,842*	1,276	1,061	2,438*
middle aged (35-54 years)	0,48	0,129†	0,653	1,905
elderly (55+)	2,442*	1,172	1,216	1,461
upper secondary education (high school)	0,965	2,241	0,737	5,141*
tertiary education	0,724	0,973	2,383	9,544†
married or in a long-term relationship	1,507	5,327*	2,135	3,549
living alone after marriage (divorced, widowed)	1,284	5,701*	3,437	8,151*
household per capita income	0,999	1,001	0,998	0,996
urban residence	0,499	0,507	2,178	0,834
proportion of Hungarians in the municipality	1,002	1,012	1,008	0,981
number of Hungarians in the municipality	1	1*	1	1
has relationship with members of the majority/ titular ethnic group	0,944	1,01	0,592	0,539
speaks the titular language well	0,859	1,13	1,562	2,063
speaks English well	1,139	0,226	0,523	0
Nagelkerke R <sup>2</sup>	0,125	0,198	0,092	0,339
N	633	579	568	395

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 14. *During the past 12 months, have you consulted a GP (general practitioner) or family doctor on your own behalf? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	0,597*	0,627*	0,536†	0,479†
middle aged (35-54 years)	0,730	0,616	0,947	0,751
elderly (55+)	2,441*	1,274	3,656‡	0,916
upper secondary education (high school)	2,113*	1,296	1,278	1,328
tertiary education	2,257*	1,265	1,652	0,954
married or in a long-term relationship	1,568	1,430	1,330	1,663
living alone after marriage (divorced, widowed)	1,920	1,456	1,457	2,078
household per capita income	0,999	1,000	1,000	1,000
urban residence	0,938	1,148	0,993	0,383*
proportion of Hungarians in the municipality	0,998	1,007	0,997	0,993
number of Hungarians in the municipality	1,000	1,000	1,000	1,000
has relationship with members of the majority/ titular ethnic group	0,946	1,560	0,659	1,044
speaks the titular language well	0,762	0,596*	0,954	1,800*
speaks English well	0,424*	0,584	0,870	0,318
Nagelkerke R <sup>2</sup>	0,152	0,084	0,182	0,102
N	460	578	568	390

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 15. *Have you had any health screening tests in the past two years? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	0,927	0,817	0,634	0,394‡
elderly (55+)	3,398‡	1,647	4,335‡	1,219
upper secondary education (high school)	2,838†	1,593	,978	1,611
tertiary education	1,910	1,859	2,198	0,661
married or in a long-term relationship	1,087	1,968	2,339	1,397
living alone after marriage (divorced, widowed)	1,430	4,158	2,166	2,110
household per capita income	0,999	0,999	1,000	1,000
urban residence	1,002	0,599	0,781	0,477
proportion of Hungarians in the municipality	0,997	0,998	1,003	0,996



	Romania	Slovakia	Serbia	Ukraine
number of Hungarians in the municipality	1,000	1,000	1,000‡	1,000
has relationship with members of the majority/ titular ethnic group	0,638	1,642	0,587	1,214
speaks the titular language well	0,579	0,584	0,830	1,460
speaks English well	0,175*	0,108†	4,151	
Nagelkerke R <sup>2</sup>	0,159	0,150	0,203	0,108
N	399	346	381	226

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 16. *Have you engaged in sports or physical activity at least once a week? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	0,986	0,916	0,531†	0,855
middle aged (35-54 years)	0,490†	0,331‡	0,715	1,348
elderly (55+)	0,287‡	0,342†	0,551	0,640
upper secondary education (high school)	2,220†	3,684‡	1,130	1,738
tertiary education	3,887‡	9,386‡	2,151*	2,198
married or in a long-term relationship	0,537*	0,819	0,356†	0,418
living alone after marriage (divorced, widowed)	0,386*	0,826	0,235†	0,164‡
household per capita income	1,001	1,000	1,000	1,002
urban residence	1,915*	3,383†	1,257	0,567
proportion of Hungarians in the municipality	1,008*	1,018†	1,008	0,994
number of Hungarians in the municipality	1,000	1,000†	1,000	1,000
has relationship with members of the majority/ titular ethnic group	1,784*	0,969	1,034	1,302
speaks the titular language well	1,211	1,825†	1,317	0,598
speaks English well	1,684	3,733†	0,891	2,044
Nagelkerke R <sup>2</sup>	0,310	0,324	0,135	0,185
N	631	578	565	394

