



ARE INDIANS SMART ENOUGH TO MAKE RIGHT FOOD CHOICES? – TRENDS AND PATTERNS

MEENA PHOOL CHAND¹, MEENA PREM CHAND² AND MEENA G.L.*

¹College of Agriculture, Agriculture University, Jodhpur, Rajasthan, 342304

²ICAR - National Academy of Agricultural Research Management, Rajendranagar, Hyderabad, Telangana 500030

³Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan 313001

*Corresponding Author: Email- glm57@rediffmail.com

Received: March 01, 2016; Revised: March 10, 2016; Accepted: March 12, 2016

Abstract- According to Nutritional Intake Survey Series conducted by the National Sample Survey Organisation, there has been steady decline in consumption of calories and protein, but the fat consumption has been increasing both in rural and urban India. Unlike calorie and protein, the difference in fat intake in rural and urban is pronounced. Across the states of the country, the north-east and eastern region states seem lagging in terms of nutrition –moving further away from desirable levels and are much below the national average too. In terms of calorie intake, 68 percent of country's population remains undernourished and during 2004-05 and 2009-10, there was an increase of about 55 million people who registered to have deficient intake of calories. With rise in food expenditure among rural and urban masses, there has been less than proportionate increase in calorie and protein intake. However, a propensity to consume more of fat has been witnessed with rise in food expenditure.

Keywords- Food, Trends and Patterns, Protein, Consumption, Dietary Allowances, Elasticity.

Citation: Meena Phool Chand, et al., (2016) Are Indians Smart Enough to Make Right Food Choices?–Trends and Patterns. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 8, Issue 14, pp.-1250-1256.

Copyright: Copyright©2016 Meena Phool Chand, et al., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Academic Editor / Reviewer: Amale A.J., Verma Vinod Kumar, Dhawan Vikrant, Shrey Ravi, Pradeep Mishra, Vasanta K.

Introduction

The most basic needs of vast majority of population of the country are yet to be fulfilled i.e. availability and affordability of a nutritious healthy meal to the people of the country. According to the World Bank report [11] – “South Asia still has the highest rates and the largest number of undernourished children in the world”, and also “the high economic growth experienced by South Asian countries has not made an impact on the nutritional status of South Asian children”. Nevertheless, there has been an improvement in most of the indicators over the past few decades. Though the progress has been sluggish and the desired levels are yet to be achieved, but there is a marked improvement in the quantity of food being consumed, not necessarily the quality. It is intended to highlight this diversity in the diets and more importantly, how far we are from the required diet or in other words how close are we to malnutrition. It is important to understand the true meaning of malnutrition here, which is most commonly treated at par with under-nutrition. Malnutrition means improper diet, it can be both ways either excess or deficiency of different nutrients.

International Conference on Nutrition [2] described six important determinants of mal-nutrition, which needs to be involved in nutrition strategies. They are (i) Production, mainly agricultural and food production, (ii) Preservation of food from wastage and loss, which includes the addition of economic value to food through processing, (iii) Population, which refers both to child spacing in a family and also to population density in a local area or a country, (iv) Poverty, which suggests economic causes of malnutrition, (v) Politics, as political ideology, political choices and political actions influence nutrition and (vi) Pathology, which is the medical term for disease, since disease, especially infection, adversely influences nutritional status. This paper attempts to highlight some of the insights from various reports published by the NSS under the series namely, “Nutritional Intake in India”. The report mainly focuses on the quantity of energy measured in kilo calories (Kcal) being consumed, nutrients like protein, fat and their sources among various socio-economic classes for India as a whole and also at the state.

Materials and Methods

Research Methodology and Data Source

The National Sample Survey Organisation releases series on Nutritional Intake in India on quinquennial basis. The state-wise data for the years 2004-05 and 2009-10 have been used for present analysis. However, wherever required, the data for previous rounds were also referred for better understanding and analysis. Apart from data, it is equally important to understand theoretical background and basic concepts associated with nutrition. The same is explained below.

