

# 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<sup>1</sup>

ÉVA SZAKMÁRY, ANDRÁS PAKSY, GYÖRGY UNGVÁRY

„Fodor József” National Centre for Public Health, Budapest, Hungary <sup>2</sup>

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## ABSTRACT

In previous studies the authors found that education level of Roma living in colonies and colony-like arrangements is low, significantly lagging behind the national average. They set the following objectives: to find out whether there are any, and what kind of correlations between the various degrees of low level education and the most important demographical, health and lifestyle factors in this strongly disadvantaged ethnic group delimited by their living environment and whether there are any differences in learning conditions between Roma families living in colonies or colony-like arrangements. Data relating to the quality of life and education of 2,182 Roma families and Roma women living in 129 Roma colonies and colony-like arrangements in 95 settlements across 15 counties in Hungary were collected by questionnaires in 2003. In the same year, further data relating to the learning conditions of Roma families (members thereof) living in 1,266 Roma colonies and 935 colony-like living environments were collected with the help of questionnaires filled out by public health-epidemiological inspectors conducting on-site

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*Corresponding author: Éva Szakmáry Biol.D.PhD*

*2 Nagyváradi tér, Budapest, Hungary, H-1096*

*E-mail: eszakmary@upcmail.hu*

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<sup>2</sup> *The last workplace of all three authors, where they worked during the time of data collection.*

inspections. The data were analysed and statistically compared. They found that the Roma with low education level living in colonies and colony-like arrangements could be divided into subgroups according to their various education levels. Based on the analysed response parameter rate and/or frequency it was determined that the quality of life of those with 0-3 years of primary school education was the worst. The quality of life of those with an education of 4-7 years of primary school was better than that of those with 0-3 years but did not reach the quality of those who completed 8 years of primary school. Based on the studied parameters, quality of life was best in the case of those with secondary level education. The conclusion was that reaching higher degrees within low level education can also be a first step in the process of social inclusion of the Roma. It was also found that the learning conditions of Roma living in colonies were significantly worse than those of the Roma living in colony-like arrangements. Based on their findings the authors recommend tearing down the Roma colonies and moving their residents to living environments that meet public health-epidemiological requirements.

**KEY WORDS:** subgroups of low education level, quality of life, learning conditions, colonies, colony-like arrangements, indoor and outdoor environment, environmental health conditions

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## INTRODUCTION

The history of mankind has constantly proved that education and training play a determining role in economic and social development, moreover, they are of paramount importance in the modernization of the labour market, the world of work, and in increasing their efficiency. Consequently health, social psychic/psychological, epidemiological factors characterizing the quality of life show strong correlation with the level of education (Polonyi, 2002; Kertesi and Kézdi, 2005; Ungváry et al., 2005; Szakmáry et al., 2007; 2012, Kósa, K., 2012;). The level of education is known to determine profession, hygienic culture, frequency of use of health services (going to the doctor), and - in democratic countries - holding of leadership positions (Ungváry et al., 2005; Hegedűs, 2015).

The above mentioned associations make it understandable that first the European Economic Community and later the European Union strongly supported and continues to support the improvement of education of its citizens, so that the knowledge-based economy (Commission of the European Communities, 2000) may be implemented at the highest possible level. The Europe 2020 Strategy (European Commission, 2010; 2012), to which the social convergence strategy of the Hungarian Government (EMMI, 2014 A, 2014 B) is also linked and serves the attainment of this goal, too.

The accordance between EU 2020 and the Hungarian Government's strategy is evident. However, since the working group of the Commission of European Communities stated in 2000: "All citizens of Europe, without exception, must be given equal opportunity to adapt to the needs of social and economic changes and to actively participate in maintaining Europe's

future”, the Hungarian strategy, in its objectives, naturally also specifically addresses the improvement of the education of the particularly disadvantaged Roma<sup>3</sup>.

Based on a country-wide study conducted in 2003 (Ungváry et al., 2005; Szakmáry et al., 2007) as well as a series of studies performed in a single small area (Hegedűs et al., 2003; 2014; Hegedűs, 2015 Szakmáry et al; 2017; Ungváry et al; 2014; 2016) we found that public health-epidemiological safety of the Hungarian Roma is highly dependent on their environmental-health situation. According to this we differentiated between “Roma populations”, population groups living in colonies, colony-like arrangements and those living not isolated but integrated with the Hungarian population<sup>4</sup>. We further determined that – in line with statements about the “Roma” in domestic literature (Havas and Kemény, 1995; Ladányi and Szelényi, 1998; Polónyi, 2002; Babusik and Papp, 2002; Kósa, K. et al., 2002; Kertesi and Kézdi, 2005; Kósa, Zs. et al., 2007) – the level of education of the Roma populations living in the most alarming public health-epidemiological safety (colonies and colony-like arrangements) is low; the proportion of those with not even 8 years of primary school is high, while the proportion of those with vocational secondary school or secondary grammar school education is low or infinitesimal. (Ungváry et al., 2005; 2014; 2016; Szakmáry et al., 2007, 2012; Hegedűs et al., 2014; Hegedűs, 2015).

