

## Body Mass Index among Adult Women and National Food Security Act: A District Level Analysis in West Bengal

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**ABSTRACT:** The current National Family Health Survey conducted in 2019-20 (NFHS-5) revealed that women malnutrition is a great challenging problem in India and it is a severe problem to the women of West Bengal due to a poor position in body mass index(BMI). In 2013, the Government of India initiated National Food Securities Act -2013 for improvement of nutritional status , specially women and targeted children. A comparison of the two national – level data Women body mass is marginally improved as per NFHS-5 compare to previous survey i.e NFHS-4 in West Bengal and regional disparity has significantly declined . Women in economically backward districts have benefited more than women in economically advanced districts in West Bengal From the benefit of NFSA. Women body mass depends on the women’s level of education and purchasing power of household and how much nutritious food they are able to purchase.

**Keywords:** Body Mass Index(BMI) , Malnutrition , NFSA-2013 , Women literacy , Food Consumption

### Introduction

Malnutrition of women and men is a matter of great concern in any country Which reflects the poor nutritional status of people. Malnutrition may occur in the form of under nutrition as well as over nutrition. In South Asian nations, almost one in three individuals suffers from some form of malnutrition (IFPRI, 2015). Poor diet quality, Inadequate food intake, unfavourable health care facilities and food habits all contribute to malnutrition. These underlying reasons which include political unrest, slow economic growth, conflict, inequality, and aspects of globalisation have a role in these phenomena [Bharati, S (et al)( 2019)]. But in my country unfortunately women suffers the most in malnutrition . Women are the backbone of society. Because they give birth to children, in addition to this, they perform various duties in the family as well as in the society. Apart from domestic work, now a days they earn money by joining various workplaces from corporate sector to brick kiln. The body mass index (BMI), anaemia , short height or deficiencies of other micronutrient are the main indicator of women nutritional status[Mandal, S (et al)(2011)].Women with very poor nutritional status face many obstacles to do any work and the babies they give birth to are very low birth weight , producing breast milk of poor quality, with unfavourable pregnancy outcomes, dying after giving birth owing to postpartum haemorrhage, and being ill both personally and with her child[Mandal,

S (et al)(2011)]. Mothers who are short in height have the higher risk of giving birth to an infant with a low weight (NFHS-III,2007) as short height women have often small pelvic .

The relative position of West Bengal is very worse in terms of women malnutrition across the all States of India(NFHS report) and fiscal performance of West Bengal is worrying because debt burden is so high(rbi report) .The Indian Parliament passed the National Food Security Act (NFSA)- 2013 (No. 20 of 2013) on September 10. On the 5th of July 2013, the Act became operative. The goal is to offer the population secure access to food and nourishment at a highly subsidized price. In order to ensure food security, the NFSA act employs a life cycle approach. Food security's goal has been moved from an entitled-based strategy to a right-based approach. The National Food Security Act mainly focused on improving the women and children nutritional status. The important provisions and features of this are: (i) It was targeted to cover 66.67% of total population in India(81.34 core) of which 50% population in urban area and 75% population in rural area of 2011 Census, ii) It integrates and extends the scope of various existing food oriented welfare programmes centred on food(Saini, S., & Gulati, A. (2015)). Integrated Child Development Services (ICDS), Targeted Public Distribution System (TPDS), Mid-Day Meal schemes (MDM) and Indira Gandhi Matritva Sahyog Yojana (IGMSY). (iii) Mainly two types of beneficiary households are there - Antodaya Anna Yojana (AAY) beneficiaries (12.50 crore) and Priority household beneficiaries (68.84 crore) (iv) AAY beneficiaries receive food grain distribution of 35 kg per month for each family of five, and 5 kg per month for each person in priority household at a very high subsidized price, iii) It provides a special provision for adolescents, expectant mothers and lactating mothers iv) Additionally, a food security allowance is offered in the event that food grains or meals are not supplied. But NFSA implemented in West Bengal June, 2015. Thus the main objectives of this study were to (i) assess the prevalence of malnutrition in terms of body mass among women of West Bengal over different districts . (ii) explore the impact of NFSA-2013 on women body mass index of different districts in West Bengal and (iii) establish the relation between women body mass with women literacy , purchasing power, food item consumption and eating habits.