Energy: The energy is measured in terms of Kilo calories or Calories (represented as Kcal). 1 calorie is defined as the amount of heat required to raise the temperature of 1 gram of pure water by 1° centigrade (this is also equivalent to 4.19 joules).

Recommended dietary allowances (RDA) for a 'standard' Indian

Energy/Nutrients	Unit	Value
Calorie	Kcal/day	2700
Protein	g/day	60
Fat	g/day	60-90

Source: [12]

Nutrients: Mainly two types of nutrients are there namely macro nutrients and micro nutrients. Macro nutrients include carbohydrates, proteins and fats while micronutrients are the vitamins, minerals, trace elements, phyto chemicals and antioxidants. In this paper we will primarily focus on two of the macro nutrients namely, protein and fat.

Protein: Proteins are known as the building blocks of life. Proteins are required to make new cells and repair and maintain body cells. Breakdown of one gram of

protein releases four calories.

Major sources of protein include pulses, soy, beans, legumes, nuts, grains like wheat, meat, fish, eggs, milk etc. The recommended daily intake of protein for normal Indian adult is 1g per Kg of body weight. Therefore, a 60 Kg adult requires about 60 g of proteins every-day.

Fat: Fats are major source of energy during stress and breakdown of 1 gram of fat produces 9 calories. Thus, it is a concentrated source of energy and per unit weight, it generates more than twice the energy released by carbohydrates and proteins. Dietary fats can be derived in the form of visible fats such as vegetable oils, vanaspati, ghee, butter and invisible fats, which are present as an integral component of various foods. Food from animal sources and processed foods are rich in invisible fats. The small amounts of invisible fats add up to a significant level in our daily diet – about 15 g in rural population and 30 g among urban middle and high income groups NIN [5]. The recommended total fat (visible + invisible) intake should be around 20-30% of the total calories. Therefore, for a healthy Indian adult of 60 Kg body weight it works out to be 60-90 grams of fat every-day.

In addition to the concepts above, some of the definitions, as available in NSS, used for analysis in the present research, are given below:

Per Capita vs. Consumer Unit: The NSS report released by the government contains data in two units viz. per capita and per consumer unit. In this paper, the consumer unit data has been used, the reason being a more appropriate representation of the dietary intake.

One consumer unit, as defined by NSS, is a normative rate of equivalence of a given age-sex specific person in relation to a 'standard' male person doing sedentary work in the age group 20-39. All other age and sex are adjusted according to the consumer unit. This gives a truer representation because the needs of the individual in terms of calories vary greatly with their age, sex, height, weight and activity level. All this is not taken into account when one computes in term of per capita in which each individual is treated as the same one unit.

MPCE Classes: MPCE or monthly per capita consumer expenditure is defined as the expenditure by the household in a month to which the person belongs. This reflects the standard of living of the household. Further, these MPCE are grouped into decile classes. The first decile of the distribution of MPCE over the population of any region or domain is the level of MPCE below which 10 percent of the population lie, the second decile, the level below which 20 percent of the population lie, and so on.

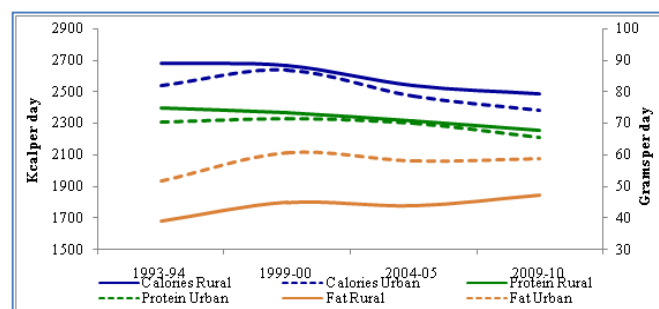
Results and Discussion

Trend in Consumption Pattern

Poverty and lack of purchasing power are believed to be the two major factors responsible for the low dietary intake and chronic under-nutrition. India defined poverty line on the basis of energy intake of the population and initiated interventions aimed at improving the purchasing power, access to subsidized food, essential goods and services to people below poverty line. The government has undertaken various development schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Food Security Bill, etc. to address this. NSSO consumer expenditure data on energy intake of urban and rural areas on inter-temporal basis provides a useful platform for assessing the impact of these interventions on energy intake.

