Understanding Women's Nutritional Status in Urban India: A Comparative Study of Slum versus Non Slum Dwellers

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ABSTRACT

The present research work investigates the nutritional status of women residing in urban slums/non-slums areas (Mainly in eight metro cities of India) by using data from nationally representative, National Family Health Survey III, conducted during 2005-06. Bi-variate and multivariate analyses are carried out to fulfill the objectives of the study. Body Mass Index (BMI) is used to measure the nutritional status of women aged 15-49 years. Result shows that 22.8 percent women are undernourished in slum areas while only 17.6 percent are undernourished in non-slum areas. The findings also suggest that among educated women, 23.9 percent residing in slums are undernourished while only 17.8 percent are found undernourished in non-slums areas. Further, 21.5 percent women belonging to rich group are undernourished in slums while only 16.9 percent are found undernourished in non-slums. In addition to BMI, level of anaemia is also considered to assess the nutritional status of women.

Introduction

Urbanization poses several socio-economic problems for cities in India and one among them is the rise of slums. The slum areas are called by different names in different regions like Chawls in Mumbai; Basthis Katara and Jhuggi Jhopdis in Delhi; Basthis in Kolkata and Cheris in Chennai, etc. Most of the huts in slum areas do not have any sanitary facilities like bathroom or toilet. A number of persons share one toilet, narrow pathways wind throughout the slums, with open drains on almost all sides. In recent years, however, efforts are underway in some localities, by the municipal corporation to better organize the slums and provide the residents with some basic amenities.

Majority of the women who live in slums belong to lower socio-economic classes and either they have migrated to the city with the hope of better means of livelihood or forced to migrate with their partners. Majority of them having no education, skill and work experience, they have no choice in the competitive job market and pick up low paid jobs such as construction labourer, domestic servants and casual factory workers. Inadequate income, poor housing conditions, overcrowded environment, poor sanitation, occupational hazards and stressful conditions are unfavorable to the health of women residing in the slums.

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Many scholars have studied the problems pertaining to the growth of slums and slum dwellers but nutritional status of women living in slums are rarely addressed. Therefore, here we analyse the socio-economic and nutritional status of slum/non-slum dwellers in Indian cities. The situation with respect to women's health in the urban slums is no different; rather their health is neglected the most. Kapadia et al., 1997 found that women were found to seek treatment only when their health problem caused great physical discomfort or when it affected their work performance. Such a scenario therefore solicits the attention of policy makers and programme managers to address women's health needs on an urgent basis. Let us examine the issue of the nutritional status of women in India residing in slums/non-slums.

Urban population in developing countries has grown 6.8 times between 1950 and 2000 ***(UN, 1996)***. Rural to urban migration has been observed as a major component of urban growth in developing countries, and most of the researchers converge on the opinion that both rural push (rural poverty related) and urban pull factors (city lights) are responsible for this phenomenon ***(Pernia, 1994).*** People living in slums and informal settlements are growing rapidly all over the world especially in the developing countries. Slums are the spatial manifestations of urban poverty, social exclusion, and inappropriate government policies and often characterized by one or more of these shortcomings: deteriorated or poorly structured houses crowded together, insecurity of tenure, poor environmental managements such as deficient access to safe drinking water and sanitation, stagnation of water and poor drainage with excessive open sewers, excessive amount of uncollected rubbish, severe overcrowding, flies, and poor lighting ***(Khan and Kraemer, 2008).***

As far as urban slums are concerned, problems other than nutrition have got the larger share of attention from policy-makers. Problems of urban slums are generally evaluated from the point of view of the non-slum urban population, which sees slums as a 'problem' to be solved rather than as an integral and necessary part of the urban environment. Economists have consistently argued that labour and non-labour incomes as well as the health infrastructure are critical determinants of the nutritional status of the household. For households that cannot afford the nutritionally sufficient minimum consumption bundle, malnutrition will occur irrespective of their ethnic or spatial location. Malnourishment is very likely to occur when insufficient incomes co-exist with poor coverage of basic amenities and health services ***(Hatekar and Rode, 2003).***

In India, the definition of slum is given statutorily under Slum Area (Improvement and Clearance) Act of 1956, which says, "areas where buildings are unfit for human habitation; or are by reason of dilapidation, overcrowding, design of buildings, narrowness of streets, lack of ventilation,

light or sanitary facilities or any combination of these factors, are detrimental to safety, health or morals" **(Chakraborti, 1995)**.

