

The socio-economic determinants of the health status of Roma in comparison with non-Roma in Bulgaria, Hungary and Romania

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Backgrounds: Roma people from Central and Eastern Europe suffer some of the worst health conditions in the industrialized world. This article aims at identifying the determinants of health status among Roma in comparison with non-Roma in Bulgaria, Romania and Hungary. **Methods:** Non-linear models were estimated for three different health indicators: self-reported health compared with the previous year, probability of reporting chronic conditions and feeling threatened by illness because of sanitary and hygienic circumstances. Ethnic origin differentiated by Roma, national population and other ethnic minorities is self-reported. The data used are from a unique data set provided by the United Nations Development Programme household survey on Roma and populations living in their close proximity for 2004. Sample sizes are 2536 for Bulgaria, 2640 for Hungary and 3292 for Romania. **Results:** After controlling for demographic variables the Roma were significantly more likely to report worse health in any indicator than the non-Roma everywhere. However, after including socio-economic variables, Roma had a significantly higher probability of reporting chronic conditions only in Romania. For the probability of feeling threatened by illness because of unhygienic circumstances, being Roma was a main determinant in Hungary and Romania, but not in Bulgaria. The results for self-reported health were inconclusive. **Conclusions:** While these results in part support the development of health policies targeting Roma, the finding that poorly educated and less wealthy people, as well as other ethnic minorities also experience health inequalities suggests that broader multisectoral policies are needed in the countries studied.

Keywords: Roma, minority ethnic group, health inequalities, chronic illness, threatened by illness

Introduction

There has recently been renewed interest in the welfare of Roma, reflected by the 'Decade of Roma Inclusion' (2005–15), coinciding with the entry of several Central and Eastern European (CEE) countries into the European Union (EU). While the number of Roma living in Europe is difficult to ascertain, it has been estimated that the population currently numbers around 12–15 million.¹ Roma minorities in CEE live in relatively poor regions, experience low levels of education and employment, and are subject to poor living conditions,^{2–10} but a paucity of data has made it difficult to state the extent of these inequalities and their relationship with health. Indeed, several reviews have found that the literature on health status and access to health care of Roma is very limited in content and scale.^{11–15} Furthermore, much of what has been published is unavailable in English or in major bibliographic databases.¹³

Mortality data disaggregated by Roma/non-Roma are scarce since they are generally not coded for Roma ethnicity.^{12,16} Overall, Roma are estimated to live ~10 years less than the majority populations in Central and Eastern Europe.¹⁰ In 1989, a rare study comparing census data concluded that in Czechoslovakia the life expectancies of Roma men and women were, respectively, 12.1 and 14.4 years lower than for the country's population as a whole.¹²

Roma health literature focuses mostly on infectious diseases and genetic disorders as the major causes of differences in

Roma health.¹³ However, it has been argued that 'the focus on communicable disease may reflect less a concern about the health needs of the Roma but more those of the majority population'.¹³ Indeed, historically, Roma have been perceived and often stigmatized as a source of contagion.¹² Poor hygiene and sanitation continue to be viewed to be the main causes of the relatively high rates of infectious disease in Roma.^{13,17,18}

It is only recently that Roma health studies have begun to focus on chronic diseases. Results suggest that Roma experience relatively high rates of chronic diseases and associated risk factors compared to the majority population. In Slovakia,¹⁹ higher levels of insulin, hypertension and obesity were found among the Roma than the majority population. Higher prevalence of risk factors for cardiovascular diseases and metabolic syndrome among young Roma were influenced by lifestyle and low educational status.²⁰ Studies in the Czech²¹ and Slovak²² Republics have found significantly decreased levels of vitamin C and other antioxidant vitamins and higher levels of inadequate nutrition and smoking in Roma minority groups. In Croatia, prevalence of underweight among Roma was higher than the majority population.²³

Roma studies are often restricted to one or two districts or settlements in one country, with a small sample size, with only few studies analysing socio-economic factors.^{24,25} Therefore, it is difficult to understand to what extent Roma health disadvantage is linked to Roma ethnicity or to broader issues such as poverty and lack of education affecting not only Roma but other disadvantaged groups. Understanding the determinants

of these inequalities is crucial if policies aimed at improving the health of Roma are to be successful.

