Neuroendocrinology Letters Volume 36 Suppl. 2 2015
ISSN: 0172-780X; ISSN-L: 0172-780X; Electronic/Online ISSN: 2354-4716
Web of Knowledge / Web of Science: Neuroendocrinol Lett
Pub Med / Medline: Neuro Endocrinol Lett

Socioeconomic status and health of immigrants

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Submitted: 2015-09-21 Accepted: 2015-10-22 Published online: 2015-12-12

Key words: **socioeconomic status (SES); immigrants; health; social determinants of health**

Neuroendocrinol Lett 2015; **36**(Suppl. 2):69–77 **PMID:** 26748530 NEL361015A11

Abstract

The aim of this article is to acquaint the general public with select socioeconomic status (SES) parameters (type of work, education level, employment category, and net monthly income) of select nationalities (Ukrainians, Slovaks, Vietnamese, Poles, and Russians) from a total of 1,014 immigrants residing in the Czech Republic. It will also present a subjective assessment of socioeconomic status and its interconnection with subjective assessment of health status. This work was carried out as part of the *"Social determinants and their impact on the health of immigrants living in the Czech Republic"* project (identification number LD 13044), which was conducted under the auspices of the European Cooperation in Science and Technology (COST) agency.

Quantitative methodology in the form of a questionnaire was selected to facilitate the research aim. Data was processed using the Statistical Package for Social Sciences (SPSS), version 16.0 (SPSS, Inc., Chicago, IL, USA). Statistical analyses were performed using the Pearson chi-square test, adjusted residual analysis, and multivariate correspondence analysis.

The results of these tests demonstrated a statistically significant relationship between subjective assessments of socioeconomic status and the following related select characteristics: type of work performed (manual/intellectual), employment categories, education, and net monthly income. Results indicate that those situated lowest on the socioeconomic ladder feel the poorest in terms of health; not only from a subjective perspective, but also in terms of objective parameter comparisons (e.g. manual laborers who earn low wages). *As the level of subjective SES assessment increases, the level of subjective health assessment increases, as well.* Thus, the relationship has a natural gradient, as was described by Wilkinson and Marmot in 2003. *Our study found no evidence of a healthy immigrant effect*. Therefore, it was not possible to confirm that health status deteriorates with length of residence, or that the health status of immigrants with a residence duration of less than 5 to 10 years is statistically significantly better than immigrants who have resided in the Czech Republic for 10 years or more.

We conclude that, by increasing the education levels of immigrants, or actively selecting qualified foreign workers (according to set criteria), the number of people in the Czech Republic who positively assess their health status will surge. In terms of prevention, it is essential to focus on manual laborers and to differentiate specific methods to improve their health status (e.g. awareness-raising campaigns in large plants and factories), given that they comprise the weakest group in this regard.

ORIGINAL ARTICLE

INTRODUCTION

This paper presents information on subjective assessments of socioeconomic status (SES) and select objective parameters that were studied during the course of a project entitled *"Social determinants and their impact on the health of immigrants living in the Czech Republic"*, which was funded by the European COST agency (project ID: LD 13044). The article aims to utilize the results of subjective health assessments to acquaint the general public with select SES parameters in select nationalities of immigrants (Ukrainians, Slovaks, Vietnamese, Poles, and Russians) residing in the Czech Republic, and demonstrate their relationship to health status. The project was adopted in 2013 as part of scientific research entitled *"Adapting European Health Systems to Diversity"* (ADAPT), and will conclude in December 2015.

Social determinants of health

Social determinants of health present a comprehensive view of health in a contemporary world that is full of diversity and differences. Their multidimensional nature has been confirmed by numerous scientific disciplines, particularly those of epidemiology (e.g. Gordis 2009), social medicine, and the sociology of medicine (e.g. Bártlová 2005; Holčík *et al.* 2006). Combinations of these postulates form a complete approach to disease etiology and preventive approaches that lead to full bio-psycho-social-spiritual welfare and unity, as it is partially defined in the World Health Organization (WHO) Constitution from 1946. The significance of this concept of health led to the creation and adoption of the Rio Political Declaration on Social Determinants of Health in October 2011, as well as the establishment of the WHO's Commission on Social Determinants of Health, over which Sir Michael Marmot presided. Of course, the entire concept has received support and encouragement from numerous published findings, including the Marmot Review (2010) and various scientific articles (e.g. Barbeau *et al.* 2004; Marmot *et al.* 2010; Kajanová and Urban 2011; Brabcová and Vacková 2013; Gabrielová and Velemínský 2014; Urban and Kajanová 2014; Gabrielová and Brabcová 2015).

Key evidence signifying the importance of this concept was the demonstration of major health differences among countries with high or low standards of living, and even among locations situated closely within a given country (e.g. human life expectancies in various neighborhoods in Glasgow, Scotland); an issue which Prof. Marmot (2005) was not alone in deeming it to be unjustifiable.

