

## QUALITY OF LIFE OF SECOND GENERATION ROMA AND NON-ROMA UNEMPLOYED III. – MENTAL HEALTH, MAJORITY SOCIETY<sup>1</sup>

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### ABSTRACT

*Introduction.* In the first part of their studies on the quality of life of second generation unemployed, the authors found that the quality of the in-door and out-door environmental health status of second generation unemployed hardly reached or was even worse than that of the first-generation unemployed; this was particularly critical in the case of Roma people living in colonies. It was also found that the proportion of second-generation unemployed who were physically fit for physical work was significantly higher than that of the first-generation unemployed. The chance of first generation unemployed being physically unfit for work due to health reasons was 20.6 times higher, and second-generation unemployed 9.4 times higher than that of the active workers. The difference was age-dependent. *Objectives* of the present study were to explore the physical and mental health of the second generation Hungarian and Roma unemployed subjects of the first two studies as a basis of their ambition to social inclusion and their experience on the perceived opinion expressed towards them by the nearby “majority society”. *Methods.* Mental health and social relationships of 785 first and second generation Hungarian and Roma, male and female unemployed were examined by a specialist in occupational medicine, using a multiple mix-filled questionnaire suitable for general measurement of somatic and mental health-related quality of life, as well as a self-completed 13-item Beck Depression questionnaire, and a Lüscher colour-diagnostic (psychovegetative personality diagnostic) test. The data were analysed in part by descriptive statistics and comparisons were evaluated by Pearson’s chi-squared test. *Results.* By analysing data collected by means of medical examination methods (illnesses, physiological parameters: pulse rate, respiratory rate, blood pressure, etc.) as well as recorded on mixed-filled questionnaires, clinical data, interview or self-completed methods (distress symptoms, complaints), it was found that the physical and mental health of the second generation unemployed was better than that of the first generation unemployed. Regarding

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mental health status it is emphasized that strongly significant differences were found when evaluating the worrisome responses given to questions related to issues of emotional desires (emotional exhaustion, morning fatigue, frustration, regular work, dealing with others, power reserve, work ability) and stressor effects of unemployment (irritability, tension, etc.). However, in linear regression analysis, the generation variable lost its significance after gender and age correction. According to the data from the Beck Depression questionnaire, the prevalence of mild, moderate and severe depression was significantly higher among the first generation unemployed than among the second generation one, but their frequency among the second generation unemployed was still several times higher than the national average. Data from the Lüscher colour diagnostic test suggested that both the first and the second generation unemployed refused their current situation, and their attitude to an active action made them suitable to realize it. Discrimination (at the place of residence, during shopping, in public administration) was reported by second generation unemployed people even at a higher rate than by the first generation unemployed. *Conclusion.* In the health status of the first and second generation unemployed, unemployment caused psychic changes which were partly (and very largely) stress-dependent (primarily distress and distress-related), partly independent of the stressor effect of unemployment (the rejection attitude of both generations should be stressed). The results obtained by the used methods indicate that the mental health status of second-generation unemployed people makes them able to achieve – in case of appropriate environmental health and learning conditions, and obtaining appropriate education – that the worrying physical and mental health of first-generation unemployed should not affect them. However, considering the possibility of realization of these conditions, this task cannot be solved without external support – above all, and in a decisive way – the support of the government acting on behalf of the society. These results also indicate that in this period of their life – in the case of regular health maintenance and health promotion – the second-generation unemployed people are not only able to improve their living conditions, their quality of life, but they are also ready to contribute to the implementation of the latter and they also claim to actively participate in it. The frequency of discrimination against the second-generation (mainly Roma) unemployed people calls the attention to the worrying nature of the attitude of the surrounding “majority society”. Continuous stressor effects caused by long-term unemployment do not only cause health damage of the unemployed (primarily distress-related psychosomatic, psychiatric and behavioural illnesses) and more frequent incapacity to work compared to active workers, as it has already been demonstrated in previous studies, but they are also likely to include, besides the high frequency of continuous stressor-associated irritability, tension and behaviour of rejecting unemployment and their current quality of life, even the danger of unexpected solutions of all these.

**KEY WORDS:** unemployed, first generation, second generation, Hungarian, Roma, stressor-associated, independent of stressor effects, psychic health changes

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## INTRODUCTION

Before introducing the final part of our three-part series of examinations on the mental health status of the first and second generation unemployed people, it is expedient to recall the World Health Organization's definition of quality of life, briefly summarize the results of the previous two papers, the internationally accepted literary standpoint about the impact of unemployment on mental health, and some – in our opinion – characteristic changes related to unemployment, which, are mainly related to its psychic effects, known from history or medicine, but less analysed from a medical and psychological point of view, and also their consequences.

The World Health Organization defines quality of life as „...It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment.”

In our preliminary paper on the quality of life of second generation unemployed (Ungváry et al., 2016A), we thought it probable, and in the first two publications of our present three-part study series (Szakmáry et al., 2017; Ungváry et al., 2018B) we also verified, that the quality of the in-door and out-door environmental health status of the second-generation unemployed people hardly reached or was even worse than that of the first-generation unemployed. In the second part of our research, we pointed out that the education of the second generation Roma unemployed and the vocational training of the Hungarian unemployed were better than those of the first generation Roma and Hungarian unemployed (the ratio of those with completed 8 classes of primary school and those of skilled workers was higher). However, the backlog remained still huge; the professional qualifications of the Roma unemployed (especially those living in colonies) did not reach even those of the first generation; the proportion of secondary school graduates was 5% among the first generation unemployed and only 1.4% in the second generation; while the national average was 25% at the last (2011) census (KSH, 2013).

We also found that the proportion of those being fit for work among the second generation unemployed was significantly higher than that observed in the first generation. We assumed that the difference between the two generations was due to the age difference (the average age of second generation unemployed was significantly less than that of the first generation). We emphasized that among both the first and the second-generation unemployed, the chance of being unfit for physical work due health reasons was many times higher than that of the active physical workers (the odds ratios being 20.6 and 9.4); [Ungváry et al., 2018B].

Several concepts, hypotheses are known about the impact of unemployment – primarily on mental health and psychic state. Out of these the following ones are highlighted.

The first and so far one of the most decisive literary works on the psychosocial impact of unemployment was the so-called Marienthal study (Jahoda et al., 1933). The study was entirely different from the report-like narratives, newspaper articles, reports and analyses on unemployment and provided a comprehensive and objective picture on the psychological and social effects of unemployment (Tardos, 1999). The study sought answers to two sets of

questions. In particular: 1. attitudes to unemployment; 2. consequences of unemployment. In developed, industrialized countries, there is a widespread reference to the observation that the health impact of unemployment is decisively determined by the personality status of the unemployed person as an employee. Workers in bad condition become unemployed earlier and return to the world of work later than their healthy peers (Toppen, 1971, Winefeld, 1995; Mastekaas, 1996; Goldsmith and Diette, 2012; Zhang and Bhawsar, 2013).

One of the concepts in Hungary (Léder et al., 2002) associates the impact of unemployment on mental status with losing the job.

According to our hypothesis based on our studies carried out during the mass unemployment following the social, economic and political change in Hungary (1989), unemployment directly damages health. The primary etiologic factor is unemployment itself, which is a permanent stressor/series of stressors that lead to distress and distress-associated psychosomatic, psychiatric and behavioural disorders and diseases (Ungváry, 1993). The direct health damaging effects of unemployment were confirmed by our working group, as well as, albeit from different considerations, by a series of international works (OMI, 1990-1996; Martikainen and Valkonen, 1996; Mathers and Schofield, 1998, Inoue et al., 2007, BMJ, 2009; Ungváry et al., 1997; 2002; Morvai et al., 1999; Hegedűs 2000; 2003; 2015; Hegedűs et al., 2003; Grónai et al., 2004).

Changes in psychic effects caused by unemployment have manifested themselves historically or according to the individuals' living conditions/circumstances in significantly different forms e.g. gambling, luddism, Marienthal, soccer hooliganism, suicide, various psychic, behavioural alterations, psychosomatic diseases (Jahoda et al., 1933; Ungváry, 1993; Bannon, 1995; Winefeld, 1995; Paul, 2005; Goldsmith and Diette, 2012; Wikipedia, 2014; Hegedűs et al., 2015; Ungváry et al., 2015).

In view of all this, in our current study series, we have aimed on the one hand to understand what the mental health status of the first generation unemployed hit by permanent unemployment and that of the second generation unemployed was like. In particular: (i) we were looking for an answer whether the stressor effect caused by unemployment, which is a key determinant of the mental health of the first and second generation unemployed, obligatorily occurs when someone "stays without a job" ii) We were also looking for an answer that besides the stressor effect related changes, what other somatic and mental changes occur in the health status of the two unemployed generations. On the other hand, we wanted to analyse whether the current psychic status of the first and second generation Hungarian and Roma unemployed could be influenced by their relations with the majority society surrounding them in everyday life.

## **MATERIALS AND METHODS**

On the one hand, 785 unemployed persons (439 males and 346 females) aged 18-61 (with legal capacity) presenting themselves for mandatory pre-employment occupational health (medical) fitness for job and/or fitness for work examination at the Ózd Labour Centre were

included in the study. The study subjects were divided into four – non-Roma (they all claimed to be 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<sup>3</sup> – 885 active employees (476 men and 409 women) presenting at the Ózd Work Med Occupational Health Centre were also included in the study. Thirdly, as a special control group for the Lüscher test, 46 pilots of large airliners presenting themselves at the aviation medical consultation of the Főnix Medical Center were tested by the Lüscher test and they also underwent a fitness for flying medical examination. Recruitment of the study subjects was done on a voluntary basis with prior oral and written information; the anonymity of the participants in the study was preserved. The examinations complied with the national ethical rules and the Helsinki Declaration. (See also footnote 1 on the title page). These occupational medical specialist examinations were necessary to assess fitness for job and/or fitness for light or medium physical work. For the overall assessment of the general psychosomatic, psychic, emotional-volitional state a multi-component, so-called “mixed-filled” validated (hereinafter referred to as mixed-filled) questionnaire suitable to measure the “health-related quality of life” (Plette, 2006; Plette et al., 1999-2002; 2012; Morvai et al., 2016), the 13-item Beck Depression Inventory (BDI) Questionnaire (Beck et al., 1961; Beck and Beck, 1972; Animula, 2012), as well as the Lüscher colour diagnostic (psycho-vegetative personality diagnosis) test (Lüscher, 1948; 1962; 1969) were used. Note: The occupational health specialist referred the study subjects to further specialist examinations if it was necessary. As a statistical method the distribution of each evaluation category in each gender or ethnic study group was determined with 2-way tabulation and the differences between them were assessed using the Pearson chi-square test. The roles played by certain independent variables (first and second generations) in the studied outcomes were analysed using univariate and multivariate logistic regression method. Intergenerational differences were analysed by linear regression with adjustments to age and gender. 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. Evaluation of the mixed filled and the BDI questionnaires, as well as the Lüscher test was performed according to the original descriptions with some modifications introduced by our working group (Beck and Beck, 1972; Plette et al., 2012; Morvai et al., 2016; Lüscher, 1969).

