Quality of Life of the Second-Generation Roma and non-Roma Unemployed II. – Education Level, Professional Qualification, Fitness for Work[1]

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Abstract

Introduction. In their previous study the authors suggested that bringing the quality of life of the unemployed closer to the national average was determined by three groups of parameters. Namely: i) environmental health parameters; ii) education level, qualification, health status to practice a profession (fitness for work); iii) the mental-psychic-volitional/behavioural personality traits of the unemployed and the support for their convergence by the majority society. In the first part of their three-part detailed study series they determined that the indoor and outdoor environmental health situation of the second generation unemployed was worse than that of the first generation unemployed; the public health-epidemiological safety of second generation Roma unemployed living in colonies was also critical; their social convergence by immediately changing their environmental health situation could not be accomplished without outside help.

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Objective. Individual components of the second group of parameters (education level, professional qualification, fitness for work) necessary for improving the quality of life of the second generation unemployed were examined. *Methods.* The education level and qualifications of 852 first and second generation unemployed Hungarian and Roma men and women were recorded with interview questionnaire method; their fitness for physical work was examined by an occupational medicine specialist, while a further group of 876 active workers underwent a fitness for job examination by the same occupational medicine specialist. *Statistical evaluation.* The data were evaluated using partly descriptive statistical methods, partly analytical methods suitable for comparison. *Results.* The education level of both the first and second generation unemployed was found to be low, lagging behind the education level of the adult population in Hungary. The proportion of those without even 8 years of primary school education was significantly higher among the Roma unemployed in both generations and genders compared to the Hungarians. In the second generation, the proportion of Roma unemployed with completed 8 years of primary school significantly exceeded the proportion of Hungarians, while the proportion of those with vocational training based on 8 years of primary school was significantly higher among the Hungarian unemployed than among the Roma. The proportion of grammar school graduates was very small, among the Roma there was only 1 person in each generation who graduated grammar school. It was also found that in line with the low education level the professional qualification in both the first and the second generations was also of low level. The proportion of those without a profession was high among both the Hungarian and the Roma first and second generation unemployed of both genders; the proportion of those without a profession among the second generation unemployed was significantly higher than among the first generation unemployed. The proportion of Roma with no profession was significantly higher than that of the Hungarians in all comparisons; this proportion was of extreme size among Roma women. Vocational secondary school education was very low in all groups, while there was only one unemployed with higher education in both the first and the second generation. Fitness for physical work was significantly more frequent among the second generation unemployed than among the first one. The reason for this difference was their younger age. The unfitness rate observed among the second generation unemployed still exceeded that of the actively employed. Regarding the entire study population, the risk of being unfit for work among the unemployed was 16.7 times higher than that of the active workers. The odds ratio was 20.6 among the first generation and 9.4 among the second generation unemployed. *Conclusion.* Since the level of education and professional qualification of the second generation unemployed barely surpassed that of the first generation and because the rate of those with no profession among the second generation unemployed was significantly higher than among the first generation, this at best was only enough to preserve the current quality of life resulting from unemployment. The seemingly better fitness for work situation of the second generation unemployed compared to the first generation was solely the "result" of their younger age, which however did not even reach the similar level of ability of the active workers.

Key Words: unemployed, Roma, education, professional qualification, fitness for work, unfitness, quality of life

INTRODUCTION

Based on the previous publication in this subject (Ungváry et al., 2016A) and the first part of this current three-part series (Szakmáry et al., 2017) based on investigations of the living conditions of the unemployed and the Roma minority in Hungary that began many years ago (NIOH, 1990; 1991; 1992; Ungváry, 1993; Ungváry et al., 2005) we believe that these two very important disadvantaged minorities can have a marked adverse effect on the average quality of life of the total Hungarian population. We anticipated that the quality of life of these two minorities depend, in an obligate manner, on their environmental health situation, education, professional qualification, fitness for job, features of their mental, psychic and volitional traits necessary for their social convergence, as well as the human and economic support from the society.[3] Our objective was to define and present the factors responsible for the listed correlations so that the priority, implementation of the necessary corrective actions may become evident. The first publication of the series (Szakmáry et al., 2017) formulated as priority the improvement to a level worthy of human beings of the indoor and outdoor environmental health situation of Roma unemployed living in Roma colonies.

In this current study we examined the education level, professional qualification, fitness for physical jobs of Hungarian and Roma unemployed living in a small area, in particular how these affect their quality of life and through what effects this quality of life can influence the quality of life of the population of the small area and/or the total population of Hungary. By considering our findings we also tried to find out whether there were any priority challenges involved in the improvement of the quality of life of the Hungarian and the Roma unemployed.

MATERIAL AND METHODS

852 unemployed women and men aged 18-61 (with legal capacity) presenting for mandatory occupational health (medical) fitness for job and/or fitness for work at the Ózd Labour Centre were included in the study on the one hand. The 852 study subjects were divided into four – non-Roma (they all stated that they were ethnic Hungarian) men and women, and Roma men and women – groups. The groups were further divided (with the help of their work history) into subgroups of first and second-generation unemployed. On the other hand – only for the purpose of comparing fitness for work – active workers (876 individuals, 467 men and 409 women) presenting at the Ózd Work Med Occupational Health Centre were also included in the study.

Data recording, data management, data protection

Most of the studies were carried out prior to the introduction of legislation (Act CVI of 2011) on public benefit work. In addition to self-filled questionnaire, interview methods, occupational medicine specialist methods necessary for assessing fitness for job and/or fitness for work were used. The questionnaires ensuring anonymity included questions necessary for assessing the demographical characteristics, as well as the education level, qualification, fitness for work of the

[3] *We addressed the economic support of society only at the level of general knowledge, tangentially, in accordance with our professional limits.*

unemployed[4]. The questionnaires were validated. Study subject were recruited and included in the study on a voluntary basis following oral and written information. To compare the unfitness for physical work of the unemployed with the frequency of the same parameter of active workers, a group of 876 active workers served by the Work Med Occupational Health Centre was established; the anonymity of these latter – similar to the test group – was preserved, and only the medical journal data were used. No question regarding ethnicity was asked in this group[5]. The studies performed on the groups were in compliance with Hungarian ethical regulations, the principles of the Helsinki Declaration as well as the ETT TUKEB resolution referenced on the title page and the science ethics permits of the Semmelweis University (see: footnote (1) to the Abstract).