### Literature Reviews

Many researchers and scholar have tried to explore the nutritional status of adult women . Body mass index is a pivotal determinant of women nutrition status which depend not only on food intake but also other socio demographic condition . Following is a brief review of some existing literature.

Puri, R. (2022) found that there is a increase in the purchase-entitlement ratio (PER), a decrease in exclusion mistake, an rise in the coverage of beneficiaries who are eligible, and improvements in food-grains the transportation in a study of the NFSA's implementation status. States and UTs that have adopted measures like food grain doorstep delivery, end-to-end computerization of Targeted PDS (distribution ,procurement and transportation), reducing the complexity of eligibility requirements, and Benefits to political stability and food security are being reaped by improving grievance redress procedures. Even though NFSA has enhanced the TPDS's overall performance, several areas still need more attention. A significant breach of the Act was the delay in implementation in the majority of states and UTs. Some Indian states and union territories did not provide new ration cards and others made NFSA benefits available to all former TPDS beneficiaries. More significantly, states and UTs that missed the chance to start TPDS reforms because of the NFSA have not been able to utilize a full benefit from them. Long, K. N (et al) (2013) observe that health and nutritional status are better those women who have access to modern media source , enjoy the benefits of self help group , higher education and health improvement knowledge .

Bharati, S (et al)( 2019) found that woman nutritional status is dependent not only on income of the household but also on the nature of the environment , access to education for women , gender discrimination , social stimulation and their scope for making decisions within the family.

### Data source

The present study was based on the unit level cross-sectional data , collected from two latest consecutive National Family Health Survey(NFHS) IV and V . The International Institute for Population Sciences (IIPS) conducted these NFHS in 2015-16 and 2019- 20 respectively. IIPS mainly provides two types of information- State level fact sheet and District level fact sheet . In our study district level fact of West Bengal has been used. Information on significant trends and indicators for West Bengal is provided in this fact sheet. Vimarsh Development Solutions Pvt. Ltd. Conducted a fieldwork for the NFHS-4 in West Bengal from 25 February to 21 July 2015 (VIMARSH) and Fieldwork for the NFHS-5 was carried out by the Indian Institute of Health Management Research from 21 June to 8 November 2019. (IIHMR). The number of ration cards and beneficiaries number under the National Food Security Act-2013 in West Bengal are obtained from West Bengal Food department website (<https://wbpds.wb.gov.in/>). Average expense on food of a Household and Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption data have taken from Centre for Monitoring Indian Economy (CMIE) for 2018-2019 financial year . CMIE is a separate private limited corporation that performs dual roles as a corporate information provider and a think tank for economic policy.

### Variables

The dependent variable was body mass index (BMI) of women and it is a important indicator of nutritional status of women . As per The WHO (1998) definition of nutritional status by BMI( $\text{kg}/\text{m}^2$ ) : underweight:  $<18.5$  , normal weight:  $18.5 - 24.9$  , overweight :  $25.0 - 29.9$  , obese:  $\geq 30.0$  .

The independent variable were Women literacy rate, Average expense on food of a Household and Percentage share of food consumption expenditure on nutritious items in total food consumption . In this case nutritious food items are cereals and pulses , vegetable and fruits , wet spices , milk , milk products , flakes , muesli , oats , health supplements , meat ,egg and fish In this context, women who have studied standard 9 or higher and able to read a complete or partial sentence are considered to be literate.

### Data Analysis

T-Test has been used to check the significance of NFSA-2013 for improvement of Women BMI in districts of West Bengal after implementation of National Food Securities Act-2013 as per district level fact sheet data of NFHS-IV and NFHS-V and using ANNOVA model in Microsoft excel , it has been tried to show the association of Women literacy rate, Average expense on food of a Household and Percentage share of food consumption expenditure on nutritious items in total food consumption with women body mass index . P values were determined to determine the magnitude of each variable's impact on women body mass index .

