The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 4 | Issue 4 | April 2026
ISSN: 2583-973X (Online), SJIF IF: 5.6
Website: www.theacademic.in

Income-based Disparities in Nutritional Status among the Scheduled Tribe Aged People: A Case Study in Chakdaha C.D. Block, Nadia District, West Bengal, India

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DOI : https://doi.org/10.5281/zenodo.20093842

ARTICLE DETAILS

Research Paper

Accepted: 18-04-2026

Published: 10-05-2026

Keywords:

Body Mass Index, Malnutrition

ABSTRACT

According to Article 366(25) of the Indian Constitution, Scheduled Tribes (STs) refer to those communities that possess primitive characteristics, geographical isolation, a distinct culture, and backwardness, and who have been specified as such by the President in consultation with the Governors of each State and Union Territory. According to the 2011 census, tribal people constitute 8.6% of India's total population, and the elderly tribal population comprises approximately 6.9% to 8% of the total scheduled tribe population. Due to lack of proper food and financial security, these people suffer from malnutrition. This study was conducted on 116 scheduled tribe aged people through a primary survey in the Chakdaha C.D. Block of Nadia district, and body mass index (BMI) was measured to determine the nutritional status of the respondents. The study found that 42.24% of the scheduled tribe aged people are malnourished. Correlation analysis was applied to measure the relationship between nutritional status and financial security. Providing food and financial opportunities has been suggested to improve the nutritional status of scheduled tribe aged people.

Introduction

According to Article 366 (25) of the Indian Constitution, Scheduled Tribes (STs) refer to those communities that possess primitive characteristics, geographical isolation, a distinct culture, and

backwardness, and who have been specified as such by the President in consultation with the Governors of each State and Union Territory (Ministry of Tribal Affairs, 2023). According to the 2011 census, tribal people constitute 8.6% of India's total population, and the tribal elderly comprises approximately 6.9% to 8% of the total Scheduled Tribe population (Census of India, 2011).

The tribal elderly get more respect from their younger generation in their whole community. They never feel difficulty in case of care, support, affection and respect (Alam,2023). But the people of these communities suffer from malnutrition due to insufficient intake of healthy food. Nutritional status is an important health-related aspect of the elderly that depends on various dietary intake, social determinants and lifestyle determinants (Stratidaki et al. 2024). Nutritional status is influenced by health-related problems, food insecurity, socio-economic and demographic parameters of the elderly. Among these factors, morbidity status and socioeconomic factors are the most significant determining factors of the nutritional status of the elderly (Sri Lekha, 2023). There are various socio-economic factors that influence the nutritional status of the tribal people, particularly that of tribal women. Most of the scheduled tribe people work as agricultural labour, which is the main cause of poor economic conditions. For this reason, they could not get enough nutritional food consumption. At the same time, they could not get proper treatment due to poor financial conditions (Biswas et al., 2022). Again, 49.3% of the elderly suffer from malnutrition. Various factors influence the inferior nutritional status of the elderly tribals, such as age, sex, education, marital status, income, financial dependency, family size, etc. Financial dependency is the main factor of malnutrition among the elderly tribal people (Vaish et al., 2020).

Among the financial factors, income is the most important parameter that affects nutritional status. Income is the predictor factor of diet habits that directly impacts nutritional status. The income of the household increased food consumption and dietary habits that directly influence caloric intake. Therefore, income growth is most important for food consumption growth and dietary variation (Benfica, 2023).

Besides, income is the prime factor that reduces malnutrition. It directly impacts nutritional status. Changes in income affect nutritional consumption (Shabnam et al., 2021). Increased income is associated with better consumption of nutrients. Low income negatively affects the purchase capacity of nutritious food. The majority of people do not purchase the proper nutritional food due to low income (Swanigan, 2019).

In the study area, body mass index (BMI) was measured to determine the nutritional status of the scheduled tribe aged people. It has been found that 42.24% of the scheduled tribe aged people are malnourished. The study has been conducted on 116 elderly tribal individuals through a primary survey in the Chakdaha C.D. block of Nadia district. The study proposes to determine how nutritional status depends on the economic condition of the scheduled tribe aged people.

