

A Study on Performance of Indian States on Targeting the Dual Burden of Malnutrition Among women

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Abstract

While there is a decline in percentage of under nutrition among women in India but we also witness a rising trend in obesity across states. Thus the overall nutritional status of women is far from satisfactory and there is a long way to go to achieve the nutritional targets. This paper attempts to examine the dual burden of malnutrition and the trends in malnutrition among women. The latest government data NFHS 4 is analyzed to see if there is improvement in nutritional indicators among women and its possible factors. There is a huge variation in proportion of malnourishment among women across states. The relative performances of states in targeting malnutrition among women have been mixed. Undernourishment is higher among rural whereas overweight/obesity is more among urban woman. Data reveals an improvement in socio economic factors that are expected to be related to woman nutritional status over the period from 2005-06 to 2015-16. However the improvement is not large and leaves a scope for increase in access and reach out to basic health services and nutritional wellbeing of women.

Keywords: *Under Nutrition, Over-Weight, Obesity, Women, India*

Introduction

Malnutrition is a dual problem that either results in under nutrition or obesity /overweight. The second form of malnutrition is less studied and the research in this area is emerging in the recent past only with growing obesity across the world. Often malnutrition is understood as lack of nutrients that ill affects the individuals' health and is taken as synonym to under nutrition. It is a result of a set of nutritional related deficiencies and lead to spectrum of disorders related to nutritional deficiencies. It causes iodine deficiency disorders like hypothyroidism, Goiter, Protein energy malnutrition, affects the eyesight as a result of vitamin A deficiency, iron deficiency anemia, compromised immune function and results in many other non- communicable diseases such as osteoporosis, weak digestive system and also results in fetal growth retardation in pregnant women.

Malnutrition in adults are usually measured using anthropometric indicators like Body mass index (BMI).

BMI is expressed as weight in kilograms by height in meters (WHO, 2005).The BMI less than 18.5 for an adult indicates malnutrition. A BMI greater than 25 kg/m² reflects over nutrition/overweight and a BMI of 30 kg/m² and above reflects obesity (CDCP, 2005). Most studies (Bailey & Luzzi, 1995; Girma & Genebo,2002; F. Haseen, 2010) have used Body mass index (BMI) as an indicator of adult malnutrition.

Malnutrition status of women is very important because it is through women and her children that the effect of malnutrition is propagated to future generation. A malnourished mother gives birth to a low weight child who is more prone to diseases and negatively effects the future economic growth and development of the family and the society and continues the vicious circle of poverty and malnourishment.

Ramchandran (2008) analyzed the data trends from National Family Health Survey NFHS 2, NFHS 3 and National Nutrition Monitoring Bureau (NNMB) on

nutritional status of adults and pointed out the trends in increased obesity in India. Malnutrition effects on women and adolescent girls have been long recognized but not much has been achieved with respect to improvement in addressing their specific nutritional problems (Ransom, E., et al., 2003). Ramesh, P. (2008) in his study on malnutrition among women in Kerala found that overweight and obesity among women is showing an increasing trend.

Women are at greater risk of malnourishment. Studies have shown that among adults women malnutrition rates are higher than males especially in certain areas like Latin America, South/Southeast Asia and Sub-Saharan Africa (Nube et al. 2003; Ransom, E., et al. (2003)). A study confirms that every 1 out of 3 pregnant women is malnourished in India (UNICEF, 2018). As we talk about gender equality, equal rights and opportunity it seems important to highlight the facts related to women health especially for a diverse country like India where the women today is working hard towards achieving her dreams and contribute to the society and the economy to her full capacity. The Indian scenario though have shown decline in the percentage of malnourished women over the years but we witness a equal rise in obesity among them (NFHS 3; NFHS4). Thus there remains a lot of scope for further improvement

This study begins with analysis of health and nutritional status of women in India and will also identify the pattern across states. The focus will be on key factors related to women health and nutritional status. The results would give an insight on overall health scenario of India, further across states and rural urban divide. A comparison of these key indicators will be made between NFHS 3 and NFHS 4 which will thus highlight the pattern and change in the health scenario over this span. The analysis is based on data on NFHS-4 (2015-16) which covers health dimensions of women age 15 to 49 years across India.