Slum population in India constituted 17.5 per cent of urban population in 1981, which rose up to 21.3 per cent in 1991 and the trend has continued [**MUD, 1996**]. It is observed around 22.6 percent according to 2001 census. The ratio of slum population to total urban population seems ever increasing in bigger cities. For example, the urban areas with population over 5 million (till 1991 they were Mumbai, Calcutta, Delhi and Madras) had, in average, 31.8 per cent slum population in 1991 as compared 18 percent in cities less than one million population **(Karn, Shikura, Harada, 2003).**

Nutrition has a strong relationship with socioeconomic conditions and pattern of food intakes**.** A community-based, cross-sectional study was conducted to determine the prevalence of anaemia among unmarried, adolescent south Indian girls in an urban slum setting. Significant associations were observed between anaemia and low socioeconomic status, religion and reporting infrequent/non-consumption of meat **(Choudhary et. al, 2006)**. Education is one of the most important means of improving economic performance in underdeveloped countries, the impact of cities upon the level and kind of educational facilities is of the greatest importance (**Hoselitz, 1957)**.

A study conducted by **Hatekar and Rode, 2003** found that **g**irls in urban areas tend to do better than those in rural areas**.** But at the same time urban slum dwellers are under privileged. Proportion of under nourishment is very high in slum areas. A study conducted by **Geetha and Swaminathan, 1996** shows that an appallingly high proportion of children, especially girls, in the slum community that were surveyed were undernourished. The findings of the survey done by **Sundar and Sharma, 2002** indicate that people living in resettlement colonies have a better health status than the slum dwellers. Compared with the slum population, the prevalence rate of illness has worked out to be much lower for the people living in the resettlement colonies of Delhi and Chennai **(Sundar and Sharma, 2002).**

In India the nutrition and health status of women is abysmally low. The survey done by **National Nutrition Monitoring Bureau (NNMB)** in 1990 in India shows that women's calorie requirement after the age of 10 years is not adequately met. The poor health status of women in India is mainly due to patriarchy and other socio-cultural constraints leading to her secondary status at home and poor health. It is a bitter reality that in India women's health and nutrition is inextricably linked to social, cultural and economic factors.

According to food and nutritional bulletin women's economic activities also have an important effect on their nutritional status (as well as that of other members of the household) through income generation and/or food produced. Work patterns, economic activities, and energy

expenditure as critical mediators between social conditions, food availability, and women's nutritional status should be given primary attention **(Food and Nutrition Bulletin, 2006)**.

Objective and Hypothesis

In this study an attempt has been made to study the differentials in nutritional status of the women and level of Anaemia by the urban slum and non-slum dwellers in eight metro cities of India namely Chennai, Delhi, Hyderabad, Indore, Kolkata, Mumbai, Meerut, and Nagpur. The central hypothesis of this research paper is that, women residing in slum areas with low autonomy and status will be less likely to obtain adequate food resources and will be more likely to experience under nutrition and low level of Anaemia in comparison to women residing in non-slum areas of urban India.

Data and Methods

The data from India's National Family Health Survey (NFHS-3) conducted during 2005-06 is used for this study. The NFHS-3 collected the information from a nationally representative sample of 124,385 women of women aged 15-49 years. The NFHS-3 covered all the 29 states of India, which comprises more than 99 percent of the population. The survey used a uniform sample design, questionnaire, field procedures and procedures to facilitate comparability across the states and to ensure the highest possible data quality. First time NFHS-3, collected information by slum and non-slum inhabitants also in eight metro cities of India. The sample size was sufficient to allow separate estimates for slum and non slum populations in the cities of Chennai, Delhi, Hyderabad, Indore, Kolkata, Mumbai, Meerut, and Nagpur (IIPS, 2007). For the present study, we have used samples collected from only eight metro cities of India namely Chennai, Delhi, Hyderabad, Indore, Kolkata, Mumbai, Meerut, and Nagpur. Total 4,365 women of age 15-49 years were interviewed from all 8 metro cities (Chennai, Delhi, Hyderabad, Indore, Kolkata, Mumbai, Meerut, and Nagpur).

In this paper, two indicators have been taken for the study namely body mass index and level of anaemia.