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English



Table 17. *Do you consume vegetables or fruits daily? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	0,712	0,543†	0,491‡	0,700
elderly (55+)	1,207	1,742*	1,500	0,768
upper secondary education (high school)	2,240*	3,260‡	4,276‡	0,646
tertiary education	1,331	0,759	1,235	0,955
married or in a long-term relationship	2,162*	1,080	2,077*	0,815
living alone after marriage (divorced, widowed)	1,176	1,266	0,565	2,314†
household per capita income	0,587	0,841	0,901	1,506
urban residence	0,998†	1,001†	0,999	1,001
proportion of Hungarians in the municipality	1,027	0,442*	1,657*	0,353*
number of Hungarians in the municipality	1,002*	0,985†	1,017‡	0,997
has relationship with members of the majority/ titular ethnic group	1,000	1,000	1,000	1,000
speaks the titular language well	0,810	0,899	0,847	1,407
speaks English well	1,762*	1,157	1,758*	1,550
Nagelkerke R <sup>2</sup>	1,203	2,072*	2,475*	0,968
N	0,085	0,130	0,164	0,092

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 18. *Do you currently smoke? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,440*	1,590*	1,415	5,791‡
middle aged (35-54 years)	,915	0,745	1,013	2,683†
elderly (55+)	,285‡	0,342†	,353†	0,854
upper secondary education (high school)	1,845*	0,525*	1,123	0,939
tertiary education	1,333	0,355†	0,706	0,461
married or in a long-term relationship	1,494	0,740	0,971	0,712
living alone after marriage (divorced, widowed)	2,531*	0,569	1,067	0,404
household per capita income	1,001	1,000	0,999	1,000
urban residence	2,828†	0,911	1,654*	0,473
proportion of Hungarians in the municipality	1,011†	0,999	1,005	0,982*
number of Hungarians in the municipality	1,000	1,000	1,000	1,000
has relationship with members of the majority/ titular ethnic group	1,416	1,248	1,598	0,847

	Romania	Slovakia	Serbia	Ukraine
speaks the titular language well	1,087	0,874	0,884	0,661
speaks English well	1,267	0,728	0,616	3,077
Nagelkerke R <sup>2</sup>	0,142	0,105	0,108	0,255
N	628	574	564	394

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

Table 19. *Do you consume alcohol on at least three days a week? (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	-0,452‡	-0,358‡	-0,421‡	-0,421‡
middle aged (35-54 years)	-0,055	-0,066	0,045	0,051
elderly (55+)	0,072	0,055	0,125*	-0,017
upper secondary education (high school)	0,032	-0,087	-0,113†	0,022
tertiary education	-0,023	-0,092*	-0,110*	-0,043
married or in a long-term relationship	-0,017	0,071	0,109	0,084
living alone after marriage (divorced, widowed)	-0,049	0,172†	0,146*	0,125*
household per capita income	-0,033	-0,116†	0,029	-0,157†
urban residence	0,093	-0,146*	0,037	-0,137
proportion of Hungarians in the municipality	-0,037	-0,051	0,091*	-0,107
number of Hungarians in the municipality	-0,285‡	0,116*	0,034	-0,105
has relationship with members of the majority/ titular ethnic group	-0,104†	-0,033	0,020	0,068
speaks the titular language well	0,031	-0,015	-0,009	-0,032
speaks English well	0,058	0,027	-0,018	-0,030
Nagelkerke R <sup>2</sup>	0,255	0,255	0,289	0,247
N	616	584	561	391

