



IVAN BERNASOVSKÝ, KAMILA BERNASOVSKÁ, TATIANA HUDÁKOVÁ

SOME BODY CHARACTERISTICS OF ROM (GYPSY) NEWBORNS AND THEIR MOTHERS

ABSTRACT. — *The index values of the weight per 1 cm, the body construction and the body roundness of 1958 Rom (Gypsy) full-term newborns are given and compared with the values of 2351 non-Rom (non-Gypsy) full-term newborns. The lower index values of the weight per 1 cm and the body construction of the Rom (Gypsy) newborns were observed as compared with the non-Rom (non-Gypsy) ones. No differences were found between the Rom (Gypsy) and non-Rom (non-Gypsy) newborns as for the body roundness index value. Studying the relation between the age of the Rom (Gypsy) mothers and their child birth weight the mild continuous increase in the weight of the newborns due to the increase of their mothers age was observed. The direct dependence was found between the height of the Rom (Gypsy) mothers and the births weight and the lengths of their children. A₁ A₂ BO and Rh blood group frequencies are given for the Rom (Gypsy) mothers from Košice in comparison with the data of the other population.*

East Slovakia is characterized by the greatest concentration of the Rom (Gypsy) population in Czechoslovakia. In the year 1970 88,943 Roms (Gypsies) lived in East Slovakia. (The report of the Federal Office for Statistics, 1973.) Their birth rate is much higher and therefore their natural increase is also higher in comparison with other inhabitants. The East Slovakia Rom (Gypsy) newborns as compared with the other population are characterized by the lower birth weight and smaller birth length and therefore new weight standards for the single gestation weeks were determined and the new low birth weight standard was proposed (Bernasovská et al., 1975, Bernasovský et al., 1976, 1979).

The aim of the present paper is to inform of some indexes related to the body weight and body length of the East Slovakia full term Rom (Gypsy) newborns within the single gestation weeks. For the comparison purpose the calculated indexes of non-Rom full-term newborns from this same country are given. The attention was paid also to the relation between the Rom (Gypsy) mother age and her

child birth weight and to the relation between her body length and her child birth weight and length.

A₁ A₂ BO and Rh group system frequency is given for the Rom (Gypsy) mothers from Košice.

MATERIAL AND METHOD

The following indexes according Martin and Saller (1957) were calculated for a number of 1958 Rom (Gypsy) newborns (1035 boys and 923 girls) and 2351 non-Rom (non-Gypsy) newborns (1171 boys and 1180 girls) spontaneously delivered during 1968–1972 on the 1st Gynaecology-Obstetrics Clinic in Košice and Gynaecological-Obstetrics Department OÚNZ in Prešov:

1. The weight index per 1 cm (Quetelet, Burchard)

$$\frac{\text{body weight (kg)} \cdot 10}{\text{body height (cm)}}$$

2. The body construction index (Quetelet, Kaup, Gould)

$$\frac{\text{body weight (kg)} \cdot 1000}{\text{body height}^2 \text{ (cm)}}$$

3. The body roundness index (Rohrer, Buffon, Bardeen)

$$\frac{\text{body weight (kg)} \cdot 10^5}{\text{body height}^3 \text{ (cm)}}$$

In the set only spontaneously delivered newborns after the end of the 37th pregnancy week were placed. The dead born children or with some inborn faults or from the surgical deliveries or from

the pathological pregnancies and twins were eliminated.

The relation between the mothers' age and their child birth weight was studied in 1243 Roms (Gypsy) mothers from Košice and 966 ones from Prešov. The average birth weight with the corresponding statistical values is given in three year intervals for the mothers.

The relation between the mother's body weight and her child birth weight and length was followed in the set of 589 Rom (Gypsy) mothers from Košice and 764 ones from Prešov.

The data of the ABO and Rh blood group systems were available for the Rom (Gypsy) mothers from Košice and for these the gene frequencies according Mourant et al. (1976) were calculated.

