DOES THE POPULATION LIVING IN ROMA SETTLEMENTS DIFFER IN PHYSICAL ACTIVITY, SMOKING AND ALCOHOL CONSUMPTION FROM THE MAJORITY POPULATION IN SLOVAKIA?

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SUMMARY

Background: Several studies have revealed a high prevalence of risk factors associated with unhealthy lifestyle among individuals with lower socioeconomic status. In Slovakia, one of the most socially and health-disadvantaged groups is the Roma minority. The aim of this study is to explore differences in physical activity, smoking and alcohol consumption between the population living in Roma settlements and the majority population in Slovakia.

Methods: Data from the cross-sectional epidemiological HepaMeta study conducted in Slovakia in 2011 were used. The sample consisted of 452 Roma (mean age = 34.7; 35.2% men) and 403 non-Roma (mean age = 33.5; 45.9% men) respondents. The differences in health-related behaviour between the population living in Roma settlements and the majority population were analysed using logistic models separately for males and females.

Results: These data show a clear difference between the population living in Roma settlements and the majority population with regard to leisure-time physical activity (only in women) and smoking, although not alcohol consumption. The prevalence of leisure-time physical activities such as walking or some other type of sport was significantly lower among Roma women than among non-Roma women. Men and women living in Roma settlements are more likely to smoke on a daily basis and they are heavier smokers in comparison with the majority population. HepaMeta study did not find differences in alcohol consumption between the Roma and non-Roma men. However, Roma women reported less frequent recent drinking and binge-drinking of 6 or more doses of alcohol on a single occasion.

Conclusion: The higher prevalence of unhealthy lifestyle activities among Roma seem to contribute to these inequalities in cardiovascular diseases morbidity and mortality in comparison with the majority population.

Key words: Roma, lifestyle, smoking, physical activity, alcohol consumption

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INTRODUCTION

The relationships between cardiovascular diseases and risk factors such as physical inactivity, smoking and alcohol consumption are known from many studies (1–5). Furthermore, these modifiable risk factors are also associated with other chronic diseases, including diabetes mellitus, obesity, some cancers, bone and joint diseases, and depression (6–10).

A higher prevalence of the above mentioned risk factors is generally associated with lower socioeconomic status (11–15). Several studies have found that racial/ethnic minorities and individuals with lower socioeconomic status engage in less leisure-time physical activity, while occupational physical activity is more prevalent among these groups (16–18). Socioeconomic inequalities in leisure-time and occupational physical activity among adults are visible throughout Europe (16). Inverse relationship between level of education and leisure-time physical activity was found in almost all 12 European countries that had participated in the EUROTHINE project (19). Similarly, smoking in Europe as a whole is more prevalent among those with lower levels of education (13). Many published studies have shown a significant relationship between regional socioeconomic indicators (high proportion of manual workers and the unemployed, level of urbanisation) and mortality associated with alcohol consumption in middle age (20–22). Rosičová et al. (23) found in their work that unemployment and low education are important factors that affect regional differences in alcohol-related mortality in men in Slovak districts.

In Slovakia, one of the most socially disadvantaged groups is the Roma minority. This group has a strong accumulation of socioeconomic disadvantage, including low educational level,

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high unemployment rate, poverty, and high degree of territorial segregation (24, 25). It can be expected that these unfavourable conditions may cause some Roma, especially those living in Roma settlements, to be particularly susceptible to an unhealthy lifestyle (26, 27). Epidemiological and metabolic studies have revealed a high prevalence of disease-related risk factors specific for unhealthy lifestyles, such as metabolic syndrome, diabetes mellitus and cardiovascular diseases among Roma (28–30). In addition, the prevalence of smoking is reported to be higher in Roma communities (29–33). Very little information is available on leisure-time physical activity as well as information about alcohol consumption among Roma.

The aim of this study is to explore differences in physical activity, smoking and alcohol consumption between the population living in Roma settlements and the majority population in Slovakia.

MATERIALS AND METHODS

Data from the cross-sectional population-based HepaMeta study conducted in Slovakia in 2011 were used. The project aimed to map the prevalence of viral hepatitis B/C and metabolic syndrome in the population living in separated and segregated Roma settlements and to compare it with the occurrence of the same health indicators in the majority population, while considering selected risk and protective factors of these health indicators.

