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Anthropometry of Female Onges of Little Andaman

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ABSTRACT Onges of Little Andaman belong to one of the scheduled tribes of A & N Islands. In the present paper Onge females have been studied for eight body measurements and eight indices are calculated, usual statistical constants mean, SD, CV and their SEs are also calculated. The result shows that most of the Onge females are short to very short in stature, trunk is medium, legs and arms are long, shoulder medium and pelvic region is narrow. Body is lighter in weight.

INTRODUCTION

Andaman and Nicobar Islands of India are situated in Bay of Bengal between 10^0 and 14^0 North latitude and between 92^0 and 93^0 East longitudes. These are two groups of Islands viz. Andaman and Nicobar separated by 10^0 Channel, which is about 144 km wide and 400 fathoms deep. The former constituting the Andaman district cover a gross length of 467 km while the latter constituting the Nicobar district cover approximately 259 km. The total geographical area of the former is 6408 sq. km and that of the latter is 1841 sq. km.

The climate of Andaman and Nicobar Islands is tropical and they are situated in the hot or torrid zone; nearly 86 percent of total area in the Islands is covered by the forest. There are only two seasons rainy and summer, relative humidity is 79% and the temperature ranges between 23.8 and 30.2^0C during the whole year.

In Andaman and Nicobar Islands, there are two types of tribes a) Negrito: represented by Onge, Jarawa, Great Andamanese and Sentinelese and b) Mongoloid: representatives are Nicobarese and Shompen (Table 1). Onges are one of the six scheduled tribes of Andaman and Nicobar Islands. They call themselves *En-iregale* meaning 'Perfect man' evidently considering every body else inferior to them (Cipriani, 1966).

Onges inhibit the Little Andaman Island, which is the largest and southernmost Island in Andaman district, with a geographical area of 731.5 sq. km and is situated between 10^0 30' and 10^0 56' North latitude and 92^0 28' and 92^0 35' East longitude at a distance of about 100 km from Port Blair, the capital.

The evidence from kitchen middens of Little Andaman points to the fact that the first inhabitants of this island were Negroid (Cipriani, 1955). Sarkar (1953) feels that Andamans were peopled first during the end of Pleistocene times when there existed a land connection between these islands and the landmass constituting Burma (Myanmar). Radcliff-Brown (1922) opined that these islands were peopled either by sea or by land from the region of Burma. Whatever be the exact mode by which they reached these islands or during whatever period of history, the fact remains that the Onges were the earliest inhabitants of this island and they have been occupying the entire island until the recent period. Onges are hunter and gatherer their main games are pig, turtle, crab, dugong and fish etc. Apart from this they collect tubers, roots fruits and honey from the forests of Little Andaman. Onges were residing at various places in Little Andaman during the past time but in 1976 they were settled at two places namely South Bay and Dugong Creek by the Andaman and Nicobar Administration to facilitate their development work under Tribal Sub-Plan. The Andaman and Nicobar Administration has entrusted Onges welfare works upon Andaman Adim Janjati Vikas Samiti, an autonomous organization under Societies Registration Act.

Variation is one of the most important phenomenon occurring in human populations on this globe attributable to interaction of many factors such as mutation, natural selection, hybridization etc. Ordinarily environment only restrict or modifies the expression of characters derived from heredity. Thus, it is quite certain that heredity and interlocking environmental factors are the determinants of physical makeup of organism. Hardlika (1939), Montague (1960)

and Comas (1960) have emphasized importance of anthropometric measurements as a means of studying human populations.

Very little work has been done among the Onges on Anthropometry but considerably many works are available on their social life, kinship, material culture and vocabulary. These include the works of Agarwal (1967), Ayyar (1957), Basu (1984, 1990), Bose (1964), Chaudhary (1976), Cipriani (1953, 1954, 1955, 1966), Ganguly (1966), Gupta and Basu (1960), Nigam (1962, 1964), Pandey (1998a, b, c, 2004), Rayapa (1978), among others.

In the light of the above studies in the present paper an attempt has been made to study variation in the body dimensions based on anthropometric measurements among the Onge females of Little Andaman, Andaman and Nicobar Islands.

MATERIAL AND METHODS

The material for the present paper was collected from Onge settlement at Dugong Creek and South Bay during 1987 when author was posted as Senior Social Executive Onge Settlement Dugong Creek. 27 females out of a total population of 98 souls were subjected for body measurements – height vertex, sitting height vertex, bi-acromial breadth, bi-cristal breadth, bi-trochantric breadth, upper extremity length, lower extremity length and body weight and their mean, S.D., C.V. and S.E.s were calculated and are presented in Table 2. On the basis of above body measurements eight indices namely Relative sitting height vertex index, Relative bi-acromial breadth index, Relative bi-cristal breadth index, Relative bi-trochantric breadth index, Relative upper extremity index, Relative lower extremity index, Pignet-Varvaek and Robusticity index were calculated and are presented in Table 3 along with their mean, S. D., C. V., and their S. E. All the subjects have been measured following the techniques of Martin and Saller (1957) and Singh and Bhasin (1968); classifications of the subjects were done according to Martin and Saller (1957) and Brugsch (cited from Singh and Bhasin 1989).

