

# Anthropometrical State of Tea Garden Workers

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## Abstract

Tea garden workers often face significant nutritional challenges due to poverty, low wages, and limited access to nutritious food. Evidence suggests that high rates of under-nutrition, including underweight among these workers. Factors like low income, poor nutritional knowledge, and inadequate access to healthcare contribute to this vivid situation. The present study was conducted to explore the current scenario of anthropometry of workers working in tea garden of Sylhet district. Cross-sectional design was followed and BMI was determined by WHO cut off value for Asian. Average age of the respondents was 42 years. Mean monthly family income was 13672 BDT. Data showed that one-third of the workers suffered from underweight. In case of waist and hip measurement, it is observed that 4% and 20% of the respondents were in risk of developing non-communicable diseases. Significant association was found between family members and nutritional status. Continuous awareness programme on healthy diet should be instituted.

**Keywords:** anthropometry; tea garden; workers; BMI; WHO

## Introduction:

Poverty is the root cause of all types of under nutrition. Due to poverty, burden of under nutrition is becoming more and more severe, especially in the underserved areas like tea gardens. Food security is also a major issue in Bangladesh. Nutritional status is closely associated with socio-economic and demographical variables and household food security. A recent study showed that NCDs like hypertension is emerging as important public health problem among them, which may be partly due to the excessive use of alcohol and tobacco [1]. There may be some also specific health problems, which may be related to their occupation. According to Bangladesh Tea Board, there are 89,812 registered and 19,592 casual laborers working in 163 tea gardens. Workers of tea gardens, in total, are deprived of housing, food, clothing, health, education, etc. which are basic human rights. High rate of illiteracy, ignorance, social exclusion, economic hardship, etc. bound them to maintain traditional life without minimum opportunities [2]. Findings of some studies show the sub-human life of tea workers both in terms of working environment, living conditions and health and sanitation security [3-7]. Food and nutrition related knowledge and practice is very poor as majority of them including women and children do not take required food [8].

## Materials and Methods:

An epidemiological cross-sectional study was conducted among conveniently selected 160 tea garden workers in Sylhet. The study subjects

were included all adult patients who were willing to participate and provide required information. Physical and mental retarded people and very sick were not included in the study. A pre-tested and semi-structured questionnaire was used to solicit information on socio-demographic characteristics, nutritional status and physical measurement. Nutritional status was determined by body mass index (BMI) recommended by World Health Organization (WHO) for Asian people. For anthropometric measurements, height was measured with a standiometer and body weight was measured using a platform beam scale. Three measurements were taken three times and if the difference among reading was less than 1 cm, the mean measurement was taken and recorded to the nearest 0.1 cm. If the reading fell between two values, the lower reading was recorded. Weight was recorded to the nearest 0.1 kg. For assessment of food habit, before data collection, permission had taken from the owner of the tea garden. All the study subjects were informed about the study. After collection, data were checked thoroughly for consistency and completeness. Data were checked after collection of data to exclude any error or inconsistency. All analysis was done by appropriate statistical methods using Statistical package for Social Sciences (SPSS) software for Windows version 25.0. Descriptive statistics (Mean $\pm$ SD, frequency, percentage) as well as inferential statistics such as Chi-square were used to show results.

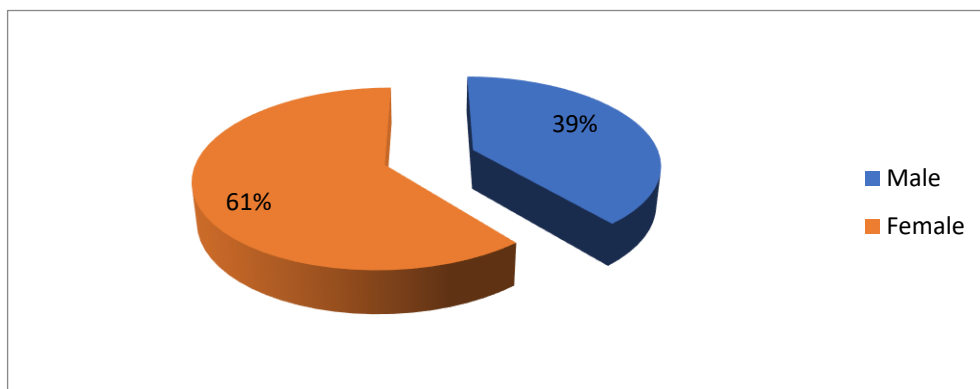
## Results:

Average age of the respondents was 42 years where majority (49%) of them was 36-50 years of age. Mean monthly family income was 13672 BDT. About 42%, 33% and 25% of the study subjects had 3-4, 5-6 and >6 family member respectively. (Table 1). Two-third of the workers were female and