## RESULTS

### *Occupational health history - complaints.*

In the case of both the first and second generation unemployed, the most frequent complaints of recent years were: bad mood, anxiety, sleep disturbance, mental or physical exhaustion,

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<sup>3</sup> Detailed examination results of the group were presented in the second part of our study series (Ungváry et al., 2018B)

headache, dizziness, tachycardia, fatigue, irritability, bone-joint-muscle pain, waist, head-and-neck pain, gastrointestinal disorders. In the years prior to the survey, the most common symptoms of acute illness among the respondents were pharyngitis, congested/runny nose, cough, upper-respiratory catarrh, fever, vomiting, diarrhoea, and rash as the most common cause for medical consultation. Complaints were more frequent among the first generation unemployed.

***Diseases diagnosed or recorded (reports by GPs, specialist consultants, hospitals) by the occupational health specialist***

The frequency of diseases recorded by the occupational health specialist by generations and genders is shown in Table I. The prevalence of locomotor, cardiovascular, gastrointestinal, endocrine and metabolic diseases was significantly higher among the first generation unemployed. It is striking that the prevalence of neurological and sensory diseases was frequent in both genders among both the first and the second generation unemployed; the prevalence of respiratory diseases was also significant in all groups. Note: In most cases multiple diseases were diagnosed simultaneously.

When comparing the prevalence of diseases of the first and second generation unemployed by ethnic group (Table II), it can be concluded that the generation difference is almost independent of ethnicity. The ratio of musculoskeletal, cardiovascular, endocrine and metabolic diseases was significantly higher among the first generation Hungarian and Roma unemployed. It is worth noting that the prevalence of neurological and sensory diseases among the first generation Hungarian unemployed was significantly higher than among the second generation Hungarian unemployed, while the prevalence of these diseases among both unemployed Roma generations was higher than that of the Hungarians. The prevalence of respiratory diseases was significant in all four groups.

Comparison of the prevalence / rate of the first and second generation Hungarian and Roma unemployed (Table III) shows, on the one hand, that the highest number of unemployed people declared unfit for work in some groups was related to cardiovascular and locomotor diseases of psychosomatic origin. A large number of inapt unemployed was associated with neurological and sensory as well as endocrine and metabolic diseases, as well as respiratory diseases connected to the high degree of smoking among the unemployed. On the other hand, it can be observed that neurological and sensory as well as endocrine and metabolic diseases occurred significantly more frequently among both the first and second generation Roma unemployed than among the Hungarian ones.

The diseases shown in Tables I-III were scarcely found even in mild form among the 885 active workers examined as controls and did not occur among the 46 pilots at all. Serious illnesses causing incapacity for work did not occur in the latter two groups, either.

**TABLE I.**

**COMPARISON OF THE FREQUENCY OF DISEASES OF THE FIRST AND THE SECOND GENERATION UNEMPLOYED (HUNGARIAN AND ROMA TOGETHER) BY GENDER (DATA DIAGNOSED AND RECORDED BY SPECIALISTS)**

Diseases	Men		Women		Together	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
Accidents	18 (5.8%)	11 (8.7%)	9 (3.5%)	2 (2.2%)	27 (4.8%)	13 (6.0%)
Musculoskeletal	74** (23.7%)	12 (9.5%)	84*** (32.9%)	12 (13.2%)	158*** (27.9%)	24 (11.0%)
Cardiovascular	83*** (26.6%)	12 (9.5%)	74*** (29.0%)	7 (7.7%)	157*** (27.7%)	19 (8.7%)
Respiratory	41 (13.1%)	13 (10.2%)	52 (20.4%)	14 (15.4%)	93 (16.4%)	27 (12.4%)
Psychiatric	3 (1.1%)	2 (1.8%)	5 (2.4%)	2 (2.6%)	8 (1.7%)	4 (2.1%)
Nervous system and sensory	50 (16.0%)	24 (18.9%)	66 (25.9%)	17 (18.7%)	116 (20.5%)	41 (18.8%)
Gastrointestinal	19* (6.1%)	2 (1.6%)	12 (4.7%)	2 (2.2%)	31* (5.5%)	4 (1.8%)
Genitourinary	4 (1.3%)	0 (0.0%)	8 (3.1%)	1 (1.1%)	12 (2.1%)	1 (0.5%)
Skin	3 (1.0%)	2 (1.6%)	7 (2.8%)	1 (1.1%)	10 (1.8%)	3 (1.4%)
Endocrine and metabolic	99* (31.7%)	25 (19.7%)	93 (36.5%)	25 (27.5%)	192** (33.9%)	50 (22.9%)
Congenital anomalies	3 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.5%)	0 (0.0%)
Hematopoietic disorders	2 (0.6%)	0 (0.0%)	4 (1.6%)	2 (2.2%)	6 (1.1%)	2 (0.9%)
Other disorders	12 (3.9%)	3 (2.4%)	14 (5.5%)	7 (7.7%)	26 (4.6%)	10 (4.6%)

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

**TABLE II.**

**COMPARISON OF THE FREQUENCY OF DISEASES OF THE FIRST AND THE SECOND GENERATION UNEMPLOYED (MEN AND WOMEN TOGETHER) BY ETHNIC GROUP (DATA DIAGNOSED AND RECORDED BY SPECIALISTS)**

Diseases	Hungarian		Roma	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
Accidents	21 (6.0%)	5 (5.2%)	6 (2.8%)	8 (6.6%)
Musculoskeletal	90** (25.5%)	9 (9.4%)	68*** (31.8%)	15 (12.3%)
Cardiovascular	84** (23.8%)	9 (9.4%)	73*** (34.1%)	10 (8.2%)
Respiratory	55 (15.6%)	13 (13.5%)	38 (17.8%)	14 (11.5%)
Psychiatric	5 (1.7%)	2 (2.4%)	3 (1.6%)	2 (1.9%)
Nervous system and sensory	62* (17.6%)	8 (8.3%)	54 (25.2%)	33 (27.1%)
Gastrointestinal	17 (4.8%)	1 (1.0%)	14 (6.5%)	3 (2.5%)
Genitourinary	5 (1.4%)	0 (0.0%)	7 (3.3%)	1 (0.8%)
Skin	9 (2.6%)	0 (0.0%)	1 (0.5%)	3 (2.5%)
Endocrine and metabolic	108** (30.6%)	15 (15.6%)	84* (39.3%)	35 (28.7%)
Congenital anomalies	2 (0.6%)	0 (0.0%)	1 (0.5%)	0 (0.0%)
Hematopoietic disorders	4 (1.1%)	1 (1.0%)	2 (0.9%)	1 (0.8%)
Other disorders	13 (3.7%)	4 (4.2%)	13 (6.1%)	6 (4.9%)

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$



**TABLE III.**

**COMPARISON OF THE FREQUENCY OF DISEASES OF THE FIRST AND THE SECOND GENERATION HUNGARIAN AND ROMA UNEMPLOYED (DATA DIAGNOSED AND RECORDED BY SPECIALISTS)**

Diseases	1 <sup>st</sup> generation		2 <sup>nd</sup> generation	
	Hungarian	Roma	Hungarian	Roma
Accidents	21	6	5	8
	(5.6%)	(2.8%)	(5.2%)	(6.6%)
	aa: 5	aa: 2	Aa: 1	aa: 2
Musculoskeletal	90	68	9	15
	(25.5%)	(31.8%)	(9.4%)	(12.3%)
	aa: 33	aa: 39	Aa: 2	aa: 6
Cardiovascular	84	73**	9	10
	(23.8%)	(34.1%)	(9.4%)	(8.2%)
	aa: 36	aa: 37	Aa: 4	aa: 5
Respiratory	55	38	13	14
	(15.6%)	(17.8%)	(13.5%)	(11.5%)
	aa: 16	aa: 24	aa: 3	aa: 3
Psychiatric	5	3	2	2
	(1.7%)	(1.6%)	(2.4%)	(1.9%)
	aa: 3	aa: 2	aa: 2	aa: 2
Neurological and sensory	62	54*	8	33***
	(17.6%)	(25.2%)	(8.3%)	(27.1%)
	aa: 15	aa: 23	aa: 3	aa: 6
Gastrointestinal	17	14	1	3
	(4.8%)	(6.5%)	(1.0%)	(2.5%)
	aa: 10	aa: 9	aa: 0	aa: 3
Endocrine and metabolic	108	84*	15	35*
	(30.6%)	(39.3%)	(15.6%)	(28.7%)
	aa: 31	aa: 30	aa: 4	aa: 6

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

aa = patients unfit for work

*The distribution of genitourinary, skin, congenital and haematopoietic disorders with an incidence of  $>0 - <2\%$  are not shown in the table. However, the number of cases becoming unfit for work is indicated in addition to the number/proportion of diseases in each study group (Both genders together).*

### ***Analysis of health-related responses to mixed questionnaires***

*Health status – total score.* The average total score of the self-assessed health status of the unemployed on a scale of 0-100 was significantly higher among the second than the first generation

unemployed<sup>4</sup> (75.1 vs. 83.4;  $P < 0.001$ ); these values were significantly higher for both male and female second generation unemployed than for the first generation (76.4 vs. 84.7;  $P < 0.001$  and 73.4 vs. 81.5;  $P < 0.001$ ) (Figure 1).