For the purposes of the study, the sample is limited to non-pregnant married women who had not given birth in the last two months. National Family Health Survey provides the information on height and weight of the woman. Based on this information, Body Mass Index (BMI) is calculated to the restricted population. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m2). This indicator is the most frequently used standardized indicator of thinness to assess the progressive loss of body energy in developing countries. Chronic energy deficiency (CED) is a term used to indicate an inadequate household food supply, and one of the methods recently suggested for assessing CED is BMI *(Ferro-Luzzi et al., 1988).* In this paper body mass index is

categorized into three parts malnourished (less than 18.5), normal (18.5-24.9) and obese and over-weight (more than 25).

Lastly, a dichotomous measure based on the standard BMI cut off of<18.5 kg/m^2 is generated. Cut-off points suggestive of malnourishment in adults (BMI < 18.5) have been established by the International Dietary Energy Consultative Group **(James, 1988).** This indicator is used to assess chronic energy deficiency malnutrition of the individual.

In addition to this information, the level of Anaemia is also considered for the analysis. In this study anaemia level is divided into three categories severe/moderate, mild (10.0-11.9g/dl) and any Anaemic. The overall analysis is restricted to ever-married women.

To fulfil the objectives of the present study bi-variate and multivariate analysis is done. To get more insights logistic Regression analysis has also been applied to find out the several influential factors on nutritional status of women.

The independent variables used for the analysis are age which has been categorised into three parts namely 15-19, 20-29 and 30-49. The marital status has been classified into two parts namely ever married and never married. The education of the respondent and the education of the respondent partners have been taken into consideration for the analysis which consists of no education and literates. Religion is divided into three categories which are Hindu, Muslim and others. Caste includes schedule caste/schedule tribes and others. Occupation of the respondent and occupation of the respondent partners includes the categories of working and not working. Children ever born include no children and at least one child. The food intake variable has also been considered for the analysis which consists of milk, vegetables, fruits and non-vegetarian food (egg, fish and meat).

Results

Table 1 shows the percentage of women who are thin (undernourished) and obese (over nourished) in eight metro cities of India. It can be seen from the table that women residing in slum areas are thinner in comparison to the women residing in non-slum areas in all the eight metro cities of India. It can also be seen that the large percentage of slum population is thin in comparison to non-slum population of India. As we can see that 22.8 percent of women of slums of India are thin whereas the percentage shares of thin women in non slum areas of India is only 17.6 percent. In Delhi, Meerut, Kolkata, Indore, Mumbai, Nagpur, Hyderabad and Chennai the percentage of thin women in slum area are 20.7, 22.4, 20.3, 31.4, 22.7, 35.4, 20.5, 18.6 percent respectively where as it is only 13.2, 18.9, 13.1, 22.7, 22.1, 27.4, 19.9, and 15.0 percent in non slum areas. Likewise we can also see that percentages of obese women are more in non-slum areas in comparison to women residing in slum areas. **Table 1** shows that among all over India, the level of obesity varies among the women living in slum areas and

non-slum areas. As we can see that 31.4 percent of women are obese in non-slum areas in comparison to women living in slum areas which is only 24.4 percent.

It can be seen from the t**able** 1 that 35.6 percent of the women are under nourished and in contrast 12.6 percent of women are overweight/obese in india.Among these 35.6 percent of the women in india, 19.4 percent of the undernourished women and 28.9 percent of the overweight/obese women are residing in slum and non-slum areas belong to these eight metro cities of India namely Delhi city, Meerut, Kolkata, Indore, Mumbai, Nagpur, Hyderabad and Chennai.

Table 2 shows the percentage of anaemia among the women living in slum and non-slum areas in eight metro cities of India. As we can see from the table that severe/moderate anaemia is high in the women living in slum areas which is 12.6 percent where as it is bit less in women of non slum areas. It can also be seen from the table that in the two metro cities Kolkata and Chennai, the percentage share of severe/moderate anaemic women are less in comparison to the women living in non slum areas. We can also see that the percentage has increased in the women of non slum in case of mild anaemia. In case of mild anaemia the percent share of women residing in non-slum areas are 36.7 percent is slightly higher in comparison to the slum women which is 35.0 percent. It can also be seen that only in case of Hyderabad and Indore the percentage of slum women are high in case of mildly anaemic. In case of any anaemia it can be seen from the table that percentage of women who are higher varies between slum and non–slum areas. Like in Meerut, Kolkata, Mumbai, Nagpur, the percentage of any anaemic women are higher in non-slum areas whereas in Delhi city, Indore, Hyderabad and Chennai percentage of anaemic women is higher in slum areas.