By presenting the previously unpublished data from the country-wide study of 2003 we asked on the one hand what correlations can be found between the various degrees of low level education and the most important demographical, family status, health, hygienic and life-style factors of the disadvantaged ethnic group delimited by their living environment (the Roma living in colonies and colony-like arrangements). In other words: is there a relationship between quality of life and levels of education that are known to be low but not identically low? On the other hand, we wanted to find out whether there were differences in the learning conditions of the family members of the two multiple disadvantaged Roma groups living in colonies and colony-like arrangements.

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<sup>3</sup> In addition to the Roma, the Hungarian programme also addresses convergence of the Hungarian poor or those belonging to other ethnicities.

<sup>4</sup> Roma colony: consists of at least 4 buildings, the buildings are located separately, outside of the settlement, their layout does not match the structure of the town (arrangement of streets), has no public utilities with the exception of electricity (drinking water is available to residents via public outlets) and its population is almost exclusively of Roma origin. The definition is the so-called definition according to public utilities and settlement structure defined in our previous study (Ungváry et al., 2005).

Colony-like living environment: streets, sections of towns, quarters inhabited by Roma communities whose hygienic situation does not differ significantly from that of colonies, but its street layout, original structure, form of their buildings is similar to those in the sections, quarters, streets inhabited by Hungarians and has more public utilities (electricity, water, less often sanitation); the previously defined definition of colony-like arrangement (Ungváry et al., 2005).

## STUDY POPULATION AND METHODS

### *1<sup>st</sup> Study series.*

The studies were carried out in 2003 with questionnaire method. Data pertaining to the education level and quality of life of 2,182 Roma families, or the 2,182 Roma women supplying the data, living in 129 colonies and colony-like arrangements in 95 settlements across the 15 counties (where they exclusively existed in 2003) in Hungary were collected and analysed. Data in the study series were provided by the female members of the Roma families, as the ones with the most knowledge of the demographic, sociological, lifestyle habits of the families, playing a special cohesive role in the families. They also have a special confidential relationship with the health visitors - who acted as data collectors in this study - because of their work (prenatal care, patient visits, social care, monitoring children's development). Note: the data presented in the series have never been analysed before with such detail and from these aspects and have never been published.

The following subgroups were set up based on education level:

- *Primary school years 0-3*: 225 Roma women who, based on their own self-declaration, never attended school (0 years) or completed only years 1-3 were included in this group. (The usual 1-4 years grouping was not used because by experience those who did not complete the 4<sup>th</sup> year remained illiterate for all practical purposes.)
- *Primary school years 4-7*: Individuals who completed at least 4 years of primary school as well as those who did not finish primary school were included in this group (a total of 715 Roma women).
- *Completed primary school (8 years)* included 1,111 Roma women.
- *Vocational training school, vocational secondary school, secondary grammar school*: the proportion of individuals with vocational training school education is the highest in the group, the number of individuals with vocational secondary school and secondary grammar school education is very low, not sufficient to give them their own group therefore these individuals are also included in this groups (a total of 131 individuals – Roma women). (see also *Table I.*)

### *2<sup>nd</sup> Study series*

During their on-site hygienic inspections performed according to the 2003 annual plan of the National Public Health and Medical Officers' Service, public health-epidemiological specialists recorded environmental health data pertaining to the living environment in 1,266 Roma colonies and 935 colony-like arrangements inhabited by the Roma, as well as data characterizing the learning conditions of children. Data defining learning conditions found in the colonies were compared with the ones pertaining to the colony-like living environments.

### ***Statistical procedure***

Since the data, age structure of the data series collected during the first study series differed significantly, these groups could not be statistically compared (e.g. with respect to marital status, occupation, health). Undistorted comparison was achieved by ensuring age-weighted (standardized) statistical indicators (frequencies, averages). Weighting was done based on the age distribution of the total number of individuals (2,182 Roma women) in the study. In the first study series all calculated statistical indicators in all comparisons are given standardized (weighted). If statistical data pertaining to the entire population were available for any parameter, comparisons were also carried out with these.

In the case of the second study series data from communities in colonies and colony-like arrangements were separated and compared. Statistical methods employed during processing: i/ descriptive statistics: frequency, percentage breakdown, average, minimum-maximum values, standard deviation (dispersion), quartiles as well as percentiles; ii/comparison of frequencies was carried out using z-test; significance was assessed at  $p = 0.05$  level with bilateral test, if necessary, the data were standardized age for comparison purposes. Statistical analysis was performed using SPSS 11.5 (2001) programmes. Finding of the indoor (and outdoor) living environment inspections were recorded in a protocol.

## **RESULTS**

### ***First Study Series***

*Anthropometric data.* For determining height and body weight the data met the anthropometric requirements only at an orientation level. However, the relative differences between the groups with different education levels proved to be well evaluable. Height increased with the degree of education level. Those with secondary education were significantly taller than the other groups (*Table I*).

*Nutritional status (body-mass index):* the proportion of those with normal body weight (57.0-62.6%) was significantly higher (more favourable) than the proportion found in the general population (37.5%). The proportion of abnormally underweight people<sup>5</sup> did not differ from the national average (14.2%), while the proportion of overweight and obese people was significantly lower (14.7-18.1, and 9.0-13.3%) than the national average (27.9% and 24.2%, respectively) (*Table I*).