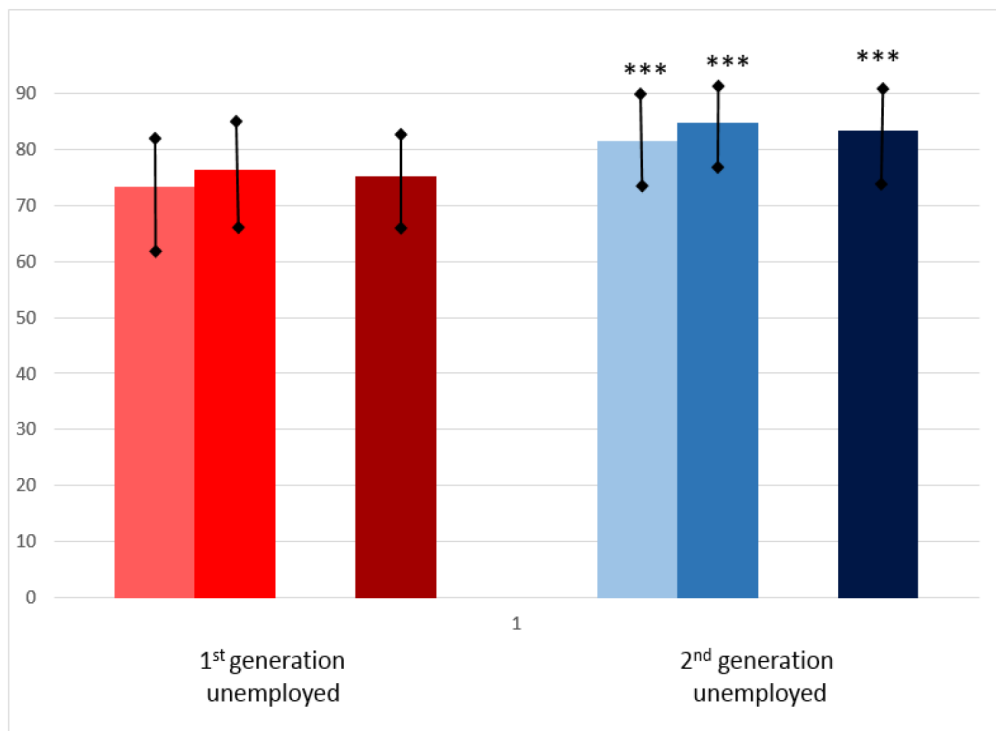


Figure 1. Health status of first and second generation unemployed on a scale of 0-100 based on self-assessed scores. Second generation unemployed (in all subgroups: women, men, together – in this order) rated their health status significantly higher than the first generation unemployed. The mean points of sub-groups of the first generation unemployed (also women, men, together) are shown with deepening red columns, the mean values of similar subgroups of the second generation unemployed are shown with deepening blue columns. SD values are also indicated in the columns. Significant differences between the counterpart columns of all the first and second generation subgroups are indicated by asterisks. \*\*\*:  $P < 0.001$

*Health status – self-assessed by the study subjects.* The second-generation unemployed assessed their health status as excellent or good significantly more frequently than the first generation unemployed (16.3% vs. 10.9%;  $P < 0.05$  and 56.7% vs. 41.0%;  $P < 0.001$ , respectively); the first generation unemployed considered their health status as moderate significantly more frequently than the second generation unemployed (43.8% vs. 23.7%;  $P < 0.001$ ). Frequency of bad health (3.6% vs. 3.3%) was considered low among both the first and second generation unemployed; the difference was not significant. A total of four subjects (1 male and 3 female) among the first generation unemployed considered their health status as very bad.

<sup>4</sup> In the following text we show first the results of the first generation, then those of the second generation unemployed.

*Stress / distress reactions.* Regularly occurring distress related complaints are observed significantly more frequently among the first than the second generation unemployed. However, it is to be noted that the proportion of respondents giving negative answer did not reach 50% even among the second generation unemployed, while only one third of the first generation unemployed did not observe distress-related complaints. Distress reactions affect mainly women (*Table IVA*). Pathophysiological changes characteristic of distress (tachycardia, increase of blood pressure, quick/deepening breathing, sweating) are significantly more frequent among the first generation unemployed but one or more of these afflict about 6-36% of the second generation unemployed, too (*Table IV.B*)

*Psychosomatic complaints:* pain associated with muscle contraction, sleep disorder, fatigue, digestive problems, loss of appetite, weight loss, decreased sexual interest occurred more frequently among the first generation unemployed. Note: The ratio of some parameters (muscle contraction associated pain, sleep disorder, fatigue) was remarkably high among the second generation unemployed, too (*Table IVC*).

*Psychic complaints:* The majority of parameters (frequent nervousness, uncertainty, bad mood, loss of interest, joylessness) were reported significantly more frequently among the first than the second generation unemployed. It is remarkable that there was no generation difference in the case of anxiety, irritability and tension, but these were all observed among high proportion of both male and female, first and second generation unemployed. (*Table IVD*).

*Complaints indicating behavioural disease.* The proportion of heavy smokers was high in both generations; it was significantly higher among the second than the first generation unemployed (Szakmáry et al., 2017). Other behavioural illnesses were not diagnosed; the proportion of symptoms suggestive of some behavioural disorders was below 10% in both generations.

TABLE IVA.

## STRESS/DISTRESS REACTIONS (INTERVIEW DATA)

Study Groups	Men		Women		Total	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>None</b>	119 (38.4%)	54 (42.9%)	71 (28.3%)	39** (43.8%)	190 (33.9%)	93* (43.3%)
<b>Sometimes</b>	158 (51.0%)	65 (51.6%)	129 (51.4%)	41 (46.1%)	287 (51.2%)	106 (49.3%)
<b>Yes</b>	33 (10.7%)	7 (5.6%)	51* (20.3%)	9 (10.1%)	84** (15.0%)	16 (7.4%)
<b>Total</b>	<b>310</b> <b>(100.0%)</b>	<b>126</b> <b>(100.0%)</b>	<b>251</b> <b>(100.0%)</b>	<b>89</b> <b>(100.0%)</b>	<b>561</b> <b>(100.0%)</b>	<b>215</b> <b>(100.0%)</b>

**TABLE IVB.**

**PHYSIOLOGICAL/PATHOPHYSIOLOGICAL CHANGES (MEDICAL EXAMINATION DATA)**

Study groups	Men		Women		Total	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Parameters</b>						
<b>Rapid pulse</b>	71 (22.8%)	22 (17.32%)	95 (37.3%)	25 (27.5%)	166* (29.3%)	47 (21.6%)
<b>Hypertension</b>	83*** (26.6%)	12 (9.5%)	69*** (27.1%)	9 (9.9%)	152*** (26.8%)	21 (9.6%)
<b>Rapid/deeper breathing</b>	29** (9.3%)	2 (1.6%)	34 (13.3%)	10 (11.0%)	63* (11.1%)	12 (5.5%)
<b>Muscle contraction</b>	120 (38.5%)	48 (37.8%)	120* (47.1%)	31 (34.1%)	240 (42.3%)	79 (36.2%)
<b>Perspiration</b>	95** (30.5%)	23 (18.1%)	98*** (38.4%)	18 (19.8%)	193*** (34.0%)	41 (18.8%)

**TABLE IVC.**

**SOMATIC COMPLAINTS (INTERVIEW DATA)**

Study groups	Men		Women		Total	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Complaints</b>						
<b>Muscle contraction pain</b>	147 (47.1%)	55 (43.3%)	159* (62.4%)	44 (48.4%)	306* (54.0%)	99 (45.4%)
<b>Sleep disorder</b>	95** (30.5%)	23 (18.1%)	102*** (40.0%)	15 (16.5%)	197*** (34.7%)	38 (17.4%)
<b>Fatigue</b>	135* (43.3%)	39 (30.7%)	149** (58.4%)	37 (40.7%)	284*** (50.1%)	76 (34.9%)
<b>Digestion problems</b>	37* (11.9%)	5 (3.9%)	34 (13.3%)	9 (9.9%)	71* (12.5%)	14 (6.4%)
<b>Loss of appetite, weight loss</b>	30 (9.6%)	7 (5.5%)	56* (22.0%)	9 (9.9%)	86** (15.2%)	16 (7.3%)
<b>Increased appetite, weight gain</b>	19 (6.1%)	5 (3.9%)	18 (7.1%)	8 (8.8%)	37 (6.5%)	13 (6.0%)
<b>Loss of sexual interest</b>	14 (4.5%)	1 (0.8%)	29** (11.4%)	2 (2.2%)	43*** (7.6%)	3 (1.4%)
<b>Other</b>	11 (3.5%)	2 (1.6%)	15 (5.9%)	4 (4.4%)	26 (4.6%)	6 (2.8%)

TABLE IVD.

## PSYCHIC COMPLAINTS (INTERVIEW DATA)

Study groups	Men		Women		Total	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Psychic complaints</b>						
<b>Frequent anxiety</b>	128* (41.0%)	37 (29.1%)	137** (53.7%)	32 (35.2%)	265*** (46.7%)	69 (31.7%)
<b>Tension</b>	132 (42.3%)	57 (44.9%)	157* (61.6%)	43 (47.3%)	289 (51.0%)	100 (45.9%)
<b>Anxiety</b>	102 (32.7%)	40 (31.5%)	126 (49.4%)	37 (40.7%)	228 (40.2%)	77 (35.3%)
<b>Irritability</b>	105 (33.7%)	44 (34.7%)	126* (49.4%)	34 (37.4%)	231 (40.7%)	78 (35.8%)
<b>Feeling of uncertainty</b>	62 (19.9%)	16 (12.6%)	71 (27.8%)	15 (16.5%)	133** (23.5%)	31 (14.2%)
<b>Bad mood</b>	115 (36.9%)	37 (29.1%)	116* (45.5%)	29 (31.9%)	231** (40.7%)	66 (30.3%)
<b>Loss of interest</b>	43 (12.8%)	14 (11.0%)	50** (19.6%)	7 (7.7%)	93* (16.4%)	21 (9.6%)
<b>Joylessness</b>	32 (10.3%)	8 (6.3%)	41* (16.1%)	7 (7.7%)	73* (12.9%)	15 (6.9%)

*Analysis of the responses collected by the self-completed 13-item Beck Depression questionnaire*

The proportion of people with different degrees of (mild and moderate) depression among the second generation unemployed was significantly higher among the first generation unemployed. Cases of mild to moderate and severe depression occurred among the first and second generation unemployed alike (*Figure 2*). There was also a statistically significant difference between the first and the second generation unemployed groups when we considered a case as positive if at least one of the 13 test items was assigned to a score between 1-3 (*Table V*).

