



Original research article

# The influence of social environment on the health of disadvantaged population groups

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## Abstract

**Introduction:** Aetiological factors that have a negative effect on the health of socially weak and disadvantaged population groups are diverse. To improve the situation, analysing them is essential.

**Objective:** To establish and analyze the most common determinants that result from the social environment and affect the health status of the members of Roma communities living on the territory of the Slovak Republic in Roma settlements.

**Methods:** A cross-sectional study involving 300 residents of marginalized Roma settlements in Slovakia, who participated in a questionnaire survey.

**Results:** The results show a low level of educational attainment and employment rate, and a very low level of living standards among the respondents. A statistically significant relationship between respondents' employment and living standards was proven. [ $\chi^2(1) = 15.831, p < 0.001$ ]. Reliable results were proven in the relationship between educational attainment and participation in preventive health checks [ $\chi^2(1) = 6.818, p = 0.009$ ], in the relationship between the quality of housing and morbidity [ $\chi^2(1) = 4.951, p = 0.026$ ], and in the occurrence of respiratory diseases and housing conditions [ $\chi^2(1) = 9.339, p = 0.002$ ].

**Conclusion:** Education level and socio-economic factors were proven to be fundamental determinants of the health status of the members of Roma communities living in the marginalized settlements. Higher employability and employment rate of the members of Roma communities may help to improve the unfavourable situation.

**Keywords:** Community health; Education; Employment; Roma

## Introduction

Community health assistance generally involves engaging in social work with vulnerable populations to address related issues. According to Ford et al. (2007), this process is influenced by field workers, field practices, and the community in which information gathering takes place. According to Shin et al. (2020), the impact of community health on maintaining the health of vulnerable populations largely depends on the specifics of the health project and the particular community. The link between socioeconomic status and poor health has long been established, but some groups continue to be disadvantaged in accessing services (Pritchard and de Verteuil, 2007).

Although health inequalities have been addressed worldwide, they remain a challenge both between and within countries. Globally, social determinants of health have improved, but the last decade has shown that socially and economically disadvantaged groups face significant health risks (Parekh and Rose, 2011).

According to Wilkinson and Marmot (2003), the inhabitants of the lower social strata of each society have a lower life expectancy and are more likely to suffer from various diseases. Poor social and economic conditions affect health throughout life. Health policies should therefore address social concerns and economic determinants of health. Social disadvantage can take many forms. It can include poverty, poorer education, insecure employment, living in poor housing, difficult family life conditions, and others.

Alcohol addiction, use of illegal drugs, and cigarette smoking are closely related to markers of social and economic disadvantage and low level of education (Babinská et al., 2014; Ondrášek et al., 2023).

These disadvantages are usually concentrated among the same people and have a negative impact on their health. Roma communities in Slovakia are clearly among the groups most at risk of poverty. They face a multi-faceted disadvantage, defined by low social status, social, economic and physical exclusion, cultural and language barriers, low level of education, and discrimination (Polák, 2014). In their home countries, di-

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verse Roma subgroups form national Roma minorities, which also occupy the lowest social positions. For example, they have the lowest employment rate, the lowest level of education and income, and the worst health status (European Commission, 2014).

According to the National Roma Integration Strategy up to 2020, economic exclusion ultimately means exclusion from the standard of living and life chances which are common in the society or in a particular group. The starting point can be, for example, an individual's position in the labour market, level of consumption and income, property, housing level, etc.

Typically, this population is exposed to many health risk factors. They have a higher prevalence of cancer and cardiovascular and sexually transmitted diseases compared to the general population. According to Belák et al. (2017), the health status of Roma in Slovakia appears to be consistently worse than the general population. Physically segregated communities, where approximately 40% of the 450,000 Slovak Roma live, show the worst health outcomes (Belák et al., 2017). In addition to social factors, experts consider environmental factors and serious barriers in access to health care to be the determinants of the poor health status of Roma. Such barriers include absence of health insurance, discriminatory exclusion of Roma from health services, geographic isolation from high-quality care, lack of information, language and communication barriers, direct discrimination, humiliating treatment, and violations of human rights in the provision of health care (Cook et al., 2013; European Commission, 2011). According to Földes and Covaci (2012), the focus has gradually expanded from infectious diseases, child health and genetic disorders to non-infectious diseases, chronic diseases and related risk factors. Available studies indicate that Roma overuse outpatient emergency services and underuse preventive services, such as compulsory vaccination of children and preventive health checks (Cook et al., 2013).

