

Anthropometric Study Among Yerava Tribal Males of Virajpet Taluk of Kodagu District, Karnataka

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ABSTRACT The present study reveals that majority of Yerava possess short stature (53.40%). A higher proportion tend to show low category of sitting height vertex (54.37%). The Yeravas are characterized by broad shoulder (66.1%). The dolichocephalic element is predominantly found in Yeravas (68%). The Yeravas have a tendency to show platyrrhine nose (60.18%). The Yeravas are characterized by the predominance of broad or euryprosopic face (51.45%). The morphological superior facial index shows more than 2/3rd of them possess euryen element. 53.4% Yeravas have medium chest.

INTRODUCTION

The main objective of the present study is to find out anthropometric profile of Yerava males living in Thithimathi forest area of Virajpet Taluk, Kodagu district of Karnataka State. 103 adult unrelated males have been considered for the present study.

The Kodagu district is the smallest district in Karnataka and is situated in the southern part of Karnataka. It is bounded on the North and East by Hassan and Mysore district, and on the southwest by Malabar and Dakshin Kannada district. It is extremely hilly country and is situated on the summits and slopes of the Western Ghats.

According to 1981 census the total tribal population of Karnataka is 14,59,008. The Yeravas (19,261) is one of the important tribal group of Karnataka. There are two sections 'Panjiris' and 'Paniyas' Yerava's. The Yeravas are the aborigines of Wynad from which they gradually migrated to the forest of South Kodagu. They speak a language of their own, a dialect of Malayalam. Agriculture is the chief occupation of the Yeravas. They have no lands of their own but work for wages.

MATERIALS AND METHODS

Randomly selected 103 adult males of Yerava

tribe in the age group of 20 to 50 years have been included in the present study. The data have been collected during the months of December and January (1995-96). On each individuals 17 anthropometric measurements were taken, out of which 11 pertain to head and face and 6 on the body as a whole. Out of 17 measurements 11 indices were calculated following the techniques of Martin and Saller (1957) and Singh and Bhasin (1989).

RESULTS AND DISCUSSION

Tables 1 to 10 present the range, mean, standard deviation, coefficient of variation and their respective standard errors of 17 anthropometric measurements and 11 indices (with available classifications).

Table 1 presents the mean values and other statistical constants calculated for all the 17 anthropometric measurements conducted on 103 adult male Yeravas.

Longitudinal Height Measurements

The stature ranges from 146.0 to 173.0 cms among Yerava males in the present study while, the mean stature works out to be 159.5 ± 0.59 cms.

The classification of stature among the Yerava males (Table 2) reveals that a majority of them (53.40%) fall under the short stature, followed by lower medium stature (21.35%) and medium stature (18.44%) while only about 2.01% tend to be tall and 6.8% as very short.

The sitting height vertex ranges from 71.2 cms to 87.3 cms among the Yerava males with an average of 80.69 ± 0.35 cms.

The classification of sitting height vertex among the Yerava males (Table 3) show that the majority of them fall under the 'low' category (54.37%) followed by 'lower medium' category (33%).

Table 1: Anthropometric measurements among the Yerava tribal males of Virajpet taluk of Kodagu district

Measurements	Minimum value (cms)	Maximum value (cms)	Mean $\pm$ S.E.	S.D. $\pm$ S.E.	C.V. $\pm$ S.E.
Stature	146.0	173.0	159.59 $\pm$ 0.59	4.97 $\pm$ 0.41	3.74 $\pm$ 0.26
Body weight	35 kg	65 kg	40.71 $\pm$ 0.49	4.99 $\pm$ 0.34	10.24 $\pm$ 0.71
Sitting height vertex	71.2	87.3	80.69 $\pm$ 0.35	3.60 $\pm$ 0.25	4.45 $\pm$ 0.31
Biacromial breadth	30.2	41.2	37.48 $\pm$ 0.29	2.98 $\pm$ 0.20	7.95 $\pm$ 0.55
Upper arm circumference	20.0	32.0	26.39 $\pm$ 0.18	1.90 $\pm$ 0.13	7.19 $\pm$ 0.50
Chest circumference	70.0	101.2	83.13 $\pm$ 0.50	5.10 $\pm$ 0.35	6.13 $\pm$ 0.42
Head length	16.2	20.4	19.09 $\pm$ 0.07	0.74 $\pm$ 0.05	3.88 $\pm$ 0.27
Head breadth	11.1	17.0	14.35 $\pm$ 0.06	0.67 $\pm$ 0.04	4.67 $\pm$ 0.32
Head circumference	50.0	60.0	55.69 $\pm$ 0.15	1.59 $\pm$ 0.11	2.85 $\pm$ 0.19
Minimum frontal breadth	6.7	12.1	10.72 $\pm$ 0.06	0.70 $\pm$ 0.04	6.90 $\pm$ 0.48
Bizygomatic breadth	9.5	14.5	12.81 $\pm$ 0.07	0.75 $\pm$ 0.05	5.85 $\pm$ 0.40
Physiognomic facial height	14.0	18.7	17.06 $\pm$ 0.08	0.82 $\pm$ 0.05	4.80 $\pm$ 0.05
Physiognomic superior facial height	11.2	14.5	13.11 $\pm$ 0.08	0.81 $\pm$ 0.05	5.07 $\pm$ 0.35
Morphological facial height	9.3	12.6	10.61 $\pm$ 0.08	0.82 $\pm$ 0.05	7.80 $\pm$ 0.54
Morphological superior facial height	5.7	7.2	6.52 $\pm$ 0.04	0.46 $\pm$ 0.03	7.36 $\pm$ 0.51
Nasal height	3.3	5.5	4.52 $\pm$ 0.03	0.39 $\pm$ 0.02	8.62 $\pm$ 0.60
Nasal breadth	3.2	5.5	4.51 $\pm$ 0.03	0.38 $\pm$ 0.03	8.42 $\pm$ 0.58