Social determinants of health in immigrants

One particularly vulnerable group in the context of health inequality are *migrants* (e.g. immigrants, asylum seekers, de facto refugees, etc.) who abandon their country of origin in order to seek a new life abroad. The differences in the health of immigrants and different ethnic groups have been confirmed by authors such as Smith *et al.* (2000) and Bos *et al.* (2004). Solar and Irwin (2007) reported that health inequalities are dependent upon many factors including the individual's position in society, gender, and ethnicity. Nazroo (2003) described ethnic inequalities that are particularly evident among minorities in the USA and UK (i.e. 2 countries that have a long history of migration, including slavery and colonialism). It is therefore imperative, according to Tóthová *et al.* (2010) and Velemínský *et al.* (2014), to address the issue of immigrants' health status and include resolution proposals in government integration and health care policies (e.g. Brouček 2012; Brabcová *et al.* 2013; Vacková *et al.* 2014; Záleská *et al.* 2014).

Immigrants in the Czech Republic (statistics)

According to the Czech Statistical Office (CSO), 451,923 foreigners were resident in the Czech Republic as of 31. 12. 2014. The 5 most common foreign nationals were Ukrainians (104,388), Slovaks (96,222), Vietnamese (56,666), Russians (34,685), and Poles (19,626). As of 31. 12. 2014, a total of 5,464 Mongolians were also resident in the Czech Republic (Number of foreigners 2015, CSO).

Socioeconomic status – a theoretical definition

Research has shown (e.g. Marmot 2006) that the social position of an individual dramatically impacts their health, and does so from birth. SES is a component of social stratification as the basic structure of society and is, according to Šanderová (2004), an expression of the unequal distribution of scarce resources both material and immaterial in nature, especially wealth, power, and prestige. LaVeist (2005) stated that SES could be assessed using the following 6 most commonly used indicators: poverty, income, education, employment, welfare and other indices that combine income, education, and employment-associated prestige. According to Vacková *et al.* (2014), selection criteria can be adjusted and could be categorized as "status characteristics". The status characteristics selected for this study included the highest level of education achieved, type of work, employment category, and income. Additionally, participants provided their own subjective SES assessments, the methodology of which was adapted from research conducted by Sing-Manoux *et al.* (2003) that was based on the assertion that subjective measurements can determine social status dimensions that cannot be measured objectively.

Research aim and method of resolution

The title of this article indicates the aim to find relationships between subjective assessments of health and SES (subjective assessments and select objective parameters). The conceptual resolution upon which the project focused was the social gradient among 10 social determinants of health (published by Wilkinson and Marmot in 2003).

Socioeconomic status (SES) in select immigrants

The research question was, "What is the subjectively perceived SES among select nationalities in terms of select objective parameters (e.g. level of education, net monthly wages, type of work, and employment category) and does it impact subjective perceptions of health?"

Select SES questions:

- *education* (4 sub-categories were created: elementary, secondary, college and university);
- *net monthly income in CZK* (5 sub-categories were created according to the representation of responses: 0–10,000; 10,001–15,000; 15,001–20,000; 20,001–30,000; and >0,001);
- *employment* was categorized according to Matthews and Power (2002), which is the employment classification used in the UK for international comparison (the CSO category of employment is used in the Czech Republic). The respondents were only represented by the following categories: ancillary and unskilled workers (manual position); low-skilled workers (manual position); administrative and technical staff; executives and managers; and a supplemental category for those not in the labor market (e.g. mothers on maternity leave, students, the unemployed, etc.);
- *type of work* (categorized as manual, a combination of manual and intellectual, and intellectual);
- *subjective perception of SES in the Czech Republic and country of origin:* Respondents reported on a scale of 1 to 10, with 1 representing the lowest SES and 10 the highest; a tool for subjective classification to first determine which groups ranked the lowest (e.g. the homeless) and highest (e.g. judges and doctors) and then classify themselves. Demarcation of the scale was determined by each participant separately. This 10-point scale was sub-categorized in 2 ways, the first of which indicated 3 positions of low SES (1–3 points), middle SES (4–7 points), and high SES (8–10 points) – once again, according to the representation of respondents. The second form of subcategorization merged only the 2 extreme values and the mean was left to allow close examination of respondents' subjectively evaluated SES.

Subjective perception of health

These variables were related to the *subjective perception of health*, which was investigated via the question, *"How do you feel about your overall health?"* (Answer options ranged from "excellent" to "very badly" on a 5-point scale.)

MATERIALS AND METHODS

Quantitative methodology, in the form of a questionnaire, was used to achieve the research aim. Data was processed using SPSS, version 16.0 (SPSS, Inc., Chicago, IL, USA). Statistical analyses were performed using i) the Pearson chi-square test (agreed confidence level of $\alpha = 0.05$; no cell had an expected frequency of less than 1, and more than 20% of the cells had an expected frequency of less than 5); ii) adjusted residual analysis, which determined the significance of deviations in data and expected values (displayed in the text by sign schemes); and iii) multivariate correspondence analysis, the main output of which was a graph displaying variable categories in the plane (or a multidimensional space). Henceforth, use of the word significant or significantly will mean statistically significant.

Project schedule

The project schedule was designed to achieve the primary study aim and answer the fundamental research question (i.e. determine whether select characteristics of social situations impact the health of an individual). In 2013, background research was conducted via domestic and foreign (database) literature review; the research tool (a questionnaire) was created; and the first stage of data collection was performed. In 2014, the second stage of data collection was performed (including blood sampling), and the first analysis was performed with the SPSS program. The data matrix was prepared with statistical tests including the chi-square test, adjusted residual analysis, cluster and correspondence analyses, and select non-parametric tests. In 2015, the results will be published and a monograph will be prepared; both of which will be finalized later this year.