The sample consisted of 452 Roma recruited by local Roma community workers and 403 non-Roma randomly selected from a list of patients from general practitioners. Data of physical activity, smoking and alcohol consumption were collected via questionnaire. For the majority population, trained assistants were present in the outpatient clinic to assist with questionnaires, if needed. In Roma respondents, questionnaires were administered in community centres by community workers or trained assistants who provided help in case of limited literacy; this seemed to have the smallest impact on the data validity (34). Methodology used in this study is described in detail elsewhere (35).

Physical activity was measured by asking respondents two questions (35, 36). Respondents were asked what physical activity they had done during the last week and how often they perform physical activity lasting at least 30 minutes, during which they became breathless or sweaty. Those who reported being physically active 2 or more times a week were considered to be sufficiently physically active.

Respondents were asked if they currently smoke cigarettes, cigars, pipes, or tobacco. If they did smoke, they were then asked how many cigarettes had they smoked during the day before. The answers to the first question were dichotomised: I smoke daily/I'm not a daily smoker. The answers to the second question were also dichotomised: Smoking 6 or more cigarettes the day before/Smoking less than 6 cigarettes the day before (37, 38).

In the case of alcohol consumption, the focus was on binge-drinking and the amount of alcohol consumed the day before. Respondents were asked how often they drink 6 or more doses of alcohol (1 dose = 0.5 litres of beer, 0.2 litres of wine or 0.05 litres of spirits) on one occasion (36, 39). The responses to this question were dichotomised for logistic regression in two ways. Firstly, the responses regarding drinking 6 or more doses of alcohol on one occasion were dichotomised: never/6 or more doses of alcohol always. In the second dichotomisation were created two categories: 6 or more doses of alcohol less than once a month /6 or more doses of alcohol once a month or more. The responses to the question about the amount of alcohol consumed the day before were dichotomised: I did not drink/drinking 1 or more doses of alcohol the day before.

The differences in health-related behaviour between the population living in Roma settlements and the majority population in Slovakia were analysed using logistic models separately for males and females. The analyses were performed with IBM SPSS Statistics 20.

RESULTS

The final sample comprised 452 Roma (mean age = 34.47; SD = 9.16; 35.2% men) and 403 (mean age = 33.47; SD = 7.41; 45.9% men) non-Roma respondents.

Table 1 shows the prevalence of variety of physical activities performed during the last week and the odds ratio (adjusted for age) of engaging in these physical activities between the population living in Roma settlements and the majority population. Physical activity at work was reported by 21.4% of men and 18.1% of women living in Roma settlements, but by 41.6% of men and 25.2% of women from the majority population. The differences were significant for both genders (OR/CI: 0.37/0.23–0.60 men, 0.56/0.36–0.87 women). Physical work around the house or at home was reported by more respondents living in Roma settlements in comparison with the majority population (66.7% vs. 62.2% men, 82.6% vs. 67.9% women), however, the differences were significant only for women. Roma women had a 2-times higher chance of reporting physical work around the house or at home in comparison with non-Roma women (OR/CI: 2.15/1.39–3.34). On the other hand, women living in Roma settlements, in comparison with non-Roma women, reported less frequent engagement in aerobic activity, such as brisk walking (18.8% vs. 41.7%) or other sports (5.5% vs. 20.6%). For men, these differences were not significant, but the chance of reporting recent dancing was more than 6-times higher among Roma men in comparison with non-Roma men (OR/CI: 6.45/1.83–22.68). The population living in Roma settlements, in comparison with majority population, more frequently reported engaging in physical activity lasting at least 30 minutes during which they became breathless or sweaty 2 or more times a week, but the differences were significant only for women (OR/CI: 1.86/1.28–2.71).

