ANTHROPOLOGICAL CHARACTERISTICS OF 24—60 YEAR OLD GROWN-UPS IN HUNGARY

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Abstract

The authors summarized the results of some anthropological publications of different other authors concerning 16 546 adult individuals of 29 Hungarian settlements. On the basis of this, they make known the characterization considered by these as valid in respect of Hungarians living in the Great Hungarian Plain.

The summary was carried out for males and females in the age-group of 24—60 years-old persons.

They discuss the summarized parameters of eleven metric characters, seven indices, eye-colour, hair-colour, as well as the summarized parameters of the taxonomical analysis.

On the basis of the data available, they give the metric characters for males and females and the mean sigma values of indices.

Introduction

In our paper we have contracted the ethnical anthropological data published in the last 23 years concerning 16 546 adult individuals, in order to be able to give a general characterization, on the basis of the information we have, of the present-day Hungarian population of the Great Plain.

In the course of our work, we have chosen the classification into a rather wide age-group (between 24—60 years), because the arrangement in age groups differs from one another in the works of the single authors and the calculation of the common parameters came up, therefore, against a difficulty.

Material of the investigation

In the paper the samples of the inhabitants of 29 settlements are contracted. In Table 1, the site of research, the name of the publishing author, the years of the fact finding work and publication, as well as the sample sizes are given. The original publications connected with the samples taken into consideration are recited in the list of references.

It manifests itself unambiguously on the basis of the knowledge of the Table and of the map of Hungary that the survey concerning grown-ups only comprises the

area lying between the Danube and Tisza rivers, the territory east of the river Tisza and Northern Hungary. About Transdanubia, i. e. the territory west of the river Danube, we have no recent data. Correspondingly, our establishments to be discussed in the following, cannot be considered as valid is respect of the whole Hungarian population.

From the Table and evaluation some samples, not published, as yet (e. g., Békés) or with incomplete data (e.g., Biharkeresztes, Szabadszállás, Benk) are missing. The latter samples concern nearly 1500 further persons.

The sample of Kecskemét is similarly missing from the contracted material because in this case the parameters were given by the author contracting all the individuals older than 24 years into one sample.

There are also missing from the material to be discussed the data of those older than 61 years whose number is almost 2000.

In the single Tables different sample sizes are given as characters, because not the same sizes were measured by every author and, therefore, there are some samples, from which certain characters are missing.

It must also be referred to that in case of the sample from Ivád those belonging to the age-group 20-56, and in that from Turricse those belonging to the group 53—59 year old persons have got into the contracted samples.

Method of investigation

The partial samples were taken into consideration on the basis of the given parameters. In case of characters common arithmetic means were calculated on the basis of the formula:

$$\bar{X} = \frac{n_1 \cdot \bar{x}_1 + n_2 \cdot \bar{x}_2 + \ldots + n_m \cdot \bar{x}_m}{n}$$

where $\bar{X}$ is the common arithmetic means of sample number m, $n_1 \ldots n_m$ are the sizes of the single samples number m, $\bar{x}_1 \ldots \bar{x}_m$ are the arithmetic means of the single samples number m, n is the contracted sample size of samples number m.

In case of standard deviations a common deviation was calculated, similarly to the mean, by the help of the formula:

$$S^2 = \frac{n_1(s_1^2 + d_1^2) + n_2(s_2^2 + d_2^2) + \ldots + n_m(s_m^2 + d_m^2)}{n_1 + n_2 + \ldots + n_m}$$

where:
s^2 is the common square deviation of the contracted sample,
$d_1^2 \ldots d_m^2$ is the square deviation of the single samples of number m from the common arithmetic mean,
$n_1 \ldots n_m$ are the sizes of the single samples number m,
$s_1^2 \ldots s_m^2$ are the square deviation of the single samples number m.

As in case of the samples from Bükkszék, Karcag, Jászszentandrás, Bugac, Kunszállás, Ivád, the square deviations in the age-group of the 24—60 years old persons are not at our disposal, they could not be taken into consideration in establishing the contracted standard deviation.

We regard the common standard deviation obtained by us as the mean sigma-values of the characters of the 24—60 year-old males and females in Hungary.