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English

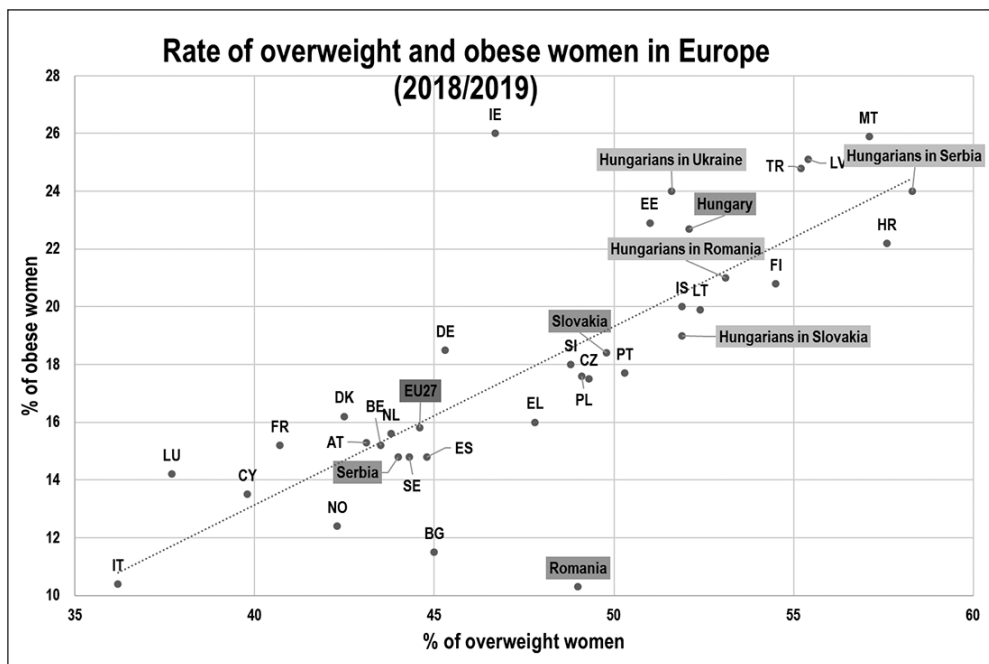


Figure 10.  
Source: RINS 2018, Eurostat 2019 (hlth\_ehis\_bm1e)

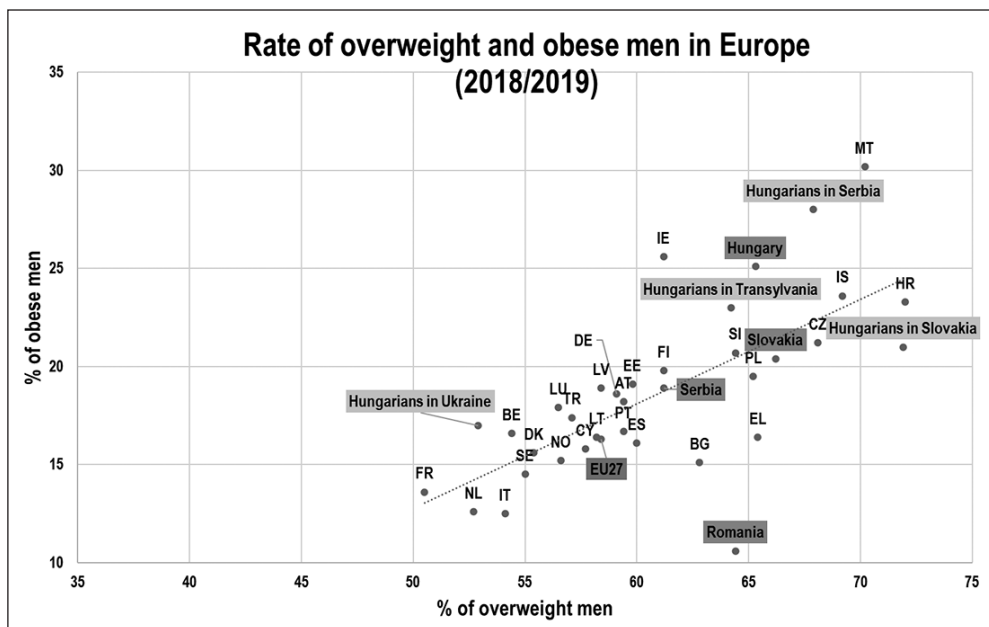


Figure 11.  
Source: RINS 2018, Eurostat 2019 (hlth\_ehis\_bm1e)

Table 20. *Sociodemographic determinants of overweight (BMI>25) among women (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
middle aged (35-54 years)	1,307	2,079	3,144**	1,611
elderly (55+)	2,657*	3,433*	6,841***	4,536**
upper secondary education (high school)	1,312	0,849	0,939	0,605
tertiary education	,832	0,352*	1,712	0,582
married or in a long-term relationship	3,081*	0,665	1,389	17,958***
living alone after marriage (divorced, widowed)	4,337**	0,707	0,555	17,727***
household per capita income	1,001	1,001	0,994**	0,993**
urban residence	0,360**	0,63	0,604	0,440
proportion of Hungarians in the municipality	1,000	0,995	0,997	1,000
number of Hungarians in the municipality	1,000	1	1,000	1,000
number of relationships	1,044	0,95	0,944	1,135
has relationship with members of the majority/ titular ethnic group	1,287	0,641	0,442*	0,980
speaks the titular language well	1,320	0,684	1,101	1,246
speaks English well	1,054	0,535	0,938	0,184
Nagelkerke R <sup>2</sup>	0,161	0,209	0,260	0,347
N	321	252	280	208

