

Research Article

DOI: <http://dx.doi.org/10.22192/ijamr.2020.07.12.001>

## A comparative study on nutritional status among adolescent santal boys and girls of Midnapore, West Bengal, India: A proposal

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### Abstract

Adequate nutrition is the fundamental right of every human being. Health is a prerequisite for human development and is an essential component for the wellbeing of the mankind. The health problems of any community are influenced by interplay of various factors including biological, social, economic and political ones. The common beliefs, customs, practices related to health and disease in turn influence the health seeking behaviour of the community. The nutritional status of children is a good indicator of the health status of a community. The growth and nutritional status of the children of various sections of Indian population have been assessed, but the information about the tribal population in this regard is very limited. Malnutrition has become one of the serious problems among children and adolescents inter-nationally, especially in developing countries. India, a developing country covers 40% of undernourished children of the world. In India, tribal population is among the most deprived and undernourished people. Both under-nutrition and over-nutrition play a major role in morbidity and mortality, therefore assessment of nutritional status is a cornerstone of efforts to improve the health of individual and population throughout the world. The research proposal will show the prevalence of under nutrition among Santal tribal children and adolescents by comparing different anthropometric variables. In general, data will be limited on the nutritional status by collecting various anthropometric variables upon tribal boys and girls of Midnapore, West Bengal, India

### Keywords

Growth Pattern;  
Nutritional Status;  
Under nutrition;  
Santal;  
Health;  
Tribal children;  
Anthropometric variables.

## Introduction

The nutritional status of children is a good indicator of the health status of a community. The growth and nutritional status of the children of various sections of Indian population have been assessed (Chatterjee and Mondal, 1991; Agarwal et al., 1992), but the information about the tribal population in this regard is very limited (Mitra et al., 2002; Bose and Chakraborti, 2005). According to the Census of India (Census, 2001), the tribal population of India is over 84 million which constitute 8.2% of its total population. Santals are the largest and the most resilient tribe in eastern India. This tribe is found to be socially and economically deprived (Saha and Saha, 1998) and their diets appear to be nutritionally deficient (Moitra and Chowdhury, 1991; Roy et al., 1982). The nutritional status of Santal has not been investigated elaborately excepting few studies (Bagchi, 1994; Rao and Vijay, 2006). The tribes of India constitute approximately 8.6% of the total population of the country. Under nutrition among tribal populations is a significant public health problem in India. The research will carry out to assess anthropometric characteristics and nutritional status among adolescent Santal boys and girls.

Both undernutrition and overnutrition play a major role in morbidity and mortality, therefore assessment of nutritional status is a cornerstone of efforts to improve the health of individual and population throughout the world. Undernutrition occurs when net nutrient intake is less than requirements. Undernutrition leads to a succession of metabolic abnormalities, physiological changes, reduce organ and tissue function and loss of body mass. In general, tribal populations of India are recognized as socially and economically vulnerable (Ghosh and Bharati, 2006). As per latest census, India has more than 88 million tribals who constitute 8.6% of the total population (Census of India 2011). India probably has the largest number of tribal communities in the world (Topal and Samal, 2001). The vast majority of the tribal populations reside in rural areas of the country. The body mass index (BMI) is the most established anthropometric indicator used for assessment of adult nutrition status (Lohman et al., 1988; Ferro-Luzzi et al., 1992; James et al., 1994; Lee and Nieman, 2003). Low BMI and high levels of undernutrition (based on BMI) is a major public health problem especially among rural underprivileged adults of developing countries (WHO, 1995). The situation in India is not only different but often very complex due to regional

disparities and rural-urban divide. Despite rapid strides in socio-economic development, health and education, the widening economic, regional and gender disparities are posing challenges for the health sector (Das 2012). There is direct relationship between health and development (Sharma 2012). The Santal are one of the scheduled tribes in India who live mainly in the district midnapore, purulia bardhaman, jalpaiguri and others in west Bengal. Total population of santal in West Bengal was 2,280,540. The present study is to assess the nutritional status, based on several anthropometric variables, of adolescence santal boys and girls of Midnapore, West Bengal, India.

Anthropometry and nutrition are interrelated and include genetic and environmental characteristics, socio-cultural conditions, lifestyle, functional status, and health. Anthropometric evaluation is an essential part of nutritional assessment in geriatrics, to determine conditions, such as malnutrition, overweight, and obesity, as well as loss of muscle and gain of fat mass and the redistribution of adiposity issue. These anthropometric indicators have been used to evaluate the prognosis of acute and chronic diseases and also to guide medical intervention in the adolescence. The changes in body composition at the different stages of life differ in men and women, as is reflected in anthropometric measurements. Consequently, different anthropometric indicators are used to evaluate nutritional status.

## Literature Review

A literature review discusses published information in a particular subject area, and sometimes information in a particular subject area within a certain time period.

Awaradi S.A. (1992) Anthropometric re-study of the Onge of Little Andamans. *Journal of the Anthropological Survey of India*, 41: 54. In this paper the anthropometric measurements elaborate the nutritional status of Andaman's child, it helps to understand how anthropometric measurement differentiate the nutritional status of child health and the prevalence of the malnutrition.

Bose K. and Chakraborty F. (2005) Anthropometric characteristics and nutritional status based on body mass index of adult Bathudis: a tribal population of Keonjhar District, Orissa, India. *Asia Pacific Journal of Clinical Nutrition*, 14: 80–82. In the tribal population exposed different nutritional status in there using of anthropometry tool and find out the nutritional status of these group of people and in the research.