From the publications being at our disposal we could take into consideration the following characters (size numbers according to Martin):

   1) Stature
 23) Sitting height
   1) Maximum head length
   3) Maximum head breadth
   4) Minimum frontal breadth
   6) Zygomatic breadth
   8) Bigonial width
 13) Nose breadth
 15) Head height
 18) Morphological facial height
 21) Nasal height
 45) Head perimeter

From among the corresponding indices of the enlisted measurements the following are mentioned in the publications of the single authors:

   3:1 Cephalic index
 15:1 Height-length index
 15:3 Height-breadth index
   4:3 Transverse cephalofrontal index
 18:6 Facial index
   8:6 Jugomandibular index

13:21 Nasal index.

Hair-colour was determined by the researchers according to Fischer-Saller's range of hair-colours. In case of eye-colours there was a difference in methods. In case of these, therefore, a re-arrangement of data became necessary.

The taxonomical analysis did not take place in a uniform way, either, althought Lipták's taxonomical process was mainly applied by the authors. The greatest difference appeared in this respect — owing to differences in the opinions — between the works of Henkey and those of the other authors. We have, therefore, presented the two sorts of determination separated in our Table.

Calculations were carried out by research fellows Mrs. Attila Máté and Zoltán Vass, according to their programmes, with an R-40 type computing machine. We wish to express our gratitude for their work in this way, as well.

Finally, we have carried out the analysis of the Penrose-distance with an electronic calculator. The results of this are, however, not touched upon in this paper.

Results of the investigation

In Table 2, the sample-size of the enumerated characters of the 24–60 year-old males and females, the extent of their variations and arithmetic means are given. The two sexes can be characterized according to the data of the Table as follows:

a) Males: Their stature is supra-medium, their head, on the basis of absolute measurements, is long, mediumbroad and high, their front is broad, their face is broad and medium high, their lower mandible is very broad.

According to the indices, they are characterized by brachycephalism, metrio-acrocephalism, meso-euryprosopism and hyperchamaerrinism (Table 2).

b) Females: According to the arithmetic means, their stature is medium, sub-medium, their head is long, mediumbroad and high, resp. medium-high. Their front is broad, their face is broad and medium-high, the lower mandible is broad (Table 2).

On the basis of indices, they are characterized by brachycephalism, metrio-cephalism, meso-euryprosopism and leptorrhinism.

The characterizations, which can be given concerning both sexes on the basis of means, are therefore not very different. Some difference can only be observed concerning stature, the bigonial width, the height-breadth index and the nasal index, to a lesser extent.

In Table 3, we have given the mean sigma-values of characters — divergently from Howells — in respect of both sexes. The calculated sigmas — as it was to be expected — generally approach Howells' values but in some cases, they also differ from those, more or less. The greatest difference is in the nasal index.

The distribution of the main measurements and indices is indicated, according to sexes, in Tables 4 and 5.

It is shown by the sigma-values of the Table that the deviation values should be given concerning both sexes separately and it is not at all right, for instance, in case of samples originating from the population in Hungary, to compare these with Howells's values. Although the sample size of our total sample is small if compared with the whole Hungarian population, we nonetheless regard the application of the sigma-values obtained on the basis of these, to the comparison of the Hungarian samples more correct than to compare them with Howells's data.

In Table 6, information is given on the distribution of eye-colours. The 13095 data of the contracted sample shows a difference according to sexes. Eyes of light

Table 1. A survey of the material of investigation.