With regard to item 2 (2. I am not particularly afraid of the future), 66.7% of men and 77.7% of women among the first generation unemployed gave a worrisome response; these frequencies significantly exceeded the frequency of similar responses of second generation male and female unemployed. Note: despite the significant difference, the proportion of worrying responses among the second generation unemployed was also high (together: 54.3%, men: 44.4%; women: 64.1%). There was no significant difference between the first and second generation unemployed in the proportion of worrying responses to item 7 (7. It does not even come to my mind that I hurt myself or do something against myself), although it was much lower than those to item 2, but not negligible at all (*Table V*).

When analysing the first and second generation unemployed together, we found that according to the answers given to the Beck Depression questionnaire, the prevalence of subjects

with depression of different degree was not influenced by ethnicity; significantly more men than women were found to be exempt from depression (57.8% vs. 48.3%;  $P < 0.01$ ) and more women than men were affected by severe depression (16.6% vs. 4.4%;  $P < 0.01$ ). The proportion of people with depression was strongly dependent on age: the proportion of negative cases among the 18-29 year-olds was the highest (76.0%), while among 30-44-year-olds and 45-61-year-olds the proportion was 53.6% and 31.2%, respectively. The prevalence of people with mild depression in the same age groups was 8.7%, 33.1% ( $P < 0.001$ ), 41.8% ( $P < 0.001$ ), and severe depression: 5.8%, 5.6%, and 19.2% ( $p < 0.001$ ), respectively.

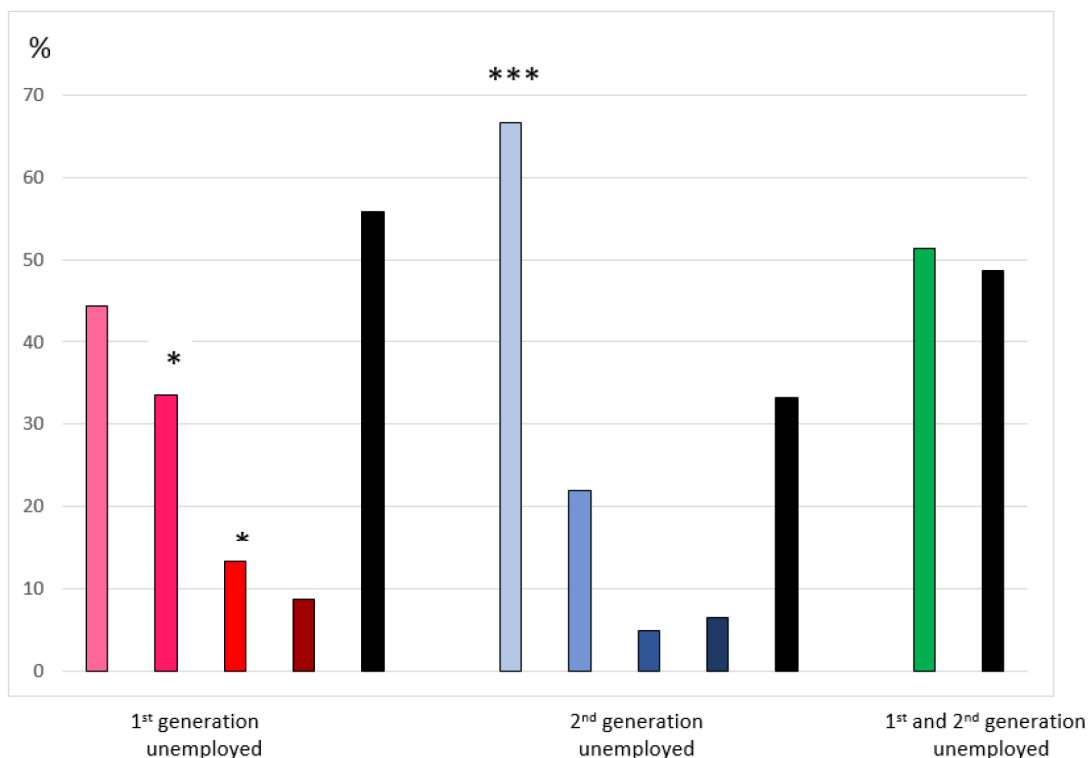


Figure 2. Prevalence of first and second generation unemployed persons with depression – determined by the 13-item Beck Depression Test. In the left and middle parts of the three-part figure, the proportion of negative, mild, moderate and severe depression cases among the first and second generation unemployed is shown by deepening red and deepening blue columns; (at the end of both column series, the percentage of total depression cases of the given generation is presented (black columns). Significant differences between the generation column counterparts are marked with asterisks. The proportion of negative and (any types of) depressed cases among all (both first and second generation) unemployed is shown with green and black columns. The proportion of negative cases among second generation unemployed is significantly higher, and that of the depression cases significantly lower than among the first generation unemployed. \*:  $P < 0.05$ ; \*\*\*:  $P < 0.001$

TABLE V.

## RESULTS OF THE 13-ITEM BECK DEPRESSION INVENTORY

## COMBINED EVALUATION OF ITEMS 1-13.

Study groups	Men		Women		Together	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Distribution by points</b>						
<b>0 (0 in every one of BDI items 1-13.)</b>	21 (14.6%)	23 (37.1%)	7 (5.8%)	18 (27.7%)	28 (10.6%)	41 (32.3%)
<b>1 (1-3 in at least one of BDI items 1-13.)</b>	123*** (85.4%)	39 (62.9%)	114*** (94.2%)	47 (72.3%)	237*** (89.4%)	86 (67.7%)

## RESPONSES TO BDI ITEM 2.

Study groups	Men		Women		Together	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Distribution of BDI-2 responses</b>						
<b>0</b>	48 (33.3%)	35 (55.6%)	27 (22.3%)	23 (35.9%)	75 (28.3%)	58 (45.7%)
<b>1</b>	96** (66.7%)	28 (44.4%)	94* (77.7%)	41 (64.1%)	190** (71.7%)	69 (54.3%)

## RESPONSES TO BDI ITEM 7.

Study groups	Men		Women		Together	
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
<b>Distribution of BDI-7 responses</b>						
<b>0</b>	129 (89.6%)	62 (98.4%)	100 (82.6%)	56 (87.5%)	229 (86.4%)	118 (92.9%)
<b>1</b>	15* (10.4%)	1 (1.6%)	21 (17.4%)	8 (12.5%)	36 (13.6%)	9 (7.1%)

*Lüscher colour diagnostics*

The first and second generation unemployed, Hungarian and Roma men and women ranked the 8 (0-7) colours, from the most attractive to the least attractive (the most rejected) ones. The average series of the 8 colours ranked by the study groups are shown in *Figure 3*. Concerning priority preferences (first and second ranked colours), it is clear that both the first and second generation unemployed population chose Lüscher red (No. 3) in the first place. This choice, reinforced by exploration and also by other colours, refers to great vitality – or as we may say – to willingness to live at whatever

cost. Unemployed people live in the present, they are tuned to action, success, and in possession of their real human qualities as a tool they want to achieve their goal (to ensure work as life support). The group formed from all the studied unemployed, as well as the groups of the first and second generation unemployed, completely rejected their unemployment and their disadvantaged position associated with it (all the three groups marked the 8<sup>th</sup> place with the Lüscher black [No. 7] colour). The Lüscher gray [No. 0] colour ranked in the 7<sup>th</sup> place by the unemployed also refers to this. Exploration has led to a similar result: the unemployed people need a normal living environment and quality of life instead of unemployment, and they reject their social exclusion. The variety of colours on the 6<sup>th</sup> place, which refers to the suspended opportunities, shows unambiguous behaviour for all the three unemployed groups. Lüscher (1948; 1962; 1969), in his work on the 8 colour choices for stress and conflict situations, regarded one of the four basic colours (blue, green, red, yellow) placed on the 6<sup>th</sup> place of the chosen colour scale as a definite indicator of a stress- and conflict situation. The combined groups of the first and second generation unemployed, irrespective of their gender and ethnicity, chose green and blue on the 6<sup>th</sup> place; and as these are basic colours, the Lüscher test gave evidence that both the first and second generation unemployed were affected by stress and conflict situation. *Figure 3.* shows also the so-called “optimum” colour scales compiled by Rókusfalvy et al. (1971) from the data of 116 Hungarian employed men and 174 Hungarian employed women. All the chosen colour scales chosen by the unemployed people, including those chosen by the first and the second generation unemployed, differed significantly from the “optimum” scales. In addition, the colour scale of a group of 46 male pilots of large airliners tested by us is also presented in *Figure 3.* as a control of the technical solution of our tests. The pilots’ colour scale differed from the male “optimum” scale (Rókusfalvy et al., 1971) only on the 3<sup>rd</sup> and 5<sup>th</sup> place.

