

## **WOMEN MALNUTRITION: RURAL-URBAN DISPARITIES STILL PERSIST IN INDIA**

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### ***Abstract***

Background: Health of the children of today and mothers who are the guardians of that future, despite rapid economic growth and astonishing development, the health and nutritional status of women in India is alarming. India is typically known for high prevalence of under-nutrition, but now a days, overweight or obesity among women is also common. Objectives of the study were to examine the levels of malnutrition among women across states and union territories in India and to analyze the rural-urban differences in the women malnutrition in India. The present Study has focused all 29 states and 7 union territories at macro level. For the data analysis statistical tools like independent t test is used to examine the rural-urban differences in the prevalence.

Results: study found significant variations in the prevalence of malnutrition. There is a significant variation in the prevalence of malnutrition across the state. Obesity is more prevalent in urban areas than rural areas except in West Bengal. There is a significant variation between rural and urban areas. BMI below normal and overweight and obese is statistically significant at 1% ( $p=0.000$ ) and anemia at 10% (0.076) level.

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Conclusion: Better maternal nutritional status is essential for the overall growth and development of children and unless the mother's nutritional status is improved, the child's nutrition and health status cannot be expected to improve. Several programmes dedicated to improve the nutritional and health status of women need to be revisited and analyzed systematically with urgency.

## **Introduction**

India has achieved phenomenal economic progress in the last three decades, but is still on the task to improve the health status of its population on similar terms. Over the last seven decades, successive five-year plans have laid down policies and multi-sectorial strategies to combat nutrition-related public health problems and improve the nutritional and health status of the population. Although India has not yet overcome the problems of poverty, under-nutrition, over-nutrition and obesity have emerged as public health problems over the last two decades. The magnitude of these problems varies among States and socio-economic sections and between urban and rural areas.

As per Census 2011, India is a country with a large population represented by 121 crore, out of which the rural population is 83.3 crore (68.84%) and urban population is 37.7 crore (31.16%). It is evident that majority of the population is living in rural areas. In rural India, health infrastructure facilities are still inadequate. Deficiencies in basic facilities and gaps have resulted in vulnerable status in the health of rural population. The NFHS-4 data clearly reflects the urban and rural divide in terms of health outcomes. NFHS-4 data shows that infant mortality rate is 29 for urban areas and 46 for rural areas. Under-five mortality rate is 29 for urban areas and 46 for rural areas. Mothers having full antenatal care represented 31.1% in urban areas and only 17% in rural areas. Mothers who received postnatal care represented 72% in urban and 58% in rural areas.

Large inequalities also exist in maternal and child health and nutritional status across Indian States, including significant gaps between wealthy and deprived groups and rural-urban differentials. About 70% of infant deaths and more than half of under-five child deaths in the country fall in the neonatal period. The largest proportion of these deaths is clustered in rural

areas of 9 poor States (8 EAG States and Assam)<sup>1</sup>. Those children who survive are often afflicted with multiple morbidities and episodes of malnutrition. Similarly, a large proportion of reproductive women are suffering from poor nutritional status resulting in poor maternal and birth outcomes.

### **Objectives of the study**

1. To examine the levels of malnutrition among women across states and union territories in India
2. To analyze the rural-urban differences in the prevalence of women malnutrition in India.

### **Materials and methods**

The present study was based on secondary data which were collected from NFHS-4(2015-16), IHR on Nutrition-2015 and Global nutrition reports. The present Study has focused all 29 states and 7 union territories at macro level. Statistical tools like independent t test is used to examine the rural-urban differences in the prevalence

### **Malnutrition among Women in India**

Women constitute a substantial section of the Indian society with more than two-thirds of the people in rural areas with the same proportion of women living in rural areas. Maternal under-nutrition is a serious problem in Southeastern Asia, where more than 20 % of women are undernourished. The situation is particularly severe in India and Bangladesh, where two in five women are undernourished Black et al (2008). A malnourished anaemic woman is more likely to deliver a baby with low birth weight and such a baby is likely to carry with the handicap throughout its life span, and so on<sup>2</sup>. Ramalingaswami, Jonsson, and Rohde (1996) analyzed high level of child malnutrition in India and they attributed this problem mainly to social status of women.