Serial number	Site of the investigation	Author(s)	Year of publication	Year of the investigation	Sample size
1	Ivád	Nemeskéri	1953	1939—42	523
2	Szabolcs	Thoma	1957	1953	249
3	Szeremle	Henkey	1961		484
4	Fülöpszállás	Henkey	1961		500
5	Homokmégy	Henkey	1962		485
6	Nagybaracska	Henkey	1962		415
7	Szabadszállás	Henkey	1962—63		507
8	Foktő	Henkey	1963—64		291
9	Orosháza	Farkas—Lipták	1965	1963	2001
10	Szakmár	Henkey	1966	1965	535
11	Fajsz	Henkey	1967	1965	460
12	Dömsöd	Kelemen	1968	1963	891
13	Tápé	Farkas—Lipták	1970	1968	725
14	Bugac	Henkey	1973		207
15	Dunapataj	Henkey	1973	1964—65	459
16	Jászdózsa	Henkey	1973		462
17	Kunszállás	Henkey	1978		307
18	Mezőkövesd	B. Bodzsár—Eiben	1973	1971	164
19	Vésztő	Farkas—Varga	1973	1972	903
20	Jászboldogháza	Henkey	1974	1972—73	281
21	Lajosmizse	Henkey	1974	1970—71	610
22	Turricse	M. Szilágyi	1974	1971	542
23	Bükkszék	Henkey	1975		410
24	Gyoma	Farkas—Hunya – Varga	1975	1974	1457
25	Gyöngyöspata	Henkey	1975	1972	302
26	Jászszentandrás	Henkey	1975		343
27	Karcag	Henkey	1975	1972—73	315
28	Mátraderecske	Henkey	1975	1972	165
29	Nógrád megye	Henkey	1976	1973—74	1553
				Together:	16 546

colour occur in case of both sexes in only about 20 per cent. Apart from this remark, in males the mixed, in females the dark colour prevails. This means that not more than every fifth Hungarian male or female has blue eyes and in males first of all the greenish, in females the rather brown eye-colour occurs.

Table 2. Some parameters of the characters of the 24—60 year-old persons.

Character	Males			Females		
	n	*w*	*x̄*	*n*	*w*	*x̄*
Stature	5954	165.9—171.4	168.04	5319	153.8—160.0	153.33
Maximum head length	5989	183.8—190.0	187.39	5337	174.3—182.1	178.70
Maximum head breadth	5985	153.4—162.1	158.86	5337	147.8—155.9	153.41
Bizygomatic breadth	5976	124.3—148.4	144.31	5337	118.8—140.4	137.67
Morphological facial height	5985	120.0—124.1	121.24	5338	109.2—116.0	111.62
Minimum frontal breadth	5887	106.5—114.9	111.15	5209	104.0—111.0	108.15
Bigonial width	5897	110.2—113.4	111.69	5209	102.3—105.7	104.56
Nose breadth	5782	34.2— 37.0	35.69	5086	31.9— 33.8	32.62
Nasal height	5777	52.0— 55.9	54.11	5084	47.9— 53.0	50.10
Head height	3680	119.5—135.0	129.90	2963	115.9—131.4	124.29
Sitting height	5049	86.3— 89.5	87.68	4323	81.6— 84.5	83.31
Cephalic index	5972	83.6—87.2	84.87	5330	84.6—88.1	85.89
Facial index	5955	82.7—97.2	84.09	5330	78.2—93.1	81.23
Nasal index	5866	63.0—68.0	66.21	5199	61.0—69.5	65.24
Transverse cephalofrontal index	2164	68.7—70.4	69.70	1396	69.1—70.8	69.84
Height-length index	2318	64.9—72.7	70.70	1593	66.6—73.6	70.92
Height-breadth index	2315	75.8—86.1	84.14	1593	77.6—86.4	83.30
Jugomandibular index	2255	77.3—81.0	78.15	1517	76.3—77.9	76.95

Table 3. Comparison of the mean sigmas of characters.

Characters	Howell's data	Hungarian data	
		Males	Females
Stature	5.8	6.1868	5.5556
Sitting height	—	3.3517	3.0814
Head length	6.2	6.2026	5.4238
Head breadth	5.2	5.7023	5.0215
Minimum frontal breadth	4.9	4.8789	4.3316
Bizygomatic breadth	5.3	6.1152	5.4658
Bigonial width	5.8	6.1541	5.1295
Nose breadth	2.9	2.7832	2.7565
Morphological facial height	6.4	6.7838	5.9280
Head height	—	6.1947	5.8054
Nasal height	3.8	3.6905	3.2484
Cephalic index	3.4	3.4191	3.0381
Height-length index	—	3.7910	3.8068
Height-breadth index	—	4.5810	4.3677
Morphological facial index	5.1	5.1392	4.6900
Nasal index	7.8	6.7727	6.1914
Transverse cephalofrontal index	—	3.3565	3.1434
Jugomandibular index	—	4.4980	4.0449

Table 4. Distribution of the main measurements and indices. 24—60 year-old males.

