

## BRIEF COMMUNICATIONS

## Growth Trend and Regression Characteristics of Head and Face Physical Traits of Vadabaliya Boys of North Coastal Andhra Pradesh, India

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**KEY WORDS** Growth, Head and Face, Anthropometry, Vadabaliya, Andhra Pradesh.

**ABSTRACT** A cross-sectional study was undertaken in rural schools situated in the Bheemunipatnam and Anandapuram Mandals of Visakhapatnam District of Andhra Pradesh during January, 1986 to June, 1987. The sample consisted of 845 healthy Vadabaliya boys aged 1-20 years. In this paper regression characteristics on head length, head breadth, morphological facial height, bizygomatic diameter, nose height and nose breadth are presented including patterns of change in these physical traits with advancing age.

The present study deals with six head and face anthropometric measurements which are studied to show the effect of age from 1 through 20 years on their growth patterns and also to study the regression characteristics of rural and fishing Vadabaliya boys to study age changes.

### MATERIAL AND METHODS

Vadabaliya is one of the nine important fishing communities found in the North-East Coastal tract of Andhra Pradesh. The material of the present study was based on a cross-sectional data collected on 845 Vadabaliya boys from 11 villages of Bheemunipatnam and Anandapuram mandals of Visakhapatnam district of Andhra Pradesh State during January, 1986 to June, 1987. The ages of the subjects range from 1 to 20 years.

The exact dates of birth were collected for every subject, either from the concerned educational institutions or from birth records of village panchayats. The age of each individual was calculated to three decimal places according to the decimal calendar (Tanner et al., 1966) and then classified in respective age groups.

The measurements on each individual were

taken during the working hours of the school with minimum clothing. The measurement techniques and precautions of Weiner and Lourie, 1969 were followed. The measurements include head length, head breadth, morphological facial height, bizygomatic diameter, nose height and nose breadth.

### RESULTS AND DISCUSSION

Mean values, standard deviations of head and face anthropometric variables among Vadabaliya boys have been depicted in table 1. It can be concluded from the table that the mean values for all head and face measurements increase with improvement of age. The mean head length of infant at 1 year was about 14 cm. Since 1 year of age the mean values continuously increased throughout all ages up to 20 years by which time the Vadabaliya boys attained a mean value of 19 cms. An increment of about 4 cm was noticed from 2 to 20 years. The mean head breadth of infant at 1 year was 10.5 cm. This value increased 12.0 cm by the end of 3 years. From 4 to 20 years an increment of 1.5 cm was observed. The mean morphological facial height of infant at 1 year was 6 cm. This measurement steadily increased

to a mean value of 7 cm by the end of 3 years. From 4 to 20 years an increment of 3 cm was noticed. The mean bizygomatic breadth of infant at 1 year was 8.0 cm. This mean value gradually increased to 9 cm, by 3 years. From 4 to 20 years an increment of 3 cm was observed. The mean nose height of infant at 1 year was 2.5 cm from 2 to 3 years, the mean value of nose height steadily increased and reached to a value of 3 cm by

the end of 3 years. From 4 to 20 years an increment of 1 cm was observed. The mean nose breadth of infant at 1 year was 2 cm. This value gradually increased through 2 to 3 years and reached to 2.5 cm. From 4 to 20 years an increment of 1 cm was noticed. The magnitude of annual increments is not uniform through all age groups. The annual increments seems to be faster at younger age groups.

Table 1: Mean, standard deviation of head and face anthropometric variables among Vadaballja boys

Age group in years	Head length		Head breadth		Morphological facial breadth		Bizygomatic diameter		Nose height		Nose breadth		
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
1	47	14.35	0.91	10.53	0.66	5.97	0.48	8.32	0.56	2.53	0.29	2.15	0.19
2	37	15.52	0.71	11.59	0.39	6.52	0.41	8.84	0.43	2.78	0.22	2.32	0.21
3	34	16.24	0.59	12.01	0.39	7.03	0.49	9.31	0.55	2.96	0.22	2.42	0.14
4	37	16.67	0.64	12.19	0.59	7.72	0.47	9.56	0.64	3.12	0.30	2.51	0.15
5	44	16.91	0.55	12.48	0.50	8.20	0.60	9.87	0.65	3.35	0.26	2.63	0.23
6	65	17.06	0.56	12.59	0.50	8.43	0.38	10.19	0.46	3.48	0.23	2.69	0.17
7	47	17.31	0.50	12.80	0.60	8.62	0.48	10.38	0.52	3.56	0.33	2.73	0.19
8	58	17.36	0.40	12.89	0.39	8.76	0.43	10.48	0.46	3.65	0.30	2.78	0.17
9	45	17.47	0.65	12.95	0.44	9.03	0.40	10.57	0.49	3.79	0.28	2.87	0.16
10	59	17.58	0.65	12.99	0.43	9.10	0.40	10.67	0.59	3.84	0.28	2.95	0.24
11	44	17.68	0.55	13.05	0.46	9.16	0.43	10.74	0.53	3.86	0.22	2.98	0.18
12	26	17.79	0.54	13.13	0.38	9.31	0.42	10.83	0.39	4.00	0.26	3.04	0.23
13	48	17.91	0.52	13.20	0.50	9.53	0.50	10.98	0.48	4.11	0.26	3.08	0.24
14	35	18.01	0.59	13.30	0.36	9.70	0.45	11.20	0.52	4.23	0.35	3.18	0.21
15	38	18.36	0.66	13.45	0.38	10.06	0.57	11.41	0.58	4.28	0.27	3.33	0.20
16	54	18.44	0.53	13.55	0.52	10.32	0.50	11.82	0.57	4.45	0.30	3.41	0.26
17	33	18.54	0.62	13.68	0.48	10.46	0.68	12.02	0.68	4.51	0.25	3.48	0.19
18	34	18.74	0.70	13.74	0.42	10.55	0.55	12.13	0.59	4.55	0.31	3.53	0.28
19	21	18.89	0.47	13.76	0.50	10.63	0.61	12.19	0.45	4.58	0.35	3.58	0.21
20	39	19.03	0.62	13.78	0.44	10.67	0.46	12.24	0.52	4.58	0.39	3.57	0.23

Table 2: Regression characteristics for six head and face anthropometric variables with age among Vadaballja boys

Age vs. Variable (X vs Y)	Regression coefficient	Constant	$r^2$	t	F
Head length	0.18	15.62	0.66	41.21	1698.06
Head breadth	0.12	11.60	0.59	34.87	1215.70
Morphological facial height	0.22	6.74	0.81	61.14	3737.98
Bizygomatic diameter	0.18	8.82	0.75	51.44	2646.67
Nose height	0.10	2.76	0.78	55.30	3058.32
Nose breadth	0.08	2.14	0.16	12.84	164.93

Regression values, given in table 2 show that all the values of  $r^2$  are positive showing a direct relationship between age and cephalo-facial group measurements. The levels of significance for each of these values are quite high indicating the regression for each of these values to be highly significant. The regression characteristics of head and face measurements indicate slow rate change for a unit change in age.

The mean head length, head breadth, morphological facial height, bizygomatic diameter, nose height, and nose breadth of Vadabalija boys are almost similar to that of Brahmin boys (Krishna Rao, 1981), Jat boys (Nath, 1972), Gaur Brahmins (Pandey et al., 1979) and Bhoksa boys (Nazar et al., 1978).

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