

Risk Factors of Undernutrition Among Women in the Reproductive Age Group of India: An Evidence from NFHS-3

Jiten Hazarika, Irani Saikia and Partha Jyoti Hazarika

Department of Statistics, Dibrugarh University, Dibrugarh- 786004, Assam, India

Abstract: The developing countries are increasingly characterized by the occurrence of undernutrition. In countries like India, the problem of undernutrition is a burning issue since India's independence. It is a very depressing health problem of today, affecting over half of the country's population and the main victims are the women the reproductive age group. So, studying undernutrition among women and eliminating its risk factors is an extremely serious problem in India. The objective of this study was to access the status of undernutrition and their causal factors among women in the age group of (15-49) years in different states of India, including separated rural and urban areas and for pooled data. To determine the prevalence of undernutrition, anthropometric measure is used which is indicated by Body Mass Index (BMI) and multiple logistic regression analysis has been adopted to access the impact of proposed predictors on undernutrition. The findings revealed that the standard of living and age of the women are the more prominent risk factors of undernutrition among women. However, the other factors, viz., religion, caste and education also have influence on undernutrition.

Key words: Undernutrition • BMI • NFHS-3 • Multiple Logistic Regression • Odds Ratio

INTRODUCTION

Preventing undernutrition has emerged as one of the most critical challenges to India's development planners in recent times. Despite substantial improvement in health and well-being since the country's independence in 1947, undernutrition remains a salient emergency in India, where half of all children under the age of three are underweight, 30 percent of newborns born with low birth weight and 52 percent women and 74 percent children are anemic. Other major nutritional deficiencies of public health importance in the country are Vitamin A deficiency and iodine deficiency. The prevalence of undernutrition is high in India particularly among children below 5 years, adolescent girls and women.

According to the collaborative work of UNICEF and Govt. of India during the 2005-2006, under nutrition is the underlying cause for about 50% of the 2.1 million under 5 deaths in India each year. The report also revealed that the under nutrition is the highest in Madhya Pradesh (55%), Bihar (54%), Orissa (54%), Uttar Pradesh (52%) and Rajasthan (51%), while Kerala (37%) and Tamil Nadu (27%) have lower rates [1].

In our country although mothers are the main care provider for their children and for their family, but they ignore their own health and which results in undernutrition among the care providers, the women, both in rural and urban areas and makes themselves vulnerable to undernutrition. In countries like India, both social as well as biological factors are responsible for women to be a vulnerable group to undernutrition throughout the life cycle. The girls, particularly, the adolescents are usually discriminated against in access to health care, education and diet. An undernourished mother is more likely to produce a child with low-birth weight and thus an under nourished child. This completes the cycle of undernourishment.

Poorly nourished children can't grow and develop properly, resist infections or learn to their full potential. The Millennium Development Goals (MDG) of reducing mortality by three quarters between 1990 and 2015(MDG5) is highly related to women's nutritional status. Poor maternal nutrition is directly associated with mother's lack of resistance to infection and to maternal ill health during pregnancy and childbirth, particularly among the poor. Therefore providing obstetric care alone is not enough

unless poor women’s nutritional status is also addressed. In depth, understanding of women’s nutritional status is crucial to reducing maternal mortality and food insecurity.

Only limited recent empirical research works [2, 3] have been noticed on the causal factors of undernutrition among women in India. The present study has important policy implications from a global health perspective as well as a country specific viewpoint. From a global health perspective it will help to evaluate the progress being made by countries towards achieving the Millennium development goals (MDG). Also, the study will help us to identify the reasons and region of undernutrition in India. Keeping all this points in mind, an attempt has been made to access the status of undernutrition and their causal factors among women in the age group of (15-49) years in different states of India and India as a whole for rural and urban areas separately and for pooled data. The findings with discussion of the same along with the methodology adopted here are presented in this paper.

Measuring Undernutrition and Studying Risk Factors:

Anthropometry is a widely accepted, simple field technique for evaluating physical growth and the nutritional status of individuals and population group. One important indicator of undernutrition is body mass index (BMI) which is defined as the ratio of weight (in kg) to height or length (in m²). Women with BMI<18.5, [4] are considered undernourished and those with BMI<16 are taken to be suffering from severe undernutrition.

Some Other Measurement and Indicators of Undernutrition Are:

Prevalence of low height for age (stunting) is expressed as a Z-score or percentage of individuals showing low height for age i.e. stunted. It is determined by standardizing the height given age and sex against the international standard of well-nourished people. If Z-score <2 then the individual is stunted and if Z-score <3 then the individual is severely stunted.