Table 2 also shows that in India 17.3 percent of the women are severely anaemic among which 11.9 percent belongs to the eight metro cities of India. Same way among any anaemic about half of the women of India is anaemic which is 51.8 percent and among them 48.0 percent women belongs to these eight metro cities of India.

Table 3 represents the nutritional status of women by different background characteristics. It can be seen from the table that as the age increases, the percentage of undernourished women decreases and the percentage of overweight/obese women increases. Table shows that in age group 15-19, the percentage of under-nourished and overweight women is 40.7 and 6.8 percent whereas in age group 30-49, the percentage of undernourished women and overweight/obese women is 9.0 and 43.7 percent. Table also shows that the percentage of undernourished women is high among the never married women (34.3 percent) and low in case of obese/overweight which is only 10.4 percent. Among schedule caste and schedule tribe it can be seen that percentage of undernourished women is higher (25.5 percent) in comparison to other caste women. Table shows that women belonging to other caste are more obese

(30.3 percent). It is clearly visible from the table that women belonging to other religion are more undernourished (21.2 percent). Table describes that the percentage of undernourished is high for those women who do not have any child which is 31.4 percent in comparison to those women who have at least one child. Those women who work are more undernourished (19.8 percent) and less over nourished (26.1 percent). But it is totally different in the case of partner's occupation. Table depicts that those women whose partners do not work are more likely to be undernourished (31.3 percent) in comparison to those women whose partners do work (13.2 percent). Among the educated respondent the percent of undernourished women is high in comparison to uneducated women. But in case of partner's occupation, it shows the contrast result. If the partners are literate the percentage of undernourished women is low (12.7 percent) in comparison to those women whose partners are illiterate. Table shows that rich women are less undernourished (18.4 percentage) in comparison to the women belonging to middle (29.0 percent) and poor wealth index (39.3 percent). It can be also seen from the table that as the wealth index increases women are being more overweight/obese.

Table 4 represents the level of anaemia among women by different background characteristics in eight metro cities in India. Table shows that the prevalence of anaemia is high among the women belonging to schedule caste/schedule tribe (16.6 percent) in comparison to the women belonging to other castes (10.9 percent). Very less difference is observed in case of religion. It can be seen from the table that if women are illiterate they are more likely to be severely anaemic (13.0 percent) in comparison to the women who are literate (11.7 percent). The same pattern can be seen in the case of partner's education. It can also be seen from the table that high percentage of women are severely/moderately anaemic among the women belonging to poor wealth index in comparison to the women belonging to the rich wealth index.

Table 5-6 depicts the body mass index of the women in slum and non-slum areas of all the metro cities with some of the selected background characteristics. In all the cities percentage of thinner women is more in slum areas in comparison to non-slum areas. Though the percentage of thinner women is decreasing with the increase in age of women, but in non-slum areas, this decrease is more than the slum areas. Around 45.9 percent of women in slum areas and 35.6 percent of women in non-slum areas are under-nourished in age group 15-19. But with the increase in age; it has decreased up to 11.7 percent in slum areas and 7.7 percent in non-slum areas in the age group 30-49. It is clearly visible that as the age is increasing; the percentage of obese women is also increasing both in slum and non-slum areas. Table also shows that the percentage of women who are never married are more likely to be under-nourished in comparison to the women who are ever married both in slum and non-slum areas. Among caste group non slum areas are showing better picture than slum areas. It can be seen from the

table that among schedule caste and schedule tribe the percentage of under-nourished women are more in comparison to the other caste group. Among scheduled caste/scheduled tribes the percentage of undernourished women are 27.6 in slum areas and 23.9 in non-slum areas whereas 21.6 percent in other caste in slum areas and 16.6 percent in non-slum areas. Among different religion it can be seen that the highest percentage of undernourished women is in Hindu religion in slum area which is 23.9 percent. In contrast, the highest percentage of undernourished women in non slum areas belongs to Muslim religion. Among obese women with in religion it can be seen that women belonging to other religion are more obese.

