
Anthropometric characteristics and nutritional status based on Body Mass Index of Sugali women, a tribal population of Ananthapuramu District, Andhra Pradesh

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Abstract

This study was undertaken to determine the anthropometric profile and nutritional status based on Body Mass Index (BMI) of Sugalis, the largest tribal population in Andhra Pradesh, India. A total No.of 500 adults (18-49 years) in the Ananthapuramu District of Andhra Pradesh were studied. Anthropometric measurements, including height, weight, and BMI, were measured. This study demonstrated that the prevalence of adult undernutrition was found to be very high among the Sugalis, a tribal population of Ananthapuramu, Andhra Pradesh. These rates were much higher than those found in several tribal populations from other parts of India. Therefore, immediate nutritional intervention programs are needed for implementation among the Sugalis. More studies are needed to fully understand the causes and consequences of adult undernutrition, not only among this Sugalis tribal women but also among other tribal women populations in India.

Keywords:

Anthropometric;
Tribal population;
Body Mass Index;
Sugalis;
Nutritional status.

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1. Introduction

The tribes of India comprise about 8.6 percent of the total population of the country, having probably the largest number of tribal communities in the world. Family income, occupation, family size, and other environmental factors always have an indirect

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effect on nutrition, which is one of the most effective environmental factors to influence an individual's overall health. Recent research on growth status has tended to suggest that environmental influences, especially nutrition, are of greater importance than genetic background or other biological factors. Although there are numerous ways to assess adult nutritional status [1-2], the Body Mass Index (BMI) is the most widely used because it is inexpensive, non-invasive, and suitable for large-scale surveys [3-5]. In general, data is scarce on the nutritional status of various tribal populations in India [6-8]. There is an urgent need to evaluate the nutritional status of various tribes of India.

The Sugalis are the most populous scheduled tribe of Andhra Pradesh (40.68 percent). In various parts of India, they are also known as lambadi, lambani, banjari, and brinjari. The Sugalis are supposed to be the descendents of the original Aryan Gypsies or Roma Banjaras of North-West India, whose descendents are also found in various parts of Central and Southern Europe and in Central Asia. The Sugali's women particular identity is highlighted by their colorful, attractive, and traditional dress. They live in exclusive settlements of their own called "thandas", named after the headman ('Nayak') of the group. Information on Sugalis is very limited (2-4) and there is no published data dealing with their anthropometric characteristics. In view of this, the aim of the present study was to collect measurements and determine adult Sugalis women's nutritional status using their BMI.

2. Research Method

The sample for the present study was drawn from 500 respondents belonging to ten Sugali thandas (settlements). A high density of Scheduled Tribe women population was chosen from the ten mandals. The sample consisted of the age group of 18–49 years. The vast majority of the subjects were illiterate and very low-wage earning labourers. Thus, they belonged to the lower socioeconomic class. All anthropometric measurements were made by using standard techniques. Height and weight were measured using a measuring tape and a weighing scale. Anthropometric measurements were recorded and Body Mass Index (BMI) was compared with WHO [9] for adults. The formula was used to calculate BMI. The samples of Tribal women were categorized into three groups based on BMI according to WHO.

Body Mass Index (BMI) was calculated by dividing the weight in Kg by the Square of height in meters ($BMI = \text{Weight in Kg} / \text{Height in meters squared}$).

Below $< 18.5 \text{ kg/m}^2$ - Under Weight
 18.6 - 24.9 Kg/m^2 - Normal
 25 - 29.9 Kg/m^2 - Over weight

Means and standard deviations of all anthropometric variables and indices were computed. All statistical analyses were undertaken using the Statistical Package for Social Science (SPSS) program.

3. Results and Discussion

Table 1 shows the mean and standard deviation of height, weight, and Body Mass Index (BMI). The average height of tribal women ranged from 149.21 cm among 20–29 year age groups to 148.84 cm among 30-39 year age groups, with women over 40 years old the highest at 148.34 cm.

According to the data shown in the table above, the respondents' average height is 148.77 cm and their average weight is 47.11 kg. The average height and weight in the present study were 148.34–149.21 cm and 46.31–47.77 kg, respectively. The mean height decreased as respondents became younger, while the mean weight increased, and the

mean BMI ranged from 19.91 to 20.78. The lowest mean BMI was found in the 20-29 year age category, and it increased as people aged.

Table 1
Mean and S.D of height, weight and Body Mass Index of Tribal Women

Age Group (Year)	Height (Cms)	Weight (kg)	BMI (Kg/m ²)
20 - 29	149.21 (± 4.71)	46.31 (±5.09)	19.91 (±2.36)
30 - 39	148.84 (±5.04)	47.10 (±5.23)	20.45 (±2.62)
> 40	148.34 (±4.86)	47.77 (±5.14)	20.78 (±2.86)
Total	148.77 (±4.88)	47.11 (±5.18)	20.41 (±2.66)

The mean BMI for all age groups was observed to be 20.41 kg/m². According to the study, this group suffered from severe undernutrition and growth retardation. undernutrition in tribal groups could be caused by a shortage of food, inadequate health facilities, or unfavourable social conditions. Vardarajan and Prasad [10] reported that mean height ranged from 151-154 cm, mean weight ranged from 49.8-55.2 kg, and mean BMI ranged from 21.55-23.27 in a study of Andhra Pradesh tribal women, which was similar to the present study by international standards.