Statistical methods: The distribution of each evaluation category in each gender or ethnic study group was determined by 2-way tabulation and the differences between them were assessed using the Pearson chi-square test. The difference was regarded as being significant if $P < 0.05$.

The roles played by certain independent variables (ethnicity, employment) in the studied outcomes were analysed using univariate and multivariate logistic regression method, in the case of these latter, adjusted to gender and age. The odds ratio (OR) thus calculated and its 95% confidence interval (95% CI) was regarded as statistically significant if the confidence interval did not include the value 1, i.e. the upper and lower limits of the interval were both either below or above 1.

For continuous variables the average values per group were compared using Mann-Whitney nonparametric U test. Statistical calculations were carried out with the help of STATA/SE 10.0 software package. The level of significance is indicated by the P value or the star character: *: $P < 0.05$; **: $P < 0.01$; ***: $P < 0.001$.

RESULTS

Education level. We found that the education level of both the first and the second generation, Hungarian or Roma, unemployed men or women was low (*Table I*). 34.7% of the first and 27.5% of the second generation unemployed have not even completed 8-years of primary school (*Table II*); regarding all groups it is evident, that the proportion of those without even 8 years of primary school education was higher than the rate/rates measured in the adult population of Hungary (KSH, 2011; 2013). Despite this very low level of education of the study population, we further found this proportion to be significantly higher among the Roma (*Table 1*) in the case of Hungarian men vs. Roma men and Hungarian women vs. Roma women in both the first and the second-generation unemployed groups.

[4] *The questionnaires also asked on the one hand about the environmental health-epidemiological safety of the unemployed (in particular their indoor and outdoor environmental health situation), on the other hand about mental, psychic, behavioural/volitional traits. The findings, conclusions of the analysis of the responses to these questions were published in part in the first (Szakmáry et al., 2017) of our three-part study series and will be published in part later in the third instalment of the series.*

[5] *We did not ask about ethnicity because we wanted to avoid having our studies associated with any possible future loss of job by anyone in this area not free from racism.*

Table I

Education level of the first and second generation unemployed I.

Highest level of education	1st generation unemployed						2nd generation unemployed					
	Men		Women		Together		Men		Women		Together	
	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma
< 8 years	46 (22.9%)	**48*** (44.4%)**	48 (31.8%)	**54** (51.9%)**	94 (26.7%)	**102*** (48.1%)**	11 (20.0%)	**22* (30.6%)**	7 (17.1%)	**20* (40.0%)**	18 (18.7%)	**42* (34.4%)**
Primary school (8 years)	46 (22.9%)	**40** (37.0%)**	36 (23.8%)	**43** (41.4%)**	82 (23.3%)	**83*** (39.1%)**	20 (36.4%)	38 (52.8%)	10 (24.4%)	24* (48.0%)	30 (31.3%)	62** (50.8%)
Vocational training school	**90*** (44.8%)**	20 (18.5%)	**57*** (37.8%)**	6 (5.8%)	**147*** (41.8%)**	26 (12.3%)	**22** (40.0%)**	11 (15.3%)	**22*** (53.6%)**	6 (12.0%)	**44*** (45.8%)**	17 (13.9%)
Grammar or high school graduate	**17** (8.5%)**	0 (0.0%)	10 (6.6%)	1 (1.0%)	**27*** (7.6%)**	1 (0.5%)	2 (3.6%)	1 (1.4%)	0 (0.0%)	0 (0.0%)	2 (2.1%)	1 (0.8%)
None of the above	2 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (4.9%)	0 (0.0%)	2 (2.1%)	0 (0.0%)
Total	201 (100.0%)	108 (100.0%)	151 (100.0%)	104 (100.0%)	352 (100.0%)	212 (100.0%)	55 (100.0%)	72 (100.0%)	41 (100.0%)	50 (100.0%)	96 (100.0%)	122 (100.0%)

Table II.

Education of the first and the second generation unemployed II. (both genders together)

Highest education level	Hungarian		Roma		Together	
	1st generation	2nd generation	1st generation	2nd generation	1st generation	2nd generation
< 8 years of primary school	94 (26.7%)	18 (18.7%)	**102*** **(48.1%)**	42 (34.4%)	196 (34.7%)	60 (27.5%)
Primary school completed (8 years)	82 (23.3%)	30 (31.3%)	83 (39.1%)	**62*** **(50.8%)**	165 (29.3%)	**92***** **(42.2%)**
Vocational training following 8 years of primary school	147 (41.8%)	44 (45.8%)	26 (12.3%)	17 (13.9%)	173 (30.7%)	61 (28.0%)
Grammar or high school graduate	27 (7.6%)	2 (2.1%)	1 (0.5%)	1 (0.8%)	28 (5.0%)	3 (1.4%)
None of the above	2 (0.6%)	2 (2.1%)	0 (0.0%)	0 (0.0%)	2 (0.3%)	2 (0.9%)
Total	352 (100.0%)	96 (100.0%)	212 (100.0%)	122 (100.0%)	564 (100.0%)	218 (100.0%)

The overall rates of further forms of education [8 years of primary school, vocational training based on 8 years of primary school (majority are skilled workers), high school graduate, higher education] confirm the very low – nowhere near the national average (KSH, 2013) - education level of the studied unemployed. We would like to add three additions or remarks to the brief summary of our findings on education level.

i) The proportion of 2nd generation unemployed who completed 8 years of primary school was significantly higher than their 1st generation unemployed parents. This increase was higher in the case of the Roma; there was also a growth in rate in the case of Hungarians in the 2nd generation group (*Table II*), but that was not significant.

ii) In the case of those with vocational training based on 8 years of primary school, the proportion of 2nd generation Hungarian unemployed (both men and women) significantly exceeded the proportion of the Roma (*Table I*).

iii) The proportion of high school graduates in the groups of 1st generation Hungarian men and the combined groups of Hungarian unemployed significantly surpassed the proportion of high school graduates in the group of 1st generation Roma men and the combined groups of 1st generation Roma men and women unemployed; this difference was not detectable between the 2nd generation Hungarian and Roma groups; due to the small sample size, no conclusion could be made based on this finding, but further analysis is warranted (*Table I*).

Professional qualification. We found the groups of those without a profession among both the 1st and the 2nd generation Hungarian or Roma unemployed men or women to be of significant proportions (19.5 - 82.7%). We further found that in both the 1st and 2nd generation unemployed groups, and the gender-specific groups, the proportion of Roma without a profession was significantly higher (*Table III.A*).