According to NFHS 4, In India 23.9 percent of women suffers from under nutrition and more than 50 percent of all women age 15-49 years are anaemic in 2015-16 which is marginally low (2.2 percent) than what it was in 2005-06. Approximately 7 percent of women age 15-49 years suffers from hypertension for which the percentage in urban areas (7.3 percent) is higher than that in rural areas (6.5 percent). The data on BMI reveals the increasing double burden of malnutrition among women in India. 20.6 percent of women population is obese in 2015-16 as compared to 14.8 percent in 2005-06. The problem is much intense in urban areas. On the other hand we witness a fall in under nutrition among women from more than 30 percent to 22.9 percent in 2015-16.

Double burden of malnutrition among women in India

We now look at the nutritional status of women in India (Figure 3). The nutritional status of adults is measured by his/

her BMI. A BMI below 18.5 Kg/m² reflects undernourishment and a BMI greater than 25 kg/m² reflects obesity. The latest NFHS 4 data clearly shows that today India suffers from the dual burden of malnutrition where there coexists undernourished with over nourished or obese population. Figure 1 clearly suggests the percentage of obesity among women has remarkably increased from 14.8 percent in 2005-06 to 20.6 percent in 2015-16 and the increase is witnessed in urban as well as rural India. This definitely points out the problem which is recently emerging and requires attention from the researchers and the policy makers. On the other hand there is a fall in the percentage of undernourished women from 33 percent to 22.9 percent between 2005-06 to 2015-16, the fall is witnessed in both rural and urban areas. We in India today is witnessing the dual burden where there exist large percentage of undernourished women 22.9 percent of which 26.7 percent of rural and 15.5 percent of urban women is undernourished along with equal percentage of obese women population (20.6 percent). It is important to notice here that a large chunk of urban women is obese (31.3 percent) as compared to rural area (15 percent). On the other hand undernourishment is greater among rural than urban women. 26.7 percent of rural women is malnourished against 15.5 percent of urban. This makes us conclude that the intensity of the problem of obesity is relatively higher in urban areas and that of under nutrition is higher in rural areas.

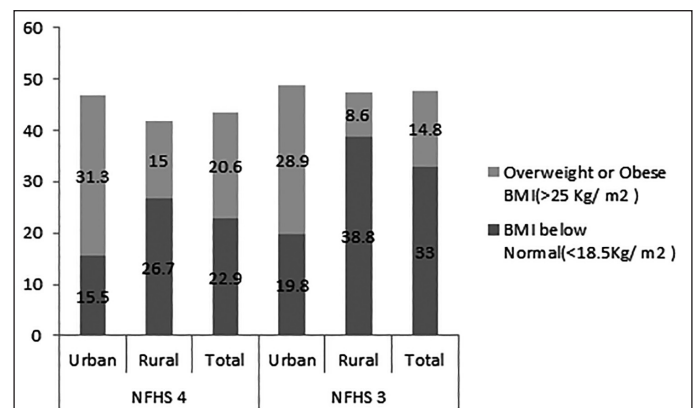


Figure 1: Malnutrition among Women in India in 2015-16 and 2005-06

Source: NFHS 4

Another silent health problem that most of the women in India are facing is Anaemia. It is found to be present in large proportion among undernourished as well as obese women. It measures lack of iron which is one of the most important nutrients for a healthy body. Malnourishment among women as measured by anaemia is present in both urban and rural India and need to be addressed independently as it cannot be solely attributed to income inequality. See Figure 2 where a large proportion of

urban (51percent) and rural (54.4percent) non pregnant women age 15-49 years are anaemic. The scenario is somewhat similar in case of pregnant women for which the figures are (45.8percent) urban and (52.2 percent) rural. It is slightly higher in rural areas against urban area. The percentage of women with anaemia have showed a marginal decline when we compare the figures of NFHS 4 and NFHS 3, it has fallen from 56.2percent to 53.2percent among non-pregnant women and witnessed a fall of around 7.5 percent from 57.9percent to 50.4percent among pregnant women. This fall cannot be taken as satisfactory and requires the attention from health professionals and researchers in this area to target the problem effectively and look for possible solutions through integrated policy framework which aims to promote healthy life and a healthy lifestyle.