The observed trend in consumption over years is worth mentioning as shown in [Graph-1]. Since 1993-94, there has been slow, but steady decline in the consumption of calories in rural areas. It has reduced from 2683 Kcal/consumer unit/day in 1993-94 to 2489 Kcal/consumer unit/day in 2009-10. Similarly in urban areas too it has declined from 2542 to 2385 Kcal/consumer unit/day. Ray [8] and Ray & Lancaster [9] also noticed strong evidence of a decline in per capita calorie consumption in India over the last 20 years; which has resulted in an increase in the rate of undernourishment. The declining trend can also be observed in case of protein both in rural as well as in urban areas where it has decreased from 75.0 to 67.8 grams/ consumer unit/ day and 70.2 to 65.6 grams/consumer unit/day in rural

and urban areas respectively over the same time period. Interestingly, the absolute levels of calorie and protein intake per consumer unit are higher in rural areas, as compared to urban areas. In terms of fat consumption, it shows a trend contrary to the calorie and protein over years. The increase has been from 39.1 to 47.2 and 51.6 gram/ consumer unit/ day to 58.7 gram/consumer unit/day in the rural and urban areas respectively in the span of 16 years ending 2009-10. It may be noteworthy that unlike calorie and protein, the fat consumption has been higher in urban areas and the gap in fat intake between rural and urban is also wider than that of calorie and protein.



Graph-1 Consumption of daily energy and nutrients per consumer unit (All India)

Some researchers argued that lower levels of energy intake are neither due to poor access to food as food supply has been adequate, nor due to economic constraints because food in general and cereal prices in particular have been low. The decline in energy intake might be due to reduction in energy expenditure attributable to the changes in lifestyle and reduction in physical activity [6]. The reduction in physical activity and therefore optimum energy requirement may be the crucial factor in the ongoing nutritional transition in India. Similar observations have also been made by Rao [7], Mittal [4], Deaton and Dreze [1], Li and Eli [3]. They indicated that people consume fewer calories because their calorie needs have declined over time due to improvement in the epidemiological environment, changes in occupational structures and mechanization of agricultural work.

Improving dietary knowledge has the potential to prevent obesity and overweight [10]. There is no doubt that fat is also required for the body, however, beyond a level, the fat content in the body is counter-productive. As far as increasing trend in fat intake is concerned, this needs to be arrested by spreading awareness through suitable means about implications of mal-nutrition (obesity) and other undesirable health complications due to higher levels of fat intake, especially, among urban population.

