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Nutritional Status among adult Karbi Women of Kamrup District, Assam

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Abstract

Body Mass Index (BMI) is an important indicator to assess the nutritional status of any given population. The objective for the study was to determine the nutritional status of adult Karbi tribe of Kamrup district, Assam. A total of 300 adult women of Karbi tribe of Chandrapur and Dimoria block of Kamrup district in the age group of 19 to 49 years were selected for the study. Purposive random sampling method was used to select the respondents for the study. BMI was determined by measuring the height and weight of the selected respondents by using standard techniques. Results revealed that the mean BMI were 21.53, 22.18 and 23.39 in the age group of 19 to 29 years, 30 to 39 years and 40 to 49 years respectively. The extend of undernutrition among the age groups of 19 to 29 years, 30 to 39 years and 40 to 49 years were 17 per cent, 13 per cent and 5 per cent in the three age groups. Overall, the prevalence of undernutrition was very less in comparison to other tribal groups of India.

Keyword: Body Mass Index, nutritional status, underweight, Karbi Tribe.

Introduction

Nutritional status is the grade of health of the body which can be determined by the intake of balanced diet and the body's ability to digest, absorb and use those nutrients. The status can be determined by assessment of fat and lean body mass, biochemical assessment and clinical observation. But the easiest method of assessing nutritional status in a community is by measuring individual height and weight and calculating the Body Mass Index (BMI). BMI is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). Nutritional status is categorized as undernutrition and overnutrition which together is known as malnutrition. World Health Organization defines malnutrition as a term used to refer to a number of diseases, each with a specific cause related to one or more nutrients (for example, protein, iodine or iron) and each characterized by cellular imbalance between the supply of nutrients and energy on the one hand, and the body's demand for them to ensure growth, maintenance, and specific functions, on the other.

Nutrition is the basic human need and a prerequisite to a healthy life. A proper diet is essential from the very early stages of life for proper growth, development and to remain active[1]. India, being a country in developmental transition, faces the dual burden of under-nutrition as well as over-nutrition. According to recent National Family Health Survey (NFHS III)[2], 35.6 per cent of women have a low BMI, 30 per cent of adults suffer from moderate and severe grades of protein-calorie malnutrition as judged by anthropometric indicators. National Nutrition Monitoring Bureau survey[3] reported that Chronic Energy Deficiency (BMI< 18.5) among tribal adult women is 49 per cent. NFHS 3 reported the status of undernutrition of Assam and other North Eastern states (table-1) but literature on BMI of adult women of Assam and other NE states are scare. BMI of adult man of tribal communities as Boro, Lalung, Mechs, Miris has been reported[4]. Kamrup district is a home of Chakma, Dimasa, Garo, Hajong, Karbi, Khasi, Bodo, Barman, Deori, Mech, Mising, Rabha, Sonowal, Tiwa etc. tribal groups. So, an attempt has been made to assess the Body Mass Index of adult Karbi women of Assam as to know the nutritional status (table-1).

Table-1
Women with BMI below normal of North East

State	%
Assam	36.5
Arunachal Pradesh	16.4
Manipur	14.8
Meghalaya	14.6
Mizoram	14.4
Nagaland	17.4
Tripura	36.9

Source: NFHS 3

Methodology

Data on anthropometric measurements was collected from two blocks of Kamrup district namely Chandrapur and Dimoria which were densely populated by Karbi population. Chandrapur is a semi-urban area which is located approximately 15 km from Dispur. Dispur is the capital of Kamrup district. Due to its hilly terrain Karbis are found densely populated along with other non-tribes. Dimoria is in outskirt of Guwahati city and has several communities including Karbi, Tiwa, Boro, Rabha, Garo,

Tea Tribes and some others living together. Selection of respondents in the age group of 19 to 49 years was done by purposive random sampling method. The selected adult women were categorized under three age groups viz. 19 to 29 years, 30 to 39 years and 40 to 49 years. From each age group 100 respondents were selected and all the respondents selected were married with children. Anthropometric measurements were recorded using standardized tapes and weighing machine following standard techniques (Lohman *et. al*. 1988)[5]. BMI was compared with WHO (2004)[6].

Results and Discussion

Table 2 presents the mean of height, weight and BMI of the adult Karbi women. The mean height ranged from 153.56 cm to 152.52 cm.