Table 2: Classification of stature among Yerava tribal males

Classification	Range	Number	Percentage
Very short	130.0 - 149.0	7	6.80
Short	150.0 - 159.9	48	46.60
Lower medium	160.0 - 163.9	22	21.35
Medium	164.0 - 166.9	19	18.44
Upper medium	167.0 - 169.9	4	4.00
Tall	170.0 - 179.9	3	2.91
Very tall	180.0 - 199.9	0	0.00
Total		103	100.00

Transvers Measurement

There is only one transverse measurement taken on body namely biacromial breadth. It ranges among the Yerava males from 30.2 cms to 41.2 cms showing a mean value of 37.48 ± 0.29 cms.

Girth/Circumferential Measurements

There are 3 girth measurements taken on body namely upper arm circumference, chest circumference and head circumference. The values of mean measurement with respective standard error are shown in table 1. The chest circumference ranges 70.0 to 101.2 cms, showing a mean value 83.13 ± 0.50 . The upper arm circumference ranges from 20.0 to 32.0 cms showing a mean value of 26.39 ± 0.18 cms.

Table 3: Classification of sitting height-vertex among Yerava tribal males

Classification	Range	Number	Percentage
Below low	X - 74.9	6	5.82
Low	75.0 - 79.9	56	54.37
Lower Medium	80.0 - 84.9	34	33.00
Medium	85.0 - 89.9	7	6.80
Above Medium	90.0 - 94.9	0	0.00
Tall	95.0 - X	0	0.00
Total		103	100.00

Body Weight

The body weight shows a low range of 35 to 65 kgs among the Yerava males. However the mean body weight among the Yerava males is observed to be 40.71 ± 0.49 kgs.

Indices

Cephalic Index: The cephalic index ranges from 61.32 to 92.16 showing a mean value of 73.81 ± 0.83 (Table 4). The classification of cephalic index (Table 5) shows that more than 2/3rd of the Yerava males (68%) are dolicocephalics heads, while only 7.77% of them brachycephalic.

Nasal Index: The Yerava males although they tend to show great range of variation of this index varying from 61.4 to 121.24 showing 87.57 ± 1.15 mean nasal index. The classification of nasal index reveals that about 60.18% of

Table 4: Anthropometric indices among Yerava tribal males

Measurements (in cms)	Minimum (cms)	Maximum (cms)	Mean $\pm$ S.E.	S.D. $\pm$ S.E.	C.V. $\pm$ S.E.
Cephalic index	61.32	92.16	73.81 $\pm$ 0.36	3.74 $\pm$ 0.26	5.06 $\pm$ 0.35
Nasal index	61.40	124.24	87.57 $\pm$ 1.15	11.71 $\pm$ 0.81	13.37 $\pm$ 0.93
Physiognomic facial index	112.59	183.15	135.97 $\pm$ 0.41	4.22 $\pm$ 0.29	3.10 $\pm$ 0.21
Upper facial index	66.08	108.00	78.44 $\pm$ 0.68	6.93 $\pm$ 0.48	8.83 $\pm$ 0.61
Morphological upper facial index	65.61	107.36	83.68 $\pm$ 0.82	8.36 $\pm$ 0.58	9.99 $\pm$ 0.69
Morphological facial index	35.00	90.27	59.94 $\pm$ 0.87	8.96 $\pm$ 0.62	14.94 $\pm$ 1.04
Sagittal naso-facial index	33.00	55.88	42.35 $\pm$ 0.43	4.37 $\pm$ 0.30	10.31 $\pm$ 0.71
Sitting height vertex-stature index	42.52	54.56	49.65 $\pm$ 0.17	1.79 $\pm$ 0.12	3.60 $\pm$ 0.25
Biacromial breadth stature index	17.77	26.87	23.35 $\pm$ 0.17	1.77 $\pm$ 0.12	7.58 $\pm$ 0.52
Chest girth stature index	34.61	61.12	50.84 $\pm$ 2.69	27.35 $\pm$ 1.90	53.79 $\pm$ 3.74
Robusticity index	133.47	190.72	156.26 $\pm$ 1.12	11.43 $\pm$ 0.79	7.31 $\pm$ 0.50