The comparison of nutritional status (BMI) with the WHO standard is depicted in Table 2. 41.0 percent were underweight (BMI 18.5), which is in contrast to other studies of India's tribal population. Only 6.8 percent of those polled were overweight, with the majority (52.2 percent) having a normal BMI ranging from 18.6 to 24.9. For comparison, the WHO's BMI classification for adult women for 2004 has been used.

Table 2
Distribution of the respondents according to their BMI (WHO)

S.No	BMI (WHO)	Frequency	Percentage (%)
1.	Underweight < 18.5	205	41.0
2.	Normal 18.6 - 24.9	261	52.2
3.	Overweight 25 - 29.9	34	6.8

In this study, only 6.8% of respondents were overweight, while more than half (52.2 percent) were normal. It's likely that being overweight later in life is due to a lack of intense activity during the early years of life. The results of the present study indicated that the prevalence of undernutrition among adult Sugalis was very high. Most importantly, immediate nutritional intervention programs are needed for implementation among this group. The prevalence of undernutrition among adult women of Bathudis, a tribal group of Keonjhar district, was found to be very high by Bose and Chakraborty [5]. The findings were similar to those of the present study, which reported that 41.0 percent of tribal women had a BMI of below 18.5, 52.2 percent had a BMI of 18.6-24.9, and 6.8 percent were overweight. Women (52.2 percent) were more likely than men (52.2 percent) to be underweight (BMI 18.5), according to Philomenamma and Ramdas et al. [2]. In research of

the Juangs, an Odisha tribal group, Goswami et al. [11] reported that undernutrition among women is very high. Barbhujya and Das et al. [12] found that more than 30% of adult Meiteis in Assam's Cachar district suffer from chronic energy deficiency undernutrition. In a study on Savar women's nutritional status [13], it was observed that 53.1 percent of them were undernutrition. Furthermore, there is an urgent need for further studies to ascertain the relationship between this high rate of undernutrition and morbidity and mortality among this group. Similar studies should also be undertaken among other tribal populations in India since they constitute a sizeable portion of India's population. Moreover, since undernutrition has several underlying causes, future investigations should aim at identifying the likely cause(s) of high rates of undernutrition among Indian tribal populations

4. Conclusion

The anthropometric parameters of Sugali tribal women were lower than those of the other communities. The problem of undernutrition among Sugalis can be corrected by improving the socioeconomic conditions of that group. As a long-term solution to overcome this problem, it will be necessary for the Sugalis to diversify their dietary pattern to include milk, vegetables, and usual protein foods such as legumes in order to meet the recommended dietary allowances.

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References

- [1] World Health Organization. Physical Status: the Use and Interpretation of Anthropometry. Technical Report Series no. 854. Geneva: World Health Organization, 1995.
- [2] Philomenamma, J. et al., "Body Mass Index: an indicator of nutritional status among adult Mannan tribes of Idukki district, Kerala", *B academic review*, XV, 2008, pp. 60-65.
- [3] Ulijaszek SJ, Kerr DA. "Anthropometric measurement error and the assessment of nutritional status". *Br J Nutr*, 1999, 82, 165-177.
- [4] James WPT, Ferro-Luzzi A, Waterlow, JC. "Definition of Chronic energy deficiency in adults. Report of a Working Party of the International Dietary Energy Consultative Group". *Eur J Clin Nutr*, 1988, 42, 969-981.
- [5] Bose, K. and Chakrabarty, F., "Anthropometric characteristics and nutritional status based on Body Mass Index of adult Bathudis: A tribal population of Keonjhar district, Odisha, India", *Asia Pacific Journal of Public Health*, 18,2005, 3-7.
- [6] Yadu P, Reddy B, Rao Papa A. "Body Mass index (BMI) among the Sugalis – A tribal population of Cuddapah District, Andhra Pradesh" *J Hum Ecol* 2000, 11, 409-410.
- [7] Gogoi G, Sengupta, S. "Body mass index among the Dibongiya Deoris of Assam, India" *J Human Ecology*" 2002, 13, 271-273.
- [8] Barbhujya, A.F.G. Das, R., "Gender differences in nutritional status among the adult Meiteis of Cachar district of Assam, India", *Eurasian Journal of Anthropology*, 4 (2), 2013, 36-44.
- [9] WHO (2004). "Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies" *The Lancet*, 363(9403), 157-163.

- [10] Varadarajan, A. and Prasad, S., " Regional Variations in Nutritional Status among Tribals of Andhra Pradesh" *Studies of Tribes and Tribals*, 7(2), 2009, 137-141.
- [11] Goswami, M., "Prevalence of Under-nutrition among the Juangs", *Physical Anthropology*, 9(1),2013, 61-66.
- [12] Das, M., "Study of nutritional status of korku tribes in Betal district of Madhya Pradesh" *Stud. Tribes Tribals*, 8(1), 2010, 31-36.
- [13] Bisai, S. et al., "Age-Related Anthropometric Changes and Undernutrition among Middle Aged and Older Savar Tribal Females of Keonjhar District, Orissa, India", *Journal of Life Science*, 1(1),2009, 21-26.