Statement of the Research Problem

Most of the existing studies discussed the different dimensions of the problems of the aged people in general. They explained mainly health problems, financial problems, social insecurity, loneliness, psychological conditions, lack of shelter and aged abuse of the aged people. But a few of researcher emphasis on nutritional status of the aged people as a common people. They explained that nutrition depends on age, gender, education, marital status, family size, income, etc. But nobody has discussed the scheduled tribe aged people and their nutritional status. To fulfil this gap, the researcher wants to examine the effect of income level on nutritional status through a rigorous primary survey in the study area.

Profile of the Study Area

Chakdaha C.D. block is situated on the southern side of the Nadia district of West Bengal. This C.D.block consisted of 17 gram panchaya, covering 304.34 Sq.km area. There are 500922 people (Census, 2011). It extends from latitude 22056‘30"N to 23007‘08"N and longitude 88024‘30"E to 880 42‘06"E. It is bounded on the west by the Bhagirathi River and the Ranaghat block on the North and North-West; the North 24 Paraganas district on the east, and the Harighata and North 24 Paraganas district on the south side.

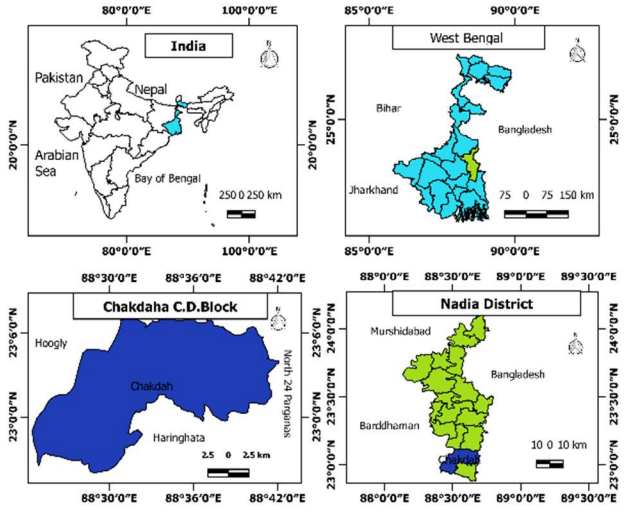


Figure 1: Location of the Study Area

Objectives

The objectives of the study are as follows

1. To assess the nutritional status of the scheduled tribe aged people

2. To find out the income level of the scheduled tribe aged people

3. To explore the impact of income level on nutritional status

Materials and Methods

This study is entirely based on primary data, which is collected from Chakdaha C.D.Block.

Sampling

It is a cross-sectional study where a total of 116 respondents have been selected who are 60 years old and above. These respondents have been surveyed through the purposive sampling method using a structured questionnaire.

Measurement of Body Mass Index (BMI)

Body mass index (BMI) has been calculated to measure the nutritional status of the aged people. BMI depend on age, sex, income and residence (Chhabra and Chhabra, 2007). It is measured as weight in kilograms divided by the square of height in meters. The World Health Organisation (1995) has been classified as BMI<18.5 kg/m^2 (underweight), BMI 18.5-24.9 kg/m^2 (normal weight), BMI 25-29.9 kg/m^2 (overweight) and BMI >30kg/m^2 (obese) (WHO, 1995; Chhabra and Chhabra, 2007; Swami et al., 2005; Selvamani and Singh, 2018).

From the field survey, for the nutritional status, weight in kilograms and height in square meters have been measured of the scheduled tribe aged people using a measuring tape and a weight machine. After that, the body mass index (BMI) has been calculated to determine the nutritional status. The formula of BMI is as follows;

$$\text{Body Mass Index (BMI)} = \frac{\text{Weight in kg}}{\text{Height in } m^2}$$

Variables

Independent variables: income level.