The fact that in the case of both generations the proportion of skilled workers was significantly higher among the Hungarian unemployed men and women than among the Roma unemployed confirms the larger proportion of unskilled individuals among the Roma unemployed (*Table III.A*). The proportion of those with no profession was significantly higher in the 2nd generation in the case of the combined (Hungarian and Roma) unemployed than in the 1st generation group (*Table III.B*). Reason: lack of profession was more frequent among the Roma (especially Roma women) in 2nd generation unemployed; the proportion of those with no profession among 2nd generation Roma women was almost four times higher than among the 2nd generation Hungarian women (*Table III.A*). There was a significant difference to the benefit of the Hungarians in the proportion of secondary vocational school graduates, although the significance of this data is difficult to interpret due to the small sample size.

Table III.A

Highest professional qualification of the first and second generation unemployed

Highest professional qualification	1st generation unemployed						2nd generation unemployed					
	Men		Women		Together		Men		Women		Together	
	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma	Hungarian	Roma
No profession	49 (24.4%)	**64*** (59.3%)**	63 (42.0%)	**86*** (82.7%)**	112 (31.9%)	**150*** (70.8%)**	23 (41.8%)	**51** (70.8%)**	8 (19.5%)	**39*** (78.0%)**	31 (32.3%)	**90*** (73.8%)**
Course for semi-skilled work	21 (10.5%)	16 (14.8%)	18 (12.0%)	12 (11.5%)	39 (11.1%)	28 (13.2%)	7 (12.7%)	10 (13.9%)	7 (17.1%)	4 (8.0%)	14 (14.6%)	14 (11.5%)
Skilled worker	**108*** (53.7%)**	25 (23.2%)	**52*** (34.7%)**	4 (3.8%)	**160*** (45.6%)**	29 (13.7%)	**20** (36.4%)**	10 (13.9%)	**23*** (56.1%)**	6 (12.0%)	**43*** (44.8%)**	16 (13.1%)
Professional activity requiring high school education	**22** (10.9%)**	2 (1.8%)	**14* (9.3%)**	1 (1.0%)	**36*** (10.3%)**	3 (1.4%)	**5* (9.1%)**	0 (0.0%)	2 (4.9%)	1 (2.0%)	**7* (7.3%)**	1 (0.8%)
University/college	0 (0.0%)	0 (0.0%)	1 (0.7%)	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (1.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.8%)
None of the above	1 (0.5%)	1 (0.9%)	2 (1.3%)	1 (1.0%)	3 (0.8%)	2 (0.9%)	0 (0.0%)	0 (0.0%)	1 (2.4%)	0 (0.0%)	1 (1.0%)	0 (0.0%)
Total	201 (100.0%)	108 (100.0%)	150 (100.0%)	104 (100.0%)	351 (100.0%)	212 (100.0%)	55 (100.0%)	72 (100.0)	41 (100.0%)	50 (100.0%)	96 (100.0%)	122 (100.0%)

Table III.B

Highest professional qualification among the first and the second generation unemployed (both genders together)

Highest professional qualification	Hungarian		Roma		Together	
	1st generation	2nd generation	1st genertion	2nd generation	1st generation	2nd generation
No profession	112 (31.9%)	31 (32.3%)	150 (70.8%)	**90*** (73.8%)**	262 (46.4%)	**121* (55.5%)**
Course for semi-skilled work	39 (11.1%)	14 (14.6%)	28 (13.2%)	14 (11.5%)	67 (11.9%)	28 (12.8%)
Skilled worker	160 (45.6%)	43 (44.8%)	29 (13.7%)	16 (13.1%)	189 (33.5%)	59 (27.1%)
Professional activity requiring high school education	36 (10.3%)	7 (7.3%)	3 (1.4%)	1 (0.8%)	39 (6.9%)	8 (3.7%)
University/college	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.8%)	1 (0.2%)	1 (0.5%)
None of the above	3 (0.8%)	1 (1.0%)	2 (0.9%)	0 (0.0%)	5 (1.1%)	1 (0.5%)
Total	351 (100.0%)	96 (100.0%)	212 (100.0%)	122 (100.0%)	563 (100.0%)	218 (100.0%)

Fitness for physical work. We found that the proportion of those found unfit for work for health reasons in both the Hungarian and the Roma groups of 1st generation unemployed significantly exceeded the proportion among the 2nd generation Hungarian or Roma unemployed; similar results were found when breaking down into subgroups by the two generation groups as well (*Table IV.A*). Since the majority (54.2%) of the 2nd generation unemployed was from the younger age group and the older age group with more health issues makes up less than 1%, and because in contrast the oldest age group had majority among the 1st generation unemployed (*Table IV.B*), we performed logistic regression analysis.

As a result of this we found that neither gender, nor ethnicity affect the correlation between the unemployed generations and unfitness. If age groups were included in the model, the association lost its significance (*Table IV.C*).

Note: the proportion of those found unfit in the youngest age group among the 1st generation was smaller than among the 2nd generation. In connection with this, it must be taken into account that the odds of unfitness of all 1st generation unemployed compared to active workers was 20.6-fold, that of the 2nd generation was 9.4-fold. It must further be considered: it was also probably that in addition to the progression of age, the questionable health condition, high frequency of unfitness for physical work of women (among them primarily Roma women) was mainly responsible for the differences.

It is worth mentioning that on the one hand: the proportion of those unfit for physical work was significantly higher among the Roma in both the 1st and 2nd generation groups of unemployed, on the other hand, among the 2nd generation unemployed the proportion of those unfit for physical work was higher than among the active workers in all age groups combined and also within the individual groups even though the average age of these latter was higher than that of the 2nd generation unemployed groups (*Table V.*).

Regarding the entire study population (i.e. combining both genders and all age groups, unemployed in both the 1st or 2nd generation ethnicities), the risk of unfitness for physical work among the unemployed was 16.7 times higher than among the active workers (OR = 16.72; 95% C.I.: 8.18 - 35.40; *Table VI.*).

There is a significant difference in the fitness for work between active workers and the unemployed among both genders and all age groups. Regarding the entire study population (i.e. combining both genders and all three age groups), the unemployed were 16.7 times more likely to be unfit for work than the active workers. (OR=16.72; 95% C.I.: 8.18 - 35.40).