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<sup>5</sup> *In the case of being underweight, poor nutrition due to poor social circumstances as well as overdone fashionable skinniness can both be raised. Although this finding cannot be confirmed, the body-mass index distribution seems to indicate that in the case of the Roma it is malnutrition that more likely plays a role.*

TABLE I.

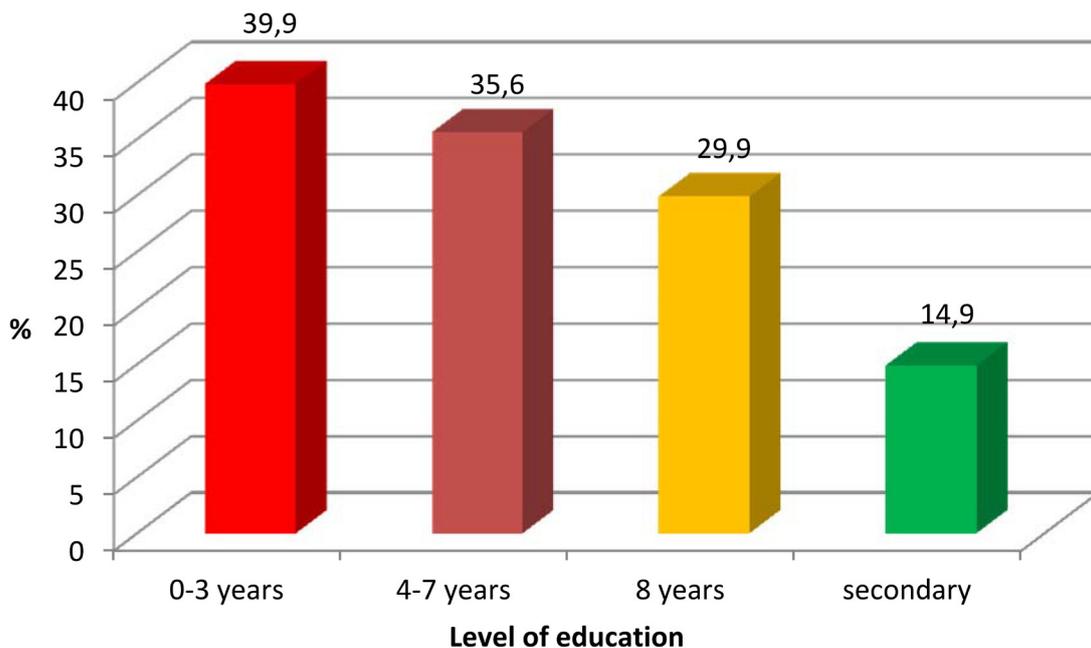
**Education level, personal characteristics, marital status, occupation  
of Roma women involved in the study**

Compared parameters	Groups studied by education level, age-standardized values %			
	0-3 years	4-7 years	Completed 8 years primary school	Secondary level education
Number and rate (%) of Roma women providing data	225 women (10.3)	715 women (32.8)	1,111 women (50.9)	131 women (6.0)
Height (cm)	158.4 ± 6.5	159.4 ± 8.1	161.7 ± 7.4	164.0 ± 6.4
Body mass (kg)	58.0 ± 13.5	58.4 ± 13.2	60.6 ± 13.4	63.6 ± 14.0
Nutritional status (body mass index, kg/m <sup>2</sup> )				
- underweight (under 18.5)	14.9	16.7	14.2	7.7
- normal weight (18.5-24.9)	57.1	57.0	58.4	6.6
- overweight (25.0-29.9)	14.7	17.3	17.3	18.1
- obese (30 and above)	13.3	9.0	10.0	11.6
Marital status				
- unmarried	1.8	3.2	3.9	8.2
- married	46.9	50.4	51.3	54.2
- cohabiting	36.4	37.9	37.4	32.7
- divorced/lives alone	5.4	5.3	5.4	4.0
- widowed	9.5	3.2	2.0	0.9
Occupation of Roma women				
- unskilled/semi-skilled worker	0.7	1.2	6.5	5.6
- skilled worker	-	0.2	0.5	12.8
- unemployed	7.8	5.6	5.3	5.8
- GYES, GYED, GYET*	33.8	56.6	54.5	58.3
- homemaker	33.0	23.1	23.9	6.9
- pensioner	7.4	1.5	0.8	1.2
- disability pensioner	7.0	5.6	3.4	1.6

\* GYES: Child Care Benefit; GYED: Child Care Allowance; GYET: Child Care Support

*Marital status.* There was no difference in the proportion of marriages and cohabitations according to education level. There was a correlation between education level and the proportion of widows; the proportion of widows was the highest among those with 0-3 years of education; it was significantly smaller among those who completed years 4-7, and higher than that among those who completed 8 years of primary school. The proportion of widows was the lowest among those with secondary level education (*Table 1.*).

*Employment, economic activity.* The majority of Roma women were practically inactive, most of them were on postpartum benefits (GYES, GYED, GYET)<sup>6</sup>. There were many homemakers, pensioners or on disability pension; all three parameters were dependent on education level. The proportion of unemployed women also depended on the degrees of education; the group with 0-3 years of education had the highest number (*Table 1.*). The proportion of unemployed among their husbands/partners, just as the proportion of pensioners and disability pensioners among them depended on education level (*Figure 1.*)



*Figure 1. Proportion of unemployed Roma men by education level (values standardized for the men's ages)*

<sup>6</sup> GYES: Child Care Benefit; GYED: Child Care Allowance; GYET: Child Care Support (See also: Hegedűs et al 2014.)