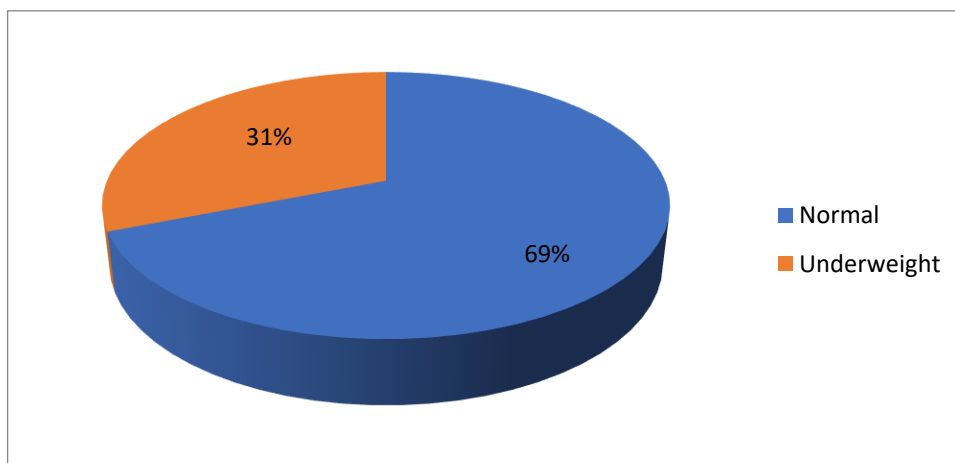
more than one-third were male. (Figure 1) Data showed that one-third of the workers suffered from underweight. (Figure 2) In case of waist and hip measurement, it is observed that 4% and 20% of the respondents were in risk of developing non-communicable diseases. (Figure 3) Significant association was found between family members and nutritional status ( $p=0.01<0.05$ ). (Table 2).

**Table 1: Socio-economic characteristics of the study subjects.**

Age group	Frequency	Percentage
22-35	49	30.6
36-50	79	49.4
>50	32	20.0
Mean±SD	42.25±11.02	
Mean±SD monthly family income	13672.50±8042.91	
Family member		
3-4	58	42.0
5-6	46	33.0
>6	34	25.0
Total	160	100.0



**Figure 1. Gender distribution.**



**Figure 2. Nutritional status of tea garden workers (WHO BMI cut off value for Asian).**

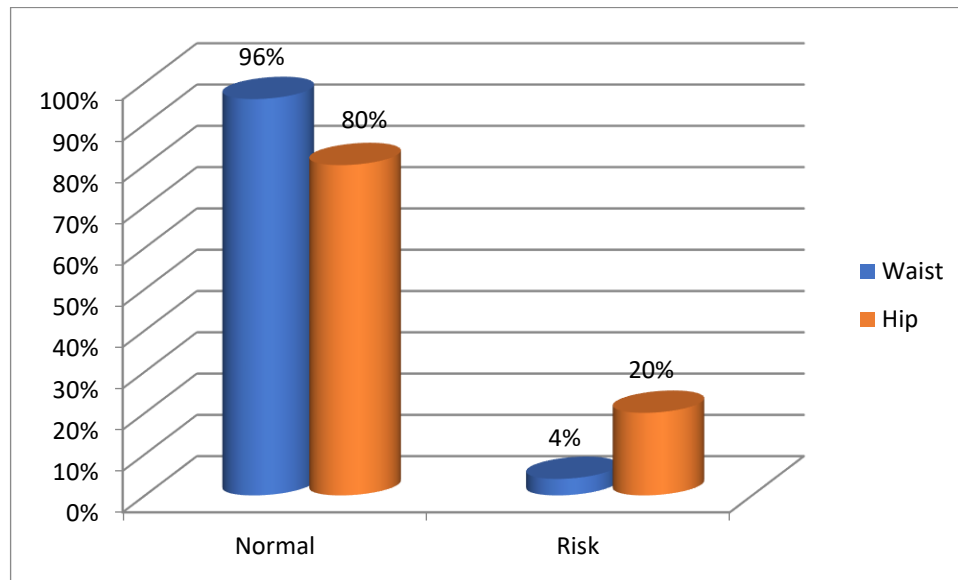


Figure 3. Waist Hip circumference.

Table 2. Association between family member and nutritional status

Variables	Nutritional status		Total	$\chi^2$	p value
	Normal	Risk			
	n	n			
<b>Family member</b>				8.36	0.01
3-4	40	18	58		
5-6	40	6	46		
>6	20	14	34		

## Discussion

Tea garden workers often face a range of health issues, including work-related musculoskeletal disorders, respiratory problems from dust exposure, and communicable diseases due to poor living conditions. Additionally, nutritional deficiencies and lack of access to proper healthcare contribute to their overall poor health status. Inadequate food during working hours and limited access to nutritious food due to low income and lack of awareness contribute to malnutrition and related health issues. Barriers such as distance to health facilities, lack of transportation, and financial constraints hinder access to timely and quality healthcare. Providing access to clean water, sanitation facilities, and promoting hygiene practices can reduce the risk of communicable diseases. Ensuring access to affordable and quality healthcare services, including preventive care and treatment for common diseases, is crucial. Promoting access to nutritious food and educating workers about balanced diets can improve their overall health. Providing education and awareness programs can help workers make informed decisions about their health and well-being. Data showed that one-third of the workers suffered from underweight. Significant association was found between family members and nutritional status. Tea garden workers are the most deprived section in Bangladesh, especially female tea workers. Now-a-days, health and hygiene condition of tea workers is an alarming problem in Bangladesh. It is a general perception that, tea worker especially women's have lack of health and hygiene related education and awareness. The women, children and adolescent girls are the most vulnerable groups in terms of health and hygienic condition in tea garden.

## Conclusion

Poor nutritional status is still observed among tea garden workers which is alarming for their overall health. Special attention should be given to these workers to uplift nutritional ground.

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