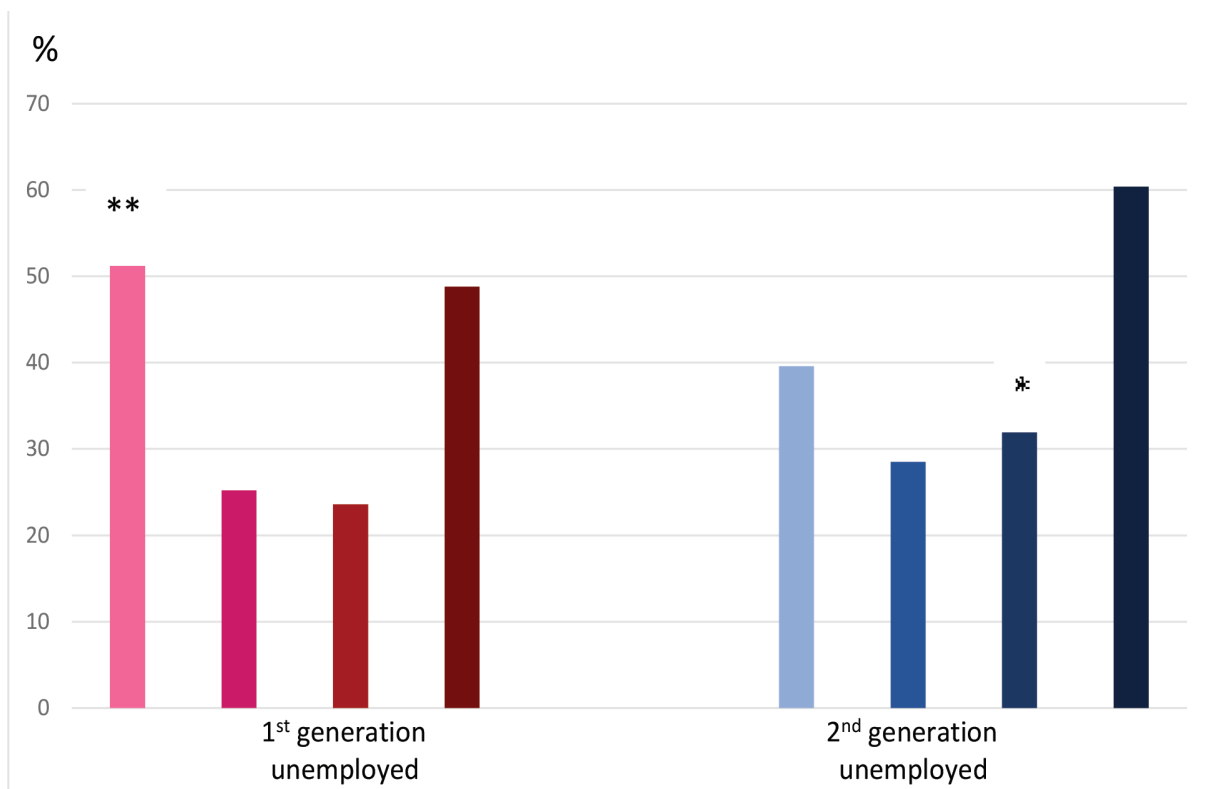
Study groups	Selected colors	1.	2.	3.	4.	5.	6.	7.	8.
	mentioned at (1. most popular, 8. least popular)								
All unemployed		3	5	4	2	6	1	0	7
All first generation unemployed		3	5	4	6	1	2	0	7
All second generation unemployed		3	5	4	2	6	1	0	7
Employed Hungarian men (Rókusfalvy et al., 1971)		2	3	5	4	1	0	6	7
Pilots flying passenger air planes (men)		2	3	1	4	5	0	6	7
Employed Hungarian women (Rókusfalvy et al., 1971)		3	4	2	5	6	0	1	7

*Figure 3.* The order of colour preference of the first and second generation unemployed, based on the average series of the examined groups. Next to the first and second-generation study groups the order of the colour preference is shown from the most preferred colours to the most rejected ones. The Lüscher colour numbers are shown in the filled rectangles. The figure also shows, for comparison, the colour preference order of all the unemployed subjects and the pilots of large airliners (all males), as well as those of 116 Hungarian male and 174 Hungarian female employees observed by Rókusfalvy et al. (1971) (Note: The scales of Rókusfalvy et al. are also called optimal scales.) The pilots’ scale is very close to the optimal scale, while the order of the unemployed people differs in many places from the optimal scale. More explanation can be found in the text.



***Discrimination against second generation unemployed (self-assessed data).***

By analysing the answers given to all questions, we found that the frequency of discrimination against second generation unemployed was significantly higher compared to the first generation unemployed (*Figure 4*). The second generation unemployed people were significantly more frequently discriminated at their place of residence, during shopping and in public administration. Although the incidence of discrimination was lower in the consultation rooms of the General Practitioners and the paediatricians, and the difference between the two unemployed generations was not significant, but the existence of discrimination in medical offices was still a fact (*Table VI 1-5*). According to the results of logistic regression analysis, out of the discrimination perceived in locations<sup>5</sup> No. 1, 2 and 3, only that one perceived in the 1<sup>st</sup> and 3<sup>rd</sup> locations were linked to the generation of unemployment. If, following the breakdown of first and second generation, male and female subgroups, the unemployed population was further broken down by ethnicity (Hungarian and Roma), it was found that discrimination primarily affected the Roma people (*Table VI, 6*). However, it should be emphasized that discrimination quite often humiliated the Hungarian unemployed, too.



*Figure 4. Discrimination against the first and second generation unemployed - based on their own experience. The proportion of the first (left-hand side) and second generation (right-hand side) unemployed not affected (negative) or increasingly affected (marked by deepening red or blue colours) by discrimination / racism. Significantly different generation column counterparts are marked with asterisks. The last columns of the column-series (marked with darkest red or darkest blue) represent the proportion of all discrimination cases among the unemployed of the respective generation. The proportion of the unemployed who have been humiliated by discrimination / racist manifestations is significantly higher and of those without similar experience is significantly lower among the second generation unemployed. \*  $P < 0.05$ ; \*\*  $P < 0.01$*

<sup>5</sup> Specification of the numbered locations is presented in *Table VI*.

**TABLE VI.**

**DISCRIMINATION EXPERIENCED BY THE FIRST AND SECOND GENERATION UNEMPLOYED (HUNGARIAN AND ROMA, MEN AND WOMEN TOGETHER) – ANALYSIS OF EXPERIENCES BASED ON SELF-COMPLETED QUESTIONNAIRE DATA**

**EXPERIENCED DISCRIMINATION AT PLACE OF RESIDENCE (1.)**

Discrimination	Study groups	Total
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
No	325 (58.9%)*	89 (42.4%)
Occasionally	115 (20.8%)	54 (25.7%)
Yes	112 (20.3%)	67 (31.9%)*
<b>Total</b>	<b>552 (100.0%)</b>	<b>210 (100.0%)</b>

**EXPERIENCED DISCRIMINATION WHILE SHOPPING (2.)**

Discrimination	Study groups	Total
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
No	320 (58.6%)*	92 (43.6%)
Occasionally	113 (20.7%)	55 (26.1%)
Yes	113 (20.7%)	64 (30.3%)*
<b>Total</b>	<b>546 (100.0%)</b>	<b>211 (100.0%)</b>

**EXPERIENCED DISCRIMINATION DURING OFFICIAL BUSINESS (3.)**

Discrimination	Study groups	Total
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
No	311 (56.7%)*	82 (39.2%)
Occasionally	114 (20.8%)	57 (27.3%)
Yes	124 (22.6%)	70 (33.5%)*
<b>Total</b>	<b>549 (100.0%)</b>	<b>209 (100.0%)</b>

**EXPERIENCED DISCRIMINATION AT THE GENERAL PRACTITIONER (4.)**

Discrimination	Study groups	Total
	1 <sup>st</sup> gen.	2 <sup>nd</sup> gen.
No	453 (83.6%)	168 (80.0%)
Occasionally	54 (10.0%)	20 (9.5%)
Yes	35 (6.5%)	22 (10.5%)
<b>Total</b>	<b>542 (100.0%)</b>	<b>210 (100.0%)</b>

**EXPERIENCED DISCRIMINATION AT THE PEDIATRICIAN (5.)**

Discrimination	Study groups	Total
	1st gen.	2nd gen.
No	460 (85.5%)	172 (82.7%)
Occasionally	47 (8.7%)	19 (9.1%)
Yes	31 (5.8%)	17 (8.2%)
<b>Total</b>	<b>538 (100.0%)</b>	<b>208 (100.0%)</b>

**THE ROLE OF UNEMPLOYED GENERATION IN DISCRIMINATION (6.)**

Location	Model 1 (generation only)	Model 2 (generation + ethnicity)
Anywhere	P<0.01	P=0.609
At place of residence	P<0.01	P<0.05
Shopping	P<0.01	P=0.151
During official business	P<0.01	P<0.05
At General Practitioner	P<0.246	P=0.574
At paediatrician	P<0.339	P=0.663

**DISCUSSION**

Prior to our answers to the questions of our paper, we would like to emphasize on the one hand that, to our knowledge, neither domestic nor international research works have paid any attention to understanding the generation-dependent effects of unemployment on the physical or mental health; no literary data were found to compare the mental health of the first and second generation unemployed.

On the other hand, we would like to emphasize that the main characteristics of the unemployed people appearing en masse at the time of the social, economic and political changes in Hungary (1989) were similar to those of the unemployed in most of the so-called socialist countries, but in contrast to the unemployed of the common economic crises in the developed capitalist / industrialized countries, prior to becoming unemployed they were fit for work controlled by regular occupational medical specialist examinations; their education or qualifications were disregarded when they became unemployed.

Before responding to our first question, we would like to point out – as in our response we rely on those results – that during the time of mass unemployment in Hungary we developed a hypothesis, according to which unemployment has a direct health damaging effect. In terms of its etiopathogenesis, we stated that unemployment, through its inherent attribute, the continuous stressor effect, sooner or later causes distress and distress-related psychosomatic and/or psychiatric and/or behavioural diseases in the affected unemployed (Ungváry, 1993).

Based on our hypothesis – and our previous papers on the results of a large number of examinations on unemployed (OMI, 1990-1996; Ungváry et al., 1997; 1999; 2002; 2016A; 2016B; 2018A; 2018B; Morvai et al., 1999; Hegedűs, 2000; 2003; 2015, Hegedűs et al., 2003; 2010, 2011; 2014; 2015; Grónai et al., 2004; Szakmáry et al., 2017) – we thought it probable that with regards to our first question, first we have to determine the generation-dependent distribution of stressor-dependent psychic alterations. As far as we know, the connection of mental health to unemployment is indicated in different ways in the international literature (Jahoda et al., 1933; Léder et al., 2002; Paul and Moser, 2009; Kopp, 2012; Lo and Cheng, 2014). These mental state alterations are collectively referred to in this paper as stressor effect-independent alterations of unemployment (see section 1.2. for details). In the light of all these, we chose our investigative methods so that, based on our previous results, we can verify the varieties and prevalence of the most frequent stressor-dependent mental health changes with sufficient accuracy and the mechanism of the stressor effect in a reliable way. That's why we used on the one hand the so-called mixed-filled questionnaires, suitable for recording data of specialist interviews, specialist examinations, and self-evaluation of subjects; and on the other hand, the 13-item Beck test (BDI), the results of which could further strengthen our assumed pathomechanism theory.

As for the mental health effects independent of the stressor effect, we did not find any other mental state changes among the unemployed in the studied micro-region apart from the smoking-related behaviour changes (Szakmáry et al., 2017). Therefore, we wanted to know whether there were mental alterations associated with the personality of the unemployed, which in certain circumstances, could result in psychic or behavioural consequences. In order to get to know this, we were looking for an “objective” method by which we could expect an answer to this question. This method was available in the form of the Lüscher test. The test expects that the subjects place the 8 Lüscher colours in preference order. Colours are perceived as a uniform sensation (i.e. as red, blue, etc.) – similar to heat (warm-cold) or pain and elemental touch. Therefore, this is an objective and universally valid perception, does not depend on tradition, culture, or current subjective relationships. That is, the Lüscher colour diagnostics uses the objectivity of perception and can be considered an objective measuring tool (Rókusfalvy et al., 1971). Taking all these into consideration, we believe that the results summarized in this paper on the distribution of the – according to our knowledge – unemployment-related mental state alterations among the first and second generation unemployed are authentic.