Table 2 shows the behaviour of the Roma population concerning tobacco and alcohol consumption in comparison with the majority population. Nearly half of Roma reported daily smoking (54.7% men, 44.4% women). Roma men had a 3.7-times higher likelihood of being a daily smoker (OR/CI: 3.74/2.35–5.96) and Roma women 4-times higher (OR/CI: 4.02/2.58–6.26). Significant differences were also found in the amount of cigarettes consumed. Consumption of 6 or more cigarettes the day before was reported by 44.6% of Roma men vs. 21.4% of non-Roma men, and 36.4% of Roma women vs. 10.9% of non-Roma women. In contrast with tobacco consumption, we found no significant differences in alcohol consumption between Roma and non-Roma men. Moreover, Roma women have a lower chance of consumption of 6 or more doses of alcohol on every occasion (OR/CI: 0.60/0.39–0.94) and a

***Table 1**. Type and frequency of physical activity of the population living in Roma settlements in comparison with the majority population (prevalence, OR, CI)*

	Male			Female		
	Roma (N=159) n (%)	non-Roma (N=185) n (%)	OR (95% CI)	Roma (N=293) n (%)	non-Roma (N=218) n (%)	OR (95% CI)
Physical activity at work	34 (21.4)	77 (41.6)	0.37 (0.23–0.60)***	53 (18.1)	55 (25.2)	0.56 (0.36–0.87)*
Physical work around the house or home	106 (66.7)	115 (62.2)	1.19 (0.76–1.87)	242 (82.6)	148 (67.9)	2.15 (1.39–3.34)***
Brisk walking	25 (15.7)	37 (20.0)	0.71 (0.40–1.24)	55 (18.8)	91 (41.7)	0.28 (0.18–0.42)***
Dancing	16 (10.1)	3 (1.6)	6.45 (1.83–22.68)**	54 (18.4)	28 (12.8)	1.47 (0.89–2.43)
Sport	40 (25.2)	56 (30.3)	0.80 (0.50–1.30)	16 (5.5)	45 (20.6)	0.22 (0.12–0.40)***
No physical activity	18 (11.3)	16 (8.6)	1.27 (0.62–2.59)	29 (9.9)	16 (7.3)	1.39 (0.73–2.66)
Physical activity 2 or more times a week	110 (71.0)	112 (62.9)	1.48 (0.93–2.36)	199 (69.3)	110 (53.4)	1.86 (1.28–2.71)**

*p<0.05, **p<0.01, ***p<0.001, the non-Roma population is the reference group for logistic regression

***Table 2.** Smoking and drinking behaviour of the population living in Roma settlements in comparison with the majority population (prevalence, OR, CI)*

	Male			Female		
	Roma (N=159) n (%)	non-Roma (N=185) n (%)	OR (95% CI)	Roma (N=293) n (%)	non-Roma (N=218) n (%)	OR (95% CI)
Smoking behaviour						
Daily smoking	87 (54.7)	43 (23.6)	3.74 (2.35–5.96)***	127 (44.4)	33 (15.9)	4.02 (2.58–6.26)***
Smoking 6 or more cigarettes day before	70 (44.6)	39 (21.4)	2.84 (1.76–4.57)***	102 (36.4)	22 (10.9)	4.31 (2.59–7.18)***
Drinking behaviour						
6 or more doses of alcohol ever	86 (54.8)	111 (61.3)	0.81 (0.52–1.25)	49 (17.3)	54 (26.1)	0.60 (0.39–0.94)*
6 or more doses of alcohol once a month or more	56 (35.7)	49 (27.1)	1.53 (0.96–2.44)	19 (6.7)	15 (7.2)	0.96 (0.47–1.96)
Drinking 1 or more doses of alcohol day before	18 (11.4)	23 (12.6)	0.87 (0.45–1.68)	6 (2.1)	12 (5.9)	0.36 (0.13–0.98)*

*p<0.05, **p<0.01, ***p<0.001, the non-Roma population is the reference group for logistic regression

lower likelihood of recent drinking of 1 or more doses of alcohol (OR/CI: 0.36/0.13–0.98).

DISCUSSION

This analysis, based on the information collected in the HepaMeta study, focuses on prominent aspects of lifestyle, such as physical activity, smoking and alcohol consumption. These data show a clear difference between the population living in Roma settlements and the majority population with regard to smoking and leisure-time physical activity (only in women), although not in the drinking of alcohol.