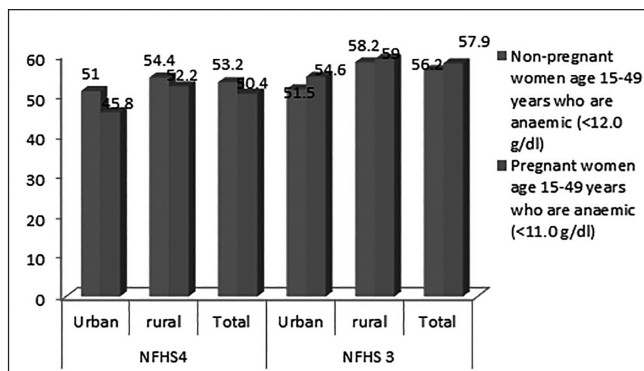


Figure 2: Anaemia among Indian women - Rural Urban Scenario in 2015-16 and 2005-06

Source NFHS 4 and NFHS 3

Trends and Levels of Key socio economic factors related to Women Health in India

We now analyze the data (Table 1) on level and trends on some selected key economic and social factors related to women health and nutritional status. The women health in India is in a bad state even though the data reveals slight improvement in some key indicators of women health and nutritional status. We now analyze the socio economic factors that are expected to influence nutritional status directly. There is little improvement over the two periods of NFHS 3(2005-06) and NFHS 4(2015-16). For instance, female population above 6 years of age who ever attended school increased from 58.3 percent in 2005-06 to 68.8 percent in 2015-16. There is also an increase in percentage of women with 10 or more years of schooling but still only one third of women population have 10 or more years of schooling experience. This reflects the lack of accessibility to education in true sense to a larger proportion of the total population of our country. The relationship between health and education is proven by many studies (Ransom, E., etal. (2003) ;

Kishor, S. & K. Gupta (2009); Hingorani, B. (2014)) and thus we felt a need for larger reforms in education, especially women education because it will create ripple effects in diverse areas including health which will thus impact the economic growth and development of our country. Factors related to women empowerment have shown improvement over the period. One of the factors which has shown a major change is a large increase in percentage of women having a bank account which they themselves operate to 53 percent from 15 percent in 2005-06. This suggests the impact of the government initiative on digitalization of the economy and schemes like Pradhan Mantri Jan Dhan Yojna which certainly have resulted in such massive increase in the percentage of women holding bank accounts. The increase has been witnessed in both urban and rural areas. Other indicators like spousal violence have also shown a decline over the period but is more widespread in rural areas (34.1 percent) as compare to urban areas (25.3 percent). More than 80 percent of women (both rural and urban) accepted that they participate in household decision making as oppose to approximately 75 percent in 2004-06. Thus the women empowerment indicators definitely have shown improvement over the years and can be accepted as important socio economic factors that adds to the explanation of falling under nutrition among women over this period.

