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AGE CHANGES IN HEAD AND FACE MEASUREMENTS OF ADULT SCHEDULED CASTE FEMALES OF PUNJAB

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Abstract: *In the present paper an attempt has been made to study the age associated changes in head and face measurements in a cross-sectional sample of 483 Sikh Harijan, 439 Hindu Harijan Females of Punjab ranging in age from 20–80 years. A trend of increase is observed in all the head and face measurements up to 45–49 years and 50–54 years in both caste groups and followed by a decrease with intermittent fluctuations up to last age group.*

Key words: *Head length; Head breadth; Bigonial breadth; Bizygomatic breadth; Nose length; Nose breadth; Sikh Harijana; Hindu Harijans; Punjab.*

Introduction

The patterns of change are related to the osteological changes, apposition ectocranially and resorption endicranially throughout adulthood and senescence alter the skull dimensions (Susanne 1980). Most transverse studies show an increase of head length with age (Pfitzner 1899, Saller 1930, 1931, Tarcho 1935, Büchi 1950, Lasker 1953, Susanne 1977). Büchi (1949), Coon (1950), Goldstein (1943), Lasker (1953) and Signal (1979) reported an increase in head length, head breadth, facial length, bizygomatic breadth, bigonial breadth with advancement of the age except for the last age groups where the trend is reversed. Nose length and nose breadth also increases throughout the life (Goldstein 1936, Hooton and Dupertuis 1951, Lasker 1953, Damon et al. 1972, Singal 1979).

The aim of the present study is to report age-changes in head and face measurements among the Scheduled caste females of Punjab because no such report is yet available in the published literature on this community.

Material and Methods

The present study is based on a cross-sectional sample of 483 Sikh Harijan and 439 Hindu Harijan females of Punjab ranging in age from 20 to 80 years. All the subjects were drawn from the Harijan settlements inand around Moga, which is the tehsil headquarter of District Faridkot in the Punjab State. The data were collected during the years 1977–1979.

Head and face measurements i.e. head length, head breadth, bigonial breadth, bizygomatic breadth, nose length, nose breadth have been studied. The whole sample has been grouped in ten age groups, each of five duration, except the last age group which includes all subjects beyond the age of 65 years. All the measurements have been taken by following a standard technique given by Weiner and Lourie (1969).

Sikh Harijans mostly work as agricultural labourers and industrial workers whereas the hereditary occupation of Hindu Harijans is scavening and sweeping. Socio-economic

status of Scheduled castes is very low compared to other communities of Punjab. Further details about Scheduled castes have already beden described by Sidhu & Sidhu (1988).

Results and Discussion

Like other body measurements the head and face measurements also undergo many changes with the advancement of age. All the head and face measurements of various age groups of Scheduled caste females of Punjab are presented in Table 1.

It is apparent from Table 1 that at age 20–24 years the mean value of *head length* is 180.7 mm and 180.1 mm among Sikh and Hindu Harijans, respectively. After this there is a general trend of increase in head length up to age group 50–54 years followed by a decline up to last age group among both castes. Maximum decline of 23 and 31 mm is observed from age group 50–54 to 55–59 among Sikh Harijans and Hindu Harijans, respectively. *Head breadth* also increases with aging, attaining maximum value of 135.6 mm and 134.7 mm at the age of 40–44 years followed by decline in next age group and again there is slight increase in head breadth up to age group 55–59 followed by decline in subsequent age groups. Maximum decline per five years in head breadth is 20 mm and 25 mm among Sikh and Hindu Harijans, respectively from age group 55–59 to 60–64. Goldstein (1936), Lasker (1953), Singal (1979) and Singal & Sidhu (1986) also reported increase in head length and head breadth with age.

Bizygomatic breadth also increases up to age group 45–49 years, after this there is slight decrease up to age group 60–64, where it attains the value of 122.0 mm and 121.1 mm, after this there is sharp decline and value becomes 120.7 mm and 119.8 mm at the age of 65 years and over among Sikh and Hindu Harijans, respectively. At age 20–24 years the *bigonial breadth* is 93.7 mm and 91.7 mm which increases to 97.2 mm and 94.3 mm up to age group 45–49 years in Sikh asnd Hindu Harijans, respectively (Table 1). Afterwards there is a general trend of decrease from age group 45–49 to 65+ but decrease in bigonial breadth is very slow. Coon (1950), Singal (1979) observed an increase up to fourth decade but Goldstein (1936) and Lasker (1953) reported that bizygomatic and bigonial breadths increases at least up to fifties in Mexican females.

In the present sample *nose length* and *nose breadth* increases up to mid fifties (Table 1). After this there is slight decrease up to 65+ years of age. Goldstein (1936), Hooton & Dupertuis (1951), Lasker (1953), Damon et al. 1972), Singal (1979), Singal & Sidhu (1986) also observed a trend of increase in nose length and breadth with age and reported that elongation of the nose may be attributed to loss of elasticity of cartilage in old age.

There is strong suggestion that increased size of the head and face may be to some extent be caused by appositional growth of bone although there may be possible some change in overlying soft tissue with aging (Laskesr 1953).