The NFHS-3 (2005-06) data on Women's Nutritional Status revealed that 33 % of them had low Body Mass Index, while obesity was 14.8 per cent with urban women representing 28.9 % being

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<sup>1</sup>Dr. Jyothi Sharma(2017) vol.65, Kurukshetra,

<sup>2</sup> Petro Medrano,(2007)Women, food for work, and Human development: Millennium Lecture', retrieved from [http://www.mssrf.org/events\\_conferences/contents\\_events/pedro.htm](http://www.mssrf.org/events_conferences/contents_events/pedro.htm).

more affected than their rural counterparts representing 8.6 %. According to the Global Nutrition Report and Indian Health Report on Nutrition in 2015, around 55 % of Indian women aged between 15 and 49 years have been prone to Anaemia.

**(a) BMI below normal or Underweight (BMI <18.5kg/m<sup>2</sup>):**

The nutritional status of the women and adolescent girls is expressed through Body Mass Index (BMI). Even though the incidence of malnutrition in India has improved greatly since independence (Dreze and Sen (2013), still 49% of women between the ages of 20 years and 29 years suffer from underweight. According to IHR on Nutrition-2015, 44.7% of adolescent girls, 35.6% of women aged 15-49 years are underweighted. 51.8% of women have normal BMI with 9.8% being overweight and 2.8% women being obese. NFHS-4 revealed that 22.9 % of women were underweighted or their BMI was below the normal in the country. The highest 34.5% i.e. more than one in three women is underweighted in Bihar. Meghalaya has the least underweight women at 4.1%. Karnataka has 20.7%, which is less than the national average. Table.1 reveals statewide distribution of incidence.

**Table.1**

**Prevalence of malnutrition in Women across states and Union Territories**

States/UTs	Underweight (BMI Below normal(<18.5kg/m <sup>2</sup> ))	Overweight(BMI 18.5kg/m <sup>2</sup> to BMI 25kg m <sup>2</sup> )/obese(>25kg m <sup>2</sup> )	Anemia among women	Low Birth Weight
Andaman Nicobar	13.1	31.8	65.7	NA
Andhra Pradesh	17.6	33.2	60.0	18.4
Arunachal Pradesh	8.5	18.8	40.3	11.5
Assam	25.7	13.2	35.7	13.6
Bihar	34.5	11.7	60.3	15.0
Chandigarh	13.3	41.5	75.9	NA

Chhattisgarh	26.7	11.9	47.0	16.9
Dadar & Nagarhaveli	28.5	19.2	79.5	NA
Daman & Dive	12.9	31.6	58.9	NA
Delhi	12.8	34.9	52.5	21.9
Goa	14.7	33.5	31.3	16.7
Gujarat	27.2	23.7	54.9	19.5
Haryana	15.8	21.0	62.7	20.9
Himachal Pradesh	16.2	28.6	53.4	17.7
Jammu and Kashmir	12.1	29.1	40.3	16.2
Jharkhand	31.5	10.3	65.2	14.7
Karnataka	20.7	23.3	44.8	17.2
Kerala	9.7	32.4	34.2	13.0
Lakshadweep	12.5	41.4	45.7	NA
Madhya Pradesh	28.3	13.6	52.5	23.1
Maharashtra	23.5	23.4	48.0	20.6
Manipur	9.8	26.0	26.4	7.3
Meghalaya	4.1	12.2	56.2	10.4
Mizoram	8.3	21.4	22.5	2.2
Nagaland	12.2	16.2	23.9	18.9
Odisha	26.4	16.5	51.0	18.9
Pondicherry	11.3	36.7	52.4	NA
Punjab	11.7	31.3	53.5	20.7
Rajasthan	27.0	14.1	46.8	23.2
Sikkim	6.4	26.7	34.9	10.0
Tamil Nadu	14.6	30.9	55.1	16.7
Telengana	23.1	28.1	56.7	NA
Tripura	18.9	16.0	54.5	18.5
Uttar Pradesh	25.3	16.5	52.4	22.5

Uttarakand	18.4	20.4	45.2	14.2
West Bengal	21.3	19.9	62.5	16.9
<b>INDIA</b>	<b>22.9</b>	<b>20.7</b>	<b>53.0</b>	<b>18.6</b>

Source: NFHS-4(2015-16), IHR-2015.