Several studies have reported on the effectiveness of community-based projects in delivering tailored interventions. Such projects employ community health workers who are familiar with the community, create multidisciplinary teams to support institutional collaboration within the community, or facilitate access to medicine by directly contacting individuals at risk.

According to Shin et al. (2020), if we expect increased accessibility and health support of threatened communities from the concept of health outreach, the attributes must include purposefulness, mobility, and cooperation with the community.

Mapping the situation in socially disadvantaged communities, getting to know the facts, and obtaining accurate and reliable data are crucial for the development of public policies, the implementation of municipal measures, as well as for academic research (Ravasz et al., 2020).

This is a highly topical area as the lack of statistical data hinders the development of projects necessary to address the plight of the Roma minority in Slovakia and beyond (Šupínová et al., 2015).

## Materials and methods

The aim of the study is to detect the most commonly acting determinants that result from the environment and affect the health status of the members of Roma communities living in Roma settlements on the territory of Slovakia.

The questionnaire method was employed to collect input empirical data. A self-written questionnaire in the Slovak and Hungarian languages was used to identify real and potential determinants negatively affecting the health of the Roma. The questionnaire contained 35 dichotomous, polytomous, but also open-ended questions in which the respondents could speak openly. The answers to the questions, which were focused on educational attainment, employment, social environment, living standards, morbidity and participation in preventive health checks, were analyzed.

The questions in the questionnaire corresponded to the sub-objectives of the study, which were to find out whether:

- The level of health knowledge, expressed by their participation in preventive health checks, is related to the level of education of residents of Roma settlements.
- The standard of living of residents of Roma settlements indicated by their housing status is related to their social status – as expressed by their employment status.
- The occurrence of the most frequent diseases of residents of Roma settlements is related to the community environment – as expressed by the housing status.

The obtained data were analyzed at the level of statistical description by absolute frequency (N), relative frequency (NR), arithmetic mean (AM), calculation of standard deviation (SD), median (Mdn), mode (Mod), minimum (Min) and maximum values (Max).

Analyzed frequency of respondents' answers to selected questionnaire questions are summarized in the tables. At the level of statistical inference, chi-square test of independence, nonparametric tests – Kruskal–Wallis analysis of variance (ANOVA) and Mann–Whitney U test, were used for the analysis of categorical variables.

### Study group

After excluding incomplete and confusing answers, a total of 300 respondents were included in the group. It was a sample of residents of Roma settlements in the self-governing region of Banská Bystrica. The ethnicity of the respondents was not examined. The criteria were respondents' subjective perception of their Roma identity, their residence in a Roma settlement, and willingness to take part in the survey. The respondents were asked by the interviewer: *"We are conducting a survey of the living conditions and health of the Roma population living in settlements. Are you willing to complete the form?"* If respondents did not consider themselves to be a Roma or refused to complete the questionnaire, they were not included in the survey. Respondents completed the questionnaire independently or answered the interviewer's individual questions.

The interviewers collected answers from respondents directly in Roma settlements. Due to the high migration of Roma at the time of the survey, there were some people from various other settlements in one settlement. For this reason, our research does not show the exact number of settlements from which the respondents came. Taking into regard where the residents were approached, their voluntary participation in the survey and the absolute exclusion of personal data, the consent of the faculty ethics committee was not requested.

Questionnaires were also distributed in areas with a high percentage of Hungarian-speaking people, and questionnaires in Hungarian were used in these locations.

The group consisted of 145 men and 155 women.

## Results

The average age of the respondents was over 37 years, with the youngest respondent reporting an age of 18 years, and the oldest 68 years (Table 1).

**Table 1. Age of respondents (n = 300)**

Average	Median	Mode	Statistical deviation	Minimum	Maximum
37.18	36.0	21	13.657	18	68

The majority of respondents received only a basic level of education. None of the respondents received university education (Table 2).

**Table 2. Overview of respondents' highest educational attainment**

Educational attainment	(n = 300) n (%)
Incomplete basic education	17 (5.66)
Completed basic education	203 (67.66)
Secondary school without graduation	73 (24.33)
Secondary school with graduation	7 (2.33)
University	0 (0.00)

The respondents were mostly without permanent employment (45.66%) or worked occasionally for low wages (Table 3).