Table 1 Key Socio Economic Factors Related To Women Health: 2015-16 and 2005-06

Indicators	Urban	Rural	NFHS 4 Total	NFHS 3 Total	Change
Population and Household Profile					
Population (female) age 6 years and above w ho ever attended school (%)	80.6	63	68.8	58.3	10.5
Sex ratio of the total population (females per 1,000 males)	956	1,009	991	1,000	-9
Sex ratio at birth for children born in the last five years (females per 1,000 males)	899	927	919	914	5
Characteristics of Adults (age 15-49)					
Women who are literate (%)	81.4	61.5	68.4	55.1	13.3
Women with 10 or more years of schooling (%)	51.5	27.3	35.7	22.3	13.4
Marriage and Fertility					
Women age 20-24 years married before age 18 years (%)	17.5	31.5	26.8	47.4	-20.6
Total fertility rate (children per woman)	1.8	2.4	2.2	2.7	-0.5
Anaemia among Children and Adults					
Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl) (%)	51	54.4	53.2	55.2	-2
Pregnant women age 15-49 years who are anaemic (<11.0 g/dl) (%)	45.8	52.2	50.4	57.9	-7.5
All women age 15-49 years who are anaemic (%)	50.8	54.3	53.1	55.3	-2.2
Hypertension among Women (age 15-49 years)					
Slightly above normal (Systolic 140-159 mm of Hg and/or Diastolic 90-99mm of Hg) (%)	7.3	6.5	6.7	n.a	n.a
Moderately high (Systolic 160-179 mm of Hg and/or Diastolic 100-109 mm of Hg) (%)	1.6	1.3	1.4	n.a	n.a
Very high (Systolic ≥180 mm of Hg and/or Diastolic ≥110 mm of Hg) (%)	0.7	0.7	0.7	n.a	n.a
Women's Empowerment and Gender Based Violence (age 15-49 years)					
Currently married women who usually participate in household decisions (%)	85.8	83	84	76.5	7.5
Women who worked in the last 12 months who were paid in cash (%)	23.2	25.4	24.6	28.6	-4
Ever-married women who have ever experienced spousal violence (%)	25.3	34.1	31.1	37.2	-6.1
Ever-married women who have experienced violence during any pregnancy (%)	3.4	4.1	3.9	n.a	n.a
Women owning a house and/or land (alone or jointly with others) (%)	35.2	40.1	38.4	n.a	n.a
Women having a bank or savings account that they themselves use (%)	61	48.5	53	15.1	37.9
Women having a mobile phone that they themselves use (%)	61.8	36.9	45.9	n.a	n.a
Women age 15-24 years who use hygienic methods of protection during their menstrual Period (%)	77.5	48.2	57.6	n.a	n.a

Source NFHS 4 and NFHS 3

Malnutrition among Women in India: State Level Analysis

Table 2 presents the state wise scenario of women malnutrition. The data is presented in two parts because India is currently suffering from dual burden of malnutrition and this burden is rapidly increasing among women. Though there is marginal fall in the rate of under nutrition among women but still the percentage of under nourishment among Indian women is high. Along with this we are witnessing a rapid increase in obesity among women. In order to understand the pattern of under nutrition and obesity in India we now do a state level analysis to figure out the states with maximum and minimum number of malnourished women. We will classify the states as top rung, upper middle rung, lower middle rung and bottom rung based on health and wellbeing of women.

Jharkhand (31.5 percent), Bihar (30.4 percent), Madhya Pradesh (28.4 percent), Gujrat (27.2 percent), Rajasthan (27 percent), Chhattisgarh(26.7 percent), Odisha (26.5 percent), Assam(25.7 percent) and Uttar Pradesh(25.3 percent) have more than one fourth of its women population being under nourished and are classified as the bottom rung states. The states with more than 15 percent to 20 percent of undernourished women forms the lower middle rung, it consists of Maharashtra (23.5 percent),Telangana (22.9 percent), West Bengal(21.3 percent) Karnataka(20.7 percent),Tripura (18.9 percent),Uttarakhand (18.4 percent), Andhra Pradesh(17.6 percent), Himachal Pradesh(16.2 percent) and Haryana (15.8 percent).If we look at child malnutrition and women malnutrition we find high degree of association between both because the states with high degree of women under nutrition is also the ones with high degree of child malnutrition. This indicates the relationship between women and Child health. The exceptions are Meghalaya (12.1) and Delhi (14.9 percent) where now the proportion of women with obesity is a greater than those suffering from under nutrition. The second observation made here is that greater proportion of children are undernourished as compare to the proportion of women in the same state, for instance in Jharkhand 47.8 percent children are underweight and

