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# Effect of Migration on Adult Body Dimensions Among Oraons

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**KEY WORDS** Oraon. Body Dimensions. Migration.

**ABSTRACT** The present study examines the effect of migration on 13 anthropometric traits. The migrant Oraons of Sundarban area of South 24-Parganas of West Bengal were compared with sedentary Oraons of Gumla District of Bihar as well as migrant Oraons of Duars of Jalpaiguri District of West Bengal. The study reveals that migrant Oraons of Sundarban are heavier and taller from Oraon sedente and Oraon migrant of Duars. Migrant Oraons of Sudarban have significantly lower values in bi-iliac diameter, biceps girth, cephalic length, nasal breadth, morpholigical facial height, bizygomatic breadth, etc. from Oraon sedente as well as Oraons of Duars. In conclusion there is an overall impact on adult body dimensions due to migration.

## INTRODUCTION

Adult body dimensions are generally greater among the migrants in a new habitat. Boas (1911, 1940) showed the changes in the forms of head and face among the European migrants following migration to the new environment. Goldstein (1943) observed that the Mexican migrants are taller and heavier than the sedentes. Lasker (1946) found that the American born Chinese were slightly heavier and significantly taller and also had significantly higher values in many other measurements than the Cantonese immigrants. Hulse (1981) observed that migrants have greater sitting height, longer heads and different cephalic index, probably due to better nutritional facilities in childhood. Tartakovosky et al. (1983) found that the Israeli born Jew migrants were significantly shorter than their native born counterparts.

Bhattacharya and Dutta (1987) observed that the Oraon, Munda and Kharia migrants in Andaman Islands are taller. Roychouhuri (1984) reported that migrants Jalaries had higher values compared to migrant Nulias in several cephalofacial characters. Pal et al. (1986) studied three migrant ethnic groups living in the same habitat in the tea gardens of Assam and found that the migrants were taller compared to sedentes.

The objective of present study is to see the change, if any, in anthropometric traits due to migrations by comparing migrants of Sundarban with sedentes of Gumla district as well as with migrants of Jalpaiguri district of the same ethnic group.

## MATERIALS AND METHODS

Data on 13 anthropometric traits on healthy 62 males and 61 females, aged 20 years and above were taken among the Oraon of Joyramkhali village of South 24-Parganas of West Bengal during late 1989 by the present author. The Oraons of Sundarban area migrated from Chotanagpur region about seventyfive to hundered years ago for reclamation of jungle tracts of the Deltaic Bengal (Das and Raha, 1963). These data are compared with the sedente Oraons of Gumla district of Chotanagpur region as well as migrant Oraons tea labourers of Birpara-Lankapara-Tulsipara area of Duars region of West Bengal. The data on sedente Oraons and their migrant counterparts of Duars regions were taken from Mahindar (1988).

## RESULTS AND DISCUSSION

The salient findings of the study are :

**Table 1: Anthropometric measurements of sedente and migrant Oraons (Male)**

| *Body measurements* | *Migrant Oraon(Sundarban) Mean age 39.84±13.55* | | | *Sedente Oraon* (Gumla) Mean Age 32.17±8.73* | | | *Migrant Oraon* (Duars) Mean age 29.45±7.37* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *N* | *X̄* | *SD* | *N* | *X̄* | *SD* | *N* | *X̄* | *SD* |
| Weight (kg) | 62 | 50.98 | 6.68 | 118 | 49.77 | 5.28 | 122 | 45.64 | 5.05 |
| Stature (cm) | 62 | 161.88 | 5.62 | 118 | 160.61 | 4.88 | 122 | 160.54 | 6.47 |
| Biacro. diam. (cm) | 62 | 36.30 | 1.47 | 118 | 36.40 | 1.59 | 123 | 35.52 | 1.86 |
| Bi-iliac diam. (cm) | 62 | 23.04 | 1.66 | — | — | — | 123 | 26.64 | 1.55 |
| Biceps girth (cm) | 62 | 23.59 | 1.85 | 118 | 24.15 | 1.84 | 122 | 23.91 | 1.69 |
| Chest girth (exhale) (cm) | 62 | 81.77 | 4.01 | 118 | 81.52 | 4.26 | 122 | 79.36 | 3.70 |
| Chest girth (inhale) (cm) | 62 | 83.74 | 4.09 | 118 | 86.23 | 4.58 | 123 | 83.95 | 3.84 |
| Cephalic length (cm) | 62 | 18.07 | 0.63 | 118 | 18.73 | 0.58 | 123 | 18.72 | 0.62 |
| Cephalic breadth (cm) | 62 | 13.8ℓ | 0.57 | 118 | 13.87 | 0.48 | 123 | 14.05 | 0.34 |
| Nose height (cm) | 62 | 4.71 | 0.37 | 118 | 4.57 | 0.39 | 123 | 4.67 | 0.34 |
| Nose breadth (cm) | 62 | 3.72 | 0.24 | 118 | 3.97 | 0.28 | 123 | 3.92 | 0.24 |
| Bizygo. breadth (cm) | 62 | 13.19 | 0.59 | 118 | 13.05 | 0.52 | 123 | 13.09 | 0.50 |
| Morpho. face height (cm) | 62 | 11.15 | 0.63 | 118 | 11.48 | 0.63 | 123 | 11.21 | 0.58 |

* *Source* : Mahinder, 1988.