In this article, we use a survey on Roma and non-Roma communities provided by the United Nations Development Programme³ that includes socio-economic variables such as education, household expenditure and wealth, as well as several health-related variables. This survey, given the significantly increased number of observations, allows the development of a more robust analysis and international comparisons. The data set is used to identify the determinants of health status of Roma and non-Roma communities in Bulgaria, Hungary and Romania.

Methods

The data are drawn from a unique data set provided by the UNDP Vulnerable Groups Survey on Roma and non-Roma communities for 2004. The purpose of the survey is to generate quantitative data on the socio-economic status of Roma and map their levels of poverty compared to a sample of the majority population living in their close proximity.³ The survey questionnaire follows the principles of an integrated household survey with separate components containing individual and household modules. Sample sizes are 2536 for Bulgaria, 2640 for Hungary and 3292 for Romania (table 1). People below the age of 16 years in the sample were excluded since the inclusion of children would require a different set of socio-economic variables (e.g. parental instead of individual education and wealth). The non-Roma communities are represented by people living in close proximity to the Roma community. This article uses only the Bulgarian, Hungarian and Romanian data, because of the high percentage of Roma in their populations (5–10%)⁴ and the comparability of their country questionnaires.

Individuals self-reported their ethnic origin, but interviewers were also asked to report their opinion about the interviewees' ethnic origin. Differences between interviewees' ethnic self-identification and interviewers' opinion are witnessed particularly in Bulgaria. Turkish people (self-identified) were often considered Roma by the interviewers (results not reported). The self-definition variable is used in our analysis. However, when this information was missing, the interviewer's opinion was used. A sensitivity analysis was performed to verify the robustness of these results with those obtained using only the interviewers' opinion (but without using a

dummy for other ethnic minority because often these people were considered Roma by the interviews, as the Turks in Bulgaria). No statistically significant differences in the results were observed. Roma represent the 64% of the sample in Hungary, 47% in Bulgaria and 57% in Romania (table 1). Moreover, for Bulgaria and Romania a dummy representing other ethnic minorities was included (table 1), with ~93 and 92% of people belonging to other ethnic minorities being, respectively, Turks in Bulgaria (followed by Albanians, 6%), and Hungarians in Romania.

For health status, three indicators were analysed—self-reported health status, chronic conditions and feeling threatened by illness because of poor sanitary conditions. For the former, a categorical indicator was built based on the question 'Compared with one-year ago, would you say that the health of the household member has now: improved, slightly improved, remained unchanged, slightly declined, or declined a lot'. The first two categories were combined in one. For chronic illnesses, individuals were asked whether they suffered from a chronic/permanent illness. A dummy variable was created that equals 1 if the individual reported chronic illness; or 0, otherwise. Thirdly, individuals were asked to what extent they felt threatened by illness due to poor sanitation or hygienic conditions on a scale of five possible responses, 1 representing the lowest level of threat and 5 the highest one. In light of the literature pointing to the importance of sanitary conditions to the health of the Roma population,^{13,17} this categorical variable with values ranging from 0 to 5 (0 no threat, 1 lowest level of threat and 5 highest) was also used as a dependent variable for modelling health. Health status statistics are reported in table 1 (see also Supplementary table A1 for statistics by ethnic origin).

Among the explanatory variables, age and gender were included as demographic variables. For the threatened by illness model, the probability of reporting chronic conditions was also included. The socio-economic characteristics considered were: level of education achieved, expenditure and wealth quintiles.

Expenditure information was based on the question: 'How much money did your household spend last month in total?' When this information was missing, the sum of the last month's expenditure on specific items, such as housing, food, clothes and health, was used. Since there is large variation in household size and composition, expenditure was adjusted using the OECD scale (providing a weight

Table 1 Statistics (%) for worsening of self-reported health status (SAH) from 2003 to 2004, probability of chronic conditions and likelihood of feeling threatened by illness due to poor sanitation or hygienic conditions, 5 scale rating (threat)