Table IV.A

Fitness/unfitness for physical work among the first and the second generation unemployed – distribution by ethnicity and gender

Both genders together

Fitness	Hungarian		Roma		Together	
	1st generation	2nd generation	1st generation	2nd generation	1st generation	2nd generation
Fit*	305 (86.4%)	87 (92.6%)	160 (75.5%)	108 (90.0%)	465 (82.3%)	195 (91.1%)
Unfit	**48*** **(13.6%)**	**7** **(7.4%)**	**52**** **(24.5%)**	12 (10.0%)	**100**** **(17.7%)**	19 (8.9%)
Total	353 (100.0%)	94 (100.0%)	212 (100.0%)	120 (100.0%)	565 (100.0%)	214 (100.0%)

**Also includes total of 13 (1.67%) temporarily unfit individuals*

Men

Fitness	Hungarian		Roma		Together	
	1st generation	2nd generation	1st generation	2nd generation	1st generation	2nd generation
Fit	179 (88.6%)	50 (92.6%)	90 (82.6%)	64 (91.4%)	269 (86.5%)	114 (91.9%)
Unfit	23 (11.4%)	4 (7.4%)	19 (17.4%)	6 (8.6%)	42 (13.5%)	10 (8.1%)
Total	202 (100.0%)	54 (100.0%)	109 (100.0%)	70 (100.0%)	311 (100.0%)	124 (100.0%)

Women

Fitness	Hungarian		Roma		Together	
	1st generation	2nd generation	1st generation	2nd generation	1st generation	2nd generation
Fit	126 (83.4%)	37 (92.5%)	70 (68.0%)	44 (88.0%)	196 (77.2%)	81 (90.0%)
Unfit	25 (16.6%)	3 (7.5%)	**33**** **(32.0%)**	6 (12.0%)	**58**** **(22.8%)**	9 (10.0%)
Total	151 (100.0%)	40 (100.0%)	103 (100.0%)	50 (100.0%)	254 (100.0%)	90 (100.0%)

Table IV.B

Frequency and likelihood of unfitness for physical work among the first and the second generation unemployed compared to active workers – distribution by age groups

Age group	Fitness	1st generation	2nd generation	Active workers
18-29 years	Fit	65 (91.6%)	104 (89.7%)	219 (100%)
	Unfit	**6***[a] **(8.4%)**	**12***[a] **(10.3%)**	0 (0.0%)
	Total	**71 (12.6%)**	**116 (54.2%)**	**219 (25.0%)**
30-44 years	Fit	171 (91.0%)	90 (93.8%)	335 (99.1%)
	Unfit	**17***[a] **(9.0%)**	**6**[a] **(6.2%)**	3 (0.9%)
	Total	**188 (33.5%)**	**96 (44.9%)**	**338 (38.6%)**
45-61 years	Fit	227 (74.9%)	1 (50.0%)	313 (98.1%)
	Unfit	**76***[a] **(25.1%)**	**1***[a] **(50.0%)**	6 (1.9%)
	Total	**303 (53.9%)**	**2 (0.9%)**	**319 (36.4%)**
Together	Fit	463 (82.4%)	195 (91.1%)	867 (99.0%)
	Unfit	**99***[a] **(17.6%)**	**19***[a] **(8.9%)**	9 (1.0%)
Grand Total		562 (100.0%)	214 (100.0%)	876 (100.0%)
Unfitness rate odds ratio (compared to the active workers) OR (95% CI)		20.60*** (10.28 - 46.72)	9.39*** (3.96 - 23.86)	1.00

*[a] compared to the same age group of active workers; *P < 0.05; **P < 0.01 ***P < 0.001*

Table IV.C

Association between individual variables and unfitness for physical work

Variables in the model	Basis for comparison (OR=1.00)	Raw association			Corrected association*		
		OR	95% C.I.	P value	OR	95% C.I.	P value
Gender: women	men	1.78	1.20-2.64	0.004	1.84	1.22-2.78	0.004
Roma	Hungarian	1.70	1.15-2.52	0.008	2.09	1.37-3.19	0.001
45-61 years age group	18-29 years	3.17	1.83-5.50	<0.001	3.62	1.81-7.27	<0.001
First unemployed generation	Second unemployed generation	2.21	1.31-3.71	0.003	1.11	0.57-2.17	0.757

**Correction factors: gender, ethnicity, age group, unemployment generation*

Table V.

Frequency and likelihood of unfitness for physical work among the first and the second generation Hungarian and Roma unemployed compared to active workers

Fitness	First generation			Second generation			First and second generation together			Active workers
	Hungarian	Roma	Together	Hungarian	Roma	Together	Hungarian	Roma	Together	
Fit	305 (86.4%)	160 (75.5%)	463 (82.4%)	87 (92.6%)	108 (90.0%)	195 (91.1%)	392 (87.7%)	268 (80.7%)	658 (84.8%)	867 (99.0%)
Unfit	48 (13.6%)	52 (24.5%)	99 (17.6%)	7 (7.4%)	12 (10.0%)	19 (8.9%)	55 (12.3%)	64 (19.3%)	118 (15.2%)	9 (1.0%)
Total	353 (100.0%)	212 (100.0%)	562 (100.0%)	94 (100.0%)	120 (100.0%)	214 (100.0%)	447 (100.0%)	332 (100.0%)	776 (100.0%)	876 (100.0%)
Unfitness rate odds ratio (compared to the active workers)										
OR (95% CI)	15.16 (7.23-35.48)	31.31 (14.84-73.39)	20.60 (10.28-46.72)	7.75 (2.38-23.95)	10.70 (4.02-29.35)	9.39 (3.96-23.86)	13.52 (6.53-31.37)	23.00 (11.16-53.14)	17.28 (8.70-38.96)	1.00

Table VI.