OBSERVATIONS AND DISCUSSION

The ranges, mean, S. D., C. V., and their S. E.s for various body measurements of the Onge females under study are presented in Table 2. On the basis of these measurements eight indices were calculated and these along with usual statistical constants are presented in Table 3.

Further on the basis of indices calculated, they have been classified and the distributions of the Onge females are presented in Table 4 according to Brugsch's scale. Table 5 presents classification and distribution of Onge females on the basis of their height vertex (stature), which is according to Martin (1957).

From the observation of Table 5 it is reveled that maximum Onge females have short stature followed by very short. A perusal of Table 4 reveals that maximum number of Onge females have short arms, long legs and narrow shoulder, narrow pelvis and normosthenic body. On the

Table 1: Tribal population in Andaman and Nicobar Islands and its location.

Tribe	*Location*	*Population*
Onge	Little Andaman	98
Great Andamanese	Strait Island	32
Jarawa	Western Coast of South and Middle Andaman	200*
Sentinelese	North Sentinel Island	100*
Shompen	Great Nicobar Island	135*
Nicobarese	On 12 Islands of Nicobar Group of Islands	21172

*Estimated

Table 2: Body measurements (in cm) of Onge females.

Measurement	*Range*	*Mean ± S.E.*	*S.D. ± S.E.*	*C.V. ± S.E.*
Height vertex	132.2-149.5	141.11 ± 0.07	3.67 ± 0.50	2.60 ± 0.35
Sitting height vertex	69.5-79.1	73.37 ± 0.47	2.46 ± 0.33	3.35 ± 0.45
Bi-acromial breadth	22.2-34.2	29.65 ± 0.36	1.91 ± 0.26	6.44 ± 0.87
Bi-cristal breadth	20.4-26.2	23.65 ± 0.27	1.43 ± 0.19	6.04 ± 0.82
Bi-trochantric breadth	22.3-27.5	25.46 ± 0.26	1.36 ± 0.18	5.34 ± 0.72
Upper extremity length	54.2-65.4	61.31 ± 0.45	2.36 ± 0.32	3.84 ± 0.52
Lower extremity length	75.1-84.4	78.76 ± 0.60	3.31 ± 0.42	3.97 ± 0.54
Body weight	31.0-51.0	42.33 ± 1.06	5.52 ± 0.75	13.04 ± 1.77

Table 3: Indices of body measurements among Onge females.

Index	*Range*	*Mean ± S.E.*	*S.D. ± S.E.*	*C.V. ± S.E*
Relative sitting height vertex	49.96-54.37	52.00 ± 0.22	1.19 ± 0.16	2.30 ± 0.31
Relative bi-acromial breadth	16.01-23.09	20.96 ± 0.22	1.19 ± 0.16	5.67 ± 0.77
Relative bi-cristal breadth	14.77-18.74	16.75 ± 0.18	0.95 ± 0.12	5.72 ± 0.77
Relative bi-trochantric breadth	16.14-19.59	18.04 ± 0.18	0.96 ± 0.13	5.32 ± 0.72
Relative upper extremity length	40.99-46.54	43.44 ± 0.33	1.75 ± 0.23	4.02 ± 0.54
Relative lower extremity length	53.46-58.28	55.72 ± 0.25	1.32 ± 0.17	2.38 ± 0.32
Pignet-Varvaek	66.22-97.20	83.02 ± 1.73	9.03 ± 1.23	10.87 ± 1.48
Robusticity	3.70-50.50	23.91 ± 2.49	12.96 ± 1.76	54.20 ± 7.38