Table 1 shows women nutritional status, as determined by BMI as per NFHS-IV and NFHS-V data and beneficiaries under NFSA . A total of 22.9% and 18.7% of Indian Women with BMIs that are lower than

normal (<18.5) as per NFHS-IV and NFHS-V data respectively . On the other hand , A total of 21.3% and 14.8% of Women in West Bengal whose Body Mass Index (BMI) is below normal

**Table1 : District wise Women with BMIs that are lower than normal(%) and beneficiaries under NFSA(%)**

District <sup>1</sup>	Women with BMIs that are lower than normal(%)			Total beneficiaries under NFSA	Total beneficiaries(NFSA+Non-NFSA+Gen)	Percentage of beneficiaries under NFSA
	NFHS-4	NFHS-5	% change			
Bankura	33.3(2) <sup>2</sup>	28(2)	15.91(16)	2478783	3634529	68.20(12)
Bardhaman	24(9)	17.35(7)	27.70(12)	4440358	7426818	59.78(15)
Birbhum	30.3(3)	20.5(3)	32.34(9)	2750420	3775813	72.84(5)
Cooch Behar	24.8(8)	18.1(6)	27.01(13)	2218695	3088788	71.83(7)
Dakshin Dinajpur	24.9(7)	14.9(12)	40.16(3)	1119619	1604235	69.79(10)
Darjeeling	15.4(16)	11.8(14)	23.37(14)	1214477	1625872	74.69(2)
Hoogly	18.3(14)	14.1(13)	22.95(15)	3005954	5446943	55.18(17)
Howrah	16.5(15)	10.3(15)	37.57(5)	2618818	4502091	58.16(16)
Jalpaiguri	26.1(5)	15.8(10)	39.46(4)	2719941	3718920	73.13(3)
Kolkata	7.3(19)	6.6(18)	9.58(18)	944461	3172011	29.77(19)
Malda	23.9(10)	15.7(11)	34.3(8)	2798203	4056951	68.97(11)
Murshidabad	21.1(11)	19.9(4)	5.68(19)	6036195	7919022	76.22(1)
Nadia	11.9(17)	8.3(17)	30.25(10)	3616029	5312681	68.06(13)
North 24 Parganas	11.5(18)	6.5(19)	43.47(2)	5392921	8942222	60.30(14)
Paschim Medinipur	29.9(4)	18.9(5)	36.78(6)	3211196	6133464	52.35(18)
Purba Medinipur	19.4(12)	16.5(8)	14.94(17)	3758748	5300749	70.90(8)
Purulia	47.5(1)	33.7(1)	29.05(11)	2177909	2982354	73.02(4)
South 24 Parganas	18.8(13)	9.9(16)	47.34(1)	5957768	8529621	69.84(9)
Uttar Dinajpur	25.7(6)	16.5(8)	35.79(7)	2193787	3040901	72.14(6)
<b>West Bengal</b>	21.3	14.8		59670387	90213985	66.14
<b>India</b>	22.9	18.7				

Source : NFHS-IV , NFHS-V , West Bengal Food department website and Author's calculation