	Bulgaria				Hungary			Romania			
	Total	Roma	Majority	Minority	Total	Roma	Majority	Total	Roma	Majority	Minority
Sample	2640	1252	1153	235	2539	1622	917	3292	1890	1241	161
SAH improved (%)	11	6	4	1	2	1	0	14	8	6	1
SAH equal (%)	68	31	31	5	69	45	23	62	36	24	2
SAH declined (%)	14	5	7	2	19	11	8	20	11	8	1
SAH declined a lot (%)	8	4	3	1	10	6	5	4	3	1	0
Chronic illness (%)	31	12	16	3	40	23	17	26	13	10	2
Threat lowest (%)	29	7	21	1	54	32	22	49	19	27	3
Threat level 2 (%)	13	3	9	0	15	9	6	14	7	6	1
Threat level 3 (%)	17	7	9	1	13	10	3	13	8	5	0
Threat level 4 (%)	15	9	4	1	9	7	2	10	7	2	1
Threat highest (%)	26	16	6	4	9	8	1	14	10	3	1

Total represents the percentage of respondents who answered the survey question; Roma represents the percentage values for only Roma people (Roma = 1); Majority represents the percentage values for only the national major population (National = 1); and Minority represents the percentage values for only other ethnic minority (ethnic_minority = 1). Please note that in Bulgaria and Romania, only household heads were asked the question about perceived threat of illness, accounting for the lower number of observations

of 1 for the first adult, 0.7 for other adults and 0.5 for each child)^{26,27} to obtain the equivalent household expenditure. To proxy household wealth, we constructed an asset index by performing a principal component analysis separately for each country. This asset index has been extensively used in the context of developing countries, and it is considered to be a reasonably satisfactory proxy for consumption in addition to an indicator of economic status^{28–30} (see Supplementary table A1).

Model

We used a logit model for the probability of reporting any chronic illness, and ordered logit models for self-assessed health and for feeling threatened by illness because of sanitary conditions. The analysis was conducted in two stages. The first stage of the analysis adjusted for age and sex only ('age/sex-adjusted model') while the second stage adjusted for a range of socio-economic variables ('socio-economic adjusted model') (table 2). All models are country specific and have been estimated using STATA 9.0.

Results

On average, Roma people are more likely to be of younger age than the national majority population living in their close proximity (see Supplementary table A1). Moreover, they are more likely to have no education at all or a low level of education. The expenditure and wealth patterns vary enormously between the Roma and the national majority population, demonstrating the internal consistency of the asset index. The majority population tends to spend more and to be wealthier than the Roma. Other ethnic minorities in Bulgaria, represented mostly by Turks (self-reported), show a pattern in the demographic and socio-economic variables that is intermediate between the Roma and the national majority population. On the contrary, in Romania, there is no relevant difference in demographic and socio-economic characteristics between the majority population and other ethnic minorities (5% of sample), mainly Hungarians.

Self-assessed health: categorical variable

The proportion of people reporting equal or worse health in 2004 compared to 2003 varies in the sample across the three countries (table 1). After adjusting for age and gender, the OR results show that although demographic factors have a significant effect on self-reported health status, between 2004 and 2003, Roma are significantly more likely to report a worsening of the health status than the majority population in all three countries (table 2). However, in Bulgaria, inequalities in health appear more pronounced for other ethnic minorities than for the Roma.

When socio-economic determinants are also included in the model, education and wealth become the main determinants of worsening health status together with demographic variables. The Roma effect is no longer statistically significant, with the exception of Bulgaria where, *ceteris paribus*, Roma people are significantly more likely to report improved health status than the national majority population.

Probability of reporting chronic conditions

The proportion of people reporting at least one chronic condition varies from nearly 40% in Hungary to 26% in Bulgaria. Roma people are more likely to report at least one chronic condition than the national majority population, except in Bulgaria (table 1). However, within the Roma sub-sample, people are less likely to suffer from any chronic illness than within the national majority population in all three

countries (Supplementary table A1). On the contrary, in the sub-sample of people belonging to other ethnic minorities it is more common to suffer from at least one chronic condition than within the national majority population sub-sample.

Although this probability is highly related with demographic factors in all three countries, a Roma effect in chronic conditions appears statistically significant everywhere, after adjusting for age and gender (table 2). It is worth noting that inequality in chronic ill-health was higher among the other ethnic minorities than among the Roma.