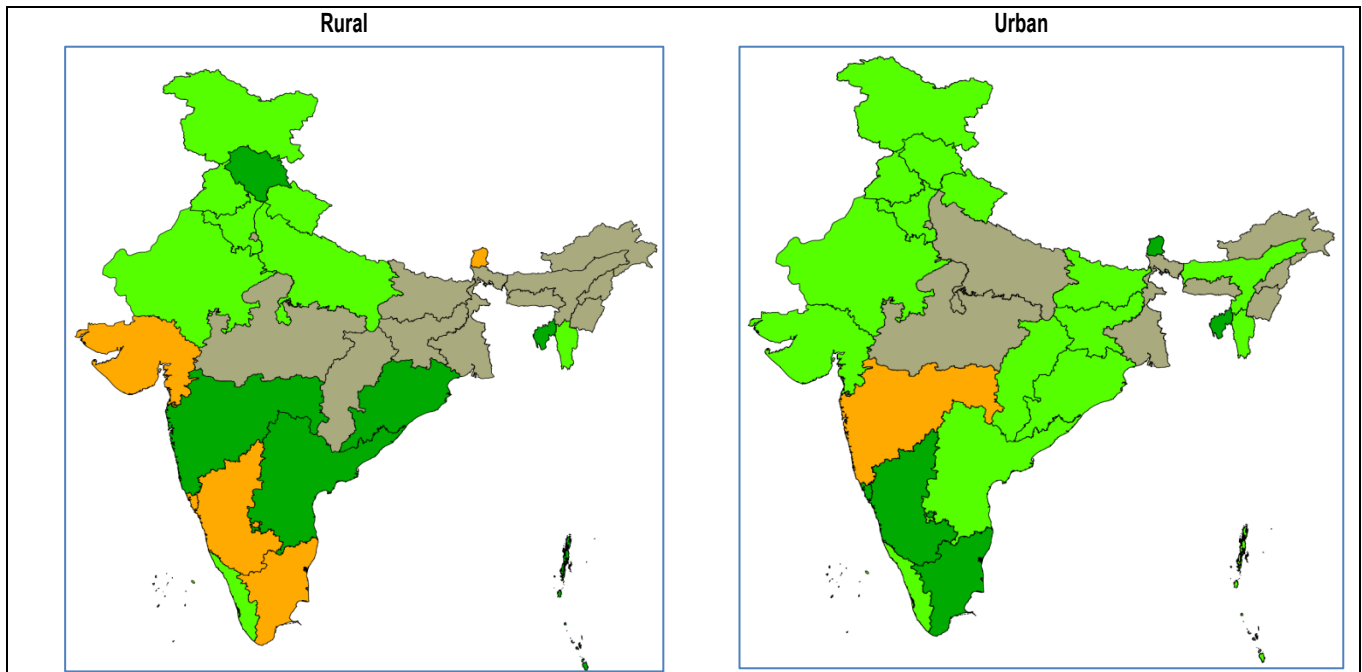
In addition to the national trends in terms of calorie, protein and fat intake that are explained above, it would also be of interest to understand its behaviour across different states. The maps given below indicate the increase/ decrease in absolute intake in calorie, protein and fat during 2004-05 and 2009-10 and presented in [Table-1]. Also, whether the absolute intake is above or below national average has also been provided. The rationale being – for instance, there may not be an increase in absolute intake in some state(s), but the intake of nutrient(s) for these states may be above national average. Therefore, increase or decrease in intake has to be looked into in conjunction with the present levels of intake. Accordingly, four categories, as mentioned below, have been prepared to understand the present intake level of nutrients with respect to national average and the trend from 2004-05 to 2009-10.