Physical activity includes recreational or leisure-time physical activity, transportation (e.g. walking or cycling), occupational (i.e. work), household chores, play, games, sports, or planned exercise (40). The type of physical activity can take many forms: aerobic, strength, flexibility, balance. Aerobic exercise exposures can be characterized by an interaction between bout intensity, frequency, duration, and longevity of the programme (40). Although physical activity levels equivalent to 2.5 hours per week of moderate-intensity activity or 1 hour per week of vigorous activity are considered an important target for population health benefits, the protective effects are expected to continue at higher levels (41, 42). In addition, every adult should perform activities that promote and maintain their muscular strength and endurance at least twice a week (42).

We examined leisure time physical activity, but also physical activity at work and physical activity around the house or at home. Physical activity at work was reported significantly less among Roma in comparison with the majority population. A possible explanation for this finding is the very high level of unemployment of Roma in our group, where 89.6% Roma were unemployed vs. 26.4% non-Roma (43). Examination of the variety of physical activities revealed that physical work around the house or at home was the most reported physical activity among Roma and non-Roma for both genders, but the highest among Roma women. On the other hand, the prevalence of a leisure-time physical activity, such as walking or some other sport was significantly lower among Roma women than among non-Roma women. Our

findings are consistent with results from other studies. Popper et al. (44) indicate in their work that more than two-thirds of the adult Roma population in Slovakia does not engage in any sports or exercise during their free time, less than one-third only occasionally, and only 1.1% regularly (several times per month or per week). According to the European project "Health and the Roma Community, Analysis of the Situation in Europe", 60% of the Roma population in seven countries involved in the project claim no engagement in any sort of physical exercise during their free time, only 11% of the population engage in physical activity during their free time, 8% several times per month, and 3% several times per week (27). Surprisingly, according to the study findings, Roma more frequently reported engaging in physical activity 2 or more times per week in comparison with the majority population. This may be caused by taking into account not only leisure-time physical activity but also physical activity at work or around the house or home. He and Baker (45) reported similar findings which resulted from the high rates of work-related physical activity among individuals with less education; mean scores of total physical activity were similar across racial, ethnic and educational categories. It should be noted that in contrast to the well-documented health benefits of aerobic physical activities (1, 46, 47), information regarding the association between occupational physical activity, heavy household chores and cardiovascular diseases and mortality are inconsistent (16, 46). Walking and standing at work, both aerobic activities, decreases the risk of myocardial infarction, while lifting or carrying at work or an occupational workload perceived as strenuous, increase the risk of myocardial infarction (46). Therefore, to be able to assess the effect of physical activity at work and physical activity around the house or at home on health, it is necessary to have detailed information about these activities.

There is a huge variation in cut-off points in dividing smokers/non-smokers or heavy smokers vs. light smokers and non-smokers in various studies and mostly dependency symptoms or health consequences are considered. In this study, the group of smokers was split into category of non-smokers and light smokers vs. heavy smokers. Some studies define "light smoking" as smoking less than 6 cigarettes a day (37, 38). Decision on dichotomisation of smoking variable was based on the studies mentioned above as well as on data from a questionnaire based on a pilot study adjusted for population living in Roma settlements (e.g. low literacy, high frequency of smoking among adults). Nevertheless, light smoking seems to be associated with ill health consequences (CVS, lung cancer, respiratory diseases) similarly to heavy smoking (48).

This study found a significantly higher prevalence of smoking among Roma in comparison with non-Roma consistent with the findings of previous studies conducted in Slovakia (30, 44) and other countries (27, 31–33). More than half of Roma men in the Czech Republic (63.8%), Greece (66.3%), Portugal (50.0%), Bulgaria (56.0%), and Spain (56.5%) smoke on a daily basis (27). There is also a high percentage of daily smokers among Roma women in the Czech Republic (53.6%), Greece (46.8%) and Bulgaria (35.6%) (27). Moreover, Rambousková et al. (49) also reported a significantly higher prevalence of smoking before and during pregnancy among Roma women in comparison with non-Roma mothers. Conversely, a lower percentage of daily smokers among Roma women was found in Portugal (3.8%) and Spain (14.3%) (27, 50).