RESULTS AND DISCUSSION

The average index values of the weight per 1 cm of full term born Rom (Gypsy) newborns in comparison with the non-Rom (non-Gypsy) newborns (separately for the boys and the girls) are given on the *Graphs 1 and 2*. In both sets the continuous increase in the index according the pregnancy week with the exception of the Rom (Gypsy) newborns — girls who demonstrated no significant increase in the value beginning from the 39th pregnancy week was observed. Compared with the girls the higher values of this studied index were observed in Rom (Gypsy) and non-Rom (non-Gypsy) newborns — boys. The Rom (Gypsy) newborns had the significantly lower index values of the weight per 1 cm compared with the control set.

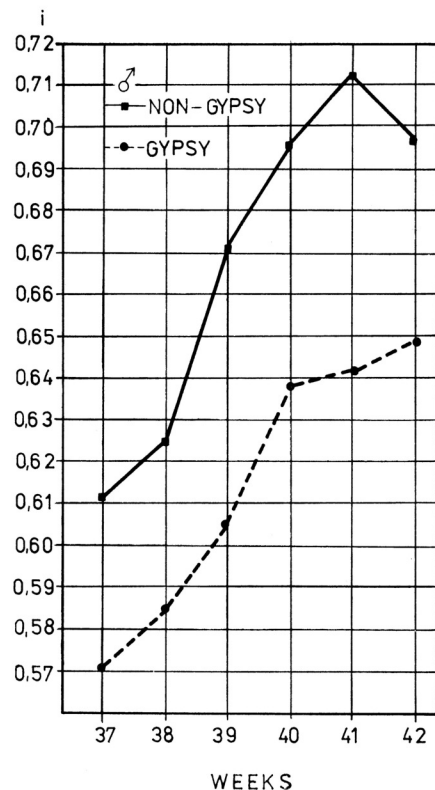
The body construction indexes of the Rom (Gypsy) full term born children compared with the control set are given on the *Graphs 3 and 4*. In both sets the continuous increase in the index values according the pregnancy week and the lower values

of the Rom (Gypsy) newborns were noted. No significant differences were stated in the body construction index values between the boys and the girls.

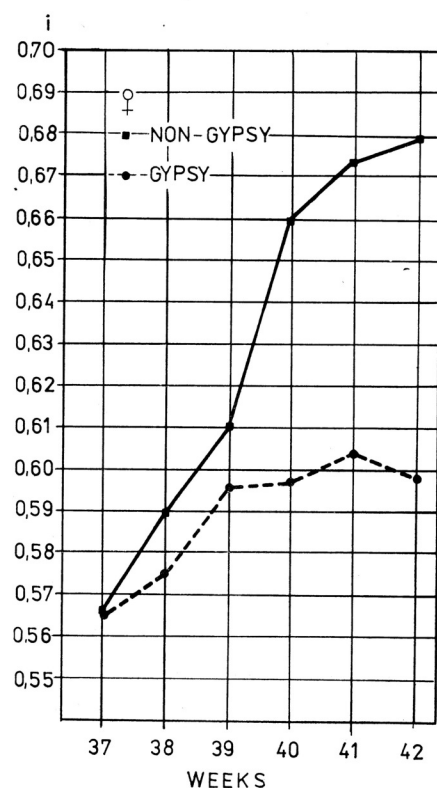
The lower values in both studied indexes of the Rom (Gypsy) newborns may be explained by their significantly lower birth weight and birth length (Pogačnik 1968, Malá 1973, Bernasovská et al. 1975).

The body roundness index occurrence within the single pregnancy week is given on the *Graphs 5 and 6*. As seen, the mild increase in the studied index values till the 40th pregnancy week occurs with the following mild decrease with the exception of the non-Rom (non-Gypsy) girls, where the curve is steeper.

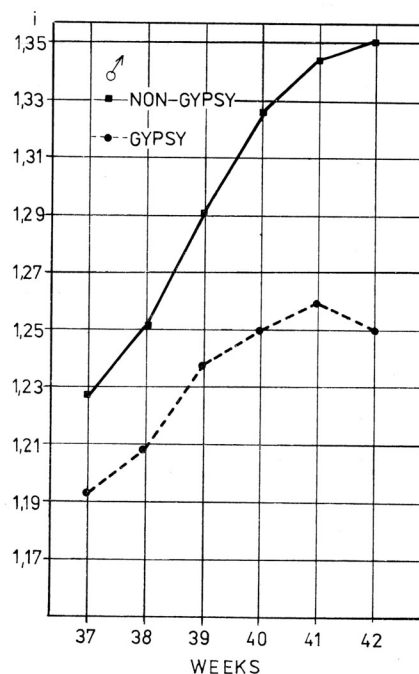
No differences were found out in the average values of the body roundness parameters between the Rom (Gypsy) and non-Rom (non-Gypsy) newborns. The average value of the body roundness index in the Rom (Gypsy) and non-Rom (non-Gypsy) newborns reached ca 2.60. The same value of