**Family characteristics. Having children.** The number of children per family was highly dependent on the number of schoolyears successfully completed. The more time was spent on studying, the less number of children parents was reported (*Table II*). In the case of every “education degree/time period” the number of children exceeded the so-called “desired number of children” (*Figure 2.*). The average number of children in Roma families significantly surpassed the 1.23 average number of children in Hungary. With the increase of education level, the *proportion of first births* after age 18 increased. Giving birth to the first child at age 12-13 and 14-15 can only be categorized as notable. The proportion of these was the highest among those with 0-3 year education in both age groups (*Table II., Figure 3.*).

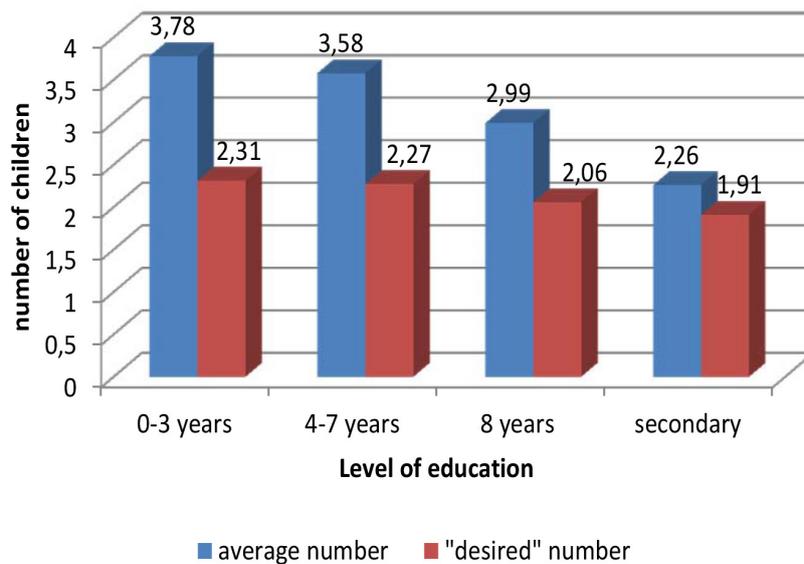


Figure 2. Average number of children in the family, and the „desired” number of children in the groups with different education levels (age-weighted values)

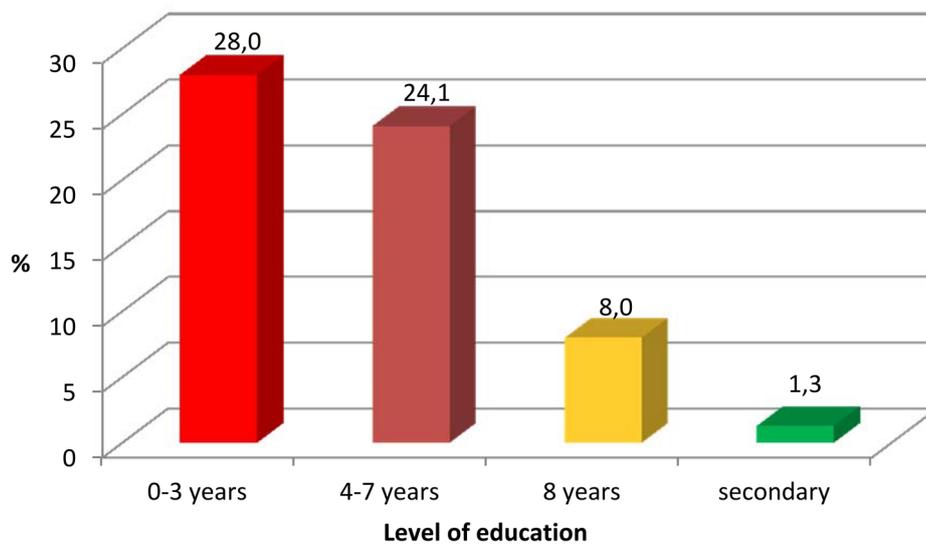


Figure 3. Frequency (%) of women giving birth to the first child under the age of 15 by education level (values standardized for age)

TABLE II.