Table-1 Categories based on levels of intake and its change

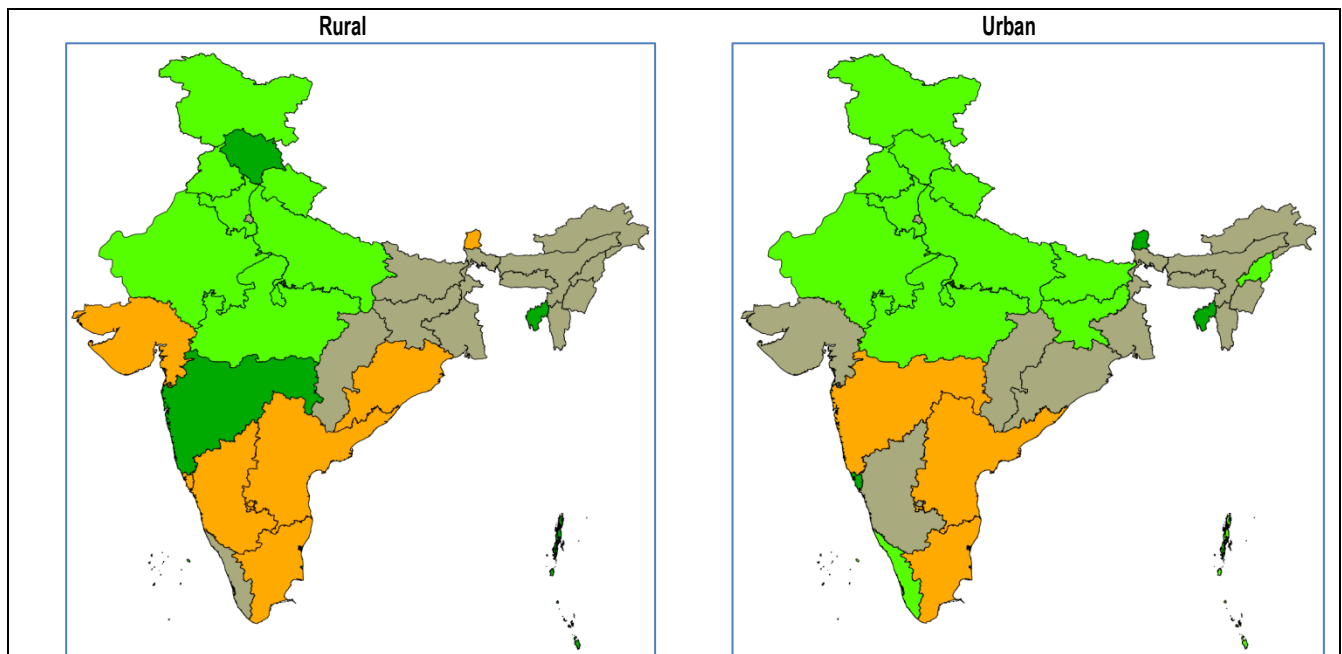
Category	Description	Colour shown on map
1	Positive change (%) during 04-05 to 09-10 & level of intake above national average	Dark Green
2	Negative change (%) during 04-05 to 09-10 & level of intake above national average	Light Green
3	Positive change (%) during 04-05 to 09-10 & level of intake below national average	Orange
4	Negative change (%) during 04-05 to 09-10 & level of intake below national average	Grey

In terms of calorie and protein intake, more states in urban areas are above national average of intake than the states in rural areas; whereas in case of fat intake, more states that are rural; are above national average than urban states. Amongst all four categories, the states falling in category 4 are really a cause of concern, wherein the average intake is lower than national average and there has also been a de-growth in absolute term. In terms of calorie intake, there are 11 states in rural areas and 9 states in urban falling into category 4; whereas there are 12 states each in rural and urban area belongs to category 4 in terms of

protein intake. In terms of fat intake, 8 states in rural India and 7 states in urban India fall under category 4. Among calorie, protein and fat intake, it is the protein where least number of states both in rural and urban areas belongs to either category 1 or 2. Ideally, protein intake should be higher as compared to the fat intake; however, it does not happen so across the states. In nutshell, the analysis highlights that generally, the north-east and eastern region states depict a scenario which is not encouraging in terms of nutrient intakes, especially in rural areas.



Map-1 Per consumer unit per day – calorie intake



Map-2 Per consumer unit per day – protein intake

Relative dearness of energy and nutrients across major food groups

There are varieties of food choices that one can make but most of the choices for lower and middle class that form a large chunk of the population are pre-empted on the basis of the prices. Here, a comparison between the amount of energy and nutrients and their values from different food groups like cereal, pulses, milk, meat etc. presented in [Table-2]. Cereals and pulses are relatively cheaper source of calories and protein, while animal derived products like milk, meat and fish are on