In the socio-economic adjusted model, the Roma difference in chronic illness is no longer statistically significant except in Romania (table 2). Indeed, in this country, the main determinants of chronic ill-health, together with age and gender, are ethnic origin and education. On the contrary in Hungary, the main determinants are expenditure, wealth and education. For Bulgaria, it seems that none of the socio-economic factors significantly affect chronic ill-health.

Probability of feeling threatened because of unhygienic conditions

The aim of this question was to identify the level of community relations and security, asking people which conditions threaten their lives. Although we just focus on feeling threatened due to poor sanitation-related disease, other threats were included in the survey such as crime, insufficient income, religious and/or ethnic conflicts and being denied access to education. Results for feeling threatened by developing illness because of living in unhygienic conditions were estimated only for the head of the household in Romania and Bulgaria since no information was available at the individual level.

The proportion of people reporting high levels of feeling threatened by illness varies widely across the three countries. In Bulgaria, ~41% of the respondents selected the two highest levels of threat, but in Hungary only 18% did so. The Roma and those belonging to other ethnic minority groups are more likely to feel threatened because of the unhygienic conditions in which they live than the national majority population in all three countries (table 1).

After adjusting for age and gender, the odds ratio for the Roma is positive and statistically significant in all three countries, with values ranging from 2.1 in Hungary to 5.0 in Bulgaria (table 2). Moreover, as for chronic conditions, it emerges that people belonging to other ethnic minorities feel even more threatened than the Roma and particularly so in Bulgaria where the OR is 9.6. When socio-economic factors are included in the model, the value of the OR decreases everywhere but remains statistically significant with the exception of Bulgaria (table 2). Thus, although wealth and expenditure significantly affect the probability of feeling threatened by illness because of living in unhygienic conditions in all countries, and education also plays a relevant role in Bulgaria and Romania, the ethnic effect does not disappear. Roma people are significantly more likely to feel threatened in Hungary and Romania, and the same applies for Turks living in Bulgaria and the Hungarians in Romania.

Discussion

Inequalities in chronic illness and the perceived threat of illness were found between the Roma and the majority populations living in close proximity to the Roma, but with large differences across countries and by indicators of health. In Romania, the Roma are significantly more likely to report at least one chronic condition and to feel threatened by illness than the national majority population, after adjusting for

Table 2 Non-linear models results for worsening in SAH, probability of reporting chronic illness and threat of illness Odds ratio for the demographic standardized (Mod1) and socio-economic standardized (Mod2) models