Again, prevalence of low weight for height (wasting) indicates transitional nutrient depletion. Along with other factors, lack of nutrition is another factor for wasting. It is calculated by standardizing the individual’s weight given height and sex against an international standard of well nourished individuals. Individuals with Z-score <2 are classified as wasted and Z-score <3 are classified as severely wasted.

Another composite measure of nutritional status, reflecting chronic and transitory nutritional deprivation is prevalence of low weight for age (i.e. underweight). It is

also expressed as Z-score or as percentage of individuals underweight and is calculated by standardizing an individual’s weight for age and sex against a given set of well-nourished individuals.

The prevalence of low hemoglobin (anemia) in non pregnant women is expressed as grams of hemoglobin per liter of blood. The cut off is 120 g/l for non-pregnant women. According to ISTI, 1996, among non-pregnant and non-lactating women in India, anemia rates ranged from 25% to 90%.

The studies made by [5-18] revealed that there are numerous socio-economic, demographic, dietary and cultural factors play as risk factors of undernutrition. The temporal and spatial factors always play a major role in such types of studies. So, the present study is proposed in the Indian context.

Table 1: Variables used in Studying Undernutrition & their Type and Codes

Variable	Type	Code
Nutritional status	Explained	
Nourished ^R		0
Undernourished		1
Age (in years)	Explanatory	
15-19		1
20-34		2
35-49 ^R		3
Religion	Explanatory	
Hindu ^R		1
Muslim		2
Christian (Ch.)		3
All others		4
Caste	Explanatory	
SC		1
ST		2
OBC		3
General and others ^R		4
Educational status	Explanatory	
No Education ^R		0
Primary education (Pr.)		1
Secondary education (Sec.)		2
Higher education (High)		3
Standard of Living	Explanatory	
Low		1
Medium (Med.)		2
High ^R		3

R= Reference Category

Table 2: Results of Multiple Logistic Regression Analysis for Different states of India (Odds Ratio, Pooled Data)