### **(b)Overweight and obesity**

Women having BMI more than 25 kg/m<sup>2</sup> have been considered as overweight or obese. Besides under-nutrition, India has landed in another nutritional problem of obesity. In the past 10 years, the number of obese people has doubled in the country. Experts believe that obesity is the major reason for developing different types of diabetes mellitus. Several researchers have highlighted that obesity accounts for 80-85 % of the risk of developing type-2 diabetes.

According to the National Family Health Survey-4, 20.7% of women are overweight or obese in the country. Most of the developed and urbanized states have the highest proportion of overweight or obese women. Andhra Pradesh, Goa, Tamilnadu, have more than 30 % of their women falling under the obese category. Karnataka, Gujarat and Maharashtra have equal %age of overweight women. More than 20 % of women Haryana, Sikkim, Telengana, and West Bengal and Uttarakand are obese. Even the backward States are experiencing overweight and obesity (more than 10 %women in Bihar, Madhya Pradesh, Meghalaya, and Tripura). It is also evidenced that the prevalence of obesity doubled in Bihar, Madhya Pradesh, and Meghalaya and in Tripura since the last National Family Health Survey of 2005-06.

### **(c) Anaemia:**

Anaemia is an important indicator of micronutrient deficiencies and an important risk factor for poor child development. According to DLHS-4, more than half of (53.0%) Indian women in their child bearing age have anaemia, which is known to be very extensive, affecting nearly half the women in the developing world. In India, anemia is the second most common cause of maternal deaths accounting for 19% of total maternal deaths (Govt. of India, 2002).Prevalence of anaemia was lower among educated women and women from higher income families (Agarwal et al, 2005). Anaemia ranges between 22.5% in Mizoram and 79.5 % in Dadar & Nagarhaveli. Compared to the neighboring States like Maharashtra, Andhra Pradesh, and Tamilnadu,

Karnataka has little less than the national prevalence. However, Kerala (34.2%) and Goa (31.3%) have the least prevalence of Anaemia.

**(d)Low Birth Weight:**

Low Birth Weight affects more than 20 million infants in less developed countries every year and this is the strongest deterrent of a child's survival. Approximately 47% of the India's children aged five years are underweight and one in three adult women in India being underweight and hence India is at the risk of developing babies with low birth weight<sup>3</sup>.IHR-2015 revealed that Rajasthan has the highest low birth weight of 23.2% followed by Madhya Pradesh and Uttara Pradesh with 23.1% and 22.5% respectively. In North-Eastern States, Mizoram has the least low birth weight children at just 2.2%, and this is followed by Manipur (7.3%) and Sikkim (10%). The States with a higher low birth weight include some of the relatively developed States such as Maharashtra, Karnataka, and West Bengal along with Orissa, Bihar, Madhya Pradesh, Andhra Pradesh and Gujarat.

The incidences of nutritional status of women of BMI below normal, overweight/obese, anaemia have been ranked based on the level of incidence. The States with lower prevalent and better performed states were given higher ranks. The better performing five States and UTs in ranks belong to North-East region. None of the developed States does appear in the list of top six States except Kerala. Surprisingly, Gujarat and Andhra Pradesh States show dismal picture in all women nutritional indicators. States like Kerala, Assam, Chhattisgarh, Jammu and Kashmir, Karnataka, Rajasthan, and Uttarakand have performed better than other States. Kerala has performed better in BMI status and anaemic status but the highest prevalence of obesity brought down the average ranking. The top six States in the overall effectiveness of nutritional status of women include Mizoram, Nagaland, Arunachal Pradesh, Manipur, Sikkim and Meghalaya and these States are virtually underdeveloped. In essence, the top-ranked States in nutritional status of women mainly belong to North-Eastern region, which is an underdeveloped region and the low-ranked States belonged to developed region. This anomalous and uneven effectiveness of nutritional status of women between developed and underdeveloped States indicates that the

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<sup>3</sup>Algur, Yadavannavar, &Patil (2012).Assessment of nutritional status of under- five children in urban field practice area. *International Journal of Current Research and Review*, 4(22), 122.

fruits of development not reached to the half of the population and resulting in imbalanced nutritional food intake, and neglected human development.