	SAH						Chronic illness						Threat illness						
	Bulgaria		Hungary		Romania		Bulgaria		Hungary		Romania		Bulgaria		Hungary		Romania		
	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	Mod1	Mod2	
Age years																			
16–25	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
26–35	1.4**	1.4**	1.7**	1.7**	0.9	0.9	1.4	1.4	2.4**	2.4**	1.5**	1.5**	1.4	1.2	1.0	1.0	0.8	0.9	0.9
36–45	2.1**	2.2**	4.7**	4.3**	1.4**	1.5**	4.3**	4.7**	5.8**	5.7**	3.5**	3.5**	1.5	1.4	0.8	0.8	0.8	0.8	1.0
46–55	3.2**	3.3**	12.7**	11.1**	4.1**	4.4**	9.8**	10.7**	15.7**	13.9**	11.3**	11.3**	1.3	1.0	0.9	1.0	0.7	0.9	1.0
56–65	5.6**	5.5**	20.1**	17.0**	4.3**	4.5**	17.7**	19.3**	33.9**	25.9**	16.5**	16.5**	1.4	1.1	0.9	1.1	0.4**	0.5**	0.5**
>65	8.8**	8.2**	21.5**	15.8**	7.9**	10.3**	28.7**	28.0**	27.7**	18.6**	17.6**	17.6**	1.5	0.7	1.3	1.3*	0.5**	0.5**	0.5**
Gender																			
Male	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Female	1.1	1.1	1.3**	1.3**	1.3**	1.3**	1.4**	1.3**	1.3**	1.3**	1.5**	1.5**	1.4**	1.3*	1.0	1.0	1.2	1.2	1.2
No chronic																			
Chronic																			
National cit.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Roma	1.2**	0.6**	1.4**	1.2	1.4**	1.1	1.3**	1.0	1.3**	1.0	1.4**	1.4**	5.0**	1.3	2.1**	1.3**	2.9**	1.5**	1.5**
Ethnic min	1.9**	0.9	1.0	1.0	1.0	1.0	1.8**	1.2			1.5**	1.5**	9.6**	3.8**		1.9**	1.9**	2.0**	2.0**
Education																			
No	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Elementary	0.8*	0.8*	0.6**	0.6**	0.9	0.9	0.5**	1.0	0.5**	0.5**	0.6**	0.6**	1.0	1.0	1.0	1.0	0.9	0.9	0.9
Secondary	0.5**	0.5**	0.5**	0.5**	1.0	1.0	0.8	0.8	0.4**	0.4**	0.7**	0.7**	0.5**	0.5**	0.8	0.8	0.7*	0.7*	0.7*
Ex lowest	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Ex q2	1.0	1.0	1.1	0.8*	1.0	1.0	1.3	1.3	0.8*	1.3	1.3	1.3	1.0	0.9	1.3*	1.3*	1.2	1.2	1.2
Ex q3	0.9	0.9	1.1	0.8*	0.8*	0.8*	1.3	1.3	1.3	1.3	1.1	1.1	1.0	1.0	0.9	0.9	1.2	1.2	1.2
Ex q4	0.7**	0.7**	1.2	0.9	0.9	0.9	1.4**	1.0	1.4**	1.1	1.4**	1.4**	0.6**	0.6**	0.8**	0.8**	1.5*	1.5*	1.5*
Ex highest	0.9	0.9	1.2	0.9	0.9	0.9	1.1	1.1	1.6**	1.6**	1.4*	1.4*	0.6**	0.6**	0.7**	0.7**	1.3	1.3	1.3
Wealth																			
q1																			
q2	0.9	0.9	0.6**	0.6**	1.3**	1.3**	1.1	1.1	0.8*	0.8*	1.8**	1.8**	1.0	1.0	1.0	1.0	0.5**	0.5**	0.5**
q3	0.9	0.9	0.8	0.8	0.9	0.9	1.2	1.2	0.8	0.8	0.5**	0.5**	0.8	0.5**	0.2**	0.2**	0.3**	0.3**	0.3**
q4	0.7**	0.7**	0.7**	0.6**	0.6**	0.6**	0.9	0.9	0.6**	0.6**	0.7**	0.7**	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**	0.3**
q5	0.8	0.8	0.6**	0.6**	0.6**	0.6**	0.9	0.9	0.6**	0.6**	1.0	1.0	0.3**	0.3**	0.2**	0.2**	0.2**	0.2**	0.2**

Note: values that are statistically significant (z-test > 1.96) with P<0.05 are signed with **, while those with a P<0.10 (z-test >1.645) are signed with *

socio-economic and demographic determinants. In Hungary, a statistically significant Roma effect was found only for the feeling of being threatened by illness indicator. For self-reported health status there was no inequality except in Romania, where inequality favoured the Roma. This might be due to the different biases to which this latter indicator might be subject to. In Bulgaria, only the self-assessed health indicator was significant for Roma after adjusting for socio-economic and demographic determinants.

Furthermore, from our results it emerges that ethnic inequalities are often larger for minorities other than the Roma, in particular the Turks in Bulgaria and the Hungarians in Romania. While discrimination against these groups in the Communist period is well documented,^{31,32} we could not find any recent study supporting these results. Further research is needed to better explain this ethnic effect among these under studied minority populations.

Moreover, significant determinants of bad health status whatever indicators we considered were age, education and wealth measured through the asset index. People with a lower level of education and reporting a lower level of the asset index are more likely to suffer worse health, suggesting there is an inequitable distribution of ill health in these countries.

Biases that can affect the validity of the results are present for all indicators. The self-reported worsening in health status indicator does not tell anything about the actual health condition of an individual. It is, therefore, possible that Roma are still less healthy than the national majority population even if their self-reported health status did not deteriorate more than for the latter, simply because their initial health was worse. Moreover, the Roma may have a different perception of what worsening health is than the non-Roma.