By wealth index a general pattern is followed in all the slum and non-slum areas that is as the wealth index of the people increases the under nourishment of the women decrease and obesity of the women increases. Table describes that women who does not have even a child are more undernourished in comparison to the women who are having even at least one child both in slum and non slum areas. It can be seen that 36 percent of women having no children are undernourished in slum areas and 29.1 percent in non-slum areas whereas 15.7 percent and 11.3 percentage of women having at least one child or more than that are obese both in slum and non-slum areas. Women who do not work are thinner in comparison to those women who work. The pattern is same in the case of partner's occupation. In the case of education of respondent table shows that in slum areas the percentage of undernourished women is high among literate women which are 23.9 percent in literate women and 18.4 percent in illiterate women. It can also be seen that percentage of obese women is high among illiterate women in slum areas. Likewise among the women living in non-slum areas it can be seen that percentage of women undernourished and over nourished both are high among literate women. In the case of partner's education, it is clearly visible that percentage of undernourished women is more among those whose partners are uneducated and percentage of obese women is more in case of educated partner.

Table 7-8 shows the body mass index of the women in slum and non-slum areas according to the food consumption. It can be seen from the table that the percentage of undernourished women is higher who never consume milk which is 26.5 percent in comparison to those women who either consume milk daily/weekly which is 21.4 percent or consume milk occasionally which is 23.2 percent in slum areas. The pattern is same for the women residing in non-slum areas.

Among the category of pulses, it can be seen that the women who never take pulses or beans are more likely to be undernourished (30.8 percent) in comparison to those women who take pulses or beans either daily/weekly (22.7 percent) or occasionally (21.7 percent) in slum areas. It can be seen from the table that in non-slum area women who daily take pulses are less undernourished (17.4 percent) in comparison to the women who take pulses occasionally or who never take pulses.

Table describes that among the vegetable category, it shows that 33.3 percent of the women never consuming vegetable are more likely to be thin in comparison to the women take vegetable daily/weekly (22.5 percent) in slum areas. The same pattern can be seen in this case in non-slum areas also. Table shows the same pattern among the category of fruits consumption in slum areas.

Women who eat fish daily/weekly are less likely to be undernourished which is 21.5 percent in comparison to the women who never or occasionally eat fish which is 24.9 percent and 23.1 percent in slum areas but in non slum areas it can be seen that women who do not take fish are less likely to be undernourished (16.2 percent). Table also shows that women who occasionally take chicken are less likely to be undernourished which are 22.2 percent in slum areas. The same pattern can be seen in non-slum areas also.

Table 9 depicts the results from logistic regression analysis. It shows the relationship between the nutritional status of women and slum/non-slum residence by controlling the effect of other selected covariates. In this table model I present unadjusted odds ratio and it shows that women residing in slum areas are 38 percent more likely to be undernourished in comparison to the non-slum areas. Model II shows the adjusted odds ratio after controlling the effect of various cities. It shows that women in the slum areas are 27 percent more likely to be undernourished. Model III describes the adjusted odds ratio for the food pattern. This model shows that after controlling the effect of food pattern women residing in slum areas are 23 percent more likely to be undernourished. Model IV shows the adjusted odds ratio after controlling the effect of individual level characteristics. It shows that after controlling the effect of individual level characteristics women in slum areas are 21 percent more likely to be undernourished. Model V present the adjusted odds ratio after controlling for all covariates. This shows that after controlling the effect of all the factors there is no significant difference is observed among slum and non-slum dwellers.

Summary and Conclusions

Analysis shows that 23 percent women are undernourished in slum areas while only 18 percent are undernourished in non-slum areas. The findings also suggest that among educated women, 24 percent residing in slums are undernourished while only 18 percent are undernourished in non slums areas. Further, 22 percent women belonging to rich group are undernourished in slums while only 17 percent are found to be undernourished in non slums. Multivariate analysis has also been carried out to find the independent effects on the nutritional status of women. The results suggest that women in slum areas are no longer more vulnerable compared to non slum areas. There is no significant difference observed among women residing in slum and non-slum areas in case of anaemia also.