**Characteristics of the Roma families involved in the study  
in groups of different education levels**

Compared parameters	Study groups by education level (age-weighted values)			
	0-3 years	4-7 years	completed 8 years primary school	Secondary educa- tion
%				
Number of children in the family				
0	5.6	2.6	1.1	3.3
1	10.5	7.6	13.6	26.0
2	12.5	1.88	25.6	33.8
3	24.1	26.4	27.8	26.0
4-6	33.2	37.3	30.0	10.2
7-9	11.6	4.3	1.9	0.8
Average number of children	3.78	3.58	2.99	2.26
Desired number of children	2.31	2.27	2.06	1.91
Mother's age at birth of first child				
- 12-13 years	6.2	4.0	0.9	-
- 14-15 years	21.8	20.1	7.1	1.3
- 16-18 years	40.2	42.2	43.3	8.4
>18 years	31.8	33.7	57.8	91.6
Use of contraceptives				
- does not use	71.9	66.5	61.4	47.2
- pill	3.1	16.5	19.0	33.3
- condom	-	1.3	4.1	5.6
- underwent sterilization	9.4	4.4	3.1	2.8
Abortion				
- did not have any	52.5	52.5	52.0	50.9
- 1	14.2	19.9	21.8	31.4
- 2	15.2	9.7	12.1	8.4
- 3	3.7	7.4	6.1	5.0
- 4-6	9.0	7.6	5.4	2.2
- 7-9	2.1	1.0	0.8	0.5
≥ 10	1.6	0.6	0.8	-
Number of abortions per 100 women	310	241	224	167
Obstetric event				
- miscarriage	29.4	27.6	26.2	22.5
- stillbirth	13.7	6.7	5.2	5.8
- premature birth	30.9	30.6	18.2	10.9
Child mortality				
Children aged 0-14 year	18.3	10.5	6.1	7.6
of which children under age 2	14.8	7.8	4.3	5.2

*Taking oral contraceptives.* The majority of Roma women did not take any steps to protect themselves from pregnancy (they did not use contraceptives). Although education level motivated them to protect themselves, the proportion was still 47.2% even among those with secondary level education. There were many cases of *surgical sterilization*. Both the lack of prevention, and the frequency of surgical sterilization were education level dependent; they were the highest in the group with 0-3 years of education, lowest among those with secondary school education. *Abortion.* Close to 50% of Roma women have had an abortion, however the number of abortions differed by education level. It was most frequent among those with 0-3 years of education, almost twice as many as among those with secondary education (*Table II.*). The frequency of *other obstetric events* (miscarriage, stillbirth, premature birth) was related to education level, basically a monotone decrease could be seen in the parameters between those with 0-3 years of education and those with secondary school education (*Table II.*). *Child mortality.* Reliable data were available only for some women about child death under 15 until the time of the study (the mothers of not all children living in the family were data providers). Infant mortality was extremely high in the group with 0-3 years of education. There was no comparable national statistical data for the 10.5% rate among those with 4-7 years of education. Infant mortality was high (*Table II.*).

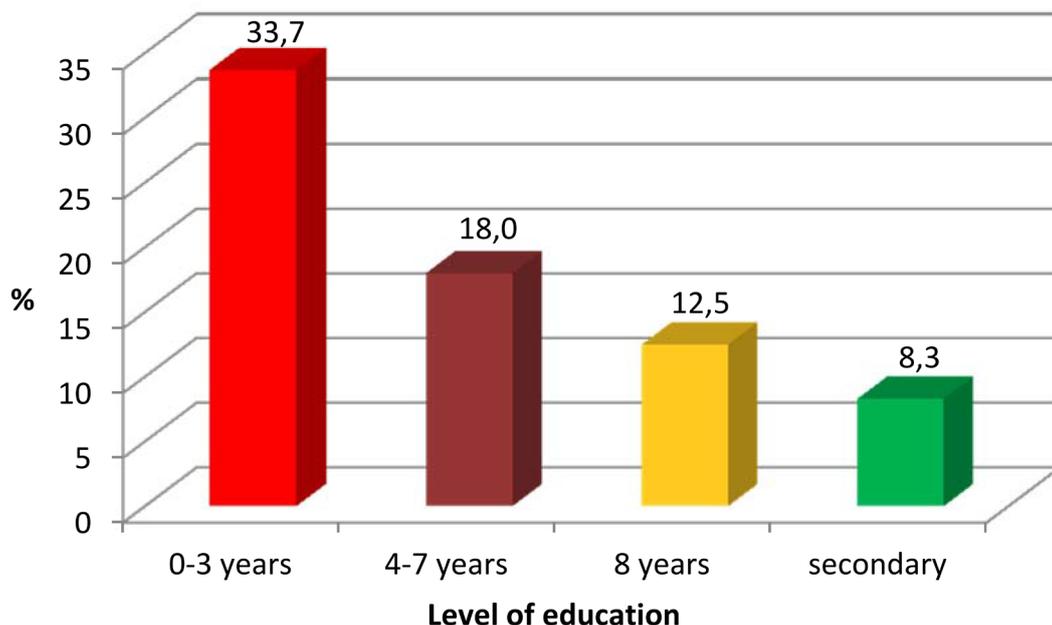


Figure 4. Proportion (%) of those believing themselves to be in poor or very poor health by education level (values standardized for age)

**Health.** The self-assessment of health of the Roma women depended to a large extent on their education level. 33.7% of women with 0-3 years of education believed their health to be poor or very poor, from this value the rate showed a monotonous decrease to the “just” 8.3% recorded among those with secondary school education (*Table III., Figure 4.*).