Table 5: Classification of cephalic index among Yerava tribal males

Classification	Range	Number	Percentage
Hyperdolicocephalic	X - 70.9	11	10.73
Dolicocephalic	71.0 - 75.9	59	57.30
Mesocephalic	76.0 - 80.9	25	24.30
Brachycephalic	81.0 - 85.4	7	6.80
Hyper-brachycephalic	85.5 - 90.9	0	0.00
Ultra-brachycephalic	91.0 - X	1	0.97
Total		103	100.00

Table 6: Classification of nasal index among Yerava tribal males

Classification	Range	Number	Percentage
Hyper leptorrhinae	X - 54.0	0	0.00
Leptorrhinae	55.0 - 69.9	4	3.88
Mesorrhinae	70.0 - 84.0	37	35.98
Platyrrhine	85.0 - 99.9	51	49.51
Hyper platyrrhine	100.0 - X	11	10.63
Total		103	100.00

them show broad nose or platyrrhine nose followed by 36% of them to have mesorrhine nose (Table 6).

Physiognomic Facial Index: The mean physiognomic facial index is 135.97 $\pm$ 0.41 among the Yerava males.

Upper Facial Index: Upper facial index is observed to be 78.44 $\pm$ 0.68 (Table 4) among the Yerava males.

Morphological Facial Index: The morphological facial index as observed to be 83.68 $\pm$ 0.82. The classification of morphological facial index

reveals that more than half of the Yerava males (51.45%) show broad or euryprosopic face, while

Table 7: Classification of morphological facial index among Yerava tribal males

Classification	Range	Number	Percentage
Hyper euryprosopic	X - 78.9	28	27.17
Euryprosopic	79.0 - 83.9	25	24.27
Mesoprosopic	84.0 - 87.9	18	17.50
Leptoprosopic	88.0 - 92.9	20	19.41
Hyper Leptoprosopic	93.0 - X	12	11.65
Total		103	100.00

about 1/3 of them show long or leptoprosopic face (31.06%).

Morphological Upper Facial Index: The morphological upper facial index as observed to be 59.94 $\pm$ 0.87. The classification of morphological upper facial index (Table 8) show more than 2/3 of them tend to show lepten element and 1/5 of them show about mesen element.

Sagittal Naso-facial Index: The mean value of sagittal naso-facial index ranges from 33.00 to 55.88 among the Yerava males showing a mean value of 42.35 $\pm$ 0.43.

Table 8: Classification of morphological upper facial index among Yerava tribal males

Classification	Range	Number	Percentage
Hyper euryen	X - 42.9	21	20.38
Euryen	43.0 - 47.9	50	48.55
Mesen	48.0 - 52.9	20	19.41
Lepten	53.0 - 56.9	8	7.80
Hyper lepten	57.0 - X	4	3.86
Total		103	100.00

Biacromial Breadth-Stature Index: The values of biacromial breadth - stature index ranges from 30.2 to 41.2 among Yerava males showing mean value of 37.48 ± 0.29 among them. The classification of biacromial breadth stature index reveals that about 2/3rd of Yerava males (66.01%) show broad shoulders while small proportion of them show narrow shoulders (7.76%).

Table 9: Classification of biacromial breadth-stature index among Yerava tribal males

Classification	Range	Number	Percentage
Narrow shoulders	X - 22.0	8	7.76
Medium shoulders	22.1 - 23.0	27	26.24
Broad shoulders	23.1 - X	68	66.00
Total		103	100.00

Chest Girth-Stature Index: The classification of chest girth-stature index (Table 10) among the Yerava males show a great majority of them (53.40%) to have medium chest followed by narrow chest (40.80%).

Robusticity Index: The Robusticity index ranges from 133.47 to 190.72 among the Yerava

Table 10: Classification of chest girth-stature index among Yerava tribal males

Classification	Range	Number	Percentage
Narrow shoulders	X - 50.9	42	40.80
Medium shoulders	51.0 - 55.9	55	53.40
Broad shoulders	56.0 - X	6	5.80
Total		103	100.00

males who show a mean value of 156.26 ± 1.12 .

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