Measurement number	Character	Classing	Designation	n	p.c.
1	Stature (Martin)	×—159.9	Short	428	9,80
		160—163,9	Sub-medium	691	15.83
		164—166.9	Medium	737	16,88
		167—169.9	Supra-medium	826	18.92
		170—179.9	Tall	1555	35,62
		180—×	Very tall	129	2.95
			Sum total	4366	100,00
1	Maximum head length	×—177	Short	195	6.31
		178—185	Medium-long	969	31.36
		186—193	Long	1423	46.05
		194—×	Very long	503	16.28
			Sum total	3090	100.00
3	Maximum head breadth	×—147	Very narrow	45	1,46
		148—155	Narrow	642	20,78
		156—163	Medium broad	1687	54,61
		164—×	Broad	715	23.15
			Sum total	3089	100.00
6	Bizygomatic breadth	×—133	Narrow	154	4.54
		134—141	Medium broad	804	23.72
		142—150	Broad	1876	55.36
		151—×	Very broad	555	16.38
			Sum total	3389	100.00
18	Morphological facial index	×—117	Low	925	27.25
		118—126	Medium high	1726	50.85
		127—135	High	679	20.01
		136—×	Very high	64	1.89
			Sum total	3394	100.00
3:1	Cephalic index	×—75.9	Dolichocephal.	35	0.82
		76—80.9	Mesocephal	522	12.22
		81—85.9	Brachycephal	2009	47.01
		86—×	Hyperbrachyc.	1707	39.95
			Sum total	4273	100.00
18:6	Facial index	×—78.9	Hypereurypr.	663	15.18
		79—83.9	Euryprosope	1586	36.32
		84—87.9	Mesoprosope	1184	27.11
		88—92.9	Leptoprosope	712	16.30
		93—×	Hyperleptopr.	222	5.09
			Sum total	4367	100.00
13:21	Nasal index	×—54.9	Hyperleptorr.	163	3.69
		55—69.9	Leptorrhin	2995	67.84
		70—84.9	Mesorrhin	1213	27.47
		85—×	Chamaerrhin	44	1.00
			Sum total	4416	100.00

Table 5. Distribution of the main measurements and indices. 24—60 year-old females.

Measurement number	Character	Classing	Desingation	n	p.c.
1	Stature	×—148.9	Short	299	8.39
		149—152.9	Sub-medium	620	17.40
		153—155.9	Medium	719	20.17
		156—158.9	Supra-medium	731	20.51
		159—167.9	Tall	1108	31.09
		168—×	Very tall	87	2.44
			Sum total	3564	100.00
1	Maximum head length	×—169	Short	122	4.03
		170—176	Medium-long	834	27.58
		177—184	Long	1607	53.14
		185—×	Very long	461	15.25
			Sum total	3024	100.00
3	Maximum head breadth	×—141	Very narrow	27	0.89
		142—149	Narrow	522	17.26
		150—157	Medium broad	1794	59.30
		158—×	Broad	682	22.55
			Sum total	3025	100.00
6	Bizygomatic breadth	×—125	Narrow	76	2.76
		126—133	Medium broad	394	14.33
		134—142	Broad	1677	60.98
		143—×	Very broad	603	21.93
			Sum total	2750	100.00
18	Morphological facial index	×—108	Low	734	26.69
		109—117	Medium low	1511	54.94
		118—126	High	482	17.53
		126—×	Very high	23	0.84
			Sum total	2750	100.00
3:1	Cephalic index	×—76.9	Dolichocephal	6	0.21
		77—81.9	Mesocephal	247	0.65
		82—86.9	Brachycephal	1445	50.59
		87—×	Hyperbrachyc.	1158	40.55
			Sum total	2856	100.00
18:6	Facial index	×—76.9	Hypereurypr.	500	19.14
		77—80.9	Euryprosope	882	33.75
		81—84.9	Mesoprosope	776	29.70
		85—89.9	Leptoprosope	376	14.39
		90—×	Hyperleptopr.	79	3.02
			Sum total	2613	100.00
13:21	Nasal index	×—54.9	Hyperleptorr.	146	4.05
		55—69.9	Leptorrhin	2638	73.13
		70—84.9	Mesorrhin	808	22.40
		85—×	Chamaerrhin	15	0.42
			Sum total	3607	100.00

Table 6. Distribution of eye-colour.