**Illnesses, complaints.** Due to the self-assessment nature of data collection, it is appropriate to speak about complaints and not illnesses. *Cardiovascular diseases/complaints* appeared with extremely high frequency, but a kind of (almost) monotone reduction inversely proportional to education level could also be observed in the case of the other three diseases/complaints (chronic respiratory, musculoskeletal and gastrointestinal) (*Table III.*). The rate of women regularly taking medications followed the rate of diseases/complaints. Compared with national data the frequency of these diseases among the Roma (29 - 41%) cannot be classified as high, since the frequency of taking medication in the general population is between 25-66%. The highest rate of *Roma women with missing teeth* was also in the group with 0-3 years of education; in this respect also, there was a definite correlation between the frequency of women with missing teeth and education level (*Table III., Figure 5.*)

TABLE III.

**Health, lifestyle habits**

Compared parameters	Study groups by education level (age-standardized values) %			
	0-3 years	4-7 years	completed 8 years primary school	Secondary education
Self-assessment of health status (presumed health)				
- very good	1.7	4.4	6.7	10.5
- good	29.3	40.8	45.4	41.6
- satisfactory	35.3	36.8	35.4	39.7
- poor	26.4	15.3	11.2	6.3
- very poor	7.3	2.7	1.3	2.0
Frequency of disease groups				
- cardiovascular	38.6	22.8	20.3	19.4
- chronic respiratory	24.1	14.6	12.7	7.0
- musculoskeletal	30.4	19.9	15.6	16.2
- gastrointestinal	19.5	12.0	9.7	8.1
Large number of missing teeth				
fillings	17.7	8.3	4.2	3.0
dentures/tooth replacement	53.1	47.9	75.1	93.3
	3.2	2.0	3.3	3.4
Regular drinker in the family				
	21.2	18.1	15.6	5.8
Smoking				
- does not smoke	26.4	27.0	36.8	42.7
- rarely	7.7	8.2	9.0	13.3
- regularly	65.9	64.8	54.2	44.0
Smoker in the family	88.5	87.3	84.4	72.1

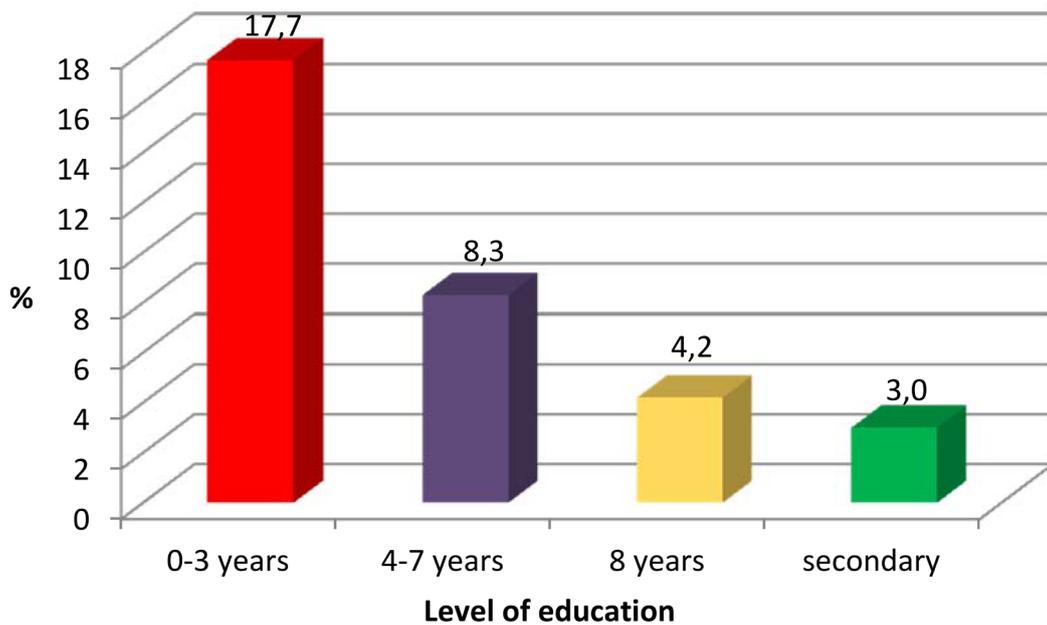


Figure 5. Proportion (%) of those with a large number of missing teeth by education level (values standardized for age)

**Lifestyle habits.** Both the rates of *regular drinkers* and *smokers* were dependent on education level (Table III.).

**Use of healthcare services.** Like in the case of surveys in the general population, Roma women with 0-3 years of education were found to visit their *general practitioner most often*. The correlation between the rate of going to the *dentist* and education level was exactly the opposite, those with higher levels of education visited the dentist most frequently. *Paediatric* care in Hungary does not depend on education level as it is dependent primarily on the settlement type (paediatric primary care is not provided in settlements with low populations, these services must also be provided by the general practitioner).

*Participating in lung screenings* was also not dependent on education level (reason: in 2003 the mandatory nature of these screenings was only still in effect in areas with high TB risk; it had already been eliminated or was in the process of being eliminated in the other counties). The frequency at which Roma women took part in *cervical cancer screening* and *mammograms*, which were becoming widespread at the beginning of the 2000s, depended on education level. Those with higher education participated in cervical screenings and had mammograms in higher proportions (Table IV.). The large rate of participation in *prenatal and infant-care counselling* did not primarily depend on education level (Figure 6.).