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TABLE 1: NUTRITIONAL STATUS OF WOMEN BY SLUM/NON-SLUM AREA

City (Slum/ Non-slum)	Body Mass Index			
	Thin	Normal	Overweight/ Obesity	Number (N)
Delhi City				
Slum	20.7	59.2	20.1	174
Non-slum	13.2	58.3	28.5	751
Total	14.6	58.5	26.9	925
Meerut				
Slum	22.4	53.4	24.1	58
Non-slum	18.9	47.3	33.8	74
Total	20.5	50.0	29.5	132
Kolkata				
Slum	20.3	54.5	25.1	187
Non-slum	13.1	54.3	32.6	350
Total	15.6	54.4	30.0	537
Indore				
Slum	31.4	48.6	20.0	35
Non-slum	22.7	53.9	23.4	141
Total	24.4	52.8	22.7	176
Mumbai				
Slum	22.7	52.4	25.0	777
Non-slum	22.1	48.4	29.5	589
Total	22.4	50.7	26.9	1366
Nagpur				
Slum	35.4	51.5	13.1	99
Non-slum	27.4	50.0	22.6	164
Total	30.4	50.6	19.0	263
Hyderabad				
Slum	20.5	48.7	30.8	78
Non-slum	19.9	45.5	34.6	382
Total	20.0	46.1	33.9	460
Chennai				
Slum	18.6	48.5	33.0	97
Non-slum	15.0	44.1	40.9	408
Total	15.6	45.0	39.4	505
All Cities				
Slum	22.8	52.9	24.4	1507
Non-slum	17.6	51.0	31.4	2858
Total	**19.4**	**51.7**	**28.9**	**4365**
INDIA	**35.6**	**51.8**	**12.6**	**111,781**

TABLE 2: LEVEL OF ANAEMIA AMONG WOMEN BY SLUM/NON-SLUM AREA

City (Slum/ Non-slum)	Level of Anaemia			
	Severe/Moderate	Mild	Any Anaemic	Number (N)
Delhi City				
Slum	12.2	35.4	47.6	189
Non-slum	7.8	35.7	43.5	793
Total	8.7	35.6	44.3	982
Meerut				
Slum	12.5	28.1	40.6	64
Non-slum	12.5	36.3	48.8	80
Total	12.5	32.6	45.1	144
Kolkata				
Slum	9.6	42.6	52.3	197
Non-slum	10.8	46.0	56.8	361
Total	10.4	44.8	55.2	558
Indore				
Slum	10.0	32.5	42.5	40
Non-slum	9.4	30.2	39.6	159
Total	9.5	30.7	40.2	199
Mumbai				
Slum	12.5	33.4	45.9	814
Non-slum	11.6	36.4	48.0	594
Total	12.1	34.7	46.8	1408
Nagpur				
Slum	13.9	35.2	49.1	108
Non-slum	13.3	38.7	52.0	173
Total	13.5	37.4	50.9	281
Hyderabad				
Slum	18.1	36.1	54.2	83
Non-slum	15.2	33.8	49.0	394
Total	15.7	34.2	49.9	477
Chennai				
Slum	14.3	36.2	50.5	105
Non-slum	15.1	36.3	51.5	443
Total	15.0	36.3	51.3	548
All Cities				
Slum	12.6	35.0	47.6	1598
Non-slum	11.5	36.7	48.3	2996
Total	**11.9**	**36.1**	**48.0**	**4594**
INDIA	**17.3**	**35.0**	**51.8**	**79,633**

Table 3: NUTRITIONAL STATUS OF WOMEN BY DIFFERENT BACKGROUND CHARACTERISTICS IN EIGHT METRO CITIES OF INDIA

	Thin	Normal	Overweight/Obesity	Number (N)
Age in years				
15-19	40.7	52.5	6.8	764
20-29	23.6	57.7	18.7	1452
30-49	9.0	47.3	43.7	2149
Marital Status				
Never Married	34.3	55.2	10.4	1264
Ever Married	13.3	50.2	36.5	3101
Caste				
Schedule caste/Schedule Tribe	25.5	52.2	22.3	736
Others	18.2	51.5	30.3	3567
Religion				
Hindu	21.1	50.8	28.1	669
Muslims	14.7	47.6	37.8	143
Others	21.2	49.2	29.5	264
Children Ever Born				
0	31.4	55.4	13.2	1539
1+	12.8	49.7	37.5	2826
Occupation				
Working	19.8	54.1	26.1	1178
Not Working	19.2	50.8	30.0	3186
Partner Occupation				
Working	13.2	50.2	36.6	2875
Not Working	31.3	54.5	14.2	1490
Education				
Illiterate	17.4	56.0	26.6	657
Literate	19.7	50.9	29.3	3707
Partner Education				
Illiterate	19.0	54.7	26.3	300
Literate	12.7	49.7	37.6	2787
Wealth Index				
Poor	39.3	50.8	9.8	61
Middle	29.0	55.1	15.9	283
Rich	18.4	51.5	30.1	4021
Total	19.4	51.7	28.9	4365