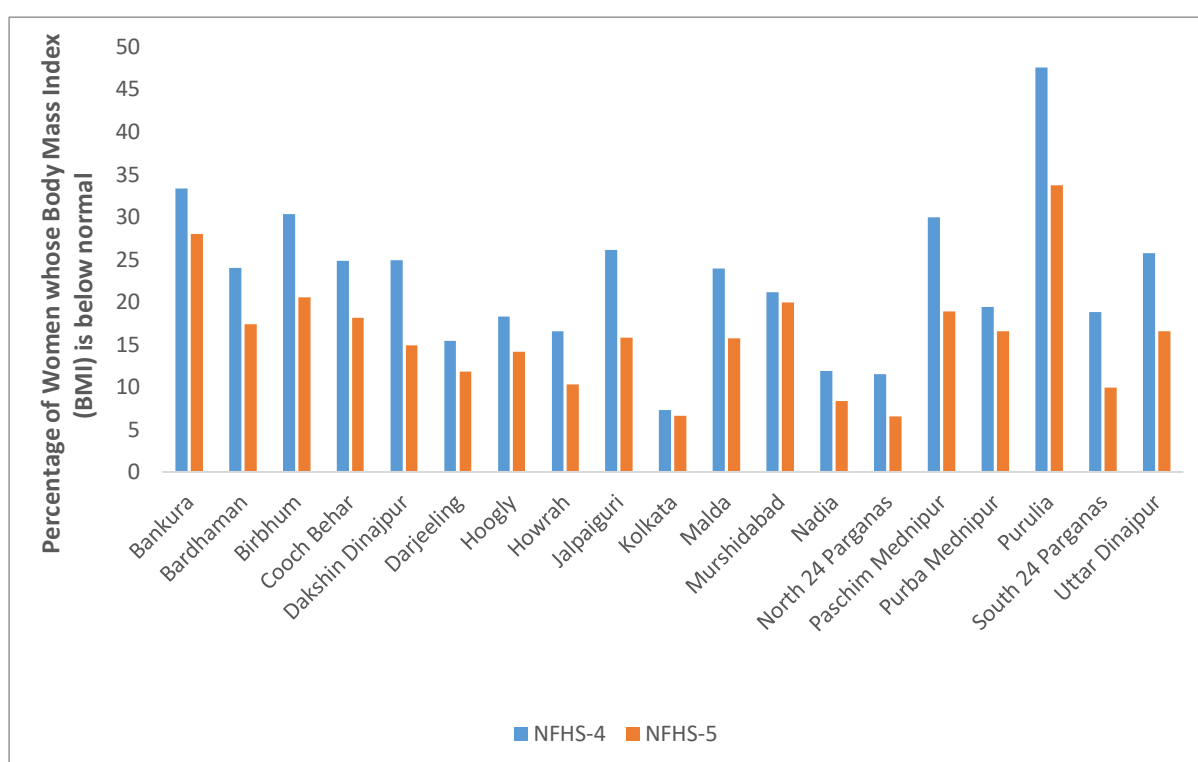
<sup>1</sup> Currently(10.03.2023) there are 23 districts in West Bengal NFHS-IV , NFHS-V provide for 19 districts report . So, the data of the original district is represented by summing the data of the two newly formed districts, which have been broken up to form a new district.

<sup>2</sup> The number with in parenthesis indicate rank.

(BMI) (<18.5) as per NFHS-IV and NFHS-V data respectively . So, a total percentage of Women with BMIs that are lower than normal (<18.5) in West Bengal are slightly ahead of women in India in both NFHS-IV and NFHS-V data. But this is not something to be reassured about but rather a matter of concern. The twelve districts of West Bengal out of nineteen with percentage of Women with BMIs that are lower than normal (BMI<18.5) were higher than the over all West Bengal percentage (14.8%) and those districts were Bankura(28%) , Bardhaman(17.35%), Birbhum(20.5%), Cooch Behar(18.1%) , Dakshin Dinajpur(14.9%), Jalpaiguri(15.8%), Malda(15.7%), Murshidabad(19.9%) , Paschim Mednipur(18.9%), Purba Mednipur(16.5%), Purulia(33.7%), Uttar Dinajpur(16.5%).

Table 1 also shows total beneficiaries under NFSA , Total beneficiaries(NFSA+Non-NFSA+Gen) and Percentage of beneficiaries under NFSA. The Percentage of beneficiaries under NFSA out total beneficiaries in Public Distribution System were higher in Bankura(68.20%) , Birbhum(72.84%), Cooch Behar(71.83%) , Dakshin Dinajpur(69.79%), Darjeeling(74.69%), Nadia(68.06%), Jalpaiguri(73.13%), Malda(68.97%), Murshidabad(76.22%) ,Purba Mednipur(70.90%), Purulia(73.02%), Uttar Dinajpur(72.14%), South 24 Parganas(69.84%) than the over all percentage beneficiaries in West Bengal(66.14%) . So two third of total beneficiaries in West Bengal are under NFSA and thirteen districts were higher interms of percentage beneficiaries in West Bengal(66.14%).