### **Rural-Urban Divide**

Discrimination and disparities are the reality of Indian sub-continent. Rural-urban divide is one of the phenomena; it is continued in nutritional status also. The rural-urban difference in NFHS-4 survey shows that in all States, rural-urban disparities in favour of urban women. The highest difference of 23.1% is recorded in Dadar and Nagarhaveli, followed by Assam (19.1%) and Gujarat (16.2%) in rural urban difference in BMI status. There is a wide significant disparity in the prevalence of below normal Body Mass Index across States and UTs.

Obesity is more prevalent in urban areas than rural areas except in West Bengal, where rural women are more affected than urban women, and this status cannot be seen in any of the States. In tune with global trend, the incidence of overweight and obesity is prevalent in urban areas.

The highest rural-urban gap in anemia is noted in Chhattisgarh, where rural women are worst affected than any other States. The overweight problem is evidenced in Telengana (21%) followed by Andhra Pradesh (18%), West Bengal (15.6%), and Karnataka (15.2%). The difference is the lowest for Haryana (5.5%) followed by Goa (7.8%) and thus there is significant variance in the prevalence of anemia among women in India.

### **Results and discussion**

To test the difference in the prevalence of malnutrition among rural and urban women across India, the independent t-test was used.

There are three indicators of malnutrition being compared between rural and urban women. It is found that there are differences in the prevalence of malnutrition, to verify this; two sample independent t test is used. Indicators of women malnutrition are Body Mass Index below normal or underweight, overweight/obese and anemia among women were compared. Levene's test for equality of variances is conducted to identify if given variable has equal or unequal variance.

Table 2 shows the results of independent two sample t-test. BMI below normal or women underweight has Levene's 'f' value of 29.799 and it is statistically significant at 1%. Therefore, there is an existence of unequal variances. Hence it is inferred that the means of women

underweight in both rural and urban areas across India are statistically different and they are not the same.

Similarly, overweight has 't' value of -6404, which is also statistically significant at 1% level. There are significant differences in the means or average of overweight in both rural and urban areas across Indian States. Further, anaemia among women is also statistically significant at 10% level as 'P' value is 0.076. 'T' value is 1.799 and therefore it is inferred that there are differences in the means of anaemia among women in both urban and rural areas across India. The above result shows significant variance in the prevalence of malnutrition.

**Table 2**

**Rural-Urban Difference in women malnutrition: Summary of 't' test result**

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
BMI below normal (underweight)	Equal variances assumed	29.799	.000	4.062	68	.000	7.13429	1.75629
	Equal variances not assumed			4.062	46.432	.000***	7.13429	1.75629
Overweight/obese	Equal variances assumed	1.399	.241	-6.404	68	.000***	-11.90600	1.85906
	Equal variances not assumed			-6.404	67.176	.000	-11.90600	1.85906
Anemia among women	Equal variances assumed	.484	.489	1.799	68	.076*	5.90857	3.28393
	Equal variances not assumed			1.799	66.447	.077	5.90857	3.28393

Note: \*\*\* significant at 1% \*\* significance at 5%, \* significant at 10%.

**Conclusion**

India is typically known for high prevalence of under-nutrition, but now a days, overweight or obesity among women is also common. Majority of the women still live in the villages. For the rural population, health and nutrition requirements are different than the urban population due to

various social and economic reasons. Even after almost 70 years of independence, the health condition of rural population especially women does not seem to have improved in rural areas. It may be inferred that the fruits of development have not reached the rural people. It can be inferred from the results that there are substantial disparities in the nutritional status of rural and urban women across States and Union Territories. Better maternal nutritional status is essential for the overall growth and development of children and unless the mother's nutritional status is improved, the child's nutrition and health status cannot be expected to improve.

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