Table 4: LEVEL OF ANAEMIA AMONG WOMEN BY DIFFERENT BACKGROUND CHARACTERISTICS IN EIGHT METRO CITIES OF INDIA

	Severe/Moderate	Mild	Any Anaemic	Number (N)
Age in years				
15-19	12.1	38.7	50.8	758
20-29	12.0	36.0	48.0	1591
30-49	11.7	35.4	47.1	2245
Marital Status				
Never Married	11.9	35.6	47.5	1220
Ever Married	11.9	36.4	48.2	3375
Caste				
Schedule caste/Schedule Tribe	16.6	35.5	52.0	784
Others	10.9	36.3	47.2	3745
Religion				
Hindu	12.1	36.4	48.5	720
Muslims	11.8	32.9	44.7	152
Others	10.4	34.6	45.0	280
Children Ever Born				
0	11.9	35.6	47.5	1551
1+	11.9	36.4	48.3	3044
Occupation				
Working	12.4	35.7	48.1	1214
Not Working	11.7	36.3	48.0	3381
Partner Occupation				
Working	11.8	36.5	48.3	3133
Not Working	12.0	35.5	47.5	1462
Education				
Illiterate	13.0	36.4	49.4	715
Literate	11.7	36.1	47.8	3879
Illiterate	14.0	36.5	50.5	329
Literate	11.7	36.2	47.9	3031
Wealth Index				
Poor	15.5	36.6	52.1	71
Middle	15.6	37.9	53.5	314
Rich	11.5	36.0	47.5	4211
Total	**11.9**	**36.1**	**48.0**	**4596**

TABLE 5: NUTRITIONAL STATUS OF WOMEN BY DIFFERENT BACKGROUND CHARACTERISTICS IN SLUM AREAS

Background Characteristics	Thin	Normal	Overweight/Obesity	Number (N)
Age in Years				
15 - 19	45.9	49.5	4.6	281
20 - 29	25.3	58.2	16.5	522
30 - 49	11.7	50.4	38.0	703
Marital Status				
Never Married	39.4	52.8	7.8	436
Ever Married	16.0	52.9	31.1	1071
Caste				
Scheduled caste/Scheduled Tribe	27.6	53.1	19.3	322
Others	21.6	52.6	25.8	1155
Religion				
Hindu	23.9	52.9	23.2	1064
Muslims	20.1	53.9	26.0	304
Others	20.1	50.4	29.5	139
Children Ever Born				
0	36.0	54.1	9.9	525
1+	15.7	52.2	32.1	982
Occupation				
Working	24.8	52.8	22.3	439
Not Working	22.0	52.9	25.2	1069
Partner Occupation				
Working	15.8	52.8	31.4	985
Not Working	35.8	53.1	11.1	522
Education				
Illiterate	18.4	57.1	24.5	310
Literate	23.9	51.8	24.3	1197
Partner Education				
Illiterate	19.0	54.4	26.5	147
Literate	15.6	52.7	31.8	919
Wealth Index				
Poor	41.9	48.4	9.7	31
Middle	30.7	54.9	14.4	153
Rich	21.5	52.7	25.8	1324
Total	**22.8**	**52.9**	**24.3**	**1507**

TABLE 6: NUTRITIONAL STATUS OF WOMEN BY DIFFERENT BACKGROUND CHARACTERISTICS IN NON-SLUM AREAS

Background Characteristics	Thin	Normal	Overweight/Obesity	Number (N)
Age in Years				
15 - 19	37.6	54.4	8.1	482
20 - 29	22.6	57.4	20.0	100
30 - 49	7.7	45.9	46.5	1446
Marital Status				
Never Married	31.6	56.5	11.8	828
Ever Married	11.9	48.8	39.3	2030
Caste				
Scheduled caste/Scheduled Tribe	23.9	51.4	24.6	414
Others	16.6	50.9	32.5	2412
Religion				
Hindu	16.8	51.9	31.3	2225
Muslims	21.9	48.2	29.9	365
Others	18.3	47.8	34.0	268
Children Ever Born				
0	29.1	56.0	14.9	1014
1+	11.3	48.3	40.4	1845
Occupation				
Working	16.9	54.7	28.4	740
Not Working	17.8	49.8	32.4	2118
Partner Occupation				
Working	11.8	48.9	39.3	1891
Not Working	28.9	55.3	15.8	968
Education				
Illiterate	16.4	54.9	28.7	348
Literate	17.8	50.5	31.8	2510
Partner Education				
Illiterate	19.0	54.9	26.1	153
Literate	11.3	48.3	40.4	1867
Wealth Index				
Poor	36.7	53.3	10.0	30
Middle	27.5	55.0	17.6	131
Rich	16.9	50.8	32.3	2696
Total	**17.6**	**51.0**	**31.4**	**2858**