Target group

The target group of select immigrants residing in the Czech Republic comprised a total of 1,014 respondents: 185 Vietnamese (18.4%); 198 Poles (19.7%), 237 Ukrainians (23.6%), 190 Russians (18.9%), and 193 Slovaks (19.2%). Respondent distribution according to sex was 575 women (57.2%) and 430 men (42.8%); respondent distribution according to age (sub-categorized into 3 groups) was 281 18–30 years (28.1%); 538 aged 30–49 years; (53.7%); and 182 ≥50 years (18.2%).

All participants were legally established immigrants in the age group of 18–65 years. Respondents were contacted through partner organizations that deal with integration and migration in the capital city of Prague, as well as in the South Bohemian, Central Bohemian, Plzeň, Ústí nad Labem, Moravian-Silesian, South Moravian, and Hradec Králové Regions. Given the absence of a core set of immigrants living in the Czech Republic, and the impossibility of determining the place of immigrant life (since the place of residence may not necessarily coincide with where the respondent lives and works), it was not possible to identify a representative group of immigrants on a regional basis. Thus, selection was deliberate and based on 4 stratification criteria including nationality, sex, age (18–30 years, 30–49 years, and ≥50 years) and residence duration (≤5 years; >5 years; >10 years; and ≥15 years).

The Conception of Integration from 2006 defines **immigrant** as a "long-term, legally-established alien who has been legally resident in the Czech Republic for a period of at least one year". For the purposes of this study, however, it was not necessary to require one year of residence given that all foreign immigrants had already been granted a long-term visa or long-term residence permit exceeding this minimum (especially in the case of those with permanent residence).

RESULTS

Subjective SES and other select parameters

High compliance ($p = 0.000$) was observed when examining the relationship between subjective SES assessments in the Czech Republic and the country of origin. Table 1 shows that those who evaluated their status in their country of origin as low, medium, or high were also significantly more likely to assess themselves with same value in the Czech Republic. It is therefore obvious that no shift in subjective SES assessment occurred during the transition from the country of origin to the Czech Republic. This leads to the question of why, then, did the immigrants leave their home countries? However, in terms of subjective SES, the assessment reflected other variables more significantly than, for example, net monthly income, which was the most common reason for socioeconomic migration.

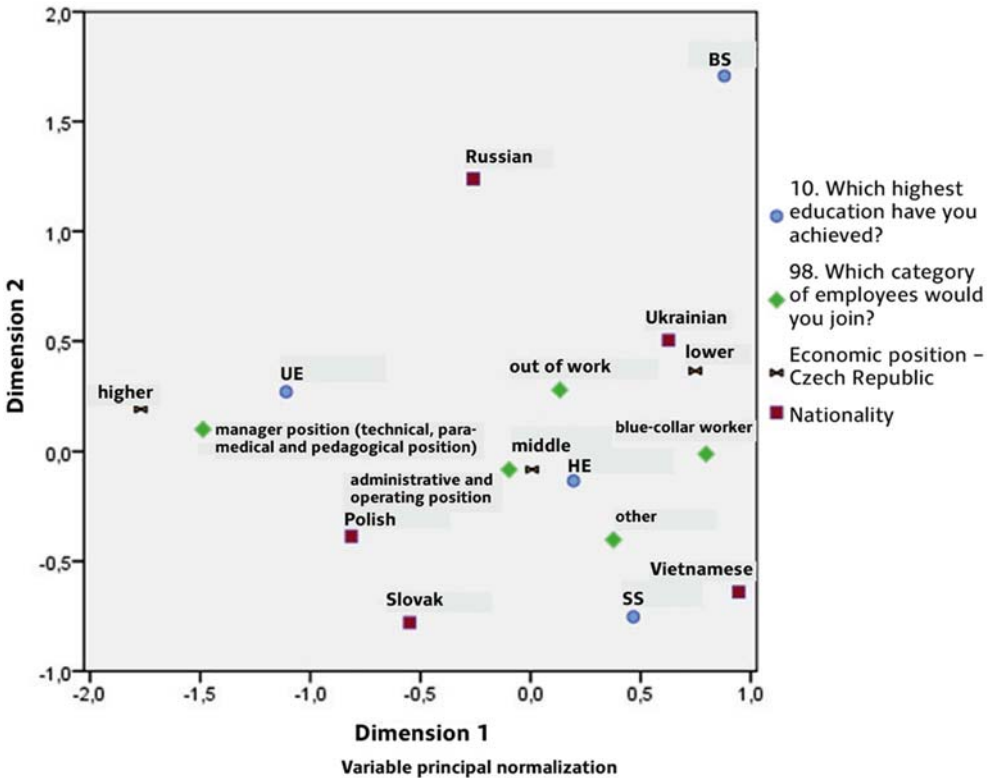
When examining SES from multiple perspectives using multidimensional correspondence analysis, the following conclusions became apparent (Chart 1). It is clear that the x-axis (dimension 1) i.e., the **education** axis, **is a key factor in subjective SES assessment**. Other criteria are closely linked to education and illustrate SES from an objective perspective. This includes the employment category, according to which it is possible to summarize that, when compared to other immigrant groups, a greater number of Poles and Slovaks were employed in intellectual professions with leadership and professional positions (university degrees and higher SES levels were more common among them). Ukrainians primarily held manual occupations and assessed their SES as being lower. The majority of Vietnamese in the sample completed secondary education, and most were self-employed (in a combination

Tab. 1. Relationship between subjective SES for the country of origin and Czech Republic

		SES for the country of origin		
		Lower	**Middle**	**Higher**
SES in the Czech Republic	Lower	+++	– – –	– –
	Middle	– – –	+++	– – –
	Higher	– –	– – –	+++

Source: COST research, Reg. No. LD 13044 entitled: "Social determinants and their impact on the health of immigrants living in the Czech Republic". Processed in SPSS version 16.0. Adjusted residual analysis (tick chart).