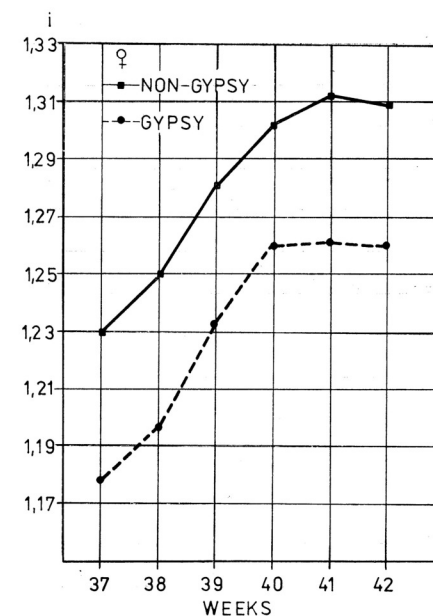
GRAPH 1. The weight indexes per 1 cm for the single gestation weeks of the East Slovakia Rom (Gypsy) and non-Rom (non-Gypsy) newborns — boys.



GRAPH 2. The weight indexes per 1 cm for the single gestation weeks of the East Slovakia Rom (Gypsy) and non-Rom (non-Gypsy) newborns — girls.



GRAPH 3. The body construction indexes for the single gestation weeks of the Rom (Gypsy) and non-Rom (non-Gypsy) newborns — boys.



GRAPH 4. The body construction indexes for the single gestation weeks of the Rom (Gypsy) and non-Rom (non-Gypsy) newborns — girls.

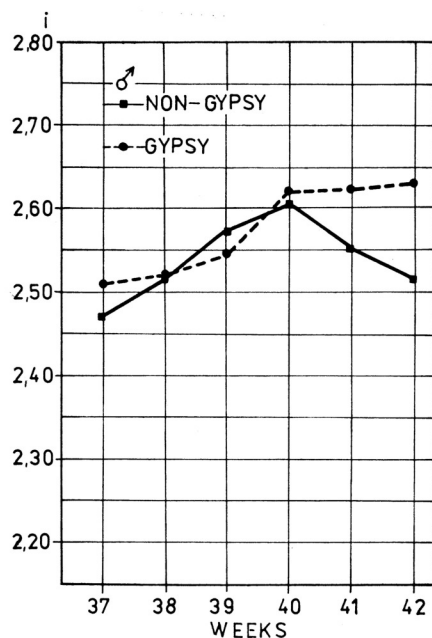
the body roundness index was found out by Lipková (1974) for the Slovak newborns resulting from the third whole state anthropometric investigation of the children and the youth development in the year 1971.

The relation between the mother's age and their children birth weight was studied in the set of the Rom (Gypsy) mothers from Košice and Prešov. The results are given on Table 1. The average birth weights separated for the boys and the girls are given for the single age groups of the mothers in the three year range. Our results show that the greatest percentage of the Rom (Gypsy) mothers (39.5 % in Prešov and 45.7 % in Košice) is found within the age group of 17–22 years. In both sets a relatively high occurrence of the 14–16 year old mothers (6.1 %) was observed being the threefold in comparison with the data about the Slovak mothers until 17 year old (2.1 %) (Štukovský 1969). In India 10.4 % of the 15–19 year old mothers gave birth and the maximal 33 percentage was found out in the group of the 25–29 year old wo-