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

Table 21. *Sociodemographic determinants of overweight (BMI>25) among men (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
middle aged (35-54 years)	2,410*	1,772	1,643	1,717
elderly (55+)	2,692*	1,668	2,542*	2,165
upper secondary education (high school)	1,342	1,415	0,445*	1,282
tertiary education	1,116	1,685	0,342*	2,511
married or in a long-term relationship	2,963*	2,297*	1,790	2,682*
living alone after marriage (divorced, widowed)	0,842	1,450	0,747	10,128**
household per capita income	1,002	1,000	1,001	0,998
urban residence	1,110	0,501	0,360*	3,190
proportion of Hungarians in the municipality	1,005	0,986	1,005	1,025*
number of Hungarians in the municipality	1,000	1,000	1,000	1,000
number of relationships	0,910	0,943	0,975	1,017

	Romania	Slovakia	Serbia	Ukraine
has relationship with members of the majority/ titular ethnic group	0,436	1,303	0,485*	4,035**
speaks the titular language well	1,505	1,320	1,540	0,835
speaks English well	1,072	0,691	0,463	0,923
Nagelkerke R <sup>2</sup>	0,203	0,135	0,228	0,238
N	266	255	254	151

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

Table 22. *Sociodemographic determinants of obesity (BMI>30) among women (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
middle aged (35-54 years)	0,830	1,406	0,749	1,992
elderly (55+)	0,518	0,828	1,871	5,802†
upper secondary education (high school)	0,592	0,377*	0,666	1,216
tertiary education	0,194*	0,066†	1,604	1,237
married or in a long-term relationship	3,799*	2,743	2,420	7,336*
living alone after marriage (divorced, widowed)	6,772*	5,168	1,585	6,423*
household per capita income	1,002	1	0,996*	0,995
urban residence	0,580	0,170*	0,608	0,856
proportion of Hungarians in the municipality	0,999	0,985	0,989	1,003
number of Hungarians in the municipality	1,000	1	1,000	1,000
number of relationships	0,969	0,996	0,964	1,329*
has relationship with members of the majority/ titular ethnic group	0,818	0,769	0,467	2,563
speaks the titular language well	1,830	1,552	0,929	0,571
speaks English well	0,980	0,996	0,998	0,252
Nagelkerke R <sup>2</sup>	0,107	0,224	0,133	0,260
N	321	252	280	208

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

Table 23. *Sociodemographic determinants of obesity (BMI>30) among men (the effect of socio-economic factors – odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
middle aged (35-54 years)	4,626	1,334	1,053	1,514
elderly (55+)	5,002*	1,001	1,448	1,075
upper secondary education (high school)	3,630†	2,328	0,878	0,568
tertiary education	5,103*	2,881	0,591	0,682
married or in a long-term relationship	2,710	1,569	2,799*	4,405*
living alone after marriage (divorced, widowed)	2,470	3,225	0,946	8,660†
household per capita income	1,000	0,999	1,001	0,993
urban residence	0,376	1,499	0,469	7,521
proportion of Hungarians in the municipality	0,987	1,012	1,011	1,036*
number of Hungarians in the municipality	1,000	1,000	1,000	1,000
number of relationships	1,059	1,112	1,013	1,100
has relationship with members of the majority/ titular ethnic group	0,384*	1,219	0,501	0,481
speaks the titular language well	0,756	0,704	1,445	0,478
speaks English well	2,049	0,972	0,630	0,475
Nagelkerke R <sup>2</sup>	0,193	0,070	0,139	0,226
N	266	255	254	151