*ad 1. Our first question is answered below.* We found that the frequency of the unemployment-related stressor-dependent mental health changes – after medical exploration anamnestic data indicating distress (bad mood, anxiety, sleep disturbance, mental and physical exhaustion, headache), physiological changes found by physical examinations (tachycardia, blood pressure increase, rapid, deep breathing), psychosomatic and nervous / psychiatric (distress, depression) and depression-associated distress symptoms (irritability, tension) diagnosed in outpatient / inpatient institutes by a specialist – was significantly higher among the first than the second generation unemployed. This conclusion was confirmed by the data obtained with BDI, as the proportion of the unemployed with mild, moderate and severe depression (~ 56%) was significantly higher than that of the second generation unemployed (~ 33%). Moreover, we found that the proportion of depression cases was also very high among the second generation unem-

ployed. The value of our results supporting our conclusions is indirectly further increased by the fact that we collected the data that formed the basis of our results among the unemployed who presented themselves at fitness for work or fitness for job medical examinations; accordingly, our results look more favourable than the reality. Explanation: people with very serious depression do not feel like being able to work; therefore, they do not even participate in medical examinations deciding on their fitness for work<sup>6</sup>.

Among the 785 unemployed – excluding behavioural disturbances caused by smoking (Szakmáry et al., 2017) – we did not diagnose mental state changes independent of the stressor effect of unemployment. However, the behaviour revealed by Lüscher test and reinforced by exploration is considered to be an extremely important result. According to this, both generations of the unemployed rejected not only the unemployment and the associated distress, but also seemed to be active and committed to solving the problem. The detailed analyses of the Lüscher test results suggest that, regardless of generations, the commitment to act is highly conscious among the Hungarian unemployed, while it is also emotionally motivated among the Roma unemployed.

Apart from the fact that our results introduced conformity to the rules for the first time concerning mental health effects of unemployment and also between the first and second generation unemployed, its significance can also be seen in two further facts that fundamentally determine the health-related quality of life of the unemployed. On the one hand, depression in the already disadvantaged micro-region not only increases the number of physically and mentally ill unemployed, but it also raises the costs of their illnesses, the so-called disease-burden. It is well-known and very important that in the case of depression, but also, generally in the disease burden caused by neurological diseases the cost does not only include the patient's and the health care costs, and the cost of the patient's transitional dropping out of work, but also, in serious cases, the costs of loss of work of the persons providing care to the patient, the expenses of the care provided and the daily subsistence costs of the care providers. These kinds of disease burden can reach extreme magnitude. They may even outweigh the burden of the most serious, fatal diseases (Gustavsson et al., 2011). Instead, we only mention: depression – the plague of our time – will be a disease as the second most important cause of disability to work by 2020 (Brundtland, 2001). Evidence: the prevalence of people with depression increases in the micro-region but not only due to the unemployment. On the other hand, our results do not only draw attention to the need for health preservation and health promotion of the unemployed, but also show the key issues of the feasibility of these and the primary prevention. Our results also showed that both unemployed generations were ready to fight for averting unemployment (Lüscher test data); although the chances of second generation unemployed being fit for physical work were not as high as those of the active workers, but the second generation unemployed were ready to study and their physical and mental health status being more favourable than that of the first-generation unemployed made them suitable for this (Szakmáry et al., 2017, Ungváry et al., 2018B). However, stressor effect-related mental health damages of unemployment are age-dependent. Therefore, in the case of second generation unemployed who are the most capable for improving the quality of life (e.g. with learning, with extension of skills) with support, realization of support as soon as possible is decisive. However, it

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<sup>6</sup> In 2002 Kopp and Skrabski found severe depression in 13% of the total population; in a series of their investigations completed in 2006 67% of the total population proved to be mentally healthy.

is also true that the in-door environmental health conditions of second-generation (almost without exception Roma) unemployed living in colonies do not only provide insufficient circumstances for learning, but also significantly increase the risk of health impairment of the unemployed people. Knowing all this, drafting a solution cannot be a professional problem.

*ad 1.1. "Regular" appearance of the stressor effect of unemployment.* In order to judge: whether the determination of the stressor-dependent effects of unemployment offers possibility for reasonable practical measures, it is important to verify without any doubt, whether the stressor effect of unemployment does manifest itself regularly, and can be verified by data collected in a micro-region.

According to our original conception, we considered it as an evidence, that safe work and its social role is one of the basic human needs, more precisely, the inherent attribute of man, because work is a prerequisite for becoming human. This theorem is justified not only by phylogenetic, biological, occupational health data, but also by philosophical considerations that are distant from one another (Ungváry, 1993).

Here, too, there is a quote by His Holiness Pope John Paul II, the outstanding character of Christianity, and another one from a Hungarian Encyclopaedia of the 1970s, identifying itself with the Marxist doctrines.

According to these, "..... first of all I need to remind you of that basic principle that the Church always believed, namely the primacy of work over capital. This basic principle applies directly to the production processes; in the production process work is always the primary determinant causative factor while capital is a collection of production tools. This basic principle is obviously true and confirmed by the experiences from the universal human history" (Pope John Paul II, 1981) "..... Work is the purposeful activity of people, which consists of conquering and acquiring natural and social forces to meet the historically evolved human needs" (Little Encyclopaedia of Philosophy, 1972).

The two quotes, willy-nilly, combine the history of mankind with the ability to work. That's why we have stated and argued – no matter whether it is a creative work or just a labour necessary for subsistence (in Hungarian: *munka* or *robot*<sup>7</sup>, respectively), or the by nowadays interfused form of the two meanings of work – that loss of work harms the human, functional-anatomical and biological unity, the personality (and, naturally, the human health) as a strong chronic stressor or a series of stressors (Ungváry, 1993). Our conception, accordingly, defines unemployment as a harmful source or factor (stressor) to mental health, which then causes distress, according to the Selye theory (Selye, 1936; 1956), and on the ground of distress, psychosomatic, psychiatric and behavioural disorders and diseases develop.

Our present studies add to our knowledge to verify our hypothesis. The detailed occupational-medical history, the questionnaire data of medical interviews with exploration of the distress

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<sup>7</sup> *robot* is a Hungarian word; it was used in Hungary in the feudalistic society when serfs had to do compulsory work (*robot*) for their landlord or for the church

symptoms, the physiological parameters (pulse number, respiratory rate, blood pressure increase, etc.) characteristic of stress or distress revealed by physical examination, the psychosomatic neurological / psychiatric and behavioural disorders and illnesses suggestive of distress symptoms clearly indicate that unemployment as a stressor continuously or at least with high frequency produces most of the mental health-damaging effects among both the first and the second generation unemployed. That is, the stressor effect of unemployment is likely to appear with high probability in accordance with the rules. The stressor effect among the second-generation unemployed people proves that it is not the loss of jobs, but the lack of creative work and / or the labour necessary for subsistence is the real cause of the stressor effect of unemployment. This stressor, according to our hypothesis formulated in 1993, and since then many times confirmed by our working group, is the primary etiological factor of the health-damaging effects of unemployment.

*ad1.2. Diseases associated with primary health-damaging (stressor) effect of unemployment among the first and second generation unemployed.* In addition to the stressor-related health impairments caused by unemployment, the primary etiological factor, further diseases and disease progression facilitating effects appeared in our study area, the multiple disadvantageous micro-region due to the unemployment-related health-damaging poverty (Tomatis, 1997; Gwatkin et al., 1999), and low level of schooling (Faragó, 2005; Szakmáry et al., 2018), as well as – especially in the Roma colonies – due to the health-damaging poor in-door and out-door environmental health conditions and the insufficient public health and epidemiological safety (Ungváry et al., 1997; 2005; Hegedűs, 2000; 2015; Szakmáry et al., 2017), which lead to irreversible loss of fitness for work and a degrading quality of life. The series of events described could be observed with high frequency among the first generation unemployed, while in the second generation it was significantly less frequent but still traceable. These diseases make it difficult but not impossible to recognize the primary health-damaging stressor effects (Ungváry et al., 2016B).

*Psychic alterations independent of the stressor effect of unemployment.* Besides the health damaging and social / public health impacts summarized above (the stressor effect of unemployment, poverty, lack of education / lack of skills, worrying environmental health situation, poly-aetiological diseases triggered by stressor effect due to the impact of inadequate public health and epidemiological safety), and the behavioural problems caused by heavy smoking (Szakmáry et al., 2017), no further mental health damage was diagnosed among the 785 unemployed. However, this category also included the fully presented and discussed attitude explored by the Lüscher test, which similarly rejected unemployment in both generations of the unemployed groups, as well as the furious, angry, aggressive behavioural disorders already known from our previous studies carried out among the unemployed in the micro-region (Ungváry et al., 2015).

*Changing Stressor Effects?* Since the discovery of Selye's stress theory, which globally changed the medical contemplation, we have known for decades that various stressors and series of stressors cause so-called aspecific reactions corresponding to one another, irrespective of their characteristics (Selye, 1936; 1956). Recent research by Miklós Palkovits's workgroup has shown that different stressors trigger different effects depending on the stressor (its characteristics) (Pacak et al., 1988; Pacak and Palkovits, 2001; Kvetmasky et al., 2009; Palkovits, 2013). In addition to the varying efficiency of coping, this mechanism also explains well

that distress, which we consider to be the dominant adverse effect of unemployment, is not of uniform intensity, not constant, and its symptoms and the produced illnesses do not affect the unemployed subjects in the same way. In the light of all these – with regard to our “stress vs. strain” conception (Ungváry and Rozgonyi, 1988; Ungváry, 1994; 2018) – according to which any kind of stress and effects (related to information-, energy-, or material flow) affecting people from physical or social environment are considered as stressors (Ungváry, 2018), a question may be raised: are the most various psychic alterations really independent of the “stressors” of very different characteristics?