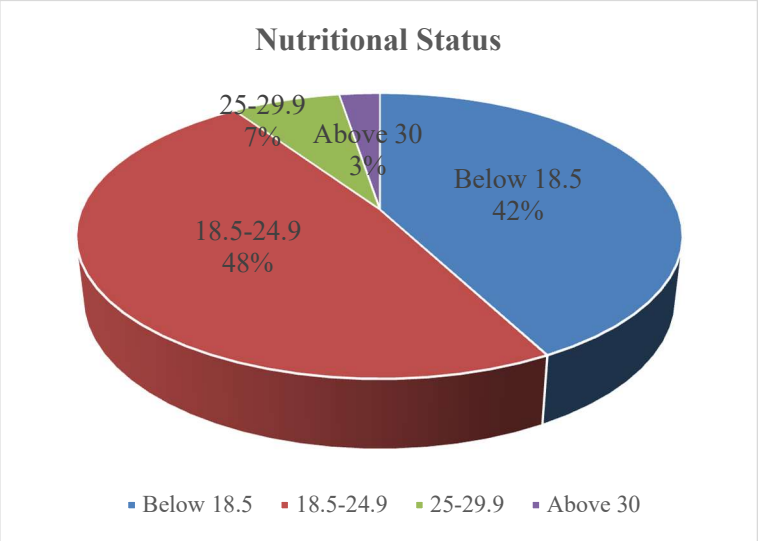
Dependent variable: body mass index (BMI).

Data Analysis

After the data were arranged and tabulated, descriptive discussion and correlation analysis were applied for statistical Analysis using SPSS version 26.0. Finally, pie graphs and bar graphs have been used for analysing the data.

Results

Body Mass Index (BMI)



Source: Field Survey,2025

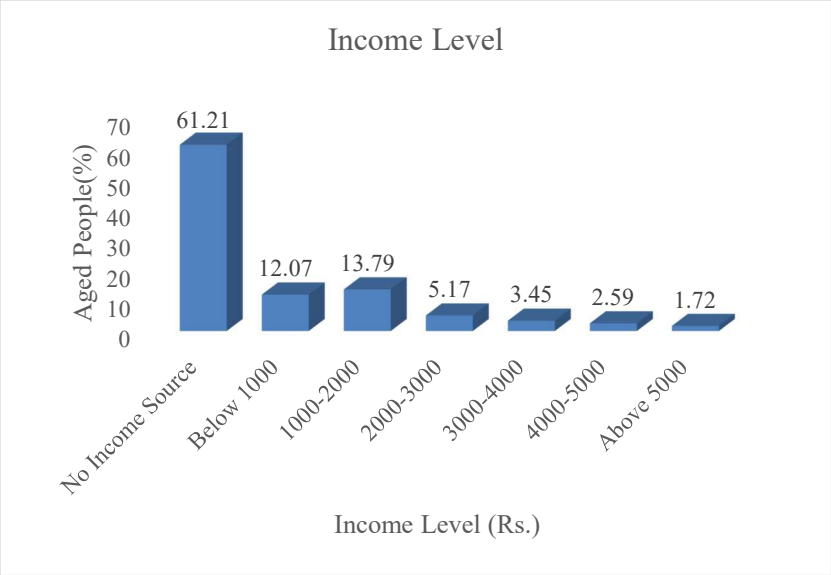
Figure 2: Nutritional Status of the Scheduled Tribe Aged People in Chakdaha C.D. Block

In Chakdaha C.D.block, most of the scheduled tribe aged people (48.28%) are of a healthy nutritional status, while 42.24% were underweight or unhealthy, 6.90% overweight, and 2.59% obese (Fig.2). The share of underweight, normal, overweight, and obese vary by age, sex, income group and residence (rural and urban) (Chhabra and Chhabra, 2007). So in the study area, nutritional status also varies those variables.