Bose K., Ganguly S., Mamta H., Mukhopadhyay A., and Bhadra M. (2006a) High prevalence of undernutrition among adult Kora Mudi tribals of Bankura District, West Bengal, India. *Anthropological Science*, 114: 65–68. To figure out the associate factors of under nutrition among adult kora and mudi tribe which explore the different factors of malnutrition and it will help to understand the two tribal nutritional health and the associated factors of the malnutrition by using anthropometric measurement.

Bose K., Banerjee S., Bisai S., Mukhopadhyay A., and Bhadra M. (2006b) Anthropometric profile and chronic energy deficiency among adult Santal tribals of Jhargram, West Medinipur District, West Bengal, India: comparison with other tribal populations of Eastern India. *Ecology of Food and Nutrition*, 45: 159–169. The research samples are santal adolescence people and in this paper the adult santal chronic energy deficiency stages of nutrition and how anthropometry helps to find out crd, and one can correlated the research with this paper.

James W.P.T., Ferro-Luzzi A., and Waterlow J.C. (1988) Definition of chronic energy deficiency in adults. Report of a Working Party of the International Dietary, Energy Consultative Group. *European Journal of Clinical Nutrition*, 42: 969–981. In this paper elaborate the stages of ced and the prevalence and percentages of effected people by the dietary impacts of their daily life.

## Objectives of the Research

- The main objective of this research work is to assess the nutritional status of adolescence santal boys and girls between 11-18 years old.
- To study the factors associated in different stages of nutritional health.
- To compare the nutritional status of santal boys and girls.

## Methodology

### The area of study and study population

The research will done in India to understand this dynamics of adolescence growth in tribal population. These will sharpen the understanding of the Indian scenario of nutritional status on adolescence santal boys and girls in Midnapore tribal area. The research

will take place at tribal areas or villages of Midnapore, in West Bengal.

The adolescence Santal boys and girls between 11-18 years old, who are the younger citizen of Midnapore will be selected by purposive non-random sampling for anthropometric measurements. For the sake of research total 600 adolescence Santal boys and girls will be chosen by random sampling method. The parents will be also interviewed for considering who are aware of the situation and belongs to the research areas.

### Methods and techniques

The research will hopefully help to understand nutritional status among adolescent santal boys and girls of Midnapore from the development perspective. The research is to be done on the grounds of primary data collection, survey along with detailed individual as well as group interview and interactions. The sampling will be non-random purposive sampling. By this we will choose only the boys and girls age between 11years to 18years. The data collection techniques will based upon anthropometric measurements, observations, semi-structured interviews, questionnaire and schedule methods to get all the relevant data. The different following anthropometric variables will be collected to examine their physical health, like: BMI, PBF, FM, MUAC, FFM, FFI, FFMI, WHR, WHTR, WC, CI. All such documentation took place in field notebooks, with the occasional usage of technology; audio and video recordings are also key instrument in data collection. Photographic method and jotted down field notes are the most essential thing during research; both will be used while conducting the research.

Data processing occurs when data will be collected and translated into usable information. Data processing starts with data in its raw form and converts it into a more readable format (graphs, documents, etc.), giving it the form and context necessary to be interpreted by computers and utilized by the researchers. Once the data will be collected, then it enters the data preparation stage. During data input stage, the data inputted to the computer in the previous stage is actually processed for interpretation. All the quantitative data sets will be entries in SPSS 16.0 software and occasional use of Ms Excel. After gathering all the data the different types of analysis will be written in a form of report for further reconsideration. Analysis will be done by using

Ms excel and SPSS software, and the outcome of the analysis and interpretation can be shown in forms of presentations, like normal presentations, graphical presentations and statistical presentations.

### Plan of work

Tasks	Plans to complete the tasks	Estimated time
Initiation into the beginning of the survey.	Visiting the chosen field sites. Talking to the community, family members and Santal adolescence.	2-3 weeks
Screening of the field participants as require.	Observation of the Santal boys and girls, with basic interactions in order to know them better and choose the individuals require	1 month
Selection of sample.	Observing various Santal tribal villages and choosing sample as per criteria and preparing questionnaires	1-2 month
Taking anthropometric measurement	On the selected samples anthropometric measurement will done for research	2 months
Find out the associate factors of nutritional stages	Trying to understand their point of view on nutritional status and figure out the associate factors of nutritional status	2-3 weeks
Final data entry, processing, analysis of the data, verification of all the data gathered. and documenting the final report	Final entry, processing, analysis and interpretation of the data set. Conclusions and deductions made based on all the data collected	2 months
	Total	8 months (tentatively)

### Budget

Tasks	Plans to complete the tasks	Estimated Expenditure
Travel and lodging	By any local means of transport, as available and for staying purpose in the timing of field survey	Rs 20,000
Scholastic	Procurement of stationery and other necessary articles.	Rs 7000
Refreshments	Food, and other necessary arrangements.	Rs 12,000
Technological Support	Access to various technological assets like the internet, or new electronic equipment, anthropometric instruments	Rs 30,000
Bibliological Support	Access to books, journals, articles, public libraries.	Rs 6000
Miscellaneous		Rs 10,000
	Total	Rs 85,000

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### How to cite this article:

Samarpita Paul, Mitrajit Saha. (2020). A comparative study on nutritional status among adolescent santal boys and girls of Midnapore, West Bengal, India: A proposal. *Int. J. Adv. Multidiscip. Res.* 7(12): 1-5.  
DOI: <http://dx.doi.org/10.22192/ijamr.2020.07.12.001>