31 percent women are undernourished. Similarly in Madhya Pradesh 42.8 percent children are malnourished and 28.4 percent women are undernourished. The upper middle rung consists of states with 10 to 15 percent of undernourished women. These states are Delhi (14.9 percent), Goa(14.7 percent), Tamil Nadu(14.6 percent), Chandigarh(13.3 percent) Andaman and Nicobar(13.1 percent),Nagaland(12.3 percent)Jammu and Kashmir and Meghalaya(12.1 percent) and Punjab(11.7 percent).apart from them the states with less than one tenth of its population as under nourished are classified as top rung states which are Kerala(9.7 percent) and mostly from the north eastern part of India Manipur(8.8 percent),Arunachal Pradesh (8.5 percent), Mizoram (8.4 percent) and Sikkim(6.4 percent).

Looking into the second side of the problem, obesity is on rise in all the states of India and has increased at a rapid rate between NFHS 3(2005-06) and NFHS4 (2015-16). The states with high level of obesity of about one third or more of women in the state being obese are Chandigarh(41.5 percent) followed by Delhi(33.5 percent), Goa(33.5 percent) Andhra Pradesh (33.4 percent), Kerala(32.4 percent), Andaman ad Nicobar(31.8 percent), Punjab(31.3 percent) and Tamil Nadu(30.9 percent). Other states with almost one fourth of women being obese are Jammu and Kashmir(29.1 percent), Himachal Pradesh(28.6 percent),Telangana(28.6 percent), Sikkim(26.7 percent), Manipur(26 percent), Gujrat(23.7 percent), Maharashtra(23.4 percent), Karnataka(23.3 percent) and Haryana(21 percent).These states together builds up the bottom rung and the lower middle rung. It is lowest in states of Chattisgarh (11.9 percent), Bihar(11.7 percent) and Jharkhand(10.3 percent) which are basically the states with high percentage of under nutrition. This pattern is quite obvious because the dominant factors in these states are those that leads to high degree of under nutrition, for instance these are poor states of India with low GDP and growth rates. Also there are states like Delhi, Tamil Nadu, Goa etc. which has high percentage of under nourished women and Children along with high obesity. This points out towards a need of dual setup program to target two opposite problems coexisting at the same time.

Table 2: Under Nutrition and Obesity among Women Across Indian States in 2015-16

Malnutrition Among women In India			Malnutrition Among women (obesity)		
NFHS 4	BMI<18.5Kg/ m ²	Aneamic	NFHS 4	BMI >25 Kg/ m ²	
Jharkhand	31.5	65.2	Chandigarh		41.5
Bihar	30.4	60.3	Delhi		33.5
Madhya Pradesh	28.4	52.5	Goa		33.5
Gujrat	27.2	54.9	Andra Pradesh		33.2
Rajasthan	27	46.8	Kerala		32.4
Chattisgarh	26.7	47	Andaman and nicobar		31.8
Odisha	26.5	51	Punjab		31.3
Assam	25.7	46	Tamil Nadu		30.9
Uttar Pradesh	25.3	52.4	Jammu and Kashmir		29.1
Maharashtra	23.5	48	Himachal pradesh		28.6
Telangana	22.9	56.6	Telangana		28.6
West Bengal	21.3	62.5	Sikkim		26.7
Karnataka	20.7	44.8	Manipur		26
Tripura	18.9	54.5	Gujrat		23.7
Uttrakhand	18.4	45.2	Maharashtra		23.4
Andra Pradesh	17.6	60	Karnataka		23.3
Himachal pradesh	16.2	53.5	Haryana		21
Haryana	15.8	62.7	Mizoram		21
Delhi	14.9	54.3	Uttrakhand		20.4
Goa	14.7	31.3	West Bengal		19.9
Tamil Nadu	14.6	55	Arunachal Pradesh		18.8
Chandigarh	13.3	75.9	Odisha		16.5
Andaman and nicobar	13.1	65.7	Uttar Pradesh		16.5
Nagaland	12.3	27.9	Nagaland		16.2
Jammu and Kashmir	12.1	49.4	Tripura		16
Meghalya	12.1	56.2	Rajasthan		14.1
Punjab	11.7	53.5	Madhya Pradesh		13.6
Kerala	9.7	34.3	Assam		13.2
Manipur	8.8	26.4	Meghalya		12.2
Arunachal Pradesh	8.5	43.2	Chattisgarh		11.9
Mizoram	8.4	24.8	Bihar		11.7
Sikkim	6.4	34.9	Jharkhand		10.3