Table 1: Body Mass Index of the Scheduled Tribe Aged People in Chakdaha C.D. Block

BMI by WHO	BMI Range	%	N=116
Underweight	Below 18.5	42.24	49
Normal Weight	18.5-24.9	48.28	56
Over Weight	25-29.9	6.90	8
Obese	Above 30	2.59	3

Source: Field Survey,2025



Source: Primary Survey,2025

Figure 3: Income Level of the Scheduled Tribe Aged People in Chakdaha C.D. Block

Income Level of the Tribal Aged People in Chakdaha C.D. Block

Income level indicates the financial condition of the scheduled tribe aged people. The socio-economic well-being of the scheduled tribe aged people depends on the income level. In Chakdaha C.D.block, 61.21% of the scheduled tribe aged people have no source of income.12.07% of the scheduled tribe aged people earn below 1000 rupees, 13.79% of the scheduled tribe aged people's income level is ₹1001-2000, 5.17% of the respondents's income level is ₹2001-3000, 3.45% of the scheduled tribe aged people's income level is ₹3001-4000 and 2.59% and 1.72% of the scheduled tribe aged people's income level is ₹4001-5000 and above ₹5000 respectively. Therefore, in this area, the income level of the scheduled tribe aged people is very low in a month.

Table 2: Income Level of the Scheduled Tribe Aged People in Chakdaha C.D. Block

Income Level(Rs)	N=116	%
No Income Source	71	61.21
Below 1000	14	12.07
1000-2000	16	13.79
2000-3000	6	5.17
3000-4000	4	3.45
4000-5000	3	2.59
Above 5000	2	1.72

Source: Primary Survey,2025

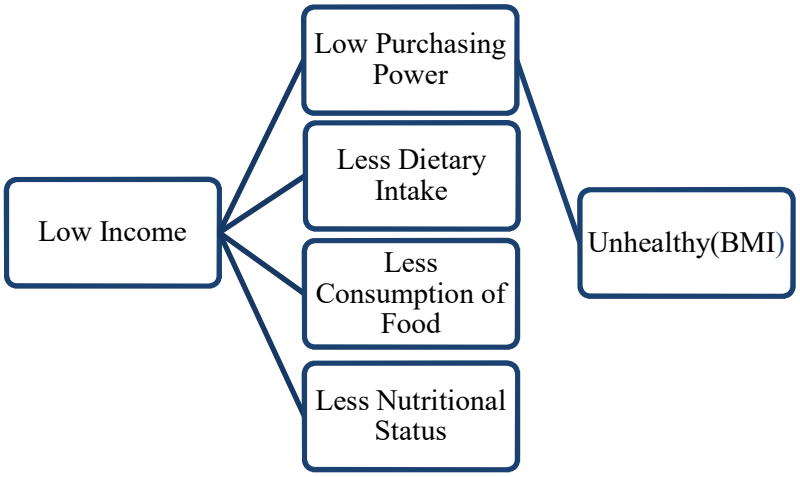
Impact of Income Level on Nutritional Status

In this study area, the scheduled tribe aged people with no source of income have the highest prevalence of underweight (27.59%), which indicates that they are unhealthy. As they have no source of income, these tribal elders do not have the capacity to purchase nutritional food, hence they suffer from malnutrition. Moreover, they cannot access proper medication for their physical ailments because of financial restraints. Good health conditions (29.31%) prevail only among the aged tribals who have high income and, consequently, are capable of purchasing nutritious food and thus belong to the better nutritional status. Overweight (4.31%) and obese (1.72%) are also more common in the high-income group than in others.

Table 3: Income Group-wise BMI of the Scheduled Tribe Aged People in Chakdaha C.D. Block

Income Group	BMI(%)			
	Unhealthy	Healthy	Overweight	obese
No Source of Income	27.59	2.59	0	0
Low Income	11.21	4.31	0	0
Medium Income	2.59	12.07	2.59	0.86
High Income	0.86	29.31	4.31	1.72