**Figure 1: Percentage of Women whose Body Mass Index (BMI) is below normal**



**Figure 1** revealed that the percentage of women whose Body Mass Index (BMI) is below in different district of West Bengal as per two consecutive National Family Health Survey i.e NFHS-4 & NFHS-5. This figure state that as per NFHS-5 data, the percentage of women whose BMI is below normal has declined for most of the districts of West Bengal compare to NFHS-4.

Table 2 shows the percentage of Women with BMIs that are lower than normal, percentage of women who are literate , average expense on food items of a household (Rs.) and Percentage share of

expenditure on nutritious food consumption in total expenditure for food consumption . Parenthesis of all data shows the rank i.e relative position among districts of West Bengal in terms of different independent and dependent variable . The percentage of literate women is lower in Bankura(68.30%) , Birbhum(70.80%), Malda(72.30%), Murshidabad(67.60%) , Paschim Mednipur(70.90%), Purulia(61%), Uttar Dinajpur(65.40%) than the percentage of literate women in West Bengal(72.9%) . So, Seven districts out of nineteen districts in West Bengal have lower women literacy rates than the West Bengal average .

**Table 2 : Women with BMIs that are lower than normal(%) and some socio-demographic variable**

	Women with BMIs that are lower than normal(%)	Women who are literate (%)	Average expence on food of a Household (Rs.)	Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption
<b>Districts</b>	NFHS-5	NFHS-5	2018-19	2018-19
Bankura	28(2)	68.3(16)	43593.79(19)	83.30(17)
Bardhaman	17.35(7)	73.35(12)	53696.96(14)	83.57(15)
Birbhum	20.5(3)	70.8(15)	48410.10(18)	90.94(9)
Cooch Behar	18.1(6)	79.2(5)	53535.44(15)	92.84(3)
Dakshin Dinajpur	14.9(12)	74.3(10)	50932.51(16)	91.56(7)
Darjeeling	11.8(14)	77(7)	63444.13(8)	96.15(1)
Hoogly	14.1(13)	77.4(6)	79890.39(2)	85.08(14)
Howrah	10.3(15)	80.5(4)	82250.62(1)	85.80(13)
Jalpaiguri	15.8(10)	73.6(11)	64097.40(7)	91.46(8)
Kolkata	6.6(18)	87.6(1)	76121.86(3)	92.58(5)
Malda	15.7(11)	72.3(13)	55718.54(11)	93.58(2)
Murshidabad	19.9(4)	67.6(17)	55126.05(13)	90.68(10)
Nadia	8.3(17)	76.2(9)	68050.84(5)	92.18(6)
North 24 Parganas	6.5(19)	85.5(3)	70362.45(4)	90.31(11)
Paschim Mednipur	18.9(5)	70.9(14)	55276.26(12)	83.27(18)
Purba Mednipur	16.5(8)	77(7)	58702.50(10)	82.86(19)
Purulia	33.7(1)	61(19)	50353.06(17)	83.55(16)
South 24 Parganas	9.9(16)	85.6(2)	67508.96(6)	89.39(12)
Uttar Dinajpur	16.5(8)	65.4(18)	61251.39(9)	92.72(4)
West Bengal		72.9	60964.38	89.04

Source : NFHS-IV , NFHS-V , CMIE and Author's calculation.

The proportion of total income spent on food is a relevant factor in improving nutrition. Because nutritional improvement is possible due to intake of appropriate quality and quantity of food . Average expence on food of a Household (Rs.) in West Bengal is Rs. 60964.38 as per 2018-2019 financial year (CMIE) . Average expence on food of a Household (Rs.) is lower in Bankura , Birbhum, Bardhaman, Cooch Behar, Malda, Dakshin Dinajpur, Murshidabad , Purba Mednipur, Purulia districts than the

Average expence on food of a Household (Rs.) in West Bengal . , Malnutrition rates were lower in economically advance regions and among more educated households, wealth, consumption of leafy greens, fruit, animal protein by women[1]. Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption lower in Bankura(83.30%) , Bardhaman (83.57%), Hoogly(85.08%), Howrah(85.80%) , Paschim Mednipur(83.27%), Purulia(83.55%), Purba Mednipur(82.86%) than the overall Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption in West Bengal(89.04%) .