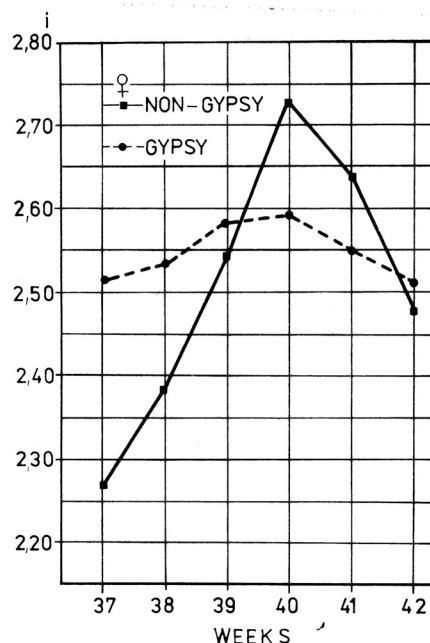
men (Sakar 1968). In the set of the Rom (Gypsy) mothers the maximal representation was noted in the age group of 21–23 year old women (i.e. 36 %).

As seen on the Table 1, the evident trend towards the increase in the birth weight according the increasing age of the mothers is manifested. The greatest differences were observed between the youngest group (14–16 years old) and the older age groups. Our findings are in a good agreement with the observations of many authors (Naboodiri and Balakrishnan 1959, Houšek et al. 1960, Abolins 1961, Jasický et al. 1962) who observed the increase in the newborn weight according the increasing age of their mothers and the corresponding increase in the parity.

It is well known that tall women give birth to taller children than the lower ones (McKeown and Record 1954, Morton 1955). In our set of the Rom (Gypsy) mothers from Košice and from Prešov the direct dependence between the increase in the weight and the length of the Rom (Gypsy) newborns and the increase in the height of their mothers was



GRAPH 5. The body roundness indexes for the single gestation weeks of the Rom (Gypsy) and non-Rom (non-Gypsy) newborns — boys.



GRAPH 6. The body roundness indexes for the single gestation weeks of the Rom (Gypsy) and non-Rom (non-Gypsy) newborns — girls.

demonstrated. The data about the relation between the height of the Rom (Gypsy) mothers and the birth weight and the length of their children are given on Table 2.

A₁ A₂ B₀ and Rh blood groups were examined in the set of the Rom (Gypsy) mothers from Košice and their frequency is given on the Table 3.

The increased occurrence of the B group and Rh-factor was noted in the set of the Rom (Gypsy) inhabitants — women in comparison with the non-Rom (non-Gypsy) ones in East Slovakia (Bernasov-

ský et al. 1976b). Comparing our data with the results of other authors who studied the blood group frequency in Roms (Gypsies) with the results of the Slovak and Hungarians Roms (Gypsies) living in Slovakia (Beneš 1974) and of the Rom (Gypsy) mothers from Hradec Králové (Malá 1975) the good agreement was found with the exception of the women from Hradec Králové where however, the significantly greater B group frequency was observed. The results are also in good agreement with the blood group frequency of East Slovakia Roms

TABLE 1. Rom (Gypsy) mother's age from Košice and Prešov and average birth weight of full term newborns

Mother's age	Košice					Prešov				
	n	\bar{x}	$s\bar{x}$	s	Variance coefficient	n	\bar{x}	$s\bar{x}$	s	Variance coefficient
14—16	36 37	2811.12 2890.29	63.66 49.45	382.00 300.66	0.43 0.26	30 32	2860.00 2604.37	71.27 66.78	389.86 377.34	0.49 0.44
17—19	156 122	2971.80 2880.32	22.83 32.93	385.22 363.86	0.21 0.23	94 107	3055.31 2872.80	38.05 29.58	368.78 305.94	0.25 0.16
20—22	147 144	3178.71 2721.38	30.73 32.36	372.54 388.32	0.20 0.22	91 90	3004.39 2928.88	45.20 43.69	420.46 414.24	0.33 0.32
23—25	103 96	3178.64 3030.95	37.83 49.02	383.66 448.99	0.26 0.37	77 62	3159.00 3006.45	45.42 68.86	398.48 542.00	0.32 0.24
26—28	60 47	3160.00 2948.94	51.61 49.81	399.48 341.18	0.36 0.30	38 59	3168.43 2906.78	70.56 53.17	434.96 408.40	0.54 0.38
29—31	42 42	3190.48 2900.00	62.03 62.72	401.98 406.44	0.53 0.45	43 32	3227.91 3176.87	61.38 58.94	402.48 333.40	0.41 0.35
32—34	51 46	3098.04 3060.86	63.68 56.28	454.74 381.56	0.51 0.38	29 38	3158.62 3047.37	69.67 77.66	375.20 478.74	0.46 0.66
35—37	28 26	3314.28 3215.39	83.17 63.71	440.60 324.96	0.65 0.45	35 33	3200.00 3006.07	75.97 62.57	449.44 359.44	0.61 0.40
38—40	19 23	3284.21 3230.43	94.78 77.06	412.30 369.86	0.69 0.50	32 22	3275.00 3218.18	75.11 131.96	424.80 619.02	0.57 1.38
41—	7 11	3314.28 3236.36	144.13 157.09	380.52 520.00	0.97 1.44	10 12	3140.00 3266.66	136.68 130.63	432.20 452.00	1.04 1.05
Totally	1243					966				