**Table 3. Overview of respondents' employment**

Type of employment	(n = 300) n (%)
No employment	137 (45.66)
Casual work for low wages, cash payment jobs	42 (14.00)
Part-time job	42 (14.00)
Permanent employment	79 (26.33)

According to their answers, the respondents' households were mostly equipped with a legal electricity connection and a water connection (Table 4 and 5). However, these claims were not verified.

**Table 4. Electricity supply**

Access to electricity	(n = 300) n (%)
Own connection with electricity meter	217 (72.33)
Connection from an acquaintance	79 (26.33)
No access to electricity	4 (1.33)

**Table 5. Access to drinking water**

Access to drinking water	(n = 300) n (%)
Public water supply directly in the house	207 (69.0)
Public water supply freely accessible near the house	13 (4.3)
Own well near the house	44 (14.7)
Public well	34 (11.3)
No access to drinking water	2 (0.7)

We also investigated the conditions and capabilities of the respondents for personal hygiene. Their answers indicate that observing personal hygiene depends on access to water – directly at home or at a water source. 67.3% of respondents reported flushing toilets at home or in community centres. The rest of the respondents mentioned other alternatives – various dry toilets.

The respondents lived in homes with an average of 2.773 rooms. The highest number of respondents (138) reported three rooms. In more than half of the households, 4 to 6 people lived in one household (Table 6).

**Table 6. Number of persons living in one household**

Number of persons living in a household	(n = 300) n (%)
1–3 persons	53 (17.66)
4–6 persons	165 (55.00)
7–9 persons	69 (23.00)
10 persons and more	13 (4.33)

Only 11.7% of respondents reported central heating in their homes. Other respondents indicated solid fuel (80%) and electric heaters (8.3%) as the heating method.

The questions were also focused on the level of communal hygiene of the settlements. Only 33.4% of respondents assessed the level of communal hygiene in their settlement as satisfactory. Based on self-assessment, the other respondents described their community environment as dirty or rather dirty.

According to the answers of 254 respondents (84.7%), the city or village engages in the removal and recycling of waste from the settlement. The other respondents mentioned the dumping of garbage in different places in the settlement.

Using the questionnaire, we determined the respondents' level of housing and how it relates to their employment (Table 7).

The chi-square test of independence proved a significant relationship between the employment and living standards of the residents of Roma settlements expressed by the level of housing –  $\chi^2(1) = 15.831, p < 0.001$  (Table 7). Employed respondents live in significantly better housing conditions. A question is what is their motivation.

Using statistical methods, we also checked the relationship between respondents' education level and participation in preventive health checks (Table 8).

A chi-square test of independence showed a significant relationship between participation in preventive health checks and the level of education of residents of Roma settlements –  $\chi^2(1) = 6,818, p = 0.009$  (Table 8).

Respondents with a higher level of education participated in preventive health checks more often compared to respondents with a lower level of education.

In determining the morbidity of respondents, the analyses showed that there is a statistically significant difference between the residents of Roma settlements living in better and worse conditions –  $\chi^2(1) = 4.951, p = 0.026$ . Respondents living in better conditions (in apartments of a better standard) have a significantly lower number of diseases compared to respondents living in worse conditions.

In terms of individual types of diseases, there was a statistically significant difference in the occurrence of respiratory diseases and living conditions –  $\chi^2(1) = 9.339, p = 0.002$ . There was no statistically significant difference between the occurrence of other types of diseases and living conditions.

**Table 7. Comparison of the relationship between living standards expressed by level of housing and employment**

Level of housing		Employment		Total
		Official	Unofficial	
Better – a flat in a block of flats, a brick house made of burnt bricks	$N_p$	77	72	149
	$N_O$	60.1	88.9	149.0
	$N_{Pr}$	63.6%	40.2%	49.7%
	SR	2.2	-1.8	
Worse – mud brick house, shack, living with relatives	$N_p$	44	107	151
	$N_O$	60.9	90.1	151.0
	$N_{Pr}$	36.4%	59.8%	50.3%
	SR	-2.2	1.8	
Total	$N_p$	121	179	300
	$N_O$	121.0	179.0	300.0
	$N_{Pr}$	100.0%	100.0%	100.0%
		$\chi^2 (1) = 15.831$		
		$p < 0.001$		

Note:  $N_p$  – observed frequency,  $N_O$  – expected frequency,  $N_{Pr}$  – observed relative frequency,  $\chi^2$  – chi-square test of independence, SR – standardized residuals,  $p$  – level of statistical significance,  $1.96 \leq SR < 2.58$  ( $p < 0.05$ );  $2.58 \leq SR < 3.29$  ( $p < 0.01$ ),  $SR > 3.29$  ( $p < 0.001$ ).