(a) Male migrant Oraons of Sundarban are heavier and taller but females are smaller and lighter than sedente Oraons of Gumla regions. Sundarban migrants of both sexes are heavier and taller than migrants Oraons of Duars area.

(b) Sundarban migrants have lower value in biacromial diameter compared to sedentes but have higher values compared to Duars migrants. Sundarban migrants have significantally lower value in bi-iliac diameter from sedente as well as Duar migrants.

(c) Biceps are significantly lower in Sundarban migrants in comparison to Duars migrants as well as sedente of Gumla area. Male Sundarban migrants have higher chest girth during exhalation but have lower value

**Table 2: Anthropometric measurements of sedente and migrant Oraons (Female)**

| *Body Measurements* | *Migrant Oraon (Sundarban) Mean age 36.67±13.79* | | | *Sedente Oraon* (Gumla) Mean age 29.49±6.89* | | | *Migrant Oraon* (Duars) Mean age 27.72±6.60* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *N* | *X̄* | *SD* | *N* | *X̄* | *SD* | *N* | *X̄* | *SD* |
| Weight (kg) | 61 | 41.20 | 5.14 | 109 | 43.09 | 4.24 | 101 | 38.43 | 3.95 |
| Sature (cm) | 61 | 149.62 | 5.64 | 109 | 150.35 | 5.23 | 101 | 149.10 | 5.21 |
| Biacro. diam. (cm) | 61 | 32.48 | 2.10 | 111 | 32.90 | 1.46 | 106 | 32.10 | 1.34 |
| Bi-iliac diam. (cm) | 55 | 22.66 | 1.72 | 111 | 25.58 | 1.52 | 106 | 25.89 | 1.28 |
| Biceps girth (cm) | 61 | 21.19 | 1.61 | 111 | 22.77 | 1.51 | 106 | 21.52 | 1.69 |
| Chest girth (exhale) (cm) | — | — | — | 108 | 80.97 | 4.66 | 101 | 77.70 | 4.66 |
| Chest girth (inhale) (cm) | — | — | — | 108 | 84.38 | 4.56 | 101 | 81.29 | 4.65 |
| Cephalic length (cm) | 61 | 17.26 | 0.69 | 111 | 18.05 | 0.57 | 106 | 17.84 | 0.35 |
| Cephalic breadth (cm) | 61 | 13.47 | 0.36 | 111 | 13.52 | 0.45 | 106 | 13.51 | 0.46 |
| Nose height (cm) | 61 | 4.43 | 0.33 | 111 | 4.30 | 0.30 | 106 | 4.37 | 0.29 |
| Nose breadth (cm) | 61 | 3.38 | 0.29 | 111 | 3.61 | 0.24 | 106 | 3.53 | 0.23 |
| Bizygo. breadth (cm) | 61 | 12.34 | 0.46 | 111 | 12.55 | 0.46 | 106 | 12.49 | 0.45 |
| Morpho. face height (cm) | 61 | 10.32 | 0.70 | 111 | 10.90 | 0.57 | 106 | 10.56 | 0.59 |

**Source* : Mahinder, 1988

**Table 3: t-values and levels of significance**

| *Body measurements* | *Sedente Oraons vs. Migrant Oraons (Sundarban)* | | *Migrant Oraons (Sunderban) vs. Migrant Oraons (Duars)* | |
|---|---|---|---|---|
| | *Male* | *Female* | *Male* | *Female* |
| Weight (kg) | 1.23 | 2.43* | 4.38* | 3.61* |
| Stature (cm) | 1.51 | 1.01 | 1.45 | 0.58 |
| Biacro. diam. (cm) | 0.41 | 1.38 | 3.06* | 1.26 |
| Bi-iliac diam. (cm) | — | 10.84* | 14.26* | 12.45* |
| Biceps girth (cm) | 1.96* | 6.26* | 1.16 | 1.25 |
| Chest girth (exhale) (cm) | 0.39 | — | 3.97* | — |
| Chest grith (inhale) (cm) | 3.72* | — | 0.33 | — |
| Cephalic length (cm) | 6.68* | 7.67* | 6.89* | 6.11* |
| Cephalic breadth (cm) | 0.12 | 0.78 | 2.49* | 0.62 |
| Nose height (cm) | 2.40* | 1.99* | 0.68 | 1.40 |
| Nose breadth (cm) | 6.93* | 5.14* | 5.55* | 5.30* |
| Bizygo. breadth (cm) | 1.63 | 2.91* | 1.24 | 2.08* |
| Morpho. Face height (cm) | 3.30 | 5.63* | 0.63 | 2.22* |

* Significant at 5% level

during inhalation compared to sedente and migrants Duars counterparts.

(d) In cephalofacial measurements the values of cephalic length and breadth is lower in Sundarban migrants than sedente and migrant counterparts. Nasal length is higher and nasal breadth is lower in Sundarban migrants compared to sedente and Duars migrant Oraon population. Sundarban migrants have lower values in morphological facial height in both sexes. In case of bizygomatic breadth, males of Sundarban migrants have higher value but females show reverse trend in comparison to sedente and Duars migrant population.

It is concluded that the effects are mainly trait specific though sex specific effect are also observed. Interestingly, migrant Oraons of Sundarban have much lower value in bi-iliac diameter, biceps girth, cephalic length, nasal breadth, morphological facial height, bizygomatic breadth etc.

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