On the average Sikh Harijan women has slightly higher values of all head and face measurements than the Hindu Harijan females but differences are statistically significant only in few age groups and pooled data (Table 2).

Table 1. **Mean, standard deviation of head length, head breadth, bizygomatic breadth, bigonial breadth, nose length, and nose breadth in Sikh and Hindu Harijan females (mm)**

Age (year)	N	Head length		Head breadth		Bizygomatic breadth		Bigonial breadth		Nose length		Nose breadth	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sikh Harijan													
20 – 24	38	180.7	27	132.2	29	121.0	22	93.7	29	47.0	40	33.3	32
25 – 29	60	182.7	45	132.9	51	120.3	55	96.6	44	49.0	41	34.1	33
30 – 34	41	182.5	44	133.1	42	120.1	54	96.3	55	50.9	34	33.5	23
35 – 39	41	184.0	65	135.0	39	122.5	35	96.6	49	51.7	30	34.8	27
40 – 44	64	184.0	33	135.6	45	122.6	52	97.0	44	51.8	39	35.0	33
45 – 49	80	185.3	47	134.4	38	124.0	46	97.2	52	51.9	35	35.3	21
50 – 54	40	186.5	45	135.2	46	123.8	40	96.7	58	52.0	42	37.0	32
55 – 59	39	184.2	50	135.5	28	122.2	40	96.4	56	51.9	50	35.9	42
60 – 64	37	182.7	38	133.5	40	122.0	63	96.0	47	51.3	51	35.3	30
65+	43	182.2	57	133.0	44	120.7	50	95.3	47	51.4	50	34.8	44
20 – 65+	483	183.4	46	133.7	43	122.7	48	96.1	56	51.2	44	35.1	34
Hindu Harijan													
20 – 24	39	180.1	23	130.4	26	120.2	20	91.7	22	46.2	41	32.7	37
25 – 29	34	180.5	19	131.2	25	121.5	22	92.9	25	48.6	40	33.1	26
30 – 34	39	181.6	79	132.1	26	121.1	37	93.5	33	49.7	37	33.5	33
35 – 39	52	181.9	38	132.5	35	121.8	45	93.9	49	48.9	48	34.0	29
40 – 44	39	184.1	39	134.7	48	122.0	47	94.0	48	50.9	41	34.9	31
45 – 49	49	184.9	48	132.8	41	122.5	63	94.3	33	51.7	40	34.0	36
50 – 54	44	185.2	30	134.8	26	122.0	55	93.6	37	51.8	48	35.8	36
55 – 59	43	182.1	41	134.9	36	121.8	47	93.1	25	47.1	41	34.7	28
60 – 64	50	181.3	21	132.4	47	121.1	54	92.9	24	48.7	34	3.43	20
65+	50	180.5	20	131.2	36	119.8	49	92.0	42	45.9	50	32.9	32
20 – 65+	429	182.9	42	132.5	39	121.2	49	93.0	36	46.9	48	33.8	32

Table 2. **Comparison of some head and face measurements of Sikh and Hindu females from the value of 'D' (Difference between two means in mm) and Student's 'T' value**

Age group (year)	Head length		Head breadth		Bizygomatic breadth		Bigonial breadth		Nose length		Nose breadth	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
20 – 24	6	1.50	18	3.60*	8	2.00*	20	4.00*	8	1.00	6	0.85
25 – 29	22	3.66*	17	2.42*	12	1.71	37	3.70*	4	0.57	10	1.66
30 – 34	9	0.75	10	1.66	10	0.20	28	3.11*	12	1.71	0	0.00
35 – 39	1	0.47	25	3.57*	7	0.14	27	3.00*	28	4.00*	8	2.00*
40 – 44	-1	-0.16	9	1.12	6	0.66	30	3.75*	9	1.28	1	0.20
45 – 49	4	0.57	15	2.14*	15	1.66	29	4.14*	2	0.33	13	3.25*
50 – 54	13	1.62	4	0.57	18	2.00*	31	3.44*	2	0.28	12	2.00*
55 – 59	21	2.33*	6	1.00	4	0.44	33	4.12*	48	5.33*	12	1.71
60 – 64	14	2.33*	11	1.22	9	0.75	31	4.42*	26	3.25*	10	2.00*
65+	17	2.12*	18	2.57*	9	1.00	33	3.66*	55	5.50*	19	2.71*
20 - 65+	5	2.50*	12	6.00*	15	7.50*	31	15.50*	23	11.50*	13	6.50*

*Statistically significant at 5% level

Summary

Age-associated changes in the head and face measurements in the adult Scheduled caste females of Punjab have been studied in the present paper. The resujlts are based on a cross-sectional data collected on 483 Sikh Harijan and 439 Hindu Harijan females ranging in age from 20–80 years. Most of the Sikh Harijans work as agricultural labourers and industrial workers and the hereditary occupation of Hindu Harijans is scavenging and sweeping. In the presewnt sample there is a trend of increase in all the head and face measurements up to 45–49 years and 50–54 years in both caste groups and followed by a decrease with intermittent fluctuations up to last age group.

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