**Table 8. Comparison of the relationship between respondents' level of education and their participation in preventive health checks**

Frequency of preventive check-ups		Education		Total
		Basic	Secondary	
Never	$N_p$	52	8	60
	$N_O$	44.0	16.0	60.0
	$N_{Pr}$	23.6%	10.0%	20.0%
	SR	1.2	-2.0	
At least once	$N_p$	168	72	240
	$N_O$	176.0	64.0	240.0
	$N_{Pr}$	76.4%	90.0%	80. %
	SR	-0.6	1.0	
Total	$N_p$	220	80	300
	$N_O$	220.0	80.0	300.0
	$N_{Pr}$	100.0%	100.0%	100.0%
		$\chi^2 (1) = 6.818$		
		$p < 0.009$		

Note:  $N_p$  – observed frequency,  $N_O$  – expected frequency,  $N_{Pr}$  – observed relative frequency,  $\chi^2$  – chi-square test of independence, SR – standardized residuals,  $p$  – level of statistical significance,  $1.96 \leq SR < 2.58$  ( $p < 0.05$ );  $2.58 \leq SR < 3.29$  ( $p < 0.01$ ),  $SR > 3.29$  ( $p < 0.001$ ).

## Discussion

According to the Government Office of the Slovak Republic (2012), there are several disadvantages in the life of Roma communities: poverty related to demographic conditions, unemployment, low-skilled and low-paid jobs, lack of education, and discrimination. The results show low levels of education among the respondents (Table 2).

The low level of education as well as poor access to employment and poor housing contribute to the preventable poor

health of this community (Bosaková et al., 2019; Pappa et al., 2015). According to Bosaková et al. (2019), an increase in job opportunities for segregated Roma could prevent large economic losses and improve their health status. Improving employment as a means of improving health is also mentioned by Goodman (2015). Although Hidas et al. (2022) report that in some regions the employment of Roma has doubled in a decade, almost half of our respondents were unemployed or only occasionally employed for the lowest wages (Table 3).

Bosaková et al. (2020) emphasize the need to address a wider range of Roma social needs when creating policies. Co-



ordination across different areas that include not only employment, but also education, housing, health, and family is important. According to Bosaková et al. (2019), increased employability would also improve Roma's well-being and health through stable income, better housing, reduced crime, increased hygiene standards, better access to prevention, and better psychological resilience.

The Government Office of the Slovak Republic (2012) lists non-standard dwellings built on unsettled land without connection to utility networks and the overcrowding of such dwellings in the Slovak Republic as phenomena that are specific to Roma settlements. The solution requires a specific approach that respects the context of individual locations.

We came to the same conclusions by analyzing the results of our research. The residents of Roma settlements included in the study group live in overcrowded dwellings, with limited possibilities for heating, often without access to electricity and running water (Table 4, 5 and 6).

The inadequate quality of housing is often associated with an environmental burden that directly affects the health of residents. Pests bring various diseases, especially cardiovascular and respiratory. This relationship is clearly observable, mainly in Roma communities on the fringes of society (Kaňuková and Rimárová, 2021).

Belák (2020) declares the significant influence of the community environment on the life of Roma. He emphasizes the high proportion of Roma households heating their homes with wood, which has a significant negative impact on overall morbidity. Solid fuel serves not only as the main source of heat in Roma households, but also as a source of hot water (Filadelfiová and Gerbery, 2012; Mušinka et al., 2014).

The close relationship between employment and the standard of living was confirmed by the results of our study (Table 7). A question is what is the motivation of our respondents. It could be a better standard of housing or to establish oneself in employment.

The assessment of housing is closely related to community hygiene; and our respondents confirmed an unsatisfactory state of communal hygiene. Only one third of the respondents rated the level of communal hygiene in their settlement as satisfactory. Filadelfiová (2013) and Markovič and Grauzelová (2021) reached the same conclusions on self-assessment of communal hygiene in settlements.

According to the obtained results, garbage removal from the settlements is very often carried out under the direction of the residents of the settlements. The result is uncoordinated landfills within the settlements.

Functional sewer systems contribute to communal hygiene. The results of available studies report alarmingly low numbers of Roma settlements covered by the sewage network (Filadelfiová, 2013; Mušinka et al., 2014).