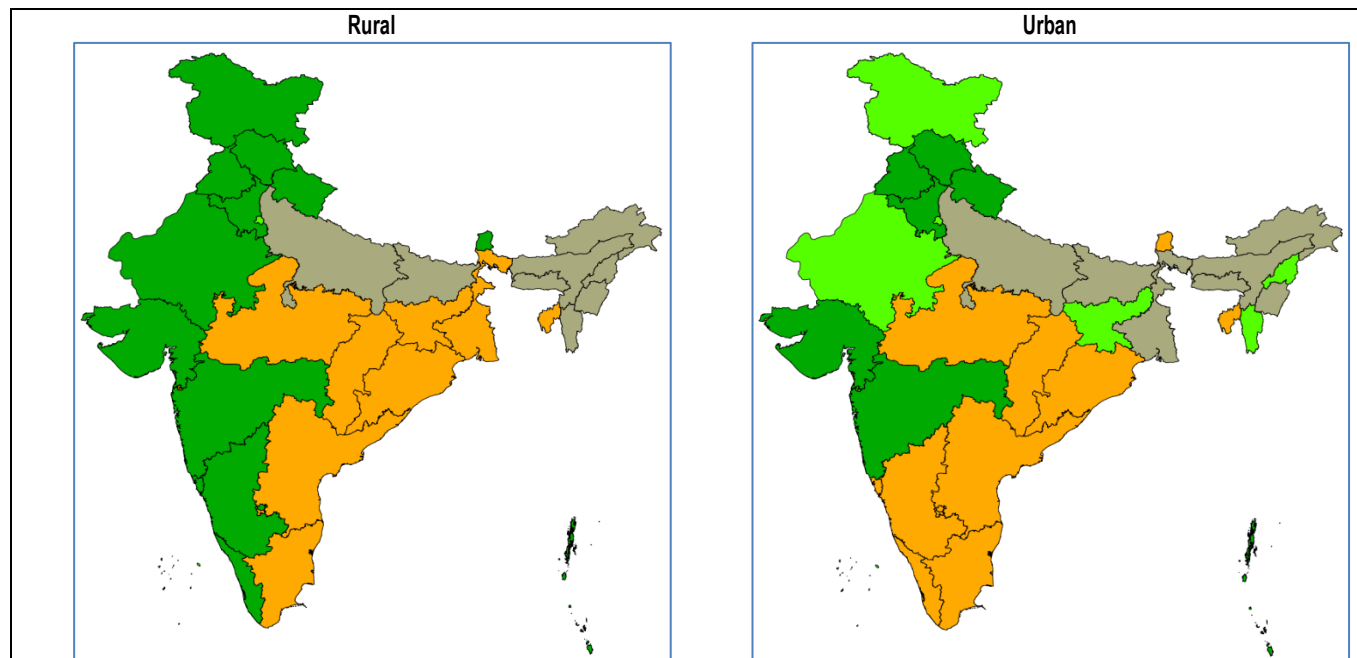
the costlier side.

Recommended Dietary Allowances (RDA) and population distribution by calorie intake across regions

Various institutions and dieticians came up with recommended dietary allowances – popularly referred to as RDA. Since, the required calorie intake depends upon a multitude of factors such as genetic makeup, environment, lifestyle, ethnicity,

height, weight, age etc., it's very difficult to set a standard norm uniformly across. Nevertheless, FAO prescribes a minimum of 1800 Kcal a day throughout the globe. The ICMR-NIN norm suggest a per capita per day of 2022 Kcal for urban people and 2226 Kcal for people in rural India. Since, we are referring to consumer units throughout this paper, this RDA when converted to consumer units Are 2488 Kcal in urban and 2737 Kcal for rural regions, respectively. Nevertheless, the bench-mark of 90 percent is considered for the present analysis. Based on RDA, three categories have been formed viz., (i) less than 90 percent of RDA i.e., deficient intake (ii) 90-100 percent of RDA i.e.,

adequate intake and (iii) in excess of 100 percent of RDA i.e., excess intake. These categories have been formed separately for both rural and urban areas. Food is converted to energy which is measured in terms of Calories or Kcal. This serves as a basic indicator of one's well-being although investigation of many other parameters is important to truly establish the quality of diet. The state-wise NSS data depicting distribution of persons by calorie intake has been aggregated to regions as given in [Table-3] and [Table-4].