Distribution of fitness for work in different age groups of workers and unemployed

Age group	Fitness	Men		Women		Together	
		Workers	Unemployed	Workers	Unemployed	Workers	Unemployed
18-29 years	Fit	135 (100.0%)	130 (94.2%)	84 (100.0%)	68 (86.1%)	219 (100.0%)	198 (91.2%)
	Unfit	0 (0.0%)	**8* (5.8%)**	0 (0.0%)	**11** (13.9%)**	0 (0.0%)	**19*** (8.8%)**
	Total	**135 (28.9%)**	**138 (27.0%)**	**84 (20.5%)**	**79 (23.2%)**	**219 (25.0%)**	**217 (25.5%)**
30-44 years	Fit	162 (98.2%)	182 (92.4%)	173 (100.0%)	118 (88.7%)	335 (99.1%)	300 (90.9%)
	Unfit	3 (1.8%)	**15* (7.6%)**	0 (0.0%)	**15*** (11.3%)**	3 (0.9%)	**30*** (9.1%)**
	Total	165 (35.3%)	197 (38.6%)	173 (42.3%)	133 (39.0%)	338 (38.6%)	330 (38.7%)
45-61 years	Fit	163 (97.6%)	139 (79.0%)	150 (98.7%)	89 (69.0%)	313 (98.1%)	228 (74.8%)
	Unfit	4 (2.4%)	**37*** (21.0%)**	2 (1.3%)	**40*** (31.0%)**	6 (1.9%)	77*** (25.2%)
	Total	167 (35.8%)	176 (34.4%)	152 (37.2%)	129 (37.8%)	319 (36.4%)	305 (35.8%)
Together	Fit	460 (98.5%)	451 (88.3%)	407 (99.5%)	275 (80.7%)	867 (99.0%)	726 (85.2%)
	Unfit	7 (1.5%)	60*** (11.7%)	2 (0.5%)	66*** (19.3%)	9 (1.0%)	**126*** (14.8%)**
Grand total		467 (100.0%)	511 (100.0%)	409 (100.0%)	341 (100.0%)	876 (100.0%)	852 (100.0%)

DISCUSSION

We believe it is important to give an explanation in our discussion on the one hand why we chose improvement of quality of life as the topic of our study and, on the other hand, why we conducted our investigations exactly in a disadvantaged small area?

When choosing our topic, we considered that improvement of the quality of life is a fundamental objective in modern societies, and we also kept in mind that protection of health is a key issue of the quality of life. Although the World Health Organization clearly defined the concept of

the quality of life[6], improvement of the quality of life as an objective has induced much research. Since developed countries identified already in the 60s of the 20th century the improvement of the quality of life instead of economic growth at all cost as the path to development, research on improving the quality of life also started at that time. From the aspect of our choice of topic, the following was of utmost importance: many of the components determining quality of life reflect not only the national particularities of the society, economy, culture of a given country, but also the conditions for and consequences of improving the quality of life, which can vary significantly within a single country, region or small area; therefore the problem requires multifaceted research capable of exploring these details. In Hungary research aimed at improving quality of life received more interest primarily following the transition to a market economy and enjoyed the enhanced support of the Hungarian Academy of Sciences. The Hungarian Academy of Sciences specifically addressed the issues of the quality of life in a workshop study series at the turn of the millennium (Glatz, 2002). The Hungarian Academy of Sciences even published a collection entitled Life Situation – Quality of Life, Dead Ends and Ways Out (Vízi, 2002) on quality of life related to health problems. The collection addresses, among others, such important issues as loss of object and health; regime change and the transitional period – suicides; health care, psychic status of the homeless; economic burdens of addictions; the protection of the quality of life in chronic diseases and in old age; the characteristics of mortality in industrialized countries in the 1990s; (Léder et al., 2002; Antal and Sótonyi, 2002; Molnár, 2002; Rupp, 2002; Iván, 2002; Józan, 2002). In the chapter we wrote we summarized the most important unemployment-related quality of life issues; we addressed the adverse health effect of unemployment the existence of which we confirmed, additionally, we listed the diseases due to which the unemployed are most often found unfit during fitness for job examinations, and, among other things we also provided an international overview on this issue (Ungváry et al., 2002). The Hungarian Academy of Sciences publication confirmed: one of the most important tasks for medical research in the years following the transition to a market economy is the development of the achievability of the highest possible level of quality of life. In this present study we wanted to provide further data to add to the achievements of this very important research field, as well as to provide answers to a few important questions.

To answer our questions, we analysed the education level, professional qualification and fitness for physical work of the 1st and 2nd generation unemployed of the Ózd Small Area. The reason for our choice of research location was on the one hand that this small area is a typical loser of the transition to a market economy in Hungary. In Ózd, the centre of the small area, one of the citadels of the "country of iron and steel", the oversized metallurgy industry based on a fundamental economic mistake by the communist dictatorship collapsed. Now, almost 30 years after the transition to a market economy, the remains of heavy industry objects are still eyesore brownfields (Hegedűs, 2000; 2015; Hegedűs et al., 2003; Ózd Roma Council, 2012; Csárdás et al., 2012). Mass unemployment appearing in connection with the transition to a market economy is one of the serious consequences of the collapse of the so-called socialist countries/communist dictatorships (Bánfalvy, 1989; Ungváry, 1993; Ungváry et al., 1997; 2002; 2014; Morvai et al.,

[6] *According to the World Health Organization „Quality of Life is defined as an individual's perception of his or her position in life in the context of the culture and value systems in which he or she lives and in relation to his or her goals, expectations, standards and concerns." To put it very simply we can say that good quality of life is the fulfilment of human well-being.*

1999; Hegedűs, 2015). On the other hand, the reason for our choice was that like in many Central-Eastern European countries, in this small area the problem of unemployment is intertwined with the problems of the quality of life of the Roma, the large, disadvantaged minority in Hungary (Hegedűs et al., 2003; Ungváry et al., 2005; 2016B; Hegedűs, 2015; Szakmáry et al., 2017; 2018).

Our findings will be discussed in the order of the analysed issues.

There is no direct correlation between *education level* and the frequency of unemployment – since this latter is primarily determined by employment and the structure, stability of the economy. (Forray et al., 2008.) These researchers started from the assumption that the educational structure of the unemployed is statistically inversely proportional to the needs of the labour market. With this relationship in mind, they believe that it characterizes the labour market whether there are more people with lower education or more people with higher education among the unemployed. Agreeing with this, as Forray et al. (2008) also found, however we generally find that unemployment is highest among those with low level of education and lowest among those with higher education. Historical (Luddites, football hooligans), statistical data as well as our own experiences confirm that the overwhelming majority of the unemployed are logically of very or at least of relatively low education level, due to the professional hierarchic structure of the world of work (one employer and/or one manager ≥ 1 employee). Note: in well-functioning employment units the qualification and/or experience of the manager is higher than that of the subordinates.