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

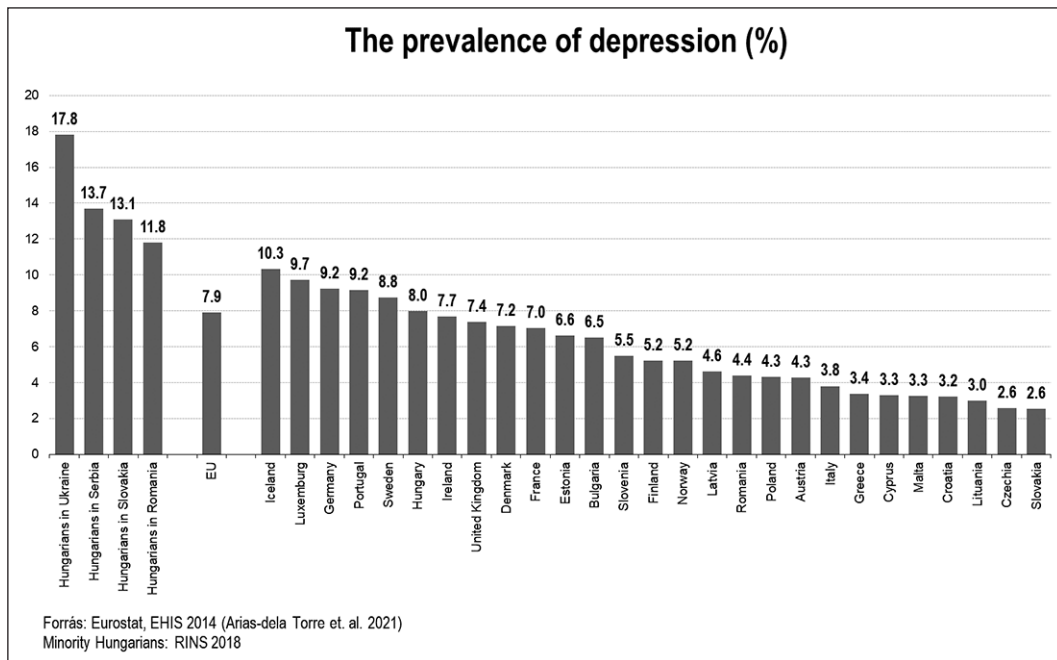


Figure 12.

Table 24. *The prevalence of depression across various social categories (%)*

	Romania (N=906)	Slovakia (N=749)	Serbia (N=752)	Ukraine (N=552)
<b>gender</b>				
male	11,5	9,2*	11,4*	16,7
female	11,9	16,5*	15,8*	19,1
<b>age</b>				
young (18-34 years)	3,3*	12,8	8,6*	5,0*
middle aged (35-54 years)	8,4*	12,6	9,3*	14,4*
elderly (55+)	19,3*	14,1	19,7*	33,9*
<b>level of education</b>				
primary or lower secondary education	22,1*	18,0*	18,6*	37,0*
upper secondary education (high school)	8,9*	12,4	11,2	14,4*
tertiary education	4,6*	8,3*	9,4*	6,6*
<b>marital status</b>				
single	7,2*	14	7,2*	16,2
married or in a long-term relationship	9,6*	13,1	13,3	11,8*
living alone after marriage (divorced, widowed)	22,3*	11,5	20,9*	41,9*
<b>economic activity</b>				
economically active	6,0*	12,9	10,5*	10,9*



	Romania (N=906)	Slovakia (N=749)	Serbia (N=752)	Ukraine (N=552)
retired	19,6*	13,6	21,4*	37,1*
unemployed	31,0*	17,5	6,3	17,6
other inactive” (e.g., student, parental leave)	6,5*	10,4	10,1	11,2*
<b>residence</b>				
rural residence	10,4	13,2	13,7	20,9*
urban residence	13,4	13,1	13,9	13,1*
<b>social relationships</b>				
trust relationships	12,6	12,8	14,5	17,1
recreational contacts	6,9*	9,3*	8,1*	8,9*
functional relationship (money lending)	8,4*	12,9	12,4*	17,6
functional relationship (handling official matters)	9,8*	12,9	14,1	20,1
has relationship with members of the majority/ titular ethnic group	12,2	8,9	18,9*	13,0
<b>language skills</b>				
speaks the titular language well	9,9*	12,3	11,4*	18,4
speaks English well	4,7*	4,8*	6,3*	4,0*
total				
Total	11,7*	13,1*	13,7*	17,9*

Legend: \*significant relationships

Table 25. *Socio-economic determinants of good or satisfactory health status (- odds ratios)*