Legend: +/– (for a significance level of α ≤ 0.05); ++/– – (for a significance level of α ≤ 0.01); +++/– – – (for a significance level of α ≤ 0.001).



Source: COST research, Reg. No. LD 13044 entitled: "Social determinants and their impact on the health of immigrants living in the Czech Republic". Processed in SPSS version 16.0. Correspondent analysis.

Chart 1. Select SES characteristics and subjective SES perception

Note: SES in the Czech Republic in relation to nationality (correspondence analysis, representation of variability in both dimensions, was 81.3%).

of intellectual and manual work) with an average rank on the SES scale. The Russians were divided into 2 groups: 1 group with a university education, and 1 with an elementary education (in the chart, they are outside of the common characteristics that would depend on a given type of education). These findings illustrate the life strategies of the select nationalities; however, it is obvious that it depends significantly upon the length of residence, which is crucial for the integration of immigrants into Czech society (Martínková (2008) and Uherek *et al.* (2008).

Relationship between subjective perceptions of SES and health

The relationship between subjective SES ranking and the subjective perception of health were examined via adjusted residual analysis, the results of which are shown in the sign scheme below (Table 2). It is obvious that those ranked lowest on the scale (i.e. 1–3) considered their health to be poor while, conversely, those ranked at the highest levels (i.e. 8–10), considered their overall health to be good. Respondents ranked in the middle levels (i.e. 4–7) statistically less often considered their health to be poor. Thus, there was an apparent shift in health assessments from the lowest levels to the highest levels and we can, therefore, confirm the presupposition (and numerous scientific findings; e.g. Demakakos *et al.* 2008) that, **as subjective SES assessment levels increase, subjective health assessment levels improve**.

The relationship between the subjective perception of health, nationality, length of residence and other select SES parameters

The subjective perception of health is influenced not only by SES scale rankings (1 to 10), but also the type of work (manual/intellectual), employment category, net monthly wage amount, and education (as demonstrated by the significant relationship that can be seen in Table 3).

Subjective perception of health vs. other select SES characteristics

Table 3 shows significant relationships between the subjective perception of health and the type of work, employment category, education and net monthly wage. The adjusted residual analysis indicates the direction of this dependence (adjusted residual analyses that could

Tab. 2. The relationship between subjective perceptions of SES and health

		How do you feel about your overall health?		
		Badly	**Satisfied (average)**	**Good**
Subjective SES in the Czech Republic (sub-categorized scale from 1 to 10 in 3 sub-categories)	Lower (1–3)	+++	**o**	– – –
	Middle (4–7)	– – –	**o**	**o**
	Higher (8–10)	**o**	–	+

Source: COST research, Reg. No. LD 13044 entitled: "Social determinants and their impact on the health of immigrants living in the Czech Republic". Processed in SPSS version 16.0. Adjusted residual analysis (tick chart).

Legend: +/– (for a significance level of $\alpha \leq 0.05$); ++/– – (for a significance level of $\alpha \leq 0.01$); +++/– – – (for a significance level of $\alpha \leq 0.001$).

Tab. 3. Relationship between select SES objective parameters, subjective perception of health, nationality, and residence duration.

		How do you feel about your overall health? (subjective perception of health)	Nationality	Residence duration in the Czech Republic
Type of work	Chi-square	23.931	126.116	21.189
	Df	4	8	6
	Sig.	**0.000***	**0.000***	**0.002***
Category of employment	Chi-square	35.846	192.675	30.383
	Df	8	16	12
	Sig.	**0.000***	**0.000***	**0.002***
Education	Chi-square	15.375	145.160	14.975
	Df	6	12	9
	Sig.	**0.018***	**0.000***	0.092
Net monthly income	Chi-square	35.170	16.598	22.782
	Df	8	16	12
	Sig.	**0.000***	0.412	**0.030***

Results are based on nonempty rows and columns in each innermost sub-table.
* The Chi-square statistic is significant at the 0.05 level. Abbreviations: df – degrees of freedom; Sig. – significance

not be presented in this text are part of the upcoming monograph).

From Table 3 and the adjusted residual analysis, it is clear that **those in executive and professional (e.g. technical, paramedical, and pedagogical) positions, as well as those out of the labor market** (e.g. mothers on maternity leave, students, etc.) **felt the healthiest**. Respondents employed in manual labor occupations felt their health was satisfactory. The adjusted residual analysis clearly demonstrates that, in terms of the type of work performed, those with intellectual occupations are significantly more likely to feel healthier those with manual labor occupations.

Likewise, the relationship between education and the subjective perception of health showed that **university educated respondents assessed their health as being good, which was in contrast to the remaining respondents with lower levels of education** (an interesting exception to this was observed in respondents with higher vocational school educations, which the Vietnamese were significantly more likely to have attended). It therefore appears that, in these nationalities, the subjective perception of health is also influenced by other factors (e.g. working hours, different sociocultural and natural environments (e.g. flora that often cause allergies, etc.). Our research can, of course, verify all of these issues and will be included in the monograph as a result of this project.