The reason is, first, the disbursement of maternal benefits depends on a certain minimum number of sessions; second, the helpful work of health visitors which develops into a confidential relationship increases the frequency of participation. *Discrimination.* During the questionnaire interview the interviewers (health visitors) asked the following question: “Have you or a member of your family suffered any disadvantages during any healthcare service visit because you are Roma or live in a colony?”. 15.5% of those with 0-3 years of education and 7.8% of those with secondary level education indicated that they were discriminated. The reference to discrimination by one tenth of the responders is of indicative value.

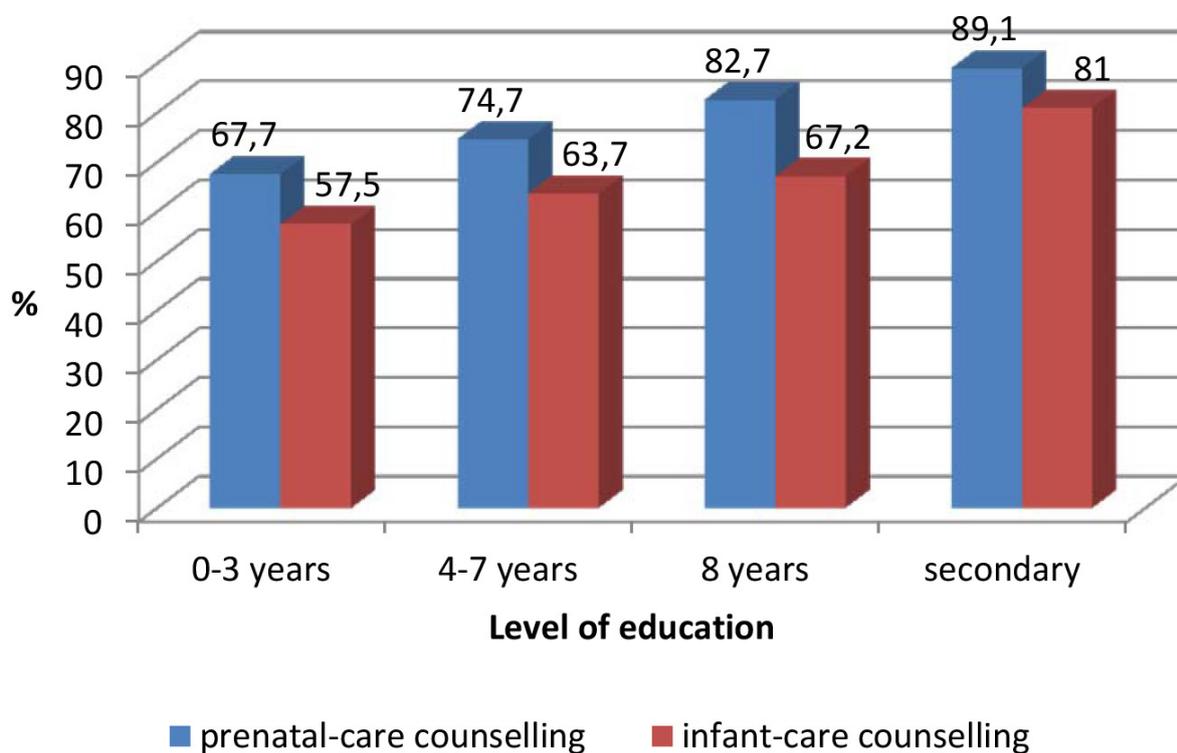


Figure 6. Proportion (%) of those regularly participating in prenatal and infant-care counselling (values standardized for age)

TABLE IV.

## Use of healthcare services

Compared parameters	Study groups by education level (age-standardized values) %			
	0-3 years	4-7 years	completed 8 years primary school	Secondary education
Frequency of going to a doctor				
- does not go at all	14.2	14.1	12.5	18.2
- occasionally, in case of complaints	53.8	69.1	74.9	70.9
- regularly due to chronic condition	25.2	13.6	9.2	6.7
- to have a health check-up	6.8	3.2	3.4	4.2
Dental care				
- does not go at all	50.9	47.7	41.0	29.7
- occasionally, in case of complaints	48.0	51.3	56.3	64.3
- regularly, to have teeth checked	1.1	1.2	2.6	6.0
Paediatric primary care				
Done by General Practitioner	49.9	59.7	54.6	49.1
Participation in screenings				
Lung screening				
- does not go at all	18.7	24.2	17.4	13.3
- rarely goes	23.9	33.0	36.4	29.8
- regularly goes	57.4	42.8	46.2	56.9
Cervical cancer screening				
- does not go at all	24.5	18.2	14.5	10.3
- rarely goes	51.8	53.2	52.7	38.6
- regularly goes	23.8	28.6	32.9	51.1
Breast cancer screening				
- does not go at all	65.3	59.5	56.9	55.8
- rarely goes	19.6	23.9	28.9	21.5
- regularly goes	15.1	16.6	14.2	22.7
Mandatory vaccinations only after multiple requests				
	15.3	12.2	6.3	0.8
Experienced discrimination during healthcare visit				
	15.5	10.8	10.6	7.8

**Second study series**

The data recorded in the questionnaires by public health-epidemiological specialists (physicians, inspectors) in colonies and colony-like living environments provided the findings presented in *Tables V. and VI.* We found that learning conditions available for students were modestly provided for the Roma populations in both settlement types. The responses given to all questions by those living in colonies and colony-like arrangements differed significantly (*Tables V. and VI.*).