Map-3 Per consumer unit per day – fat intake

Table-2 Relative dearness of energy and nutrients across major food groups (2009-10)

Commodity	Unit	Calorie (Kcal)	Protein (gms)	Fat (gms)	Value* (₹)	₹Kcal of energy	₹g of protein	₹g of fat
Cereals	kg	2980	149	169	14	0.005	0.09	0.08
Pulses	kg	2980	149	169	56	0.019	0.38	0.33
Milk & milk products								
Liquid milk	litre	1000	40	70	20	0.020	0.49	0.28
Milk: condensed/powder	kg	4960	258	267	172	0.035	0.67	0.64
Meat, fish & eggs								
Eggs	no.	100	8	8	3	0.031	0.38	0.38
Goat meat/ mutton	kg	1180	214	36	191	0.162	0.89	5.31
Chicken	kg	1090	259	6	104	0.095	0.40	17.33
Fish	kg	1050	140	20	75	0.071	0.53	3.73
Fats & oils								
Ghee	kg	9000	--	1000	259	0.029	--	0.26
Butter	kg	7290	--	810	190	0.026	--	0.23
Edible oil	kg	9000	--	1000	62	0.007	--	0.06

*Based on weighted average of rural and urban expenditure on respective items

Source: [12]

Table-3 Regions of the country

Region	States
East	Bihar, Odisha, West Bengal, Chhattisgarh, Jharkhand
North	Haryana, Punjab, Rajasthan, Uttar Pradesh, Himachal Pradesh, Jammu & Kashmir, Uttarakhand
North East	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura
South	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu
Union Territories	A & N Islands, Chandigarh, D & N Haveli, Daman & Diu, Delhi, Lakshadweep, Puducherry
West	Gujarat, Madhya Pradesh, Maharashtra, Goa

Source: [12]

Table-4 Distribution of persons by level of calorie intake (in million numbers)

(Rural)

Region	2009 - 10						2004 - 05					
	Deficient intake		Adequate intake		Excess intake		Deficient intake		Adequate intake		Excess intake	
All India	520.4	(68%)	96.0	(13%)	144.8	(19%)	485.8	(66%)	91.7	(13%)	155.6	(21%)
East	147.3	(73%)	23.7	(12%)	31.3	(15%)	132.7	(67%)	23.8	(12%)	40.5	(21%)
North	123.9	(52%)	38.7	(16%)	73.4	(31%)	117.8	(53%)	35.7	(16%)	70.5	(31%)
North East	25.5	(74%)	4.2	(12%)	4.7	(14%)	22.5	(72%)	4.0	(13%)	4.6	(15%)
South	106.3	(71%)	17.3	(12%)	25.3	(17%)	108.2	(74%)	14.2	(10%)	24.1	(16%)
UT	1.1	(68%)	0.2	(12%)	0.3	(20%)	1.3	(72%)	0.1	(07%)	0.4	(21%)
West	96.4	(70%)	21.2	(15%)	20.3	(15%)	102.8	(77%)	12.8	(10%)	17.2	(13%)

Source: [12]

(Urban)

Region	2009 - 10						2004 - 05					
	Deficient intake		Adequate intake		Excess intake		Deficient intake		Adequate intake		Excess intake	
All India	154.4	(55%)	48.0	(17%)	79.9	(28%)	133.2	(54%)	41.0	(17%)	74.3	(30%)
East	21.2	(52%)	7.0	(17%)	12.9	(31%)	17.1	(44%)	6.4	(17%)	15.0	(39%)
North	31.5	(45%)	13.0	(19%)	25.3	(36%)	24.9	(40%)	11.3	(18%)	25.9	(42%)
North East	2.7	(50%)	1.0	(19%)	1.7	(31%)	2.0	(47%)	0.9	(20%)	1.4	(32%)
South	40.9	(53%)	12.9	(17%)	23.2	(30%)	34.8	(56%)	10.2	(16%)	17.6	(28%)
UT	6.1	(49%)	2.5	(20%)	4.0	(32%)	6.4	(48%)	2.6	(20%)	4.2	(32%)
West	42.1	(55%)	13.1	(17%)	21.1	(28%)	42.3	(62%)	10.1	(15%)	15.6	(23%)

Source: [12]

There is wide variability across the regions and discouraging in the sense that almost more than half of the population still falls well below the RDA. At all India level, 68 percent of the rural population remains undernourished. Across the regions, same or higher proportions of rural mass remain undernourished, barring Northern region, where it is about 52 percent. In urban areas this percentage is relatively lower but still almost 55 percent population remain in the calorie deficit category. These percentages translate into overwhelming number i.e. almost 520 million people in rural areas in 2009-10 fall into undernourished category, as compared to 486 million in 2004-05 – an increase of 34 million in the period 5 years. In urban areas, the same numbers stood at 154 million in 2009-10 and 133 million in 2004-05 – a rise of 21 million. The change in percentage terms in rural and urban areas is hardly 1-2 percent during 2004-05 and 2009-10, however, this translates into a huge increase of 55 million people in the deficient intake category during same period.