## Result

National food security Act-2013 has been implemented on June, 2015 in West Bengal to combat malnutrition problem specially for women and children . A fieldwork for the NFHS-4 in West Bengal was conducted from 25 February to 21 July 2015., So during this period facilities of NFSA could not be enjoyed by the residents of West Bengal in that sense . But Fieldwork for the NFHS-5 was carried out by the Indian Institute of Health Management Research from 21 June to 8 November 2019. (IIHMR). So impact of NFSA will be reflected on NFHS-V data . As per table 1 , percentage of Women with BMIs that are lower than normal has been declined for all districts in West Bengal i.e women body mass index for all districts has been improved . To cheek the significance of impact on women body mass index of NFSA-2013 , t-test is used . As per table 3 , Mean value and variance has been declined from 22.66 to 15.96 and 82.71 to 46.55 respectively from NFHS IV to NFHS-V . It reflects that weight of women with respect to their height increases from NFHS-IV to NFHS-V . Disparities among districts in terms of women body mass index has been reduced as variance declined remarkably from 82.71 to 46.55 from NFHS-IV to NFHS-V . Economically backward districts have performed relatively better in this regard and the economically backward districts are mainly rural in nature . Economically backward districts are Bankura , Birbhum, Bardhaman, Cooch Behar, Malda, Dakshin Dinajpur, Murshidabad , Paschim Mednipur, Purulia . It is evident from these results that subsidized food has been of great help to women in rural areas . These result is statically significant at the 5% level because t Stat value is greater than t Critical two-tail tabulated value ( $8.22 > 2.10$ ) . So NFSA has considerable importance on reducing malnutrition of women in West Bengal.

**Table 3: t-Test result**

t-Test: Paired Two Sample for Means		
	<i>NFHS-4</i>	<i>NFHS-5</i>
Mean	22.6632	15.9658
Variance	82.7169	46.5589
Observations	19	19
Pearson Correlation	0.93998	
Hypothesized Mean Difference	0	
df	18	
t Stat	8.2213	
P(T<=t) one-tail	8.3E-08	
t Critical one-tail	1.73406	
P(T<=t) two-tail	1.7E-07	
t Critical two-tail	2.10092	

## Discussion

There is no doubt that the National Food Security Act has significantly helped to increase the body mass index of women but as per Table 1 , it appears that the benefits of the National Food Security Act have not had any remarkable effect on the increase in body mass index in a few districts that have benefited relatively more. Percentage of NFSA beneficiaries is higher in Murshidabad , Darjeeling , Purulia, Birbhum, Bankura district but percentage change in women body mass index is comparatively less than other districts . So, women nutritional status depends on not only benefits of NFSA Act but also other socio demographic variables. In general, women are more prone to malnutrition since their needs for food and nutrients are higher during pregnancy and nursing. The demographic effects of women's inferior status have taken many forms, including girls infanticide, a lower sex ratio, a women's death rate is higher than for men, a lower rate of female literacy, in the non-agricultural sector a less opportunities for doing work for female as compared to male, etc.[ Srinivasan, K et al. (1989)] In my study , women literacy , Average expense on food of a Household (Rs.), Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption , purchasing power of expense on food items and eating food habits have been taken as a socio demographic variable . To show the association between women body mass (weight/height) and above three mentioned variable, ANNOVA statistical method has been used.

ANNOVA result shown in Table 4.

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \dots\dots\dots(1)$$

Were,

Y stands for percentage of Women with BMIs that are lower than normal

$x_1$  stands for percentage of women who are literate.

$x_2$  stands for Average expense on food of a Household (Rs.)

$x_3$  stands for Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption .

$\alpha$  stands for co-efficient of intercept term and  $\beta_1, \beta_2$  and  $\beta_3$  are the co-efficient of independent variable respectively.

As per table 4, the value of Adjusted  $R^2$  is 0.82 , it reflects that model is significant i.e a strong correlation between women BMI and percentage of women who are literate , Average expense on food items of a Household, Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption is existing . It is very interesting to note that percentage of Women with BMIs that are lower than normal was inversely related to the number of literate women . Hence , in ANNOVA result co-efficient value of respective variable is negative( $p < 0.05$ ) . Because literate women are conscious about their health and are well aware of what kind of food should be taken at what time . That is why women of Puruliya, Derjeeling, Malda and Murshidabad districts have low BMI



values despite the high percentage of beneficiaries covered by the NFSA scheme because the women literacy rate in these districts is very low. Food intake has a proportional relationship with women's body mass index, i.e. the more food consumed, the more women will gain body mass, i.e. weight for height.

