

# Comparative Anthropometric Study of Nasal Parameters between Two Ethnic Groups of Rajasthan State

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## ABSTRACT

**Background & objectives:** Human physical variability has been a subject of interest for the scientists since a very long time. Being a powerful descriptive means of the human face, anthropometric nasal landmarks are used to compare two groups of population. **Method:** Anthropometric study of nasal parameters of two ethnic groups of Rajasthan state was carried out on 200 native respondents. Hundred were Jats and hundred were Sindhis. The age of subjects ranged from 19–25 years. Nasal height and nasal breadth were taken by using spreading calliper and the nasal index calculated. **Results:** The data collected was statically analysed and the result shows that mean nasal height for Jats and Sindhis were  $56.42 \pm 3.70$  &  $55.84 \pm 4.61$  respectively. Nasal breadth for Jats and Sindhis were found as  $38.42 \pm 2.86$  &  $39.24 \pm 3.38$  respectively. **Conclusion:** Thus the Jats fall within Leptorrhine type with nasal index 68.09 and Sindhis fall within the Mesorrhine type with nasal index 70.72 that showed significant relationship. Study is providing a useful baseline and an anthropometric data that will be of clinical and surgical interest.

**Key words:** nasal height; nasal breadth; nasal index

## INTRODUCTION

Anthropometry provides scientific methods and techniques for taking various measurements and observation on the living man and the skeleton. Anthropometric studies are an integral part of craniofacial surgery and syndromology.

Raymond Edler *et al.*<sup>1</sup> used anthropometric proportion indices for the measurement of facial attractiveness. Symons<sup>2</sup> in 1979 found that facial proportions tend to be relatively near to the mean of the population within their racial group.

Anthropometric studies play an important role in distinguishing a pure race from the local mingling of races.<sup>3,4</sup> The nose is widely acceptable as one of the best

clue to racial origin.<sup>5</sup> The nasal index is very useful in anthropology as it is one of the clinical anthropometric parameters recognized in nasal surgery and medical management.<sup>6,7</sup> Regional and environmental climatic conditions are useful in determining the shape of the nose which may vary across different races & environments.<sup>8</sup>

The aim of this study was to compare the nasal indices of Jat and Sindhi males of Rajasthan State and to provide a baseline data of nasal indices, which could be vital in forensic medicine, anthropological studies, and clinical practice especially in nasal surgery. Nasal analysis is the first step a surgeon takes before performing rhinoplasty.

## MATERIAL AND METHOD

The present study was carried in the department of Anatomy, Dr Sampurnanand medical College and associated group of hospitals, Jodhpur.

A total of 200 healthy adult individuals (100 Jat Male and 100 Sindhi Male) volunteered for the anthropometric study age ranging between 19–25 years. All the 200 subjects are having normal facial skeleton and not having

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**DOI:** 10.5530/ijmedph.2.2.10

any history of craniofacial surgery, trauma and craniofacial abnormalities were included in this study.

The physical measurements of nose were taken by using spreading calliper. The following anthropometric measurements were observed:

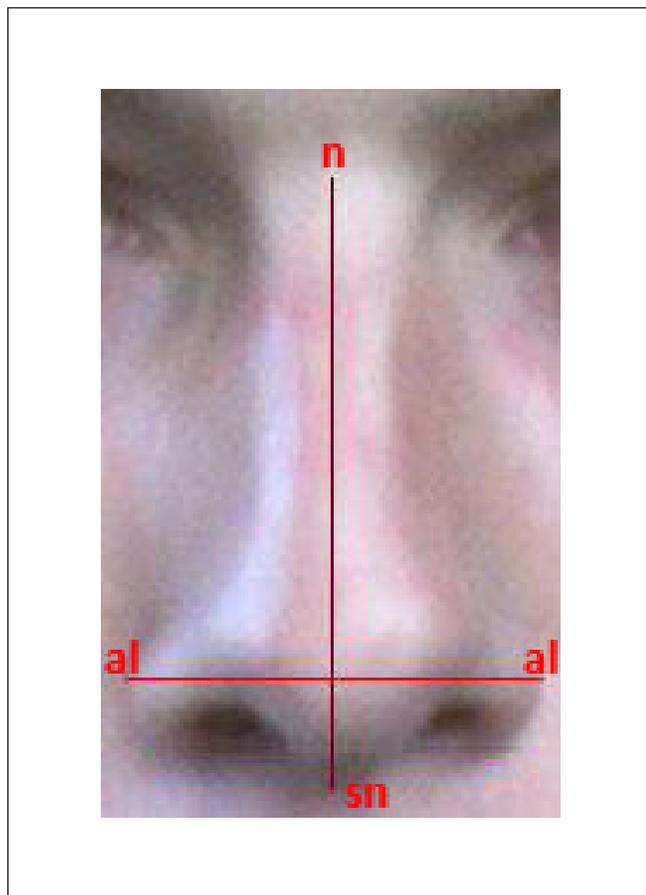
**Nasal height (NH):** Straight distance between nasion (n) & subnasale (sn)