State	Religion			Standard of Living		Age		Caste			Education		
	Muslim	Ch.	All others	Low	Med.	15-19	20-34	SC	ST	OBC	Pr.	Sec.	High.
AnP	0.959	0.780	1.410	2.065*	1.679*	5.083*	2.321*	1.662*	1.680*	1.508*	0.620*	0.674*	0.535*
ArP	0.754	0.978	0.643	1.260	1.036	2.279*	1.199	1.738	0.568*	1.054	0.714	0.505*	0.569
Assam	1.323	0.894	1.309	1.875*	1.676*	1.951*	1.142	1.375*	0.466*	1.055	0.671*	0.589*	0.478*
Bihar	1.158	N/C	0.631	2.147*	1.621*	2.197*	1.309*	1.323	0.851	0.905	0.899	0.860	0.414*
chat	0.896	1.131	1.735	2.210*	1.918*	2.596*	1.792*	1.266	1.756*	1.694*	0.960	0.770*	0.512*
Delhi	0.814	0.726	0.876	2.179	1.311	7.700*	3.107*	1.454*	2.505*	1.516*	0.797	0.926	0.480*
Goa	0.637*	1.096	1.462	2.842*	2.248*	4.890*	2.436*	1.147	1.613*	1.056	0.909	0.903	0.676
Gujrat	1.238	1.532	0.499	2.264*	1.915*	4.325*	2.179*	1.367*	2.945*	1.542*	0.793	0.785*	0.725
Harayna	1.289	N/C	0.421*	2.954*	1.597*	4.219*	2.164*	1.031	1.974	1.091	0.745	0.749*	0.506*
HP	0.668	N/C	0.583	1.153	1.280*	6.861*	2.753*	1.126	1.434	1.328*	0.804	0.786	0.535*
J&K	0.438*	N/C	0.465	1.511	1.535*	4.557*	2.546*	1.057	1.528	1.221	0.694	0.704*	0.340*
Jarkhand	1.239	0.995	0.987	2.334*	1.877*	1.983*	1.453*	1.005	1.307	1.440*	1.446	1.153	0.961
Ktk	0.646*	0.750	1.710	2.412*	1.532*	3.653*	1.675*	0.899	1.322	0.989	0.836	0.765*	0.860*
Kerala	0.750*	0.755	2.777	2.451*	1.845*	4.955*	2.047*	0.990	1.714	0.921	1.110	1.003	0.872*
Manipur	1.804*	0.903	1.464	1.603*	1.568*	1.272	1.061	1.610	0.708	0.869	0.877	0.825	0.345
Megh.	1.290	0.653	0.822	1.516	1.058	1.690*	1.450*	0.688	0.452	0.527	1.072	0.865	0.704
Miz.	N/C	2.938	0.705	2.498*	2.114*	1.316	1.354	2.168	0.558	N/C	0.567	0.441*	0.332*
Mah.	0.737*	0.665	0.983	2.788*	1.720*	4.621*	2.226*	1.042	1.289*	1.105	0.901	0.896	0.670*
MP	1.119	1.617	0.940	2.002*	1.854*	2.154*	1.573*	1.663*	1.703*	1.466*	0.856	0.941	0.650*
Nag.	1.494	1.209	N/C	1.537	1.209	2.993*	1.976*	1.287	0.683	0.736	0.744	0.960	0.837
Orrisa	2.381*	0.859	0.949	2.373*	1.776*	1.693*	1.478*	1.518*	1.418*	1.286	0.720*	0.667*	0.540*
Panjab	1.100	0.192	0.873	3.674*	1.935*	7.690*	2.700*	1.418*	2.931*	1.189	0.760	0.837	0.935
Raj.	0.963	0.663	0.725	1.685*	1.447*	2.785*	1.814*	1.061	1.652*	0.888	0.842	1.153	0.750
Sikim	2.156	0.879	0.640	2.437*	1.659*	3.824*	1.320	0.509*	0.773	0.747	0.701	0.632*	0.593
TN	0.879	0.708*	3.295	2.862*	1.856*	5.326*	2.099*	2.160*	6.349*	2.035*	0.733*	0.641*	0.547*
Tripura	1.356	N/C	0.399*	2.183*	1.876*	1.483*	1.185	1.286	0.552*	1.145	0.879	0.696*	0.190*
UP	0.951	2.739	0.861	2.711*	2.017*	2.273*	1.421*	1.268*	1.646*	1.103	0.784*	0.869*	0.651*
Uttr.	0.964	1.809	1.068	1.923*	1.423*	2.603*	1.314*	1.141	2.100*	0.872	0.926	0.774*	0.409*
W.B.	1.009	0.606	0.770	4.334*	2.154*	2.606*	1.493*	1.153	1.666*	1.410*	0.905	0.797*	0.373*
India	0.895*	0.403*	0.599*	2.433*	1.705*	3.106*	1.721*	1.226*	1.154*	1.150*	0.775*	0.750*	0.555*

Note: * Significant at 5% prob. Level

N/C Not considered for the Study

Model and Methodology: The National Family Health Survey (NFHS) program started in the early 1990s is a nationally important source of data on population, health and nutrition for India and its states. The third National Family Health Survey (NFHS-3) was designed to provide estimates on important indicators like family welfare, maternal and child health, nutrition, family life education etc.

For the current study, we have taken our required data from NFHS-3. It covers all the 29 states in India, which comprises more than 99% of India's population, including rural-urban residence differentiations. For the survey NFHS-3 used a uniform sample design, questionnaires, field procedures and procedures to ensure the highest possible data quantity. NFHS-3 interviewed all women age 15-49. For our present purpose, we have

considered all the non-pregnant women in this reproductive age group [19].

For the study we considered nutrition as the explained variable with two categories viz. nourished and undernourished, while age, religion, caste, education and standard of living of the women as the explanatory variables. The Multiple Logistic Regression model has been adopted to study the association between the explained variable (whether women are undernourished or not) and each of the explanatory variables. The analysis has been made by using SPSS (version-17) software package which utilizes the Maximum Likelihood method. Here, models have been estimated for all the states of India with rural-urban differentiation and India as a whole. The variables used along with their types and codes have been presented in Table 1.