Eyecolour	males		females		together	
Sex	n	p.c.	n	p. c.	n	p.c.
light (la-2b)	1747	22.78	1115	16.92	2862	19.85
mixed (3—11)	3242	40.71	2584	39.69	5826	40.20
dark (12—16)	2069	36.47	2338	43.38	4407	39.93
Sum total:	7058	99.96	6037	99.99	13095	99.98

Note: The data of Ivád, Szabolcs and Turricse are missing from the Table. Further on, the total case number of males is 7059. In the Table, the total case number is nevertheless 7058, because in the partial sample from Foktő one male had eyes of dissimilar colours.

On the distribution of hair-colour we have some data from Table 7. The fair hair is very rare — its frequency is below 5 per cent. The brown, resp. black hair-colour are, at the same time, most frequent.

In Table 8, the results of the taxonomical analyzes are surveyed. As already mentioned, Henkey's determinations somewhat differ from those of the other authors. He namely considers the variety Cromagnoid-C as Turanid. Accordingly, we get at him the 30 per cent Turanid frequency. But it is absolutely necessary to refer to that — on the basis of the analysis of Lipták's taxonomy — the type named Turanid is a Europomongolid variety and the above mentioned high frequency of such a variety cannot be demonstrated in the present living Hungarians.

Summary

The authors summarized some anthropological data, published earlier by different authors concerning 16 546 adult individuals from 29 Hungarian settlements. On the basis of this, they have given the summarized parameters of some males and females, in case of 11 metric characters and 7 indices. They have summarized the data concerning eye-colour and hair-colour, as well as the results of the taxonomical analyses.

They report on the mean-sigma values, calculated to the metric characters and indices, separately concerning males and females.

Table 7. Distribution of hair-colour.

Haircolour	males		female		together	
Sex	n	p. c.	n	p. c.	n	p. c.
fair (A—L)	234	3.95	265	4.14	499	4.05
light brown black (M—Y)	6923	95.70	5877	95.38	12 800	95.54
red (I—VI)	52	0.34	48	0.48	100	0.41
Sum total:	7209	99.99	6190	100.00	13 399	100.00

Note: Data of Szabolcs and Turricse are missing from the Table.

They have established that there cannot be demonstrated any essential difference — apart from the sexual dimorphism — between the two sexes in respect of the anthropological characteristics.

There is, however, a considerable difference in the taxonomical determination of the different authors.

The sumary has referred to, as well, that the investigation of the present-day living Hungarians has only been realized, so far, in the area lying between the Danube and Tisza rivers, on the territory east of the river Tisza and on that of Northern Hungary. About Transdanubia, i. e. the territory west of the river Danube, we have no recent data. Corresponding to this, the characterization, obtained on the basis of the summary, cannot be considered as valid in respect of all the Hungarians.

Table 8. Comparison of the percentage of the main taxonomical categories.

Taxonomical category	On the basis of Henkey's investigations	Not on the basis of Henkey's investigations	Together
Cromagnoid-A	0.18	2.56	0.71
Cromagnoid-B	3.69	20.97	7.53
Cromagnoid-C	0.00	7.38	1.64
Nordoid	0.30	3.58	1.03
Mediterranian	5.02	9.93	6.11
Alpine-lappid	2.46	11.65	4.50
Dinaric	5.94	13.31	7.58
Pamirian	5.45	6.53	5.69
Armenoid	9.94	6.34	9.14
Undetermined Brachycephalic	0.00	9.43	2.09
Turanid	29.38	0.04	22.86
Other Europo-mongoloid	0.84	0.30	0.72
Undetermined ones	36.80	7.98	30.40
Sum total:	100.00	100.00	100.00

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