Different cultural background may have a relevant effect on all health indicators used. The indicator that is probably less affected by cultural differences is chronic conditions, since people were asked not only to report whether they suffered any chronic condition, but also the typology of chronic condition they suffer from. This could be perceived as a more objective measure. However, other biases might play a role in this case. Non-Roma individuals might be more likely to be diagnosed with chronic illness than Roma, simply because of better access to medical care.

Furthermore, it is important to remember that Roma are compared with non-Roma living in their close proximity. The non-Roma sample, therefore, may not be representative of the health of the overall majority population in each country. Since Roma communities are typically located in poorer regions or neighbourhoods, the inequalities reported here probably underestimate national level inequalities between Roma and non-Roma.

Different cultural background and selection bias might also have a relevant effect on the perception of threat indicator. Although the meaning of 'poor sanitary and hygienic conditions' is not explicitly stated in the questionnaire, according to the WHO 'sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces... "sanitation" also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal'.³³ The importance of this indicator in identifying inequalities in health among the Roma and non-Roma communities is reflected by the large differences in the hygienic living conditions (and their potential effect on health) evidenced by the literature^{13,17,18,34} as well as by the asset indicator [for example, the Roma are less likely to have a toilet or a bathroom in their flat, and often have a public tap as a source of water (Supplementary table A1)]. This indicator represents not only effect on

health of sanitary conditions in which Roma people live in comparison with the non-Roma but also the level of security and social integration in the community.

Moreover, the definition of Roma itself may also be subject to bias. A choice had to be made between interviewees' ethnic self-identification and interviewers' opinion, since differences in reporting were witnessed. For example, in Bulgaria, Turks (self-identified) were often considered Roma by the interviewers. However, the sensitivity analysis (using the interviewers' opinion for Roma and excluding the dummy for other ethnic minorities—these were often considered Roma by the interviewers) shows that the results are quite robust. Indeed the sign and the significance of the Roma variables do not change when using the two definitions with the exception of threatened by illness in Bulgaria, where the Roma are also significantly more likely to feel threatened than the majority population in the extended model.

To sum up, the main determinants of inequalities in health status in all three countries are education and wealth while the role of ethnicity varies across countries and indicators. This suggests that in the regions studied, policies oriented to reducing poverty, improving housing conditions and expanding access to education among the whole population may also serve to mitigate the inequality in health between the national majority population and ethnic minorities, including the Roma. However, the results do also suggest that Roma experience specific health inequalities after standardizing for education, expenditure and wealth. The increased probability of feeling threatened by ill-health due to unhygienic circumstances among Roma in two of the countries studied is not fully explained by socio-economic indicators. Therefore, sanitary conditions continue to be an important policy objective, and policy initiatives to improve sanitation in Roma communities introduced since the collapse of communism still have much to achieve in terms of implementation. The importance of socio-economic factors in the results also suggests that policies on Roma health should be multi-sectoral, taking into account broader economic, social and cultural issues.

The results also support arguments for an increased focus on chronic diseases in Roma health research, particularly in Romania where Roma are significantly more likely to report at least one chronic condition than the national majority population, after adjusting for socio-economic and demographic determinants. However, more data with better health questions and a better representation of the Roma and non-Roma population in each country might help to further understand the determinants of Roma health.

The differences between countries are also worth noting, with Romania performing the worst—Roma in Romania experience significantly worse health status for all three health indicators in both models, with the exception of self-assessed health in the socio-economic model. This suggests there may be scope for increased learning on reducing inequalities from better performing to worse performing countries.

However, since Roma health inequalities are shared with or even superseded by other underprivileged ethnic groups, it seems that policy developments should take place within a broader context of anti-discrimination legislation and institution building, rather than narrow targeting of one specific ethnic minority.^{16,35}

Supplementary data

Supplementary data are available at *EURPUB* online.

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Key points

- The results suggest the main determinants of inequities in health status in Hungary, Bulgaria and Romania are education and wealth.
- However, being Roma has an independent effect on health in some instances. In Romania, Roma are significantly more likely to report at least one chronic condition and to feel threatened by illness than the national majority population, after adjusting for education, expenditure and wealth. In Hungary, this is true only for the feeling of being threatened by illness.
- The results suggest reducing health inequities in these countries requires broad multisectoral policies to reduce poverty, improve housing and education, as well as specific health-related policies targeting Roma and other ethnic minorities.

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