Source NFHS 4

Rural urban Scenario of Malnutrition among Women

Table 3 shows the rural urban pattern of malnutrition among women. Under nutrition among women is higher in rural areas as compared to urban areas. The difference in percentage of undernourished women between rural and urban areas has been as high as 16 percent in Gujrat. There exist large variation in proportion of undernourished women in rural and urban areas. The other states in which the difference in the proportion of undernourished women is high are Jharkhand (13.8 percent), Maharashtra (13.2 percent), Telangana (13.1 percent), Odisha (12.9 percent) and Chattisgarh (12 percent).

On the other hand the problem of obesity is primarily concentrated in urban areas. There is an excess of proportion of obese women in urban areas over rural areas for all the states. The urban excess over rural in proportion of obesity among women is largest in the following states: Telangana (21.7 percent), Gujrat (19.2 percent), Odisha (18.7 percent) and Maharashtra (17.8 percent). The urban excess over rural is more than 10 percent for almost all states of India.

Table 3: Rural Urban Scenario of Women Malnutrition: 2015-16

Rural urban differential in women malnutrition					Obesity				
states	All Areas	URBAN	Rural	Rural excess over Urban	state	All Areas	Urban	Rural	Urban Excess over Rural
Jharkhand	31.5	21.6	35.4	13.8	Chandigarh	41.5	n.a	n.a	n.a
Bihar	30.4	22.2	31.8	9.6	Delhi	33.5	33.5	29.2	4.3
Madhya Pradesh	28.4	20.6	31.8	11.2	Goa	33.5	36.3	28.5	7.8
Gujrat	27.2	18.1	34.3	16.2	Andra Pradesh	33.2	45.6	27.6	18
Rajasthan	27	18.6	29.9	11.3	Kerala	32.4	33.5	31.5	2
Chattisgarh	26.7	17.6	29.6	12	Andaman and nicobar	31.8	38.3	26.6	11.7
Odisha	26.5	15.8	28.7	12.9	Punjab	31.3	32.4	30.6	1.8
Assam	25.7	17.9	27	9.1	Tamil Nadu	30.9	36.2	25.4	10.8
Uttar Pradesh	25.3	17.6	28.1	10.5	Jammu and Kashmir	29.1	40.6	24.1	16.5
Maharashtra	23.5	16.8	30	13.2	Himachal pradesh	28.6	38.4	27.6	10.8
Telangana	22.9	15.9	29	13.1	Telangana	28.6	40.2	18.5	21.7
West Bengal	21.3	14.1	24.6	10.5	Sikkim	26.7	34.1	23.1	11
Karnataka	20.7	16.2	24.3	8.1	Manipur	26	31.2	22.4	8.8
Tripura	18.9	16.2	20.1	3.9	Gujrat	23.7	34.5	15.3	19.2
Uttrakhand	18.4	15.5	20	4.5	Maharashtra	23.4	32.4	14.6	17.8
Andra Pradesh	17.6	11.5	20.3	8.8	Karnataka	23.3	31.8	16.6	15.2
Arunachal Pradesh	16.4	8.7	8.5	-0.2	Haryana	21	24.3	18.8	5.5
Himachal pradesh	16.2	11.7	16.7	5	Mizoram	21	26.8	12.5	14.3
Haryana	15.8	12.2	18.2	6	Uttrakhand	20.4	28.4	16	12.4
Delhi	14.9	14.9	14.4	-0.5	West Bengal	19.9	30.6	15	15.6
Goa	14.7	10.3	22.2	11.9	Odisha	16.5	32	13.3	18.7
Tamil Nadu	14.6	10.9	18.5	7.6	Uttar Pradesh	16.5	27.1	12.6	14.5
Chandigarh	13.3	n.a	n.a	n.a	Nagaland	16.2	20.7	13.3	7.4
Andaman and nicobar	13.1	10.1	15.5	5.4	Tripura	16	23.5	12.8	10.7
Nagaland	12.3	12.9	11.8	-1.1	Rajasthan	14.1	23.7	10.7	13
Jammu and Kashmir	12.1	7.7	14.1	6.4	Madhya Pradesh	13.6	23.8	9.1	14.7
Meghalaya	12.1	11.4	12.3	0.9	Assam	13.2	26.1	10.9	15.2
Punjab	11.7	9	13.5	4.5	Meghalaya	12.2	18.4	10.2	8.2
Kerala	9.7	9.1	10.2	1.1	Chattisgarh	11.9	24.4	7.8	16.6
Manipur	8.8	8.5	9	0.5	Bihar	11.7	23.5	9.7	13.8
Mizoram	8.4	7.5	9.6	2.1	Jharkhand	10.3	21.7	5.9	15.8
Sikkim	6.4	7.5	5.8	-1.7	Arunachal Pradesh	8.8	25.8	16.3	9.5