TABLE 2. Average birth weights and lengths of full term Rom (Gypsy) newborns from Košice and Prešov in the single height groups of mothers

Mother's height in cm	Košice						Prešov					
	boys			girls			boys			girls		
	n	weight [g]	length [cm]	n	weight [g]	length [cm]	n	weight [g]	length [cm]	n	weight [g]	length [cm]
140—149	46	\bar{x} 2958.2 s 402.2	48.41 2.19	40	2926.0 359.4	48.32 2.00	79	2885.4 502.3	48.07 2.61	119	2875.60 541.8	47.93 2.08
150—159	225	\bar{x} 3074.9 s 437.0	49.34 2.15	204	2974.9 399.0	48.82 2.60	271	3081.4 487.8	48.65 2.46	197	2951.0 388.6	48.88 1.91
160—	94	\bar{x} 3244.8 s 481.0	50.04 2.08	80	3055.6 384.4	49.10 1.94	56	3119.8 590.2	49.21 2.10	42	3055.9 380.0	48.44 2.13
Totally	365			324			406			358		

TABLE 3. Blood group and A_1A_2B0 and Rh system gene frequency of Rom (Gypsy) mothers. The comparison with the non Rom (non-Gypsy) inhabitants from East Slovakia (Bernasovský et al., 1976)

	Rom (Gypsy) mothers		East Slovakia	
	N	%	N	%
A ₁	355	33.94	1 515	39.94
A ₂	44	4.21	111	2.93
B	254	24.28	684	18.03
O	316	30.21	1 151	30.35
A ₁ B	58	5.54	299	7.88
A ₂ B	19	1.82	33	0.87
Totally	1 046		3 793	
Rh+	938	89.67	1 239	84.23
Rh—	108	10.33	232	15.77
Totally	1 046		1 471	
P ₁	0.2285		0.2779	
P ₂	0.0415		0.0268	
q	0.1815		0.1444	
r	0.5485		0.5509	
D	0.678		0.6030	
d	0.321		0.3970	

(Gypsies) (Bernasovský et al. 1973, 1976c). The increased B blood group frequency and Rh + factor of the Rom (Gypsy) mothers gives evidence about their Indian origin, our stated frequencies, however, of these abovementioned blood groups are lower in comparison with the data from India (Boyd and Boyd 1954, Ghosh 1969, Mourant et al. 1976). These findings may be explained by the fact that within the last time period the assimilation of Roms (Gypsies) with the other populations occurs due to the decrease in the segregation trends.

REFERENCES

- ABOLINS J. A., 1961: The weight and length of newborn infants in relation to parental age. *Acta obstet. gynec. scand.*, 40: 339–347.
- BENES J., 1974: The blood groups of the Slovak and Hungarian Gypsies. *Scripta fac. sci. nat. UJEP Brunensis, Biologia* 2, 4: 75–82.
- BERNASOVSKÁ K., BERNASOVSKÝ I., PORADOVSKÝ K., FRIC A., 1975: Váhy a dĺžky donosených cigánskych novorodencov vo Východoslovenskom kraji. *Čs. gynecologie* 40, 8: 595–599.