**TABLE V.**

**Per capita living space of Roma families  
in colonies or colony-like conditions**

Colonies		Colony-like conditions	
Percentile*	Per capita m <sup>2</sup> **	Percentile*	Per capita m <sup>2</sup> **
10	4.0	10	6.2
25	6.0	25	8.5
50	8.75	50	12.4
75	13.3	75	17.2
90	19.5	90	26.5

\*Overcrowding of the home can be characterized by the number of m<sup>2</sup> per capita. Percentiles are shown due to the extreme outliers; (\*\*). The difference between the per capita living space in the homes in colonies and colony-like arrangements is significant ( $P < 0.001$ )

**TABLE VI.**

**Statistical comparison of data pertaining to the learning  
conditions of those living in colonies or colony-like living environments**

Studied parameters	Colonies	Colony-like living environment	Significance
	n = 1266	n = 935	
Number of homes			
Average floor-space of homes (m <sup>2</sup> )	46.3	64.1	P < 0.001
Proportion of homes smaller than 25m <sup>2</sup> (%)	15.4	3.2	P < 0.001
Proportion of single room homes (%)	44.7	27.2	P < 0.001
Fewer beds than occupants (in % of homes)	69.0	60.6	P < 0.001
Fewer places to sit than occupants (in % of homes)	55.5	43.0	P < 0.001
Proportion of homes with no electrical lighting	6.2	1.7	P < 0.001
Learning conditions (table, chair, lamp) are not or only partially provided (in % of homes)	25.4 / 33.2	14.9 / 20.2	P < 0.001
Number / rate (%) of homes heated with traditional fireplace	1218 / 96.2	827 / 88.4	P < 0.001

## DISCUSSION

The answer to the first question: from among the disadvantaged Roma, those delimited from a living environment aspect, living in colonies and colony-like arrangements, with notoriously low level of education, can be divided into further subgroups based on their quality of life and level of education. The rate changes of response parameters characterizing the quality of life suggest that the quality of life of those with 0-3 years of education is the worst, with 4-7 years of primary school education is better but lags behind that of those with 8 years of primary school education, but in turn the quality of life of those with secondary education (vocational training school, vocational secondary school, secondary school graduates together) is significantly better than of those with 8 years of primary school education<sup>7</sup>. We do not know of any literary data on the quality of life differences related to the “different” levels of low-level education, analyses thereof. Although the refinement of this regularity may require further analyses, there can be little doubt about its existence. We consider it to be of great significance from a practical point of view since accordingly quality of life can be improved, albeit in small steps, with a few extra years of schooling. Based on these we conclude that ensuring learning conditions for the Roma living in colonies and colony-like living environments is of great significance. We would like to add two remarks to this recommendation. First, we attach practical importance to this identified regularity in the implementation of the Hungarian Government’s convergence programme. There can hardly be any doubt that higher, secondary and primary education level rates similar to the general population could not be achieved simultaneously in the entire Hungarian Roma population at the same time in the short term. A planned convergence based on professional/scientific knowledge which takes into account that the level of education, public health-epidemiological safety, etc. of the “Roma population” is far from homogenous (e.g. the public health and epidemiological safety (see below), learning conditions of Roma living in colonies and colony-like conditions differ significantly) is more realistic. This convergence plan can consider a convergence solution that can be named “step by step” based on the regularity we described (this solution naturally does not exclude simultaneously applying different solutions in parallel to different groups). This would lead to the goal slower, but in a regularly controllable manner and would present the implementation of the named tasks in a data format. On the other hand, since according to the data presented, just a few years of successfully completed school years can bring about measurable improvement in the quality of life, we believe that raising the end of the “compulsory school age” up to the previous 18 from the current 16 would accelerate the convergence of the Roma.

The answer to our second question: the learning conditions of the residents of colonies are significantly worse than of the residents of colony-like living environments. Like recommendations made based on previous findings (Ungváry et al., 2005; 2014; 2016; Szakmáry et al., 2007; 2012; Hegedűs et al., 2014; Hegedűs, 2015), we believe that tearing down the Roma colonies and moving their residents to living environments that meet public health-epidemiological requirements is warranted without delay. Adopting our proposal is also made a subject of consideration by knowledge about Hungary’s health situation. According to the Editorial published in Vol. 391, April 21, 2018 of *The Lancet*: „An OECD Country Health Profile on

<sup>7</sup> The rate of those with secondary education is only ~6%.

Hungary in 2017 offers a stark comparison with health outcomes in other European Union (EU) countries. Life expectancy in Hungary is nearly 5 years below the EU average, and Hungary has a gap of 9 years between the average lifespan of those with the most education and those with the least. This life expectancy is also lower than all of Hungary's immediate neighbours with the exception of Romania." These data represent an especially severe warning regarding the ever so underprivileged Roma population as their life expectancy is also 10 years lower than the national value (Gara, 2011)

Taking the above into account, our opinion is that in order to match the Hungarian National Social Convergence Strategy 2020 – perhaps by improving the Strategy by taking into account recent scientific achievements – the convergence of the Roma who form an integral part of the Hungarian society is a task of decisive priority for Hungary.

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