TABLE 7: FOOD PATTERN AND NUTRITIONAL STATUS OF WOMEN IN SLUM AREAS

	Thin	Normal	Overweight/Obesity	Number (N)
Milk				
Never	26.5	52.6	20.9	215
Occasionally	23.2	53.1	23.7	561
Daily/Weekly	21.4	52.9	25.8	730
Pulse				
Never	30.8	46.2	23.1	13
Occasionally	21.7	54.3	23.9	92
Daily/Weekly	22.7	52.9	24.4	1401
Vegetable				
Never	33.3	66.7	0.0	9
Occasionally	24.6	55.1	20.3	118
Daily/Weekly	22.5	52.7	24.8	1380
Fruit				
Never	30.3	54.5	15.2	33
Occasionally	24.0	53.8	22.2	625
Daily/Weekly	21.7	52.1	26.2	848
Egg				
Never	23.1	49.1	27.8	273
Occasionally	22.8	54.5	22.8	457
Daily/Weekly	22.7	53.3	24.1	777
Fish				
Never	24.9	51.4	23.7	350
Occasionally	23.1	52.4	24.4	471
Daily/Weekly	21.5	53.9	24.6	684
Chicken				
Never	24.6	48.8	26.7	285
Occasionally	22.2	55.1	22.6	499
Daily/Weekly	22.4	52.9	24.7	722
Total	22.8	52.9	24.3	1506

TABLE 8: FOOD PATTERN AND NUTRITIONAL STATUS OF WOMEN IN NON SLUM AREAS

	Thin	Normal	Overweight/Obesity	Number (N)
Milk				
Never	22.0	49.4	28.6	259
Occasionally	21.8	51.4	26.8	725
Daily/Weekly	15.4	51.1	33.5	1875
Pulse				
Never	26.5	52.9	20.6	34
Occasionally	19.4	47.4	33.2	196
Daily/Weekly	17.4	51.3	31.4	2628
Vegetable				
Never	30.0	50.0	20.0	10
Occasionally	20.8	51.2	28.0	125
Daily/Weekly	17.4	51.1	31.5	2722
Fruit				
Never	20.0	42.9	37.1	35
Occasionally	22.8	49.9	27.3	776
Daily/Weekly	15.5	51.6	32.8	2047
Egg				
Never	15.1	48.8	36.1	880
Occasionally	20.5	53.3	26.2	664
Daily/Weekly	17.8	51.4	30.8	1312
Fish				
Never	16.2	50.4	33.4	1083
Occasionally	21.0	52.7	26.3	749
Daily/Weekly	16.7	50.5	32.8	1024
Chicken				
Never	15.2	50.5	34.3	991
Occasionally	19.0	55.0	26.0	743
Daily/Weekly	18.8	48.8	32.4	1124
Total	17.6	51.0	31.3	2859

Table 9: Results from Logistic Regression Analysis: Dependent Variable: 0=BMI 18.5 and above, 1= BMI less than 18.5

Models	Residence	Odds Ratio	Significance	95 % Confidence Interval	
Model I	Non Slum®	1.00		**Lower**	**Upper**
	Slum	1.38	0.000	1.18	1.61
Model II	Non Slum®	1.00			
	Slum	1.27	0.000	1.08	1.50
Model III	Non Slum®	1.00			
	Slum	1.23	0.011	1.05	1.45
Model IV	Non Slum®	1.00			
	Slum	1.21	0.092	0.97	1.52
Model V	Non Slum®	1.00			
	Slum	0.98	0.843	0.76	1.25

Note- (i) Model I is unadjusted; (ii) Model II is adjusted for Cities; (iii) Model III is adjusted for food pattern; (iv) Model IV is adjusted for Individual Level Characteristics; (v) Model V is adjusted for All Covariates.