Education level, quality of life. According to the data from the most recent, 2011 census in Hungary, 0.6% of 10-year-olds did not complete the first year of primary school, 4.9% of the 15-year-old population/group did not complete 8 years of primary school. The education level of the unemployed is worse than the previously described population. In 2012 28.9% of the unemployed in Hungary completed 8 years of primary school or less, 32.3% completed vocational training school; 28.8% graduated from grammar school or other secondary school, while 10% of the unemployed had college or university degrees (KSH, 2013). It is worth noting that in 2011 and 2012 the highest level of education for the majority of the unemployed was vocational training school. The education level of the unemployed in the small area we analysed was much lower. ~35% of the first generation did not even complete 8 years of primary school, ~29% completed 8 years of primary school, 31% acquired professional qualification based on 8 years of primary school and just 5% graduated from secondary school, while those with higher education barely made up 0.3% altogether. Similar to national data, among the first generation the highest level of education for most people was professional qualification based on 8 years of primary school, but among the second generation the majority completed 8 years of primary school as their highest education. This very low level of education proves in itself that the quality of life of the unemployed in the small area is expressly worrying, it is far from not just the optimal but also the national average and minimum expectations. Our conclusion is confirmed by two professionally proven facts. On the one hand we would like to recall that current health-sociology literature considers it a generally accepted statement that the health, mortality of the population/people is significantly determined by their education level (Tahin et al., 1999; Lampek, 2004). Multiple research results confirm that the health of those with higher level of education is better than those with lower level of education afflicted with infectious diseases, chronic non-communicable diseases, fatal health

impairments[7]. (Liu et al., 1982; Józan, 1994; 2002; Makara, 1995; Tomatis, 1997; Gwatkin et al., 1999). Our own analyses found that the frequency of acute (gastrointestinal and respiratory) infectious diseases, distress and distress-related psychosomatic disorders significantly increases among the very poor unemployed (Morvai et al., 1999; 2016). We further found that the ages of the deceased parents of the multiply disadvantaged Roma unemployed also with very low level of education living in colonies were significantly lower than the national average (unpublished data). We also know that in Hungary, particularly among the Roma with low education, the proportion of those older than 50 shows a dramatic decrease, the proportion of those older than 62 in the total population is 1/5, while among the Roma, it is just 1/17. According to estimates, the Roma live 10 years less than the average life expectancy of the Hungarian population (Human Contact, 2010).

Professional qualification, quality of life. The professional situation of the unemployed is closely linked with education. Unfortunately, the proportion of individuals with no professional qualification has increased significantly among the 2nd generation unemployed. Therefore, the small progress in education level compared to the 21st century knowledge requirements of the knowledge-based Europe, knowledge-based Hungary is only enough at most to slow the lag, but it is not enough for social convergence (since these requirements are multiplying in an accelerating manner and require higher level background knowledge). The lack of the desired level of education does not allow employment to meet the needs of the 21st century. The analysis of our studies did not provide an answer as to the reason why the second-generation Roma women refuse to acquire a profession; it is probable however that this fact is the explanation for the significant proportion of unskilled individuals among the 2nd generation unemployed.

The significantly higher frequency, rate of *fitness for job* among the 2nd generation unemployed can be a very important opportunity with respect to social convergence for the future (we will return to this issue). However, this fact alone – since our calculations confirm that this rate-increase is exclusively due to the younger age of the 2nd generation unemployed compared with the 1st generation unemployed – can at most be enough to ensure that as their age progresses their employability and through this their quality of life will not be worse than their 1st generation unemployed parents'. However, just "conserving" the quality of life of the 1st generation cannot be the goal. It cannot be a goal for either the Hungarian or the even more disadvantaged Roma unemployed and it cannot be the goal for the society of Hungary. It cannot be the goal not the least because the quality of life of developed societies improves/achieves higher levels in an accelerating manner, thus the "goal-quality of life" gets further and further away from the "unemployed-quality of life conserved" at the current level.

Beyond these we must also consider that the relative (age-dependent) employability advantage of the 2nd generation unemployed is only true compared to the 1st generation unemployed and the current job opportunities. If we compare the fitness for work of active workers with the fitness for work of 2nd generation unemployed, then – in line with the findings reported in our preliminary communication (Ungváry et al., 2016A) – it becomes clear that the fitness for work of the 2nd generation unemployed is below that of the actively employed workers (most of whom are older). This fact may even call into

[7]*Note: low education level is accompanied in the overwhelming majority of cases by poverty; the direct adverse health effect of poverty is also proven (Tomatis, 1999).*

question whether they – at least many of them – will be able to take advantage of the same employment opportunities as the 1st generation. On the one hand the proportion of those unfit for work among the 2nd generation unemployed (as previously indicated) significantly exceeds that among the active workers, due to which the rate of their fitness for work is most likely below the level of unfitness for work when becoming unemployed of the 1st generation. On the other hand, this is also confirmed by the fact that although the risk of unfitness for work of the 2nd generation unemployed dependent on their younger age is much lower than that of the 1st generation, but significantly exceeds that of the employed (older) workers. This is a new, previously unknown further piece of evidence for our hypothesis set out in 1993 (and only partially confirmed at that time) that unemployment is directly harmful to health (Ungváry, 1993). Thirdly we need to stress again that the assessment of the fitness for work of the unemployed in the analysed small area was always carried out to assess their fitness for physical work. Question: will it be the today's quantity and quality of physical work that will be necessary in the future? Fourthly it should be considered: it is usually the unemployed who feel they are fit for work who participate in fitness for work examinations. I.e.: the comprehensive and detailed assessment with our methods of all unemployed in the small area would presumably lead to less favourable results than presented in this paper.

We conclude that the quality of life of the Hungarian and Roma unemployed living in the small area, as well as of the 2nd generation Roma unemployed living throughout the country in colonies (indeed very likely in colony-like arrangements) is extremely distressing, not just as it stands now but also its outlook, there is no good chance for their convergence without outside help due to their education level and their fitness for work presented herein. Note: the situation of poor and permanently unemployed 1st generation Hungarian unemployed is not or just barely more favourable than that of the Roma. We came to the same conclusion following the analysis of the environmental health situation of the 2nd generation unemployed in the small area (Szakmáry et al., 2017).

In addition to the rather depressing conclusion drawn based on the first two of our three-part publication series, we would like to draw attention to one further partial finding and the opportunity to improve unemployment as well as the disadvantageous situation of the Roma minority.