Source NFHS 4

Performance of States in Reducing Malnutrition Among Women

Table 4 confirms that the relative performances of states in reducing malnutrition among women have been mixed. It shows that the proportion of undernourished women has fallen and overweight/obesity among women has increased in all the states. The proportion of fall in undernourishment among women varies from 18 percent in Tripura to 16.7 percent in Chattisgarh, one of the highest malnourished states of India to 2.5 percent in Meghalaya. The high women malnourished state have shown a greater fall of around 10 to 15 percent where as low women malnourished states have shown a fall of around 2 to 8 percent. Delhi is the only state with a marginal rise of 0.1 percent in proportion of undernourished women. On the other hand obesity which is more than 30 percent in some states in 2015-16 is rising in all the states between 2005-06 and 2015-16. The rise in obesity is as high as 15.1 percent in Himachal Pradesh, followed by Goa (13.3 percent), Manipur (12.7 percent), Jammu and Kashmir (12.4 percent), Sikkim (11.3 percent) and Mizoram (10.4 percent). These are basically the top rung and upper middle rung states with low obesity and low undernourished population. This means that obesity is increasing faster in states where it is not on the higher side. The increase in obesity is lowest in Punjab (1.4 percent), Haryana (3.6 percent) Kerala (4.3 percent), Jharkhand (4.9 percent), Rajasthan (5.2 percent), Chattisgarh (6.3 percent), Meghalaya (6.9 percent), Bihar (7.1 percent) and Delhi (7.1 percent). Except Goa (13.3 percent) all other states with high level of obesity have only shown marginal increase which means that the states with high obesity witnessed slower increase in it but continued to remain high over the period of ten years from 2005-06 to 2015-16. Also the rise in obesity is lowest in the states with high level of under nutrition like Bihar, Jharkhand, and Chattisgarh.