**Nasal breadth (NB):** Straight distance between the two alaria (al).

**Nasal index:**  $NB/NH \times 100$ .

**Table 1: Shows statistical analysis of nasal parameters of two groups of subjects**

Nasal parameters	Jat	Sindhi	Statistical Analysis Jats V/s Sindhis
	Mean ± SD	Mean ± SD	
Nasal height	56.42 ± 3.70	55.84 ± 4.61	t=0.69 P>0.05[NS]
Nasal breadth	38.42 ± 2.86	39.24 ± 3.38	t=1.30 P>0.05[NS]
Nasal index	68.09 ± 6.07	70.72 ± 8.12	t=2.10 p<0.05[S]



**Figure 1:** Shows method of measurement of nasal length and nasal breadth.

## DISCUSSION

Anthropometric studies are useful in quantitative comparison of anthropometric data with patients, measurements before and after surgery which help in further planning and assessment of plastic & reconstructive surgery. The diversity of various measurements can be used in criminological clinical, eugenics anthropology, forensic anthropology and also scientific research.

The nose has been categorised into three major groups on the basis of nasal index; these are Leptorrhine (fine nose) with a Nasal Index of 69.90 or less, Mesorrhine (medium nose) with a Nasal index between 70 and 84.90 and Platyrrhine (broad nose) with a nasal index of 85 and above.<sup>9-14</sup>

Various studies have indicated racial and ethnic differences in nasal index amongst different populations. The mean values of nasal height were  $56.42 \pm 3.70$ mm in Jats and  $55.84 \pm 4.61$ mm in Sindhi & showed a non significant relation. D. De Carlo *et al.*<sup>10</sup> showed clear differences in nose height within North American population. With the help of the datas they generated anthropometric face models of North American population by using variational techniques. Kyle S Choe<sup>11</sup> conducted their observation on the Korean American Woman nose and found that the KA woman’s nose did not fit the neoclassic facial canons. In present study the mean value of Nasal breadth is  $38.42 \pm 2.86$  in Jats and  $39.24 \pm 3.38$ mm in Sindhis, the values shows no significant relation. J. Carnicky, D. Chorbati Jr.<sup>12</sup> evaluated the average value of nose breadth of man as  $35 \pm 4$ mm. HB Fawehinmi *et al.*<sup>13</sup> reported that the mean nasal index of Kalabari people is  $94.10 \pm 1.18$  and confirmed that Kalabari people have platyrrhine nose type. Many studies of nasal indices among major ethnic groups in Southern Nigeria have done to show tribal differences in nasal parameters. They show ethnic differences and sexual dimorphism amongst the major ethnic groups of Southern Nigeria. G.S.Oladipo *et al.*<sup>14</sup> found the mean nasal index of the Okrika tribe was  $86.38 \pm 1.35$  and this was significantly higher than the mean nasal index of Andoni tribe ( $81.86 \pm 2.26$ )  $p < 0.05$  and concluded that the Okrikas have Platyrrhine nose type while the Andonis have Mesorrhine nose type.

In present study we found nasal index of Jats  $68.09 \pm 6.07$  showed Leptorrhine type, and for sindhis  $70.72 \pm 8.12$  which showed Mesorrhine type of nose. The data shows significant relationship among two races.

This study presents for the first time the nasal parameters of these two races, thus providing a useful baseline and an

anthropometric data that will be of clinical and surgical interest in Rhinology, in this part of the world.

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