It was interesting to find that **net monthly salary also had a statistically significant effect on the subjective perception of health**. Immigrants who earned 20,000 CZK per month or more reported their health as ranging from excellent to very good, compared to people who earned from 0 to 15,000 CZK/mo.

Nationality in relation to select SES characteristics (see Table 3)

If we examine sample distribution in terms of nationality and its relation to select SES characteristics, it is obvious (and supported by both the aforementioned correspondence analysis and adjusted residual analysis, which show the direction of dependence demonstrated in Table 3) that: The Vietnamese tend to work in self-employed professions, which are either manual in nature, or a combination of manual and intellectual work; Ukrainians are significantly more likely to hold manual labor occupations; Slovaks and Poles in the Czech Republic tend to work in professional careers and leadership positions; and Russians are significantly more frequently represented in occupations related to administration and management.

The Vietnamese achieve secondary and higher vocational levels of education, while the Ukrainians were significantly more likely to have only an elementary level of education. The Russians were divided into two groups: those with an elementary level of education, and those with a university degree (it would certainly be interesting to determine how 2 these groups are divided among the sexes, but that should be part of the upcoming monograph). The Slovaks tended achieved secondary and university level educations. The highest levels of education in the sample were found among the Poles (higher vocational and university). Compared to the other nationalities, the Poles were also significantly more likely to rank their SES as being higher (thereby confirming the education category as a basic differential criterion for subjective SES assessment).

When examining the relationship between nationality and net monthly wage, no significance was found. It is evident that income does not mirror social status in terms of nationality differentiation.

Length of residence in relation to select SES characteristics (see Table 3)

Length of residence appears to be a significant criterion when examining this issue, and experience with integration shows that it is not possible to ignore this aspect (Vissandjee *et al.* (2004); Newbold (2005); Uretsky and Mathiesen (2007); Brabcová (2012); Vacková (2012)).

Those immigrants who had been resident in the Czech Republic for <5 years were significantly more likely to be out of the labor market, while those who had been resident >15 years, were significantly more likely to hold leadership positions in professional occupations (technical, paramedical, and pedagogical). Longer residence durations saw in increase in the number of immigrants with professions that were a combination of manual and intellectual activities. Net monthly wages also increased with residence duration: respondents living in the Czech Republic <5 years were significantly more likely to earn <10,000 CZK/mo, while immigrants who were resident >10 years were significantly more likely to earn >30,000 CZK/mo.

Residence duration did not impact education; there was no statistically significant change in education with increasing residence duration. Residence duration and the subjective perception of health were not found to have a relationship ($p = 0.132$); i.e. it was not possible to confirm the healthy immigrant effect reported by authors such as Escobar *et al.* (2000), Abraído-Lanza *et al.* (2005), and Hosper *et al.* (2007).

DISCUSSION

The aim of this article was to determine whether select objective SES characteristics (type of job, employment category, education, and net monthly wage) and subjective SES perception impact the subjective perception of health in select immigrant nationalities residing in the Czech Republic, and identify that part of the social gradient in terms of the social determinants of health. Numerous studies (Dalstra *et al.* 2005; Marmot 2006; Kreidl 2008; Kraus and Keltner 2009; Kraus *et al.* 2011) have demonstrated that health improves (both in terms of subjective and objective parameters) with increasing SES. This was also confirmed in our study.

The **subjective perception of health improves with increasing subjective SES perception**; those situated highest on the socioeconomic ladder (within the range of 8 to 10) assessed their health as being excellent or very good, while those situated lowest (within the range of 1 to 3) assessed their health to be poor or very poor.

This research presupposed that the duration of residence would significantly impact the subjective perception of health and confirm the "healthy immigrant effect" (mentioned by, for example, Ronellenfitsch and Razum 2004; Vissandjee *et al.* 2004; Newbold 2005; Uretsky and Mathiesen 2007; Dobiášová and Hnilicová 2010). According to this effect, recent immigrants are generally in better health than people from the majority population in similar socioeconomic conditions. However, according to Malmusi *et al.* (2010), this advantage subsides very quickly despite relative improvement in socioeconomic position. The reason this effect was not confirmed by our study may be due to comparisons of immigrants' subjective SES in the countries of origin and the Czech Republic, which were found to be significant (i.e. have a significant correspondence); thus there was no statistically significant differences between subjective SES in the country of origin and in the Czech Republic. The reason for this finding is that the fundamental differentiation criterion for SES assessment was education, which did not change significantly during an immigrant's life in the Czech Republic. Thus, **education determined where immigrants in the Czech Republic subjectively ranked themselves on the socioeconomic scale** (regardless of residence duration). The "healthy immigrant effect" may, according to Moullan and Jusot (2014), vary in different EU countries and could depend upon other parameters (e.g. type of migration and integration systems of individual countries). **However, it is clear that education is not the only factor that contributes to a subjective sense of overall health; other parameters such as the type of work, employment category, and net monthly income contribute to it, as well** (Table 3).