	Romania	Slovakia	Serbia	Ukraine
male	1,018	0,458*	0,878	0,512*
middle aged (35-54 years)	0,551	1,491	0,245	0,397
elderly (55+)	0,110*	0,979	0,034*	0,173†
upper secondary education (high school)	2,118*	1,448	0,981	1,713
tertiary education	6,586*	1,716	2,587	1,414
married or in a long-term relationship	1,259	0,698	1,085	0,289
living alone after marriage (divorced, widowed)	0,776	0,445	1,143	0,132*
household per capita income	1,001	1,001	1,001	1,003
urban residence	1,682	0,471	1,787	5,102
proportion of Hungarians in the municipality	1,003	0,980	1,005	1,033
number of Hungarians in the municipality	1,000	1,000	1,000	1,000
number of relationships	1,189*	1,307*	1,187*	0,955
has relationship with members of the majority/ titular ethnic group	1,035	0,628	0,94	0,962
speaks the titular language well	0,624	1,533	2,483*	1,091
speaks English well	n.a.	1,239	0,236	n.a.

	Romania	Slovakia	Serbia	Ukraine
Nagelkerke R <sup>2</sup>	0,277	0,122	0,259	0,329
N	611	541	553	363

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

Table 26. *Socio-economic determinants of self-perceived health (the effect of socio-economic factors – standardized OLS regression coefficients)*

	Romania	Slovakia	Serbia	Ukraine
male	-0,065	-0,017	-0,025	-0,084
middle aged (35-54 years)	-0,064	-0,070	-0,164†	-0,298‡
elderly (55+)	-0,429‡	-0,283‡	-0,413‡	-0,523‡
upper secondary education (high school)	0,043	0,098	0,020	0,132*
tertiary education	0,092*	0,093	0,059	0,039
married or in a long-term relationship	-0,025	0,023	-0,026	-0,052
living alone after marriage (divorced, widowed)	-0,142*	-0,009	-0,087	-0,158*
household per capita income	0,030	0,101*	0,024	0,027
urban residence	0,034	-0,039	-0,020	-0,081
proportion of Hungarians in the municipality	0,084*	-0,010	0,069	0,142
number of Hungarians in the municipality	0,055	0,039	0,045	0,131*
number of relationships	0,036	0,093*	0,086*	0,018
has relationship with members of the majority/ titular ethnic group	0,005	0,006	-0,009	0,015
speaks the titular language well	0,010	0,034	0,085*	0
speaks English well	-0,017	0,065	0,006	0,024
R <sup>2</sup>	0,250	0,147	0,168	0,356
N	600	551	552	360

Legend: cells in grey: significant relationship, \*p ≤ 0.05; †p ≤ 0.01; ‡p ≤ 0.001. Reference categories: female, young (18-34 years), primary education, single, rural residence, does not have a relationship with members of the majority/titular ethnic group, not proficient in the titular language/English.

Table 27. *The self-perceived health as a function of health indicators (standardized OLS regression coefficients)*

	Romania	Slovakia	Serbia	Ukraine
BMI index	-0,038	-0,087*	-0,064*	-0,145‡
alcohol consumption scale	-0,052	-0,050	-0,069*	0,046
currently not smoking	0,005	0,009	0,047	-0,038
engages in sports or physical activity at least once a week	0,144‡	0,180‡	0,110†	0,163‡
eats fruit and vegetables daily	0,074*	0,015	-0,018	0,035
was hospitalized in the last year	-0,124‡	-0,053	-0,033	-0,087*
has a chronic illness	-0,134‡	-0,072*	-0,116†	-0,077*
is taking any medications	-0,195‡	-0,247‡	-0,225‡	-0,203‡
attends screening tests at least every two years	0,029	-0,021	0,036	-0,030
has seen their GP in the last year	-0,009	-0,035	-0,052	0,003
depression-score	-0,292‡	-0,233‡	-0,349‡	-0,337‡
R <sup>2</sup>	0,378	0,322	0,375	0,367
N	802	657	689	502

Legend: cells in grey: significant relationship, \* $p \leq 0.05$ ; † $p \leq 0.01$ ; ‡ $p \leq 0.001$ . Reference categories: currently not smoking, exercising less than weekly, not eating vegetables daily, no chronic diseases, no medication in the last two weeks, no check-ups in the last two years, no appointments with GP in the last one year.