Table-2
Mean height, weight and BMI of adult Karbi women

Age group (Years)	Height (cm)	Weight (kg)	BMI (Kg/m2)
19-29	153.56	50.53	21.53
30-39	152.58	52.05	22.18
40-49	152.52	56.07	23.39

The height of adult Mannan tribe of Kerela, Juang of Odisha and some tribes of Andhra Pradesh was similar to the adult Karbi women of the present study (Table 3). Mittal and Srivastava (2006)[7] reported Oraon men and women were assessed as short stature as height of Oraon adult women was 144 cm although the mean BMI of both men and women fell in the normal range. The mean weight ranged from 50.53 kg to 56.07 kg. It was observed that with increase in age the weight also increased. Winkvist *et. al*. (2003)[8] stated that women in affluent societies retain some weight with each pregnancy, beyond that of non-pregnant women. Women in less affluent societies retain less weight with each pregnancy. During lactation, women in both affluent and less affluent societies experience only modest weight loss. During the non-pregnant/ non-lactating interval, women in affluent societies tend to gain weight, whereas weight of women in less affluent societies is likely to fluctuate. Hillemeier *et. al*. (2011)[9] identified factors associated with transition in body mass index category to overweight or obesity status over a two year period among women of reproductive age. Meeting physical activity guidelines should be encouraged among normal weight women of reproductive age as well as those who are overweight or obese, as low physical activity is a risk for transitioning from normal to overweight status. Poluru (2010)[10] reported that women in the age group of 25 to 34 years and 35 to 49 years of Gujarat and Maharashtra were more likely to be overweight or obese as compared with women in youngest age group of 15 to 19 years.

Table-3
Mean height, weight and BMI of some female tribes of India.

State	Tribe	Height (Mean)	Weight (Mean)	BMI (Mean)	Reference
West Bengal	Bhumiji			18.4	Ghosh, 2007[11]
	Dhimal			19.1	Data Banik et al. 2007[12]
	Kora Mudi			18.3	Bose et. al. 2006b[13]
	Kora Mudi			18.3	Bisai et. al. 2008[14]
	Lodha			19.3	Mondal, 2007[15]
	Munda			17.7	Ghosh and Bharati, 2006[16]
	Oraon	144	41	19.7	Mittal and Sivastava, 2006
	Santal			19.3	Bose et. al. 2006c[17]
	Santal			18.7	Ghosh and Manik, 2007[18]
	Santal			19.5	Mukhopadhaya, 2009[19]
Kerela	Mannan			19.1	Philomenamma and Ramdas, 2008[20]
	Mannan	151.2	43.6	19.1	Philomenamma and Ramdas, 2008
Andaman and Nicobar	Jarwa			19.8	Sahani, 2003[21]
Andhra Pradesh	Bhagata	152	51.33	22.21	Vardarajan and Prasad, 2009[22]
	Konda Dorara	152	49.8	21.55	
	Gonds	152	51.7	22.38	
	Raj Gonds	152	52	22.51	
	Sugali	154	55.2	23.27	
	Yerrukula	151	54	23.68	
Odisha	Juang	153.9	43.4	18.3	Goswami, 2013[23]
	Bathudis	149.2	39.8	17.9	Bose and Chakraborthy, 2005[24]
Assam	Karbis	152.52	50.53	21.53	Present Study

The mean BMI ranged from 21.53 to 23.39 which depicts that nutritional status was good among Karbi adult women population compared to other adult tribal women of India. Table-3 shows the nutritional status of adult tribal women of India. Vardarajan and Prasad[22] in a study among Andhra Pradesh tribal women revealed that the BMI ranged from 21.55 to 23.68 which were similar to the present study. The percentage distribution of nutritional status according to different grade of underweight, normal and overweight is given in Table 4. Considering the cut-off point 18.5 for screening the individuals into normal and underweight[6], the present analysis reveals that the prevalence of underweight was found to be 17 per cent in the age group of 19 to 29 years followed by 13 per cent in 30 to 39 years and only five per cent in the highest age group of 40 to 49 years.

Table-4
Percentage distribution of nutritional status of adult Karbi women

Age group (Years)	Underweight (<18.5)	Normal (18.5-24.99)	Overweight (≥25)
19-29	17	79	4
30-39	13	76	11
40-49	5	77	18

It may be noted that the percentage of underweight Karbi adult women was less than the other tribal women of India. Bose and Chakraborty[24] found that extend of under nutrition among adult women of Bathudis was found to be very high. Bathudis is a tribal population of Keonjhar district of Odisha. Philomenamma and Ramdas[20] reported undernutrition in the form of underweight (BMI<18.5) was more among women (52.2 %) than men (23.1%). Goswami in a study of Juangs, tribal group of Odisha found undernutririon among women to be very high. Barbhuiya and Das[25] found more than 30 per cent of adult Meiteis of Cachar district of Assam were suffering from chronic energy deficiency (CED) malnutrition. Bisai *et. al.*[14], studied the nutritional status of Savar women and revealed that 53.1 per cent of adult women belonged to the under nutrition category.

Conclusion

Nutritional status of any population is very important as it represent the health status. As women are the carriers of future generation, a woman with normal nutritional status will give birth to a healthy baby. A healthy baby is an asset for the nation. The present study was based on small sample of 300 adult Karbi women and BMI was a small index to seek the actual nutritional status. So, further research studies should be conducted among other tribes of Assam so that a comparison can be made among the populations. Overall, the prevalence of under nutrition among the studied Karbi women of Kamrup district was less than in comparison to other tribal adult women groups of India.

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