SES is not only characterized by the healthy immigrant effect (which points to the temporal aspect of health assessments), but also the accumulation of various influences (e.g. performing physically-demanding manual labor, as reported by Marmot *et al.*, 1984; Lu 2008; Redstone Akresh and Frank 2008). A statistically significant relationship was found between subjective SES assessment and the following select characteristics: type of work performed (manual/intellectual), employment category, education, and net monthly income. Those who are lowest on the socioeconomic scale perform manual (ancillary) labor, have a low income (most of which they fail to save) and an elementary level education; this is obviously closely related to their lifestyle and characterizes it (as mentioned, for example, by Tóthová *et al.* (2011a, 2011b).

Risks associated with the 'conceptual plan' and project resolution methods

Methodological limitations include the non-representativeness (and non-stratification according to regions of the Czech Republic) of the research sample (due to lack of a core set of immigrants living in the Czech Republic – to obtain this information, all immigrants would have had to be interviewed). Nevertheless, the results did confirm some significant facts that have been published in many foreign sources.

Risks associated with research on social determinants of health

The 'social determinants of health concept' provides such a comprehensive view of individual health that it naturally bear various interpretation risks. One such risk is the reciprocity hypothesis (i.e. not only the impact of social factors on health, but also the impact of select health aspects on individuals' social situations) which has been mentioned in the context of social drift theory (by authors such as Dooley *et al.* 1992; Leigh 1995; Hurst 2006; Ellaway and Macintry 2007). The relationship between the subjective perception of health and subjective SES perception (or select socioeconomic parameters) may involve more variables that were not identified during the research. This risk must be taken into consideration when interpreting the conclusions reached by this study.

CONCLUSION

Research on subjective SES perception and select objective SES parameters (e.g. education, income, employment category, type of work) in relation to the subjective perception of health, demonstrated that the main criterion for SES assessment was education (see correspondence analysis). Given that no statistically significant change was detected in the education levels of immigrants during their residence, the healthy immigrant effect could not be confirmed. Those lowest on the socioeconomic scale assessed their health as being poor to very poor, in comparison to those situated highest on the scale. Thus, there appears to be evidence of a gradient (i.e. overall health status improves with increasing SES). It is clear (and statistically shown) that the type of work, income, and employment category contribute significantly to objective SES characteristics (immigrants represent a weakened group in this respect) and, in terms of nationality distribution, this was mainly observed in the Ukrainians. Slovaks, Poles, and Russians (i.e. those with higher vocational and university levels of education) residing in the Czech Republic were involved in higher categories of employment (i.e. engineering, paramedical and pedagogical) and, thus, earned higher wages.

It is clear that by increasing the education levels of immigrants, or actively selecting qualified foreign workers (according to set criteria), the number of

people in the Czech Republic who positively assess their health status will surge.

In terms of prevention, it is essential to focus on manual laborers and differentiation of methods to improve their health status (e.g. awareness-raising campaigns in large plants and factories), given that they comprise the weakest group in this regard.

ACKNOWLEDGEMENT

The article was produced as part of the *"Social determinants and their impact on the health of immigrants living in the Czech Republic"* project (identification number LD 13044), which was conducted under the auspices of the European Cooperation in Science and Technology (COST) agency.