Table 4: Trends in Malnutrition among Women across States

Under nutrition				Overweight/Obesity			
States	NFHS 4	NFHS 3	Change	NFHS 4	NFHS 3	Change	States
Jharkhand	31.5	42.9	11.4	41.5	n.a	n.a	Chandigarh
Bihar	30.4	45	14.6	33.5	26.4	7.1	Delhi
Madhya Pradesh	28.4	41.7	13.3	33.5	20.2	13.3	Goa
Gujrat	27.2	36.3	9.1	33.2	n.a	n.a	Andra Pradesh
Rajasthan	27	36.7	9.7	32.4	28.1	4.3	Kerala
Chattisgarh	26.7	43.4	16.7	31.8	n.a	n.a	Andaman and Nicobar
Odisha	26.5	41.4	14.9	31.3	29.9	1.4	Punjab
Assam	25.7	36.5	10.8	30.9	20.9	10	Tamil Nadu
Uttar Pradesh	25.3	36	10.7	29.1	16.7	12.4	Jammu and Kashmir
Maharashtra	23.5	36.2	12.7	28.6	13.5	15.1	Himachal pradesh
Telangana	22.9	n.a	n.a	28.6	n.a	n.a	Telangana
West Bengal	21.3	39.1	17.8	26.7	15.4	11.3	Sikkim
Karnataka	20.7	35.4	14.7	26	13.3	12.7	Manipur
Tripura	18.9	36.9	18	23.7	16.7	7	Gujrat
Uttrakhand	18.4	30	11.6	23.4	14.5	8.9	Maharashtra
Andra Pradesh	17.6	n.a	n.a	23.3	15.3	8	Karnataka
Arunachal Pradesh	8.5	16.4	7.9	21	17.4	3.6	Haryana
Himachal pradesh	16.2	29.9	13.7	21	10.6	10.4	Mizoram
Haryana	15.8	31.4	15.6	20.4	12.8	7.6	Uttrakhand
Delhi	14.9	14.8	-0.1	19.9	11.4	8.5	West Bengal
Goa	14.7	27.9	13.2	16.5	6.6	9.9	Odisha
Tamil Nadu	14.6	28.4	13.8	16.5	9.2	7.3	Uttar Pradesh
Chandigarh	13.3	n.a	n.a	16.2	6.4	9.8	Nagaland
Andaman and Nicobar	13.1	n.a	n.a	16	7.1	8.9	Tripura
Nagaland	12.3	17.4	5.1	14.1	8.9	5.2	Rajasthan
Jammu and Kashmir	12.1	24.6	12.5	13.6	7.6	6	Madhya Pradesh
Meghalaya	12.1	14.6	2.5	13.2	7.8	5.4	Assam
Punjab	11.7	18.9	7.2	12.2	5.3	6.9	Meghalaya
Kerala	9.7	18	8.3	11.9	5.6	6.3	Chattisgarh
Manipur	8.8	14.8	6	11.7	4.6	7.1	Bihar
Mizoram	8.4	14.4	6	10.3	5.4	4.9	Jharkhand
Sikkim	6.4	11.2	4.8	18.8	8.8	10	Arunachal Pradesh

Conclusion

To conclude the data reveals improvement in selected socio economic factors that are linked to women health and nutritional wellbeing over the period 2005-06 to 2015-16. The data also suggests low rate of improvement in rural areas as compare to urban areas with respect to these selected indicators which again can be accepted partially as a reason for high malnutrition rate among women in rural areas as compare to urban areas. The current scenario though have witnessed improvement over the past but still suggest lack of reach of basic health services and a scope for further improvement with respect to some key indictors like literacy rate and other factors determining women empowerment which directly impacts women nutritional and wellbeing status.

The current scenario of health and nutrition doesn't give us a chance to appreciate lower under nutrition in some states because these same states are the one which have the highest proportion of obesity. Clearly we can make the observation that today obesity among women is extremely high especially in the high income states like

Delhi, Chandigarh, and Punjab etc. It needs attention because this is the new emerging health problem accompanying prosperity across states and is definitely a bigger threat in near future if not controlled as obesity leads to many serious health problems and shall lead to a negative impact on working capacity and hence growth. This demands a deeper analysis of the problem.

We found that obesity is highly concentrated in urban areas and the policies and targeting of the group should be framed accordingly to the data revelation for solving the dual problem of high under nutrition which shows an excess in rural areas and the problem of obesity which shows an excess in urban areas. The data also reveals a continuous rise in obesity and fall in proportion of under nutrition among women in all states. Today more than one third proportion of obese women coexists with more than one fifth proportion of under nourished women in most states of India. This scenario cannot be treated as satisfactory and needs to be addressed with a dual kind of policy framework targeting under nutrition on one hand and overweight and obesity on the other hand

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