Regarding the partial finding, on the one hand: although the education level of the 1st and 2nd generation unemployed are both far not just from optimal but even acceptable levels, based on our findings, there is a noticeable effort by the 2nd generation unemployed youth to increase their education levels. It should be recognised that the proportion of those completing 8 years of primary school has increased among the 2nd generation unemployed (primarily among the Roma) compared with the 1st generation unemployed, and the proportion of those achieving vocational training based on 8 years of primary school (primarily among the Hungarian youth) has also increased. This effort by youth living in the environmental health situation, among the learning conditions described in our study deserves not only recognition but should also receive support. This effort, aspiration may be the basis for them to improve their quality of life step by step without outside help (see: Szakmáry et al., 2017 recommendations) or by taking bigger steps.

Outside help given to them to improve their quality of life step by step may be e.g. to create an opportunity so that the young unemployed may continue their education; this can be com-

pleting the next years of primary school up to the 8th year. The significance of this: even the completion of a single further year can represent significant advances in quality of life features such as e.g. a decrease in the number of abortions, learning the directions of taking oral contraceptives for young girls; in the case of young boys it can significantly decrease the risk of e.g. chronic cardiovascular and respiratory diseases (Szakmáry et al., 2017; 2018).

Opportunities for greater steps include primarily the targeted use of EU funds. We are aware of the threat of unemployment posed by the large number (~27 million individuals) of potentially unemployed young graduates in Europe and within this the EU (EU Commission, 2011; 2015). Despite this, or perhaps because of this it is our belief that simultaneously with reducing this threat affecting large numbers, the issue of 2nd generation (also affecting young people) unemployment affecting the former socialist countries, and within these, Hungary, and within the country itself the extremely disadvantaged small/smaller areas should also be addressed taking into account local specificities. Our proposal is much more confirmed rather than called into question even tangentially by the less noticeable than expected results of programmes through which the EU, governments of groups of countries dealing with similar problems provide significant financial support to the affected disadvantaged minorities (Polish Presidency, 2012; European Social Fund-EU, 2013; Multiannual Financial Framework, 2014; EMMI, 2014; European Commission, 2015). It is obvious that these efforts, programmes, support are very important, but their results have so far not been able to produce tangible social convergence in the small area we analysed. We believe that the effectiveness of these projects could be much more tangible than they currently are. What do we mean by this?

It is evident: that e.g. the quality of life of young university graduates and the young unemployed living in a Roma colony is not the same. We primarily refer to our findings from many years of work, but we also rely on analyses by other Central-Eastern European and Hungarian authors (Ladányi and Szelényi, 2002; Bacikova-Sleskova, et al., 2007). We consider it highly warranted to address raising the quality of life to European level of the individual unemployed groups within the whole mass of the European (within the EU) youth hit by unemployment – e.g. the special unemployment that accompanied the transition to a market economy of the so-called socialist countries – within this particularly the young 2nd generation unemployed. The shortcomings caused by the almost three decades of delays after the transition to a market economy should be made up; it would be advisable to provide support to this population based on their needs, conditions for social inclusion, convergence and their current quality of life, determine its extent and allocation and to prioritize the granting of aid. It would also be advisable to control the delivery of the international aid, potentially correct the method of aid, the weighting of its distribution in light of its effectiveness.

REFERENCES

ANTAL, A., and SÓTONYI, P. (2002). Transition to a market economy and the transitional period. A retrospective examination of the main features of completed suicide cases (1989-1993) In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences (in Hungarian), MTA, Budapest, pp. 97-136.

BACIKOVA-SLESKOVA, M., VAN DIJK, J.P., GECKOVA, J.P. et al. (2007). The impact of unemployment on school leavers perception of health. Mediating effect of financial situation and social contacts? Int. J. Publ. Health 52(3), 180-187.

BÁNFALVY, CS. (1989). Unemployment (in Hungarian) In: Gyorsuló idő sorozat. Magvető Kiadó, Budapest

CSÁRDÁS, É., DARVASI, F., FERENCZI, D. and KISS, M. (2012). Development opportunities of the Ózd Small Area. (in Hungarian) Corvinus University, Budapest, University of Miskolc, pp. 1-22

EMMI (2014): Hungarian National Social Convergence Strategy II. Permanently in Need – Children Living in Poor Families – Roma (2011-2020). Updated version. (in Hungarian). Ministry of Human Resources, Budapest.

EUROPEAN COMMISSION (2011). EU calls for immediate action to drive down youth unemployment. Press release. EC, Brussels, 20/12/2011. Available at: http://europa.eu/rapid/press-release IP-11-1568 en. htm

EUROPEAN COMMISSION (2015). DRAFT 2015 Joint Report of the Council and the Commission on the implementation of the renewed framework for European cooperation in the youth field (2010-2018). EC, Brussels.

EUROPEAN SOCIAL FUND – EUROPEAN UNION (2013). A call to action on youth unemployment. Press release. EC, Brussels, 19/06/2013. Available at: http://ec.europa.eu/esf/main.jsp?catld=67&langld=en&newsld=8150

FORRAY, R.K., HÍVES, T., MARTON, M., et al. (2008). Social Factors Affecting the Structure of Employment and Unemployment, Final Report of Research no. OFA/6341/26). (in Hungarian), Budapest. pp. 1-110.

GLATZ, F. (ed.) (2004). Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. Workshop Study Series (in Hungarian), MTA, Budapest, 2002.

GWATKIN, D., GWILLOT, M. and HEUVELINE, P. (1999). The burden of diseases among the global poor. Lancet, 354, 586-589.

HEGEDŰS, I. (2000). Public benefit workers and occupational health (in Hungarian). Foglalkozás-egészségügy, 4:23-27.

HEGEDŰS, I. (2015). About the adverse health effect of unemployment, its aetiology based on the analysis of the public health situation and health of the Hungarian and Roma unemployed living in the Ózd Small Area. Doctoral Theses (in Hungarian).

HEGEDŰS, I., SZAKMÁRY, É., and UNGVÁRY, GY. (2003). Presentation of the health situation and the living conditions of the unemployed and working Roma population based on research in some BAZ county settlements. Presentation abstract. 23rd MÜTT Congress. (in Hungarian). Foglalkozás-egészségügy. 7(4):21.