There is no general consensus on the exact limits of moderate consumption or binge drinking and various cut off points as grams of alcohol have been suggested (39). A simple measure of consuming 6 drinks per occasion has been related to increased risk of mortality among working age male drinkers (51). Also in all countries participating in the Finbalt surveys conducted in 2000 and 2002, mean weekly consumption was higher among those who more often drank six or more portion (39).

The HepaMeta study did not confirm differences in alcohol consumption between men living in Roma settlements and non-Roma men regarding binge-drinking of 6 or more doses of alcohol on one occasion and drinking of 1 or more doses of alcohol day before. Roma women reported less frequent recent drinking of 1 or more doses of alcohol and binge-drinking of 6 or more doses of alcohol on one occasion. A comparison of the findings with the results of other studies is quite difficult since they used different indicators. According to the study findings, 35.7% of Roma men and 6.7% of Roma women consume 6 or more doses of alcohol once a month or frequently. Gourgoulianis et al. found that 45.4% of Roma in Greece consume alcohol daily (52). According to Ostrihoňová and Bérešová, 42.3% of Roma consume alcohol more than three times a month, but their consumption of alcohol is significantly lower in comparison with the consumption of alcohol in the majority population (30). Similarly, Sudzinová et al. reported significantly lower alcohol consumption among Roma patients undergoing routine coronary angiography compared with non-Roma patients undergoing the same examination, but when adjusted for educational level, gender and age these differences were not significant (53). Proportion of the Roma living in settlements did not contribute to the regional differences in alcohol-related mortality in ecological study performed in Slovakia in 2011 (23). Conversely, in Spain, Roma women have significantly higher values of alcohol consumption than non-Roma women (50). In an anthropological study, Belák reported differences in alcohol consumption among Roma families in settlements depending on social class (54). While alcohol was consumed 3–4 times a month on different occasions in the higher Roma social groups and was usually associated with dancing, families from the lowest social levels drank frequently, depending on the financial possibilities (54). Lastly, a certain correlation between living conditions, the availability of health care and social resources and the number of households with members suffering alcohol and/or drug problems was confirmed in the European project "Health and the Roma Community, Analysis of the Situation in Europe" (27).

The differences in lifestyle may be affected by socioeconomic factors; the poor economic situation of the family constitutes limited possibilities for eating as well as physical activity. Moreover, the high degree of segregation and low social integration of the Roma minority living in settlements greatly affects their participation in physical activities outside the home (55). A different pattern of health-related behaviour may be due to historical and cultural differences: e.g., cultural myths and stereotypes as well as family traditions and values can influence perception of attractiveness in relation to weight, which ultimately may affect their willingness to accept the recommendations regarding the prevention of obesity, including lifestyle changes (55). Similarly, Roma people consider smoking as a part of their ethnic and individual identity and do not regard it as a health risk (54, 56). It is closely related to their

attitude toward tobacco control measures. There is significantly lower support for such measures in the Roma population, especially policies that attempt to limit tobacco access to minors and to eliminate smoking in public places (33).

A lack of physical activity, high rates of smoking as well as unhealthy eating habits (57) probably contribute significantly to the high prevalence of low levels of HDL cholesterol (55.7% Roma men, 75.4% Roma women) and obesity (28.9% Roma men, 26.7% Roma women) among the Roma who participated in the HepaMeta study (58). However, these results should be generalised with caution, as Roma are a very heterogeneous group in terms of living conditions and levels of integration. Those living in settlements are probably the most disadvantaged group among them.

The higher prevalence of unhealthy lifestyle activities among Roma contributes to inequalities in cardiovascular diseases morbidity and mortality when compared with the majority. Therefore, systematic assessment and quantification of risk factors is crucial for the development of effective strategies and interventions aimed at changing lifestyles and improving health literacy in disadvantaged groups, and also to monitor their effectiveness. However, without addressing fundamental social problems and solutions of social integration of Roma communities, the effectiveness of these preventive measures can hardly be expected.

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Conflict of Interests

None declared

APPENDIX

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