*Psychic / mental health damage theories that are difficult to reconcile with the conception of the stressor effect of unemployment.* The following two questions should be addressed in connection with the stressor theory regarded as the cause of health-damaging effect of unemployment among the first and second generation unemployed. In particular: i) as mentioned in the introduction of our paper, a psychological school of great tradition considers that the impact of unemployment on mental health depends greatly on the personality status of the unemployed person as a worker. According to this, the relationship between unemployment and the weaker mental state stems from the fact that people with psychic and mental problems are more likely to lose their jobs, and when unemployed they need more time to be employable again (Toppen, 1971; Winefield, 1995 Mastekaasa, 1996; Goldsmith and Diette, 2012; Zhang and Bhawsar, 2013). We do not consider this position to be consistent with the characteristics of mass unemployment, the results of our investigations carried out during the mass unemployment associated with the Hungarian change of regime, because after the collapse of the so-called socialist global system overwhelming majority of employees lost their jobs, irrespective of their mental capacity and qualifications. ii) in the light of the results of our comparison studies between the first and second generation unemployed, it is difficult to interpret the conception of Léder et al. (2012). These authors put the questions: “What is unemployment? Who is the unemployed?” According to their answer: “Loss of workplace ..... it may mean the interruption of an entire linkage system ..., which makes most of the affected people suffer.” On the one hand, we think that the loss of a “workplace” is not just a psychic “event.” On the other hand, our present generation studies prove that even if in an age-dependent way and slower, but the second-generation unemployed will be suffering from the unemployment-related physical and mental health damages - most of which can be explained by the stressor effect of unemployment – without losing their job – as they have never had a job.

*The consequence of group-activity-inducing psychic effects of unemployment-hypothesis.* The study by Jahoda et al. (1933) about the psychosocial characteristics of unemployment, as mentioned earlier, has been considered a milestone because they broke away from the newspaper-like reports on unemployment and provided a comprehensive objective picture of the psychological and social effects of unemployment (Tardos, 1999). We believe that the Marienthal study is also one of the basic works on the effects of unemployment, because it first formulated a psychological alteration that induced “group action”, even if this concept was not used in the study. Jahoda et al. (1933), as Tardos (1999) also mentioned, sought answers to two question groups<sup>8</sup>. According to our present knowledge, we would prefer to mark the two sets of ques-

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<sup>8</sup> The two groups of questions: 1. relation to unemployment; According to Tardos (1999) the authors wanted to know what kind of new behaviour is brought about by the unemployment in the subjects becoming unemployed.



tions as psychic alterations and their consequences and to divide the consequences into two further subgroups. According to our classification the consequences are: i) as a consequence of the mental alteration, the person concerned disposes of himself/herself (e.g. commits suicide), while ii) the other mental alteration mobilizes political or other type of public activity to organize unemployed people of similar / same position. Based on the Marienthal study, we consider this kind of group activity inducing mental alteration element to be the driving force of machine wrecking, luddism, or football hooliganism. In search of a “stressor”, the etiological factor, we thought to identify it as fury, anger, and aggression (Ungváry et al., 2015). Considering that the history of unemployment is not only about the passive, losing unemployed, but also about the active, ready to act ones, we find it reasonable to get to know the psychic and mental background of the ability to solve tasks. However, it is true that the activity and readiness to act of the unemployed have spectacularly manifested themselves so far only in negative events (machine wrecking, luddism, football hooliganism) and ended with defeat.

*ad 2. “The everyday relationship of the first and second generation Hungarian and Roma unemployed with the majority society”.* The opinions of the first and second generation unemployed study subjects based on their experiences of meeting members of the “majority society” in the everyday life (at the place of residence, in offices, at shopping, in doctor’s consulting room) give cause for established concern. In the analysed “contact” places, without exception, discrimination against the unemployed study subjects occurred, which in many cases was also linked to a racist manifestation against the Roma unemployed. If we consider the very frequent symptoms and complaints occurring among the distress complaints, such as irritability, tension, bad mood or the fear indicated in the item 2 of the Beck test, as well as the so-called group activity inducing fury, anger and aggression (Ungváry et al., 2015), and also recalling the destructive historical events that have been mentioned several times, unexpectedly high rates of unemployment can bring about unforeseen events with simultaneous rejection of unemployment.

If we look at the years of our data collection (2013-2016) and the yearly Report of the European Union Agency for Fundamental Rights (FRA) compiled in June 2013, the worrying opinion of the unemployed people of the Ózd Micro-Region formed about the members of the majority society being in direct connection with them is not surprising. The report noted, on the one hand, that crimes motivated by racism, xenophobia and related intolerance, common presence of extremist ideological elements in political and social dialogue, and ethnic discrimination in health care, education, employment and housing are phenomena perceived throughout the European Union. On the other hand, the FRA noted that as a continuous manifestation of all these in two countries – Greece and Hungary – parties using extreme rhetoric in a unique way in the EU have appeared in the national parliament. The Report mentioned Jobbik Hungary as the name of the Hungarian party (FRA, 2014). Ethnic discrimination is

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*2. Consequences of unemployment (health, marriage, bringing up children, political activity, cultural work, communal activity). Our stressor conception is not in harmony with the classification and conception of either Jahoda et al. or Tardos. Note: According to our opinion, any kind of behaviour change may be a well-defined, possibly not yet known, neurological alteration and the observed phenomena and forms of behaviour may be the products of this alteration.*

classified by the ILO as a traditional (sic!) form of discrimination contrary to the new forms of discrimination emerging at the workplace (ILO, 2007).

Nevertheless, the official news and reports cited (ILO, 2007; FRA, 2014) explain at most the views of the – mostly Roma – unemployed of the Ózd Micro Region. However, the task is – in line with the EU position adopted during the Hungarian Presidency – to create satisfactory quality of life for the unemployed in the disadvantaged micro-region. The micro-region's unemployed have the intention, and the young first- and second-generation unemployed have the ability to achieve this.

The psychic and mental activity outlined in the previous subchapter can be used not only for destruction but – according to our conviction – for social inclusion, too; this is evidenced by our results according to which the rejection of unemployment is conscious (see data from the Lüscher test) and that is the goal. A multiple disadvantaged unemployed population, in order to achieve this goal, needs support from the society, or more specifically, from the government acting on behalf of the society, as Ivan T. Berend, (1988), former President of the Hungarian Academy of Sciences put it.

We know that the will of our society has been formally (with legislation) and financially supported by the Hungarian governments and also by the European Union including Hungary as one of its member countries. The effectiveness of the support also depends on the immediate supporting power of the “majority society” – in this case – of the Ózd Micro-Region. During our investigations, we gained direct, personal positive experiences from the activities of the local government, the Public Health Authority, the Labour Protection Authority and the Gypsy Self-Government.

After all, in conclusion: taking into account all our results, we concluded that the quality of life of both the first and second generation unemployed of the Ózd Micro Region was in every analysed parameter of the quality of life defined by the World Health Organization (physical and mental health, everyday relationship with the majority society, relation to the physical environment) far from the respective values of the quality of health worthy of human beings of the 21<sup>st</sup> century.

## REFERENCES

- ANIMULA KIADÓ. (2012). 75 psychological paper-pencil tests. (In Hungarian). Animula. Budapest.
- BANNON, J. (1995). Running with the Firm – My double life as an undercover hooligan. Translated into Hungary: G. Kovács. Candover Kft. Budapest. 2013.
- BECK, A.T. and BECK, R.W.(1972). Shortened version of BDI. Post Grad. med. 52:81-83.
- BECK, A. T. WARD, C. H., MENDELSON, M. et al. (1961). An inventory for measuring depression. Arch. Gen. Psychiat. 4:561-571. cit.: Animula. Budapest. 212. p. 3.

BEREND.T. I. (1988). Foreword. In: Encouragement... Keep Your Life Well. Ed. Szollár L. (In Hungarian). Akadémia Kiadó. Budapest. pp. 7-10.

BMJ. (2009). Unemployment and health. Editorials. Brit. Med. J. 338:b 829; 2009.

BRUNDTLAND, G.H. (2001). Message from the Director General. In: WHO. Mental Health. New understanding, new hope. The World Health Organization Report. WHO. Geneva. 2001. pp. 9-10.

ENCYCLOPEDIA (SMALL) OF PHILOSOPHY. (1972). Second modified. (Eds.: Szigeti, G., Vári, G., Volczer, Á.). (In Hungarian). Kossuth Könyvkiadó. Budapest.

FARAGÓ, M. (2007). Healthy life years expectancy in Hungary, 2005 – a complex, quantified indicator to assess the health status of the population. (In Hungarian). KSH. Budapest, 2007.

FRA. (2013). Racism, discrimination, intolerance and extremism: learning from experiences in Greece and Hungary. Thematic Situation Report. European Union Agency for Fundamental Rights. European Union Publications Office. 2014. Luxemburg. 2014.

GOLDSMITH, A. and DIETTE, T. (2012). Exploring the link between unemployment and mental health outcomes. Am. Physiol. Association Discussion. April. 2012. Available at: <http://www.apa./pi/ses/resources/indicator/2012/04/unemployment.aspx>

GRÓNAI, É., SZAKMÁRY, É., UNGVÁRY, G.(2004). State of health of the unemployed in the capital. (In Hungarian). Foglalkozás-egészségügy, 8(4):5.

GUSTAVSSON, A., SVENSSON, M., JAKOBI, F. et al. (2011). Cost of disorders of the brain in Europe 2010. Eur. Neuropsychopharmacol. 21(10):718-779.

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

HEGEDŰS, I.(2000). Workers for public use and occupational health. (In Hungarian). Foglalkozás-egészségügy. 4:23-27.

HEGEDŰS, I.(2003). A study of health damaging effect of unemployment. (In Hungarian). Foglalkozás-egészségügy, 2:50-58.

HEGEDŰS, I. (2015). About the Adverse Health Effect of Unemployment, its Etiology 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). Semmelweis University. Budapest.

HEGEDŰS, I., SZAKMÁRY, É. and UNGVÁRY, G.(2003). Presentation of the health status, living conditions of the unemployed and employed Roma population on the basis of a study

carried out in some BAZ County settlements. (In Hungarian). *Foglalkozás-egészségügy*, 7(4): 21. Előadáskivonat. XXIII. MÜTT Kongresszus.

HEGEDŰS, I., SZAKMÁRY, É., PAKSY, A. et al. (2010). Public health condition of unemployment in the Ózd small area before the financial-economic world crisis. I. *Centr. Eur. J. Occup. Environm. Med.* 16(3-4):183-198.