HUMAN CONTACT (2010). The social situation of the Roma in Hungary at the beginning of the 21st century. Summary study. (in Hungarian). Budapest, www.parlament.hu/biz39/isb/tan/roma_osszefoglalo.pdf

IVÁN, L. (2002). Protecting the quality of life in chronic diseases and old age. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences (in Hungarian), MTA, Budapest, pp. 185-208.

JÓZAN, P. (1994). Epidemiological crisis in Hungary in the 1990s. (in Hungarian) Statisztikai Szemle 1:5-27.

JÓZAN, P. (2002). Some characteristics of the mortality of industrialized countries in the 1990s. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. (in Hungarian), MTA, Budapest, pp. 209-242.

KSH (2011). Population by Education Level and Gender. (in Hungarian). In: Census, KSH (Central Statistical Office), Budapest.

KSH (2013). Regional Differences in Employment and Unemployment, 2012. (in Hungarian). In: Munkanélküliség (Unemployment), KSH (Central Statistical Office). Budapest.

LADÁNYI, J. and SZELÉNYI, I. (2002). The Roma and the poor in Hungary, Romania and Bulgaria (in Hungarian). Szociológiai Szemle, 4:72-94.

LAMPEK K. (2004). Relationship between education level and health status. Health and sociological study to learn the changes in health of the population during the socio-economic transformation period. PhD Thesis (in Hungarian). Pécs University of Sciences, Faculty of General Medicine, Pécs

LÉDER, L., KOPP, M., SZEDMÁK, S. and LÁZÁR I. (2002). Object Loss and Health Status. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. (in Hungarian), MTA, Budapest, pp. 63-96.

LIU, K., CEDRES, L.B., STAMLER, J., et al. (1982). Relationship of education to major risk factors and death from coronary heart disease, cardiovascular diseases, and all causes. Circulation 66:1308-14.

MAKARA, P. (1995). Social inequalities in health status (in Hungarian). Medicus Universalis 28, 14-16.

MOLNÁR, G. (2002). Health care for the homeless, in particular their mental state. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. (in Hungarian), MTA, Budapest, pp. 137-162.

MORVAI, V., UNGVÁRY, GY., NAGY, I., et al. (1999). Significance of pre-employment examinations among unemployed. EPICOH 14th International Conference on Epidemiology in Occupational Health, Herzliya, Israel, October 10-14, Abstr. p.5.

MORVAI, V., HEGEDŰS, I., SZAKMÁRY, É., and UNGVÁRY, GY. (2016). Public health situation and health status of the Roma and non-Roma unemployed in the Ózd Small Area (in Hungarian). ETT-TUKEB pályázat, Budapest.

MULTIANNUAL FINANCIAL FRAMEWORK (2014). General budget draft of the European Union for 2014-2020. March 5, 2014. http://ec.europa.eu/budget/mff/index

NIOH (1990-1992): Annual reports of the National/Hungarian Institute of Occupational Health between 1990 and 1992 (in Hungarian). OMI. Budapest. 1991-1993.

ÓZD ROMA COUNCIL (2012). Information on the Work, Financial Situation up to August 31, 2011 of the Ozd Municipal Roma Minority Council (in Hungarian). http://webcache.googleuser-content.com/search?hl=hu&gbv=hu&gs-1=hp18.....

POLISH PRESIDENCY (2012). Program developed by the Polish presidency of the European Union 2014-2020. www.mkik.hu/download.2014-2020

RUPP, Á. (2002). Value and Quality of Human Life in the Context of the Economic Burden of Psychiatric Disorders and Addictions. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences (in Hungarian), MTA, Budapest, pp. 163-184.

SZAKMÁRY, É., HEGEDŰS, I., RUDNAI, P., et al. (2017). Quality of life of second-generation Roma and non-Roma unemployed I. – Environmental health situation. Centr. Eur. J. Occup. Environm. Med., 23(3-4): 176-190.

SZAKMÁRY, É., PAKSY, A., and UNGVÁRY, G. (2018). The role of education in the quality of life of Roma women and their families living in colonies and colony-like living environments with alarming public health-epidemiological safety, and the effect of the two settlement types on the learning conditions of Roma children in Hungary at the time of joining the EU. Centr. Eur. J. Occup. Environm. Med. 24(1-2): 38-56.

TAHIN, T., JEGES, S., and LAMPEK, K. (1999). School Health Status. OTKA, AKP, ETT – Study, supported by the Soros Foundation, 1996-1998. (in Hungarian). Medical University of Pécs

TOMATIS, I. (1997). Poverty and cancer. IARC. Sci. Publ., 138, 25-39.

UNGVÁRY, G. (1993). Harmful health effects of unemployment. (in Hungarian). Magyar Tudomány, 153:159-167.

UNGVÁRY, G., GRÓNAI, É., MÁNDI, A., et al. (1997). Experiences in the pre-employment fitness for work examinations of applicants for a job in Tengíz (in Hungarian). Foglalkozás-egészségügy, 1(1):6-13.

UNGVÁRY, G., NAGY, I., and MORVAI, V.(2002). Unemployment and life quality. In: Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences (in Hungarian), MTA, Budapest, pp. 33-62.

UNGVÁRY, G., ODOR, A., BÉNYI, M., et al. (2005). Roma colonies in Hungary – health care for children, hygienic conditions (in Hungarian). Orvosi Hetilap, 146:691-699.

UNGVÁRY, G., SZAKMÁRY, É., HEGEDŰS, I. et al. (2014). Public health situation of Roma living in colonies or colony-like conditions and the significant differences determining quality of life of these two types of living environments in Hungary. Centr. Eur. J. Occup. Environm. Med., 20(1-2):119-150.

UNGVÁRY, G., HEGEDŰS, I., SZAKMÁRY, É., et al. (2016A) Analysis of the public health situation as well as fitness for work of the Roma and non-Roma second generation unemployed in the Ózd Small Region (in Hungarian). Foglalkozás-egészségügy, 20(4), 276-300.

UNGVÁRY, G., MORVAI, V., HEGEDŰS, I., et al. (2016B). Aetiology, factors modifying the aetiopathogenesis of health impairment caused by unemployment in Roma and non-Roma unemployed in a Hungarian Small Area with a high density of Roma population. Diseases caused by unemployment and unemployment-related diseases. Centr. Eur. J. Occup. Environm. Med., 33(3-4); 118-150.

VIZI, E.S. (ed.) (2002). Quality of Life, Dead Ends and Ways Out. Hungary at the Turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. Workshop Study Series, (in Hungarian), MTA, Budapest,