**Table 4: ANNOVA Table**

SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.923433				
R Square	0.852728				
Adjusted R Square	0.823274				
Standard Error	2.868479				
Observations	19				
ANOVA					
	df	SS	MS	F	Significance F
Regression	3	714.6376757	238.2126	28.95085	1.74355E-06
Residual	15	123.4225874	8.228172		
Total	18	838.0602632			
	Coefficients	Standard Error	t Stat	P-value	Lower 95%
Intercept	110.3569	14.59572619	7.560903	1.71E-06	79.2468094
Women who are literate (%)	-0.51103	0.132847481	-3.84671	0.001585	-0.79418345
Average expense on food of a Household	-0.00023	8.37036E-05	-2.73749	0.015265	-0.00040755
Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption	-0.47319	0.162348991	-2.91462	0.010673	-0.81922377

In this case, a negative relationship is seen between the percentage of Women with BMIs that are lower than normal and average expense on food items of a Household. Since co-efficient value between the percentage of Women with BMIs that are lower than normal and Average expense on food items of a Household is negative ( $p < 0.05$ ) as per ANNOVA analysis (Table 4). That is, the more the residents of the district spend on food, the better the body mass index of women. As a result the percentage of Women with BMIs that are lower than normal ( $BMI < 18.5$ ) will be reduced. Many times it is seen that the expenditure on consumption of food is high but what kind of food item they are consuming becomes very important. This is because women living in economically advance urban

areas compared to economically backward rural areas, are more likely to consume nutritious foods as well as fast food, which can be a significant barrier to nutritional improvement [1]. Since co-efficient value between the percentage of Women with BMIs that are lower than normal and Percentage share of expenditure on nutritious food consumption in total expenditure for food consumption is negative ( $p < 0.05$ ) as per ANNOVA analysis (Table 4). That is, body mass index is improved by consuming nutritious food. It helps to reduce the percentage of Women with BMIs that are lower than normal. But households in economically backward districts are less able to purchase nutritious food because their average income is very low.

### Conclusion

Malnutrition is still a problem for women in West Bengal as seen by their lower body mass index (weight to height). This is a significant challenge for Indian society as well as nutritional policymaker who intended to elevate women from their subordinate status in the family. In West Bengal, the percentage of Women with BMIs that are lower than normal has been decreased as per NFHS-5 data. So NFSA have played a pivotal role for betterment of women body mass index but it did not reach the goal of World Health Organization (WHO, 1995). It is very interesting to note that the disparity in body mass index among districts of West Bengal has reduced considerably. That is, the role of National Food Security Act is very relevant in economically backward districts in terms of improvement of body mass index of women. But these districts have not seen significant improvements in women's body mass index due to low women literacy rate and low purchasing power for consumption of food items and unhealthy food habits. Although the percentage of NFSA-2013 beneficiaries is higher in those district (Table 1). The quality of the environment, gender discrimination, women's access to education, their levels of activity, their exposure to social stimulation, and their ability to make decisions within the household are all factors that have an impact on women's nutritional status in addition to household income. Therefore, the nutritional development of women is not possible only through the provision of some quantitative food items through National Food Security 13 but also provide nutritious food items (Milk, egg, Pulses etc). But NFSA-2013 is not characterized with such kind of provision. The Central Government should consider this matter in which the policy maker can include this in NFSA and the State government needs to take substantial steps to improve the socio-demographic issues.

### Limitation and Future Studies

The present study is limited because only one determinant (body mass index) has been considered to judge the prevalence of women malnutrition and rest of determinants like overweight and anemia has been excluded from my study. So, researcher can consider underweight, anemia etc parameter to justify the condition of women nutritional status.

### CONFLICTS OF INTEREST

There are no conflicts to declare.

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