Data collection based on ethnicity is not permitted. Therefore, there is very little data on the state of health of the Roma from official sources. The conducted surveys have been more focused on the economic status, or on the level of social exclusion/marginalization of the Roma. There is very little data on the health status of the Roma population that have integrated into the general population. (European Commission, 2014). According to the above-mentioned report of the European

Commission, it is estimated that the average life expectancy of the Roma population is 10–15 years lower than that of the general population. The authors of the report state a relationship between a higher rate of chronic diseases and a higher prevalence of risk factors, which are poor access to primary prevention among Roma, in all EU countries. Factors of social exclusion, specifically language and literacy barriers, lack of knowledge about available healthcare systems, discrimination by healthcare professionals, lack of trust in healthcare professionals, physical obstacles – mobility and distance, and lack of identification and/or insurance – are cited as possible causes. The results of the conducted study confirm the low level of education of the respondents, which negatively affects their participation in preventive health checks. Significant statistical results are presented in Table 8.

At the same time, the results of our analysis confirmed that respondents living in better conditions, in apartments of a better standard, have a significantly lower number of diseases than respondents living in worse dwellings. A significant relationship was proven primarily in the occurrence of respiratory diseases and living conditions.

Low education level and illiteracy are two key areas that significantly contribute to the worse quality of life of the Roma. They increase unemployment with subsequent economic and social dependence. Policies should include a comprehensive and holistic strategy for Roma through interventions in education, housing, and public health (Pappa et al., 2015).

## Conclusion

In terms of the determinants that contribute to poor health, the results show a causal relationship between low employment and insufficient education. The public health practice indicates that community health protection interventions are not as effective in some segregated Roma settlements as in others. Based on our findings, supported by the results of comparable studies, we recommend the implementation of measures to promote education and employment of Roma communities using community involvement. In the context of a segregated Roma community characterized by high and long-term unemployment and low education, it is appropriate to improve the access of the residents of Roma communities to education; support employment projects based on public-private partnerships that could increase employability and employment; open a professional discussion on creating a data collection concept, systematizing the implementation of data collection – which is necessary for improving specific areas of life in the Roma communities.

Our results reflect the most pressing problems of the inclusion of Roma. They also offer further opportunities for research on the social determinants of health in segregated ethnic communities. The issues studied extend not only to the field of public health, but also significantly to the field of social work.

## Ethical aspects and conflict of interest

The authors have no conflict of interest to declare.

## Vplyv sociálneho prostredia na zdravie znevýhodnených skupín obyvateľstva

### Súhrn

**Úvod:** Etiológia faktorov negatívne ovplyvňujúcich zdravie sociálne slabých a znevýhodnených skupín obyvateľstva je rôznorodá. Ich analýza je pre zlepšenie situácie dôležitá.

**Cieľ:** Cieľom tejto štúdie bolo zistiť a analyzovať najčastejšie pôsobiace determinanty vyplývajúce zo sociálneho prostredia, ovplyvňujúce stav zdravia príslušníkov rómskych komunít žijúcich v rómskych osadách na území Slovenska.

**Metodika:** Realizovaná prierezová prieskumná štúdia zahŕňa 300 obyvateľov marginalizovaných rómskych osád na území Slovenska, ktorí sa zapojili do dotazníkového šetrenia.

**Výsledky:** Z dosiahnutých výsledkov vyplýva nízka úroveň dosiahnutého vzdelania, zamestnanosti a veľmi nízka úroveň životného štandardu respondentov. Bol dokázaný štatisticky významný vzťah medzi zamestnanosťou respondentov a úrovňou životného štandardu [ $\chi^2(1) = 15,831, p < 0,001$ ]. Signifikantné výsledky boli dokázané vo vzťahu medzi stupňom dosiahnutého vzdelania a účasťou na preventívnych prehliadkach [ $\chi^2(1) = 6,818, p = 0,009$ ], vo vzťahu kvality bývania a morbidity respondentov [ $\chi^2(1) = 4,951, p = 0,026$ ], aj vo výskyte respiračných ochorení a stavom bývania [ $\chi^2(1) = 9,339, p = 0,002$ ].

**Záver:** Úroveň vzdelania a socio-ekonomické faktory sa ukázali ako zásadný determinant podmieňujúci stav zdravia príslušníkov rómskych komunít žijúcich v marginalizovaných osadách. Nepriaznivú situáciu by mohla pomôcť zlepšiť vyššia zamestnateľnosť a zamestnanosť príslušníkov rómskych komunít.

**Kľúčové slová:** komunitné zdravie; Rómovia; vzdelanie; zamestnanosť

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