- BERNASOVSKÝ I., BERNASOVSKÁ K., SUCHÝ J., 1973: Frekvencie krvných skupín Cigánov gemerskej a spišskej oblasti. Syllaby XII. kongresu čs. antropológov v Nitre. *Zprávy Čs. spoločnosti antropologickej pri ČSAV XXVI*, 3: 39.
- BERNASOVSKÝ I., BERNASOVSKÁ K., PORADOVSKÝ K., VARGOVÁ T., 1976a: Váňové normy cigánskych novorodencov od 37. týždňa gravidity vyššie a návrh nového limitu nízkej pôrodnej váhy pre cigánsku populáciu. *Čs. gynecologie* 41, 9: 660–664.
- BERNASOVSKÝ I., SMÁLIK S., VARGOVÁ T., MARCINKOVÁ A., BERNASOVSKÁ K., HALKO N., 1976b: The frequencies of A_1A_2B0 , Rh, MN, Lewis, P, Duffy, Kell and Kidd blood group systems in the population of East Slovakia. *Acta Facult. Med. Univ. Brunensis*, 57: 273–282.
- BERNASOVSKÝ I., SUCHÝ J., BERNASOVSKÁ K., VARGOVÁ T., 1976c: Blood groups of Roms (Gypsies) in Czechoslovakia. *Amer. J. of Phys. Anthropol.*, 45, 2: 277–280.
- BERNASOVSKÝ I., BERNASOVSKÁ K., VARGOVÁ T., PORADOVSKÝ K., 1979: Body characterisation of newborn Roms (Gypsies) from Czechoslovakia. *Homo*, 30: 151–153.
- BOYD W. C., BOYD L. G., 1954: The blood groups in Pakistan. *Amer. J. Phys. Anthropol.*, 12: 393–405.
- GHOSH A. K., 1969: Abo blood groups frequencies of India, Pakistan and the adjoining areas as a whole. *Man in India*, 49, 4: 372–377.
- HOUSTEK J., KUBÁT K., 1960: *Pediatrická propedeutika (Základy dětského lékařství)*, SZN Praha.
- JASICKI B., PANEK S., SIKORA P., STOLYVHO E., 1962: *Zarys antropologii*. P. W. N., Warszawa.
- LIPKOVÁ V., GRUNT J., LAMOSOVÁ M., 1974: *Telesný vývoj detí a mládeže na Slovensku. Závěrečná správa výskumnej úlohy VII-3-8, VHU, Bratislava*.
- MALÁ H., 1973: Body characteristics of newborn Gypsies from Bohemia. *Glasnik Antropološkog društva Jugoslavije*, 10: 107–110.
- MALÁ H., 1975: Problematika současného vývoje a výchovy Cikánů a regionální antropologická studie cikánských školních dětí ve Východočeském kraji. *Sborník Ped. fak. UK, Biologie III*, 37–122.
- MARTIN R., SALLER K., 1957: *Lehrbuch der Anthropologie*, GVP, Stuttgart.
- McKEOWN T., RECORD R. G., 1954: Influence of pre-natal environment on correlation between birth weight and parental height. *Amer. J. Hum. Genet.*, 6: 457.
- MORTON N. E., 1955: The inheritance of human birth weight. *Ann. Hum. Genet.*, 20: 125–132.
- MOURANT A. E., KOPEČ A. C., DOMANIEWSKA-SOBO-SZAK K., 1976: *The distribution of the human blood groups and other polymorphism*. Blackwell Scientific Publications, Oxford.
- NAMBOODIRI N. K., BALAKRISHNAN V., 1959: On the effect of maternal age and parity on the birth weight of the offspring (Indian infants). *Ann. hum. Genet.* 23, 189.
- POGACNIK A., 1968: Antropološke in morfološke karakteristike Ciganov v Prekmurju. *Academia scientiarum et artium Slovenica — Dissertationes*, 7: 247–297, Ljubljana.
- SAKAR D., 1968: Birth weight in a hospital sample from south India. *Indian J. Pediatr.*, 35: 266–275.
- STUKOVSKÝ R., 1969: Geburtsgewichte Erstgeborener und Alter der Mutter: eine nichtlineare Abhängigkeit. *Acta F.R.N. Univ. Comen. Antropologia XIV*, 147 bis 160.

Doc. Dr. Ivan Bernasovský, CSc.
University P. J. Šafarik
Faculty of Biology
Moyzesova 11
041 67 Košice
Czechoslovakia