Table 3: Results of Multiple Logistic Regression Analysis for Different states (Urban areas) of India

State	Religion			Standard of Living		Age		Caste			Education		
	Muslim	Ch.	All others	Low	Med.	15-19	20-34	SC	ST	OBC	Pr.	Sec.	High.
AnP	1.237	0.612*	1.477	1.739*	1.615*	8.911*	3.126*	1.915*	1.882*	1.474*	0.631*	0.812	0.746
ArP	0.435	0.448	0.296*	1.197	0.887	5.283*	2.298*	0.824	0.565	0.683	1.101	0.487*	0.418
Assam	0.873	0.300	0.344	1.844*	1.404	4.458*	1.610*	1.049	1.472	1.704*	0.821	0.661	0.447*
Bihar	1.220	N/C	1.199	1.624*	1.641*	5.794*	2.193*	0.989	0.484	0.742	0.852	0.838	0.444*
chati	1.352	1.584	2.975*	2.334*	2.312	4.952*	2.599*	1.543	1.157	1.498*	1.138	0.993	0.809
Delhi	0.801	0.511	0.725	2.001	1.691*	8.212*	3.321*	1.523	2.217	1.596	0.722	0.882	0.469*
Goa	0.854	1.401	1.032	3.572*	2.614*	6.914*	3.213*	1.257	2.387*	1.432	1.119	1.426	1.075
Gujrat	1.250	N/C	3.096	1.611	1.860*	8.257*	2.900*	1.556*	0.881	1.190	0.478	0.620*	0.455
Harayna	1.234	N/C	0.399	6.599*	2.015*	5.832*	2.100	1.349	N/C	1.831*	0.475	0.377	0.303
HP	1.268	N/C	1.254	2.052	2.476*	19.576*	6.533*	1.398	3.018	1.490	1.030	1.821	1.156
J&K	1.692	N/C	1.220	1.148	1.499	39.447*	17.349*	2.217	3.628	1.605	0.511	0.523	0.303
Jarkhand	1.522*	N/C	1.370	2.815*	1.966*	4.956*	2.453*	1.797*	1.240	1.661*	1.415	0.658	0.713
Kik	0.810	0.809	0.474	2.706*	1.250	7.099*	2.488*	1.944	1.973*	1.793	0.848	0.755	0.749
Kerala	0.784	0.738	N/C	1.231	2.243*	5.030*	1.896*	0.975	1.329	0.781	1.153	0.678	0.802
Manipur	0.826	2.586	0.106*	2.628*	0.935	2.980*	2.062*	1.055	0.258*	1.285	0.907	1.367	1.019
Megh.	0.148	0.645	2.632	2.232	1.177	2.681*	2.051*	0.250*	0.764	0.568	0.615	0.549	0.426
Miz.	N/C	1.858	N/C	5.901*	2.417*	2.001*	1.851*	N/C	0.789	0.457	0.295	0.281	0.227
Mah.	0.908	0.834	1.002	2.572*	1.504*	6.940*	2.751*	1.373*	1.201	1.230*	0.965	1.006	0.815
MP	1.197	1.775	0.971	2.110*	1.838*	3.354*	1.972*	1.817*	3.159*	1.530*	0.795	1.007	0.746
Nag.	1.417	1.076	N/C	1.268	1.038	3.651*	2.201*	1.475	0.910	1.035	0.681	0.835	0.781
Orrisa	2.240	0.823	1.068	2.304*	1.324	4.301*	1.821*	1.751*	2.042*	1.862*	0.683	0.582*	0.583
Panjab	1.824	N/C	1.006	13.288*	2.298*	11.736*	3.184*	1.732	N/C	1.099	0.731	0.667	0.631
Raj.	0.893	0.413	0.598	2.469*	1.103	5.132*	2.441*	1.330	1.401	1.205	0.591*	0.954	0.743
Sikim	2.281	0.553	0.676	9.625	1.837	11.842*	2.819*	0.476	0.538	0.477	0.852	0.881	0.648
TN	0.953	1.896	0.944	2.870*	1.850*	4.478*	2.226*	1.470*	1.315	1.247*	0.732*	0.814	0.694*
Tripura	1.262	N/C	N/C	1.739	1.570	1.764	0.874	1.938*	1.849	2.140*	0.558	0.426*	0.220*
UP	0.953	1.896	0.944	2.870*	1.850*	4.478*	2.226*	1.470*	1.315	1.247*	0.732*	0.814	0.694*
Uttr.	1.202	4.786	0.575	3.125*	1.143	9.242*	2.775*	1.287	1.094	0.961	1.014	0.753	0.478
W.B.	1.231	N/C	0.674	3.327*	1.873*	3.892*	1.713*	1.320*	3.837*	1.255	1.091	0.867	0.490*
India	1.022	0.569*	0.885*	2.334*	1.579*	5.516*	2.383*	1.440*	1.127*	1.281*	0.782*	0.794*	0.640*

Note: * Significant at 5% prob. Level

N/C Not considered for the Study

Results of Multiple Logistic Regression Analysis:

Relative Risks of Undernutrition: To assess the impact of proposed predictors on under nutrition, the Multiple Logistic Regression has been used as stated in the methodology.