REFERENCES

1 Abraído-Lanza AF, Chao MT, Flórez KR (2005). Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. Social Science and Medicine. **61**(6): 1243–1255.
2 Barbeau EM, Krieger N, Soobader MJ (2004). Working Class Matters: Socioeconomic Disadvantage, Race/Ethnicity, Gender, and Smoking in NHIS 2000. American Journal of Public Health. **94**(2): 269–278.
3 Bártlová S (2005). Sociologie medicíny a zdravotnictví [Social Medicine and Healthcare]. 6th ed. Prague: Grada, 184 p. (Czech).
4 Bos V, Kunst AE, Keij-Deerenberg IM, Garssen J, Mackebach JP (2004). Ethnic inequalities in age- and cause-specific mortality in the Netherlands. International Journal of Epidemiology. **33**: 1112–1119.
5 Brabcová I (2012). Zdraví, zdravotní stav a zdravotní potřeby migrantů v České republice [Health, Health Status and Healthcare Needs of Migrants in the Czech Republic]. In: Vacková J *et al.* Zdravotně sociální aspekty života imigrantů v České republice [Health and Social Aspects of Immigrant Life in the Czech Republic]. Prague: Triton (Czech).
6 Brabcová I, Vacková J (2013). Koncepce deseti sociálních determinant zdraví [The Concept of 10 Social Determinants of Health]. Kontakt. **4**: 406–412 (Czech).
7 Brabcová I, Vacková J, Záleská V (2013). Risk of cardiovascular diseases in immigrants for chosen nationalities and locations in the Czech Republic. Journal of Nursing, Social Studies, Public Health and Rehabilitation. **3–4**: 112–124.
8 Brouček S (2012). Migrace a česká společnost – téma zahlcené „dobrými" nápady a přehřáté druhotnými zájmy [Migration and Czech Society: A Topic Clogged by "good" Ideas and Overheated Secondary Interests]. Prague: Institute of Ethnology, ASCR, v. v. i. in cooperation with the Czech Senate, 2012 (Brouček S, Grulich T), p. 19–25 (Czech).
9 Dalstra JA, Kunst AE, Borell C, Breeze E, Cambois E, Costa G *et al.* (2005). Socioeconomic differences in the prevalence of common chronic diseases: an overview of eight European countries. International Journal of Epidemiology. **34**(2): 316–326.
10 Demakakos P, Nazroo J, Breeze E, Marmot M (2008). Socioeconomic status in health: the role of subjective social status. Social Science & Medicine. **67**: 330–340.
11 Dobiášová K, Hnilicová H (2010). Migranti a zdravotní politika v *ČR* [Migrants and Healthcare Politics in the Czech Republic]. Prague: Zdravotnictví v České republice. **4**(XIII): 122–127 (Czech).
12 Dooley D, Catalano R, Hough R (1992). Unemploymentand alcohol disorder in 1910 and 1990 – drift versus social causation. Journal of Occupational and Organizational Psychology. **65**: 277–290.
13 Ellaway A, Macintry S (2007). Is social participation associated with cardiovascular disease risk factors? Social Science & Medicine. **64**: 1384–1391.
14 Escobar JI, Hoyos Nervi C, Gara MA (2000). Immigration and mental health: Mexican Americans in the United States. Harvard Review of Psychiatry. **8**: 64–72.
15 Gabrielová J, Brabcová I (2015). Vplyv vybraných sociálnych podmienok na zdravie Slovákov žijúcich v Českej republike [Impact of Select Social Conditions on the Health of Slovaks Residing in the Czech Republic]. Kontakt. **17**(3): 55–63 (Slovak).
16 Gabrielová J, Velemínský M (2014). Interdisciplinary collaboration between medical and non-medical professions in health and social care. In: Neuroendocrinol Lett. **35**(Suppl. 1): 59–66.
17 Gordis L (2009). Epidemiology. USA: Sounders, an imprint of Elsevier Inc., 375 p.
18 Holčík J, Žáček A, Koupilová I (2006). Sociální lékařství [Social Medicine]. 3rd ed. Brno: Masaryk University, 137 p. (Czech).
19 Hosper K, Nierkens V, Nicolaou M, Stronks K (2007). Behavioural risk factors in two generations of non-Western migrants: do trends converge towards the host population? European Journal of Epidemiology. **22**: 163–172.
20 Hurst ChE (2006). Social Inequality: Forms, Causes, and Consequences. Boston: Pearson/Allyn and Bacon. 6th ed., p. 452.
21 Kajanová A, Urban D (2011). Vybrané sociální determinanty zdraví romského obyvatelstva v České republice [Select Social Determinants of Health in the Roma Population in the Czech Republic]. In: Balvín J, Šlosár D, Vavreková L. Romové ve spektru mezinárodních vědeckých studií [The Roma Population in the Spectrum of International Studies]. Wroclaw: Foundation of Social Integration PROM, p. 417–436 (Czech).
22 Kraus MW, Keltner D (2009). Signs of socioeconomic status: A thin-slicing approach. Psychological Science. **20**: 99–106.
23 Kraus MW, Piff PK, Keltner D (2011). Social class as culture: The convergence of resources and rank in the social realm. Current Directions in Psychological Science. **20**: 246–250.
24 Kreidl M (2008). Can status differences in lay knowledge about health explain status differences in subjective health? Sociologický časopis. **1**: 55–86.
25 LaVeist T (2005). Minority Populations and Health. An Introduction to Health Disparities in the United States. San Francisco: Jossey-Bass.
26 Leigh JP (1995). Smoking, self-selection and absenteeism. Quarterly Review of Economics and Finance. **35**: 365–386.
27 Lu Y (2008). Test of the 'healthy migrant hypothesis': A longitudinal analysis of health selectivity of internal migration in Indonesia. Social Science and Medicine. **67**: 1331–1339.
28 Malmusi D, Borrell C, Benach J (2010). Migration-related health inequalities: Showing the complex interactions between gender, social class and place of origin. Social Science and Medicine. **71**(9): 1610–1619.
29 Marmot Review (2010). Fair society, healthy lives: Strategic review of health inequalities in England post. London: Marmot review. [online] [cit. 2010-10-09]. Available from: http://www.marmotreview.org
30 Marmot M (2005). Social determinants of health inequalities. Lancet. **365**: 1099–1104.
31 Marmot M, Allen J, Goldblatt P (2010). A social movement, based on evidence, to reduce inequalities in health. Social Science and Medicine. **71**: 1254–1258.
32 Marmot MG (2006). Status syndrome – a challenge to medicine. Journal of the American Medical Association. **295**(11): 1304–1307.
33 Marmot MG, Adelstein MA, Bulusu L (1984). Lessons from the study of immigrant mortality. Lancet. **323**: 1455–1457.
34 Martínková Š (2008). Sociabilita vietnamského etnika v Praze [Sociability of Ethnic Vietnamese in Prague]. In: Uherek Z, Korecká Z, Pojarová T (eds.). Cizinecké komunity z antropologické perspektivy. Vybrané případy významných imigračních skupin v České republice [Foreign Communities from an Anthropological Perspective. Select Cases of Significant Immigrant Groups in the Czech Republic]. Prague: Institute of Ethnology, ASCR (Czech).