Source: Field Survey, 2025



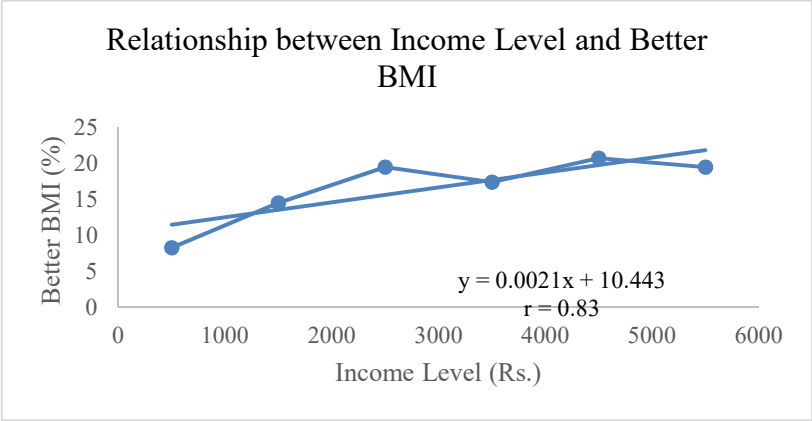
Source: Field Survey, 2025

Figure 4: Impact of Income Level on Nutritional Status

The study conducted in this field revealed that when the scheduled tribe aged individuals face the challenge of low income, they perceive their purchasing power to be severely limited. Consequently, they are unable to purchase necessary nutritious food. At the same time, the scheduled tribe aged people are unable to consume adequate nutrient-rich meals, leading to nutritional deficiencies in their bodies. As a result, they fall victim to poor physical health (Fig.4).

Relationship between Income Level and Better BMI

Income level and better BMI are positively correlated (r=0.83), and it is significant at 5% level in 4 degrees of freedom (calculated‘t’ value is 2.971 and tabulated‘t’ value is 2.132. Income influences the nutritional status. If their income is high, the nutritional status will be better for the tribal elderly. In this area, most of the scheduled tribe aged people are not engaged in any work after 60 years, and they have no source of income(61.21%). For this reason, the nutritional status of the scheduled tribe aged people is not good (Fig.5).



Source: Field Survey, 2025

Figure 5: Relation between Income Level and Better BMI

Discussion

The previous research mainly focuses on different factors that control the nutritional status of the scheduled tribe aged people. These factors are health-related, food insecurity, socio-economic and demographic parameters (Sri Lekha, 2023). And many research studies assessed that nutritional status depends on household income, urbanisation, and population structure (Wang et al., 2024). Zhong et al. (2012) found that population ages play a significant role in changes in food intake.

Various studies have determined that among the financial factors, income is the most important parameter that affects nutritional status. Increasing income affects food consumption and dietary habits that impact caloric intake changes (Benfica, 2023; Qin et al., 2023; Liesbeth et al., 2018). Increased income improves the proper intake of calories, better nutritional food such as meat, eggs, fruits and green vegetables (Shabnam et al., 2021). Income level impact on better consumption of nutrient-rich foods as well as dietary intake (Wang et al., 2024). Zhang and Xu (2020) found that income plays an important role in influencing dietary intake, whereas income level improves dietary quality. Besides, income increases the consumption of nutritious food like meat, milk, vegetables and fruits (Rathu Manannalage, 2023). Low income negatively affects the nutritional food intake of the elderly. Where income is low, the nutritional intake and dietary quality of the elderly are poor (Qin et al., 2023; Liesbeth et al., 2018). In this study, it is found that income has a significant role in influencing the nutritional level as well as body mass index. The scheduled tribe elderly who have low income suffer from a lower nutritional status that is almost similar to previous studies.

Conclusion

In this study, it is revealed that the nutritional status of the scheduled tribe aged people is not good. Most of the scheduled tribe aged people who have low income are suffering from food insecurity and malnutrition. To improve this situation, some important recommendations have been made. The government should provide any compatible perennial work throughout the whole year for the scheduled tribe aged people. The government should arrange a perennial source of income. If they have an old age pension, but it is not sufficient to maintain their life properly. The government should supply proper nutritious food to those who have no source of income. The medical treatment for all scheduled tribal aged people should be provided free of cost. At the same time, the local government should start a help

line for the scheduled tribe aged people, and the awareness level of the young generation, as well as the common people, should be increased. Lastly, only increased income could not reduce malnutrition conditions- other socio-economic factors, such as safe drinking water, better health care and environmental awareness, improve the food utilisation of the scheduled tribe aged people.

Aknowlegdements

I thank Prof.Sriporna Datta, Associate Professor in the English Department of Nahata J.N.M.S. Mahavidyalaya, for her continuous help in carrying out the study. I am also grateful to the scheduled tribe aged people who participated in the study.

Conflict of Interest

The researcher declares no conflict of interest in this research work.

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