Table 4: Classification of Indices among Onges females

Class		*Range*	*Number observed*
Relative bi-acromial breadth index			
Narrow Shouldered		Up to – 21.5	20 (74.07)
Medium Shouldered		21.6 – 22.5	6 (22.22)
Broad Shouldered		22.6 – above	1 (3.71)
Relative bi-cristal breadth index			
Narrow Pelvis		Up to – 17.4	20 (74.07)
Medium Pelvis		17.5 – 18.4	6 (22.22)
Broad Pelvis		18.5 – above	1 (3.71)
Relative upper extremity length index			
Short Armed		Up to – 43.5	17 (62.96)
Medium Armed		43.6 – 44.0	2 (7.41)
Long Armed		44.1 – above	8 (29.63)
Relative lower extremity length index			
Short Legged		Up to – 54.0	4 (14.82)
Medium Legged		54.1 – 54.5	3 (11.11)
Long Legged		54.6 – above	20 (74.07)
Pignet-Varvaek index			
Hypersthenic		Up to – 70.00	2 (7.40)
Broad		70.10 – 82.90	11 (40.74)
Medium		83.00 – 93.00	10 (37.04)
Slender		93.10 – 104.00	4 (14.82)
Asthenic		104.10 – above	–
Robusticity index			
Very Strong-	Hypersthenic	Up to – 10.00	4 - 4 (14.82)
Strong)		11.00 – 15.00	4)
Good)	Normosthenic	16.00 – 20.00	5)
Medium)		21.00 – 25.00	1) 15 (55.55)
Weak)		26.00 – 30.00	5)
Very Weak }	Asthenic	31.00 – 35.00	1} 8 (29.63)
Bad }		36.00 – above	7}

parentheses are percentages.

basis of the measurements following points may be deduced from the present study,

1. Height vertex varies from short to very short to lower medium. The short stature occurs in highest frequency (51.86%), followed by very short (44..44%), whereas lower medium stature's frequency is very low (3.70%). The mean stature is 141.11 cms with S. D. of 3.67 ± 0.50 and C. V. 2.60 ± 0.35; range is 132.2 – 149.5 cm. (Table 2). Sitting height vertex ranges from 69.5 – 79.1 cm with a mean of 73.37 ± 0.47, S. D. 2.46 ± 0.33 and C. V. 3.35 ± 0.45. The bi-acromial breadth ranges from 22.2 – 34.2 cm with a mean of 29.65 ± 0.36, S. D. 1.91 ± 0.26 and C. V. 6.44 ± 0.87, in case of relative bi-acromial breadth index (Table 4) highest frequency has been noted for narrow shoulder (74.07%) followed by medium shoulder (22.22%) and broad shoulder (3.71%).
2. Observation of data for two extremities shows

Table 5: Classification of Height vertex (Stature) among Onge females.

Class	*Range in (cm)*	*Number*
Pygmy	Under 120.9	-
Very Short	121.0-139.9	12 (44.44)
Short	140.0-148.9	14 (51.86)
Lower Medium	149.0-152.9	1 (3.70)
Medium	153.0-155.9	-

that Onge females have short arms and long legs and in case of upper extremity index, short-armed frequency is 62.96% followed by large armed (29.63%) and medium- armed (7.41%). In case of lower extremity index, 74.07% Onges have long legs, 14.82% have short legs and only 7.41% have medium legs. Range, mean SD, CV etc. of lower extremity index and upper extremity index are presented in Table 3. In case of bi-acromial breadth index it is evident from Table 3 that 74.07% Onges have narrow pelvis whereas 22.22% have medium pelvis and broad pelvis individuals are only 3.71%.

3. Bi-trochantric breadth ranges from 22.3 – 27.5 cm with a mean of 25.46 ± 0.26, S. D. 1.36 ± 0.18 and C. V. 5.34 ± 0.72 whereas relative bi-trochantric breadth index shows a range of 16.14 – 19.59, mean 18.04 ± 0.18, S. D. 0.96 ± 0.13 and C. V. 5.32 ± 0.72 (Tables 3,4).
4. As for as body weight is concerned its range is from 31.0 – 51.0 kg. And mean is 42.33 ± 1.06, with a S. D. of 5.52 ± 0.75 and C. V. 13.04 ± 1.77, which shows a marked variation in body weight and same trend has been observed in case of Robusticity index (Tables 2, 3).
5. Pignet – Varvaek index shows a range of 66.22 – 97.20 with a mean of 83.02 ± 1.73 S. D. 9.03 ± 1.23 C. V. 10.87 ± 1.48. When Onge females are classified on the basis of this index 7.40% are Hypersthenic, 40.74% are broad, 37.04% are medium and 14.82% are slender and Asthenic individuals are totally absent.

CONCLUSIONS

On the basis of anthropometric measurements and various indices observed it can be concluded that most of the Onge females are short to very short statured and large armed and long legged, having medium shoulder and narrow pelvic region. On the basis of sitting height vertex it can be concluded that their trunk is also of medium type. As far as their body weight, they have lighter body weight, which is also reflected in Robusticity Index and Pignet – Varvaek Index values.

Due to lack of data for other Negrito tribes namely Jarawa, Great Andamanese and Sentinelese, comparison could not be made in the present study.

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