Table 2 depicts the adjusted Odds ratios of under nutrition (BMI<18.5) by background characteristics (age, caste/tribe, religion, education, standard of living) for different states of India and India as a whole to identify factors affecting undernutrition, whereas the relative risks of undernutrition via Odds ratio for urban and rural areas are depicted in Table 3 and Table 4 separately.

The findings revealed that the standard of living and age of the women are the major risk factors for undernutrition among women. However the other factors i.e. religion, caste and education also have influence on undernutrition.

Let us now discuss the findings of the study according to the risk factors separately:

Age: In India, women in the age group 15-19 and 20-34 are 3.1 and 1.7 times respectively more likely to suffer from undernutrition compared to women in the age group 35-49 and the difference is severe in the state Delhi (OR=7.7) and Punjab (OR=7.7) followed by Himachal Pradesh (OR=6.861) Andhra Pradesh (OR=5.083), Maharashtra (OR=4.621). In rural India, in 15-19 and 20-34 age groups, it is 2 times and 1.4 times more likely to be undernourished and in urban India, undernutrition is 5.5 times and 2.3 times more than 35-49 age group respectively. The impact of undernutrition is severe in Jammu and Kashmir (rural, OR=3.378, OR=2.005; urban, OR=39.447, OR=17.349) compared to age group 35-49. The study of DHS working papers [14] of Ethiopia, found that young women (age 15-19) and older

Table 4: Results of Multiple Logistic Regression Analysis for Different states (Rural areas) of India .

State	Religion			Standard of Living		Age		Caste			Education		
	Muslim	Ch.	All others	low	Med.	15-19	20-34	SC	ST	OBC	Pr.	Sec.	High.
AnP	0.894	0.889	N/C	1.681*	1.404*	2.272*	1.865*	1.645*	1.588*	1.663*	0.680*	0.811	0.750
ArP	1.529	1.798	1.194	1.797*	1.407	1.554	0.914	3.968*	0.468*	1.427	0.602	0.599	1.001
Assam	1.408	0.943	1.681	1.854*	1.777*	1.300	0.929	1.521*	0.377*	0.825	0.684*	0.634*	0.775
Bihar	1.375*	N/C	N/C	1.763*	1.292	1.279	1.031	1.794*	1.368	1.215	1.017	0.929	0.579
chati	0.488	N/C	0.415	1.807*	1.557*	1.969*	1.540*	1.106	1.587*	1.643*	1.000	0.786	0.555
Delhi	0.483	N/C	N/C	***	***	2.576	1.169	2.072	N/C	1.264	***	***	***
Goa	0.557	0.847	2.367	2.074*	1.850*	3.989*	2.174*	1.180	1.206	0.848	0.778	0.697	0.611
Gujrat	1.222	1.203	1.028	2.025*	1.690*	2.761*	1.901*	1.248	2.975*	1.689*	1.059	1.030	1.328
Harayna	1.362	N/C	0.391*	2.536*	1.426	3.617*	2.041*	0.994	1.281	0.967	0.838	0.848	0.810
HP	N/C	N/C	0.427*	1.023	1.087	5.426*	2.274*	1.094	1.259	1.217	0.791	0.801	0.768
J&K	0.357*	N/C	0.382	1.363	1.368	3.378*	2.005*	0.990	1.591	1.170	0.705	0.770	0.659
Jarkhand	1.005	1.018	0.997	1.570*	1.242	1.246	1.169	0.514*	0.849	0.974	2.406	2.418	1.910
Ktk	0.585*	0.866	2.551*	2.099*	1.463*	2.553*	1.407*	0.728*	1.168	0.820	0.864	0.872	1.294
Kerala	0.711*	0.823	4.103	2.988*	1.665*	4.961*	2.106*	1.003	1.963	1.031	1.071	1.177	0.842
Manipur	1.804*	0.903	1.272	1.603*	1.568*	1.272	1.061	1.610	0.718	0.869	0.877	0.825	0.345
Megh.	1.588	0.459	0.610	1.992*	1.116	1.375	1.245	0.679	0.291	0.268	1.351	0.918	0.676
Miz.	***	***	***	1.376	1.545	0.928	1.085	***	***	***	0.588	0.430*	0.350
Mah.	0.519*	N/C	1.072	2.304*	1.690*	1.983*	1.550*	0.880	1.186	0.917	1.002	1.032	0.72
MP	1.501	N/C	1.269	1.689*	1.628*	1.340*	1.268*	1.509	1.384*	1.285	1.002	0.979	0.811
Nag.	1.357	1.331	N/C	1.551*	1.308	2.489*	1.696*	1.112	0.306*	0.322	0.830	1.212	0.981
Orrisa	3.533	1.037	0.913	2.181*	1.772*	1.232	1.140	1.442*	1.261	1.109	0.728	0.689*	0.551
Panjab	0.378	0.249*	0.861	3.371*	2.034*	6.239*	2.441*	1.306	3.344	1.211	0.799	0.975	1.738
Raj.	1.019	2.289	1.371	1.702*	1.575*	1.997*	1.564*	0.790	1.304	0.654*	1.057	1.364*	0.880
Sikim	1.798	1.045	0.618	2.257*	1.590*	2.318*	1.047	0.529	0.997	0.956	0.725	0.639	1.133
TN	1.091	3.326	0.860	2.296*	1.812*	1.501*	1.119	1.219*	1.651	1.020	0.846	0.982	1.041
Tripura	1.211	N/C	0.482	2.247*	1.961*	1.440*	1.321	1.126	0.413*	0.919	0.907	0.712	0.106*
UP	1.091	3.326	0.860	2.296*	1.812*	1.501*	1.119	1.219*	1.651	1.020	0.846	0.982	1.041
Utt.	1.690	N/C	1.132	1.698*	1.370*	1.671*	1.030	1.243	2.311*	0.847	0.978	0.935	0.683
W.B.	0.796	0.654	1.887	2.997*	1.852*	1.795*	1.298*	0.945	1.154	1.130	0.763*	0.803	0.727
India	0.904*	0.330*	0.465*	2.159*	1.601*	2.100*	1.428*	1.119*	1.076*	1.042	0.822*	0.802*	0.692*