HEGEDŰS, I., SZAKMÁRY, É., PAKSY, A. et al. (2011). Public health condition of unemployment in the Ózd small area before the financial-economic world crisis. II. *Centr. Eur. J. Occup. Environm. Med.* 17(1-4):3-44.

HEGEDŰS, I., MORVAI, V., RUDNAI, P. et al. (2014). Life style personal hygienic habits, health status and fitness for work of Hungarian and Roma unemployed in Ózd Micro Region. *Centr. Eur. J. Occup. Environm. Med.* 20(3-4):155-189.

HEGEDŰS, I., MORVAI, V., RUDNAI, P. et al. (2015). Public health issues of Roma and non-Roma unemployed in Ózd microregion of Hungary. (In Hungarian). *Orv. Hetil.* 155(15):582-589.

ILO. (2007): New forms of discrimination at the workplaces. ILO News. Geneva.

INOUE, K., TANII, H., KAIYA, H. et al.(2007). The correlation between unemployment and suicide rates in Japan between 1978 and 2004. *Leg. Med. (Tokyo)*, 9(3): 139-142.

JAHODA, M., LAZARSELD, P.F. and ZEISEL, H.(1933). *Die Arbeitslosen von Marienthal*. Leipzig. Hirzel. 1933. – In Hungarian translation and edition: *Marienthal. Sociographic delineation of the effect of permanent unemployment*. Új Mandátum Kiadó. Budapest. 1999. Pope John Paul II. (1981). *Laborem Excercens*. Encyclical of Pope John Paul II – On the occasion of the 90<sup>th</sup> anniversary of the release of the *Rerum Novarum* Encyclical.

KOPP, M. (2012). The relationship between state of mind and health. In: *Preventive Medicine and Public Health Sciences*) Ed.: Ádány R. (In Hungarian). *Medicina Könyvkiadó Zrt.* Budapest. pp. 555-563.

KOPP, M., and SKRABSKI, A. (2002-2006). Hungarian state of mind following the turn of the millennium. Available at: [www.tavlatok.hu/86/86kopp-skrabski.pdf](http://www.tavlatok.hu/86/86kopp-skrabski.pdf)

KSH. (2013). Central Statistical Office: 2011 Census. 7. Education data. (In Hungarian). *Központi Statisztikai Hivatal*. Budapest.

KVETNANSKY, R., SABBAN, E.L. and PALKOVITS, M.(2009). Catecholaminerg system in stress: Structural and molecular Genetic Approaches. *Physiol. Rev.* 80:535-606.

LÉDER, L., KOPP, M., SZEDMÁK, S. and LÁZÁR, I. (2002). Object loss and health. About

unemployment. In: Life situation – Quality of life, dead ends and ways out. Hungary at the turn of the Millennium. Strategic Research at the Hungarian Academy of Sciences. Ed.: Glatz F. Hungarian Academy of Sciences. Budapest. pp. 63-95.

LO, C.C. and CHENG, T.C. (2014). Race, unemployment rate, and chronic mental illness: a 15 year trend analysis. Soc. Psychiatry Psychiatr. Epidemiol. Springer Verlag Berlin. Heidelberg.

LÜSCHER, M.(1969). Lüscher-Test. 10. Auflage-Test-Verlag. Basel.

MARTIKAINEN, P.T. and VALKONEN, T.(1996). Excess mortality of unemployed men and women during a period of rapidly increasing unemployment. Lancet. 348(9032): 909-912.

MASTEKAASA, A.(1996). Unemployment and health: selection effects. J. of Community and Applied Social Psychology. 6:189-205.

MATHERS, C.D. and SCHOFIELD, D.J.(1998). The health consequences of unemployment: the evidence. Med. J. Aust., 1998, 168(4), 178-182.

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

MORVAI, V. (2016). Public health situation and health status of the Roma and non-Roma unemployed in the Ózd Small Area (In Hungarian). Report of ETT-TUKEB projekt.

OMI. (1990-1996). Annually report of National Institute of Occupational Health (In Hungarian). National Institute of Occupational Health. Budapest.

ÓZD ROMA SELF-GOVERNMENT. (2012). Information of the work, tasks and financial situation of the Ózd Municipal Roma Minority Council up to August 31, 2011. (in Hungarian) Available at: <http://webcache.googleusercontent.com/search?hl=hu&gbv=hu&gs-l=hp18....>

PACAK, K. and PALKOVITS, M.(2001). Stressor specificity of central neuroendocrine responses: Implication for stress-related disorders. Endocr. Rev. 22(4):502-548.

PACAK, K., PALKOVITS, M., GAL, J. et al.(1988). Heterogenous neurochemical responses to different stressors: a test of Selye's doctrine of nonspecificity. Am. J. Physiol. 275:R1247-R1255.

PALKOVITS, M.(2013). The Axelrod-Selye connection: catecholamines and steroids. (In Hungarian). Day of Hungarian Science. Hungarian Academy of Sciences. Budapest.

PAUL, K.I.(2005). The negative health effect of unemployment: Meta-analyses of cross-sectional and longitudinal data. Inaugural-Dissertation. Nürnberg.

PAUL, K.J. and MOSER, K. (2009). Unemployment impairs mental health: Meta-analyses. *J. Vocat. Behaviour.* 74:264-282.

PLETTE, R. (2006). A Test for the detection and frequency of work-related stress. (In Hungarian). Study prepared for the ILO Budapest Regional Office. Budapest, 2006.

PLETTE R., UNGVÁRY, GY., HEGEDŰS I. et al.(1999-2002). A questionnaire for examining the somatic and mental health of the unemployed. (validated under the Széchenyi Plan). (In Hungarian). Budapest.

PLETTE R., UNGVÁRY, GY., HEGEDŰS, I. et al. (2012). Modified version of the questionnaire-interview method for assessing the mental health of the unemployed, included in an ETT-TUKEB project. (In Hungarian) Budapest.

RÓKUSFALVY, P., POVÁZSAY, É., SIPOS, K. et al.(1971). Investigation of affectivity. The application and standardization of the Lüscher test. (In Hungarian). Akadémiai Kiadó. Budapest.

SELYE, H.(1936). A syndrome produced by diverse noxious agents. *Nature.* 138:32-45.

SELYE, H. (1956). *The Stress of Life.* McGraw-Hill Book Company Inc. New. York. 1956. (Published in official Hungarian version by the Hungarian Academy of Sciences in 1964).

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.* , 2017, 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.

TARDOS, K. (1999). *Marianthal.* Új Mandátum Kiadó. Budapest.

TOMATIS, L.(1997). Poverty and cancer. *IARC. Sci. Publ.* 138:25-39. WHO. Lyon.

TOPPEN, J.T.(1971). Underemployment: economic or psychological? *Psychological Reports.* 28:111-122.

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

UNGVÁRY, G. (1994). Occupational health in Hungary. In: *Occupational health in national*

development. Eds.: Jeyaratnam J., Chia K.S. Singapore. New Jersey. London. Hong Kong. World Scientific. pp. 410-424.

UNGVÁRY, G. (2018). Hungary ratified ILO Convention 161 thirty years ago – the significance of occupational medicine specialist training and continuing education in the occupational health medical practice replacing factory health. In lieu of an Editorial through the eyes of one last witness. *Centr. Eur. J. Occup. Environm. Med.* 24:108-135.

UNGVÁRY, G. and ROZGONYI, T. (1988). "... does not just ennoble..." Adverse health effects of workplace environment In: *Encouragement. Keep Your Life Well.* (In Hungarian). Ed. Szollár L., Akadémiai Kiadó. Budapest. pp. 127-140.

UNGVÁRY, G., GRÓNAI, É., MÁNDI, A. et al.(1997). Experiences from the Preliminary Fitness for Job Examinations of Those Working in Tengiz. (In Hungarian). *Foglalkozás-egészségügy*, 1(1): 6-13.

UNGVÁRY, G., MORVAI, V. and NAGY, I.(1999). Health risk of unemployment. *Centr. Eur. J. Occup. Environm. Med.* 5(2):91-112.

UNGVÁRY, G., NAGY I. and MORVAI V.(2002). Unemployment and quality of life. In: *Life situation – Quality of life, dead ends and ways out. Hungary at the turn of the Millenium. Strategic Research at the Hungarian Academy of Sciences.* Ed.: Glatz F. Hungarian Academy of Sciences. Budapest. pp. 33-62.

UNGVÁRY, G., ODOR, A., BÉNYI, M., et al. (2005). Gypsy Colonies in Hungary – Medical care for children, hygienic conditions. (In Hungarian). *Orv. Hetil.*, 146:691-699.

UNGVÁRY, G., PLETTE, R., SZAKMÁRY, É. et al. (2015). Harmful mental health impact of unemployment – effect of unemployment on the Anger Scale – Among the Roma and Non-Roma (Hungarian) Unemployed in the Ózd Micro-Region. *Centr. Eur. J. Occup. Environm. Med.* 21(1-2), 25-31.

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.* 22(3-4),118-149.

UNGVÁRY, G., SZAKMÁRY, É. and HEGEDŰS, I. (2018A). Public health situation of the Roma and Non-Roma unemployed in a Small Area Hungary densely populated by Roma peo-

ple. Summarized observations of the research performed in Ózd Small Area. *Centr. Eur. J. Occup. Environm. Med.*, 24(1-2),57-73.

UNGVÁRY, G., SZAKMÁRY, É., HEGEDŰS, I. et al. (2018B). Quality of life of the second-generation Roma and non-Roma unemployed II. – Education level, professional qualification, fitness for work. 24(3-4):198-220.

WHO (1948). The definition and determinants of health cit. WHO website, 2018. Available at: [http://www.pro-qoly.hu/az the definition and determinants of health – 108. htm](http://www.pro-qoly.hu/az%20the%20definition%20and%20determinants%20of%20health%20–%20108.htm)

WIKIPÉDIA,: Luddism (In Hungarian). Available at: <http://hu.wikipedia.org/wiki/luddizmus>. It was read: on 04. 11. 2014.

WINEFIELD, A.H. (1995). Unemployment: its psychological costs. In: *International Review of Industrial and Organizational Psychology.*, Eds.: C.L. Cooper and I.T. Robertson. Vol. 10:169-219; Chisester. England: Wiley

ZHANG, S. and BHAWSAR, V.(2013). Unemployment as a Risk Factor for Mental Illness: Combining social and psychiatric literature. *Sci. res.* 3(2):131-136.