35 Matthews S, Power CH (2002). Socio-economic gradients in psychological distress: a focus on women, social roles and work-home characteristics. Social Science & Medicine. **54**: 799–810.
36 Moullan Y, Jusot F (2014). Why is the 'healthy immigrant effect' different between European countries? Eur J Public Health. **24**(Suppl. 1): 80–86. doi: 10.1093/eurpub/cku112.
37 Nazroo JY (2003). The structuring of ethnic inequalities in health: economic position, racial discrimination, and racism. American Journal of Public Health. **93**(2): 277–284.
38 Newbold KB (2005). Self-rated health within the Canadian immigrant population: risk and the healthy immigrant effect. Social Science and Medicine. **60**(6): 1359–1370.
39 Number of Foreigners in the Czech Republic – Data Sheets. CSO (2015). Cizinci podle typu pobytu, pohlaví a státního občanství – k 31. 12. 2014 [Foreigners According to Type of Residence, Sex and Citizenship as of 31. 12. 2014]. [online] [cit. 2015-05-24]. Available from: https://www.czso.cz/documents/11292/27914491/1412_c01t11.pdf/76c86ab3-d83d-4586-a330-3d9342897156?version=1.0 (Czech).
40 Redstone Akresh I, Frank R (2008). Health selection among new immigrants. American Journal of Public Health. **98**(11): 2058–2064.
41 Rio Political Declaration on Social Determinants of Health (2011). [online] [2015-09-29]. Available from: http://www.who.int/sdhconference/declaration/en/
42 Ronellenfitsch U, Razum O (2004). Deteriorating health satisfaction among immigrants from Eastern Europe to Germany. International Journal for Equity in Health. **3**: 4.
43 Šanderová J (2004). Sociální stratifikace. Problém, vybrané teorie, výzkum [Social Stratification. The Problem, Select Theories, Research]. Prague: Karolinum, 172 p. (Czech).
44 Singh-Manoux A, Adler NE, Marmot MG (2003). Subjective social status: its determinants and its association with measures of ill-health in the Whitehall II study. Social Science & Medicine. **56**(6): 1321–1333.
45 Smith GD, Chaturvedi N, Harding S, Nazroo J, Williams R (2000). Ethnic inequalities in health: a review of UK epidemiological evidence. Critical Public Health. **10**: 404–408.
46 Solar O, Irwin A (2007). A conceptual framework for action on the social determinants of health. Discussion paper for the Commission on Social Determinants of Health. Geneva, World Health Organization.
47 Tóthová V a kol. (2010). Zabezpečení efektivní ošetřovatelské péče o vietnamskou a čínskou minoritu [Securing Effective Nursing Care for the Vietnamese and Chinese Minorities]. Prague: Triton, 194 p. (Czech).
48 Tóthová V, Veisová V, Jelečková M, Michálková H, Rolantová L (2011a). Životní styl mongolské minority v České republice [Lifestyle of the Mongolian Minority in the Czech Republic]. Kontakt. **13**(3): 275–286 (Czech).
49 Tóthová V, Veisová V, Michálková H, Jelečková M. (2011b). Attitude to health in members of the Mongolian minority in the Czech Republic. Journal of Nursing, Social Studies, Public Health and Rehabilitation. **3–4**: 220–229.
50 Uherek Z, Korecká Z, Pojarová T (2008). Cizinecké komunity z antropologické perspektivy. Vybrané případy významných imigračních skupin v České republice [Foreign Communities from an Anthropological Perspective. Select Cases of Significant Immigrant Groups in the Czech Republic]. Prague: Institute of Ethnology, ASCR, 259 p. (Czech).
51 Constitution of the World Health Organization (1946). [online] [2015-09-29]. Available from: http://www.who.int/governance/eb/who_constitution_en.pdf
52 Urban D, Kajanová A (2014). Sociální opora u sociálně exkludovaných romských rodin [Social Support in Socially Excluded Roma Families]. Anthropologia Integra. **5**(1) (Czech).
53 Uretsky MC, Mathiesen SG (2007). The Effects of Years Lived in the United States on the General Health Status of California's Foreign-Born Populations. Journal of Immigrant and Minority Health. **9**: 125–136.
54 Vacková J (2012). Sociální gradient – sociální postavení u vybraných imigrantů v České republice [Social Gradient – Social Status in Select Immigrants in the Czech Republic]. In: Vacková J *et al.* Zdravotně sociální aspekty života imigrantů v České republice [Health and Social Aspects of Immigrant Life in the Czech Republic]. Prague: Triton, 301 p. (Czech).
55 Vacková J, Velemínský M, Brabcová I, Záleská V (2014). Subjective Social Status in select Ukrainians, Vietnamese, and Mongolians living in the Czech Republic. Neuroendocrinol Lett. **35**(Suppl. 1): 101–112.
56 Velemínský M, Jr., Průchová D, Vránová V, Samková J, Samek J, Porche S, Lukášová E, Velemínský M, Sr., Liška J (2014). Medical and salutogenic approaches and their integration in taking prenatal and postnatal care of immigrants. Neuroendocrinol Lett. **35**(Suppl. 1): 67–79.
57 Vissandjee B, Desmeules M, Cao Z, Abdool S, Kazanjian A (2004). Integrating ethnicity and migration as determinants of Canadian women's health. BMC Women's Health. **4**: 32.
58 Wilkinson R, Marmot M (2003). The Solid Facts: Social Determinants of Health. Kopenhagen: WHO Regional Office for Europe, 33 p. [online] [2015-09-29]. Available from: http://www.euro.who.int/__data/assets/pdf_file/0005/98438/e81384.pdf
59 Záleská V, Brabcová I, Vacková J (2014). Migration and its impact on mental and physical health: Social support and its main functions. Kontakt. **4**: 280–285.