Note: * Significant at 5% prob. Level

*** Population is too small to calculate. N/C Not considered for the Study

women (age 40-49) are more likely to undernourish than women age 20-29. But our study revealed that in India, age groups 15-19 and 20-34 are the most vulnerable group of undernutrition.

Standard of Living: In India, women of low and medium standard of living are more probable to be affected by undernutrition as compared to women of high standard of living. The women of these two categories are 2.4 times and 1.7 times more undernourished than the higher class of women. In all India data, though the state West Bengal (OR=4.334, OR=2.154) is more influencing among all the states but in the separate rural and urban area study other

state's variations are also noticeable. In the separate rural and urban area study, we find that Punjab is the most exposed state to undernutrition, where the Odds ratios are 3.371, 2.034; 3.288 and 2.298 respectively. In the study (Bitew et.al, 2010) conducted in Ethiopia also, it was found that rich women were less likely (OR=0.6, 0.4) to be affected by chronic undernutrition than the non-rich counterparts.

Caste: In case of the risk factor "caste" SC, ST and OBC categories are more likely to be affected by chronic undernutrition than general and all other categories of women. In India as a whole and also in rural-urban areas

separately, these castes are more susceptible to undernutrition as compared to the general and all other categories.

Religion: In India, considering the risk factor “religion”, Muslim (OR=0.895), Christian (OR=0.895) and all other religions (OR=0.559), are less likely to undernourished than the Hindu religion. Among Muslim religion of rural areas only Bihar (OR=1.375) and Manipur (OR=1.804) and of urban areas only Jharkhand (OR=1.522) and in all other religions only rural Karnataka (OR=2.551) are suffering from undernutrition compared to women of Hindu religion.

Education: As expected in all India findings as well as in rural and urban area findings also women with primary, secondary and higher education are less likely to be affected by undernutrition than their no education counterparts.

CONCLUSION

To display the nutritional status of women for all characteristics, our study examined the data for all the states of the country and also for rural-urban areas separately for the years 2005-2006 (NFHS-3).

The observations from the study are:

- 15-19 and 20-34 age groups need adequate nutrients to support fast physical, mental and emotional growth. Unawareness of adolescent and women about their own health and nutritional status could be a reason associated with undernutrition.
- Another important determinant of the nutritional status of women in India is standard of living. The food security of an individual is dependent on the standard of living of the individual. Thus the standard of living (low, medium, high) plays a dominant role on nutritional status of women.
- It is obtained from the study that women with no educational background are more undernourished than women with different educational levels. Thus literacy or the educational background plays an important role in reducing undernutrition.

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