Propensity to consume and elasticity coefficients

An interesting perspective could be drawn when the propensity towards consumption of calories, protein and fat vis-à-vis expenditure of food are

analysed. The elasticity coefficients across the regions have been estimated to examine the changes in the inclination of the consumers over different nutrients with rise in consumer expenditure. With rise in consumer expenditure, there has been a higher propensity to spend on non-food items. According to Consumer Expenditure Survey reports of different rounds, the shares of food expenditure in total spending have been estimated at 59.4, 55.0 and 53.6 percent in 1999-2000, 2004-05 and 2009-10 respectively in rural areas. These proportions stood at 48.1, 42.5 and 40.7 percent in urban areas for the same reference years. Therefore, with increase in level of income and improvement in life styles, there has been a diversification in the consumption basket – from food based items to non-food items. This phenomenon logically leads to a situation where increase in expenditure does not proportionally lead to rise in expenditure on food items.

The elasticity coefficients have been less than one in case of calorie and protein, while it is close to one in case of fat and has been depicted in [Table-5], [Table-6] and [Table-7]. The similar trend holds true across both the periods i.e., 2004-05 and 2009-10, albeit with varying magnitude across the regions. It may be seen that from 2004-05 to 2009-10, there is a uniform fall in elasticity coefficients across all the nutrients.

Table-5 Elasticity coefficients of Calorie & food

Region	Rural				Urban			
	2009 - 10		2004 - 05		2009 - 10		2004 - 05	
	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.
All India	0.999	0.408**	0.997	0.482**	0.998	0.307**	0.995	0.391**
East	0.793	0.397**	0.933	0.548**	0.694	0.272**	0.699	0.481**
North	0.812	0.395**	0.656	0.521**	0.882	0.410**	0.879	0.487**
North East	0.666	0.400**	0.693	0.534**	0.808	0.402**	0.656	0.865**
South	0.839	0.417**	0.901	0.561**	0.922	0.350**	0.956	0.466**
UT	0.750	0.473**	0.298	0.570**	0.769	0.436**	0.769	0.518**
West	0.511	0.286**	0.544	0.393**	0.763	0.313**	0.772	0.395**

** Significant at 1%

The results of elasticity coefficients also indicate that the rise in food expenditure increases the propensity to consume more of fat in comparison to calorie or protein. This may be partly attributed to the increasing trend of consuming processed foods, which are generally high in fat content. However, the in-depth detailing is required to substantiate this argument. If the results are analysed by the regions, the elasticity coefficients are relatively on higher side in case of North

East, South and UT regions for both in calorie as well as for protein intake. In case of fat intake, the regions of East, North and North East indicate relatively higher propensity to spend in comparison to other regions. Climatic conditions of regions of East, North and North East regions probably warrant increased propensity to consume fat. Interestingly, the coefficients for calorie, protein and fat are on lower side in Western region due to climatic conditions.

Table-6 Elasticity coefficients of Protein & food

Region	Rural				Urban			
	2009 - 10		2004 - 05		2009 - 10		2004 - 05	
	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.
All India	0.999	0.462**	0.996	0.512**	0.998	0.315**	0.971	0.364**
East	0.831	0.489**	0.914	0.613**	0.725	0.357**	0.707	0.533**
North	0.715	0.384**	0.633	1.004**	0.898	0.392**	0.793	0.435**
North East	0.833	0.543**	0.700	0.684**	0.897	0.540**	0.680	1.012**
South	0.899	0.494**	0.905	0.614**	0.941	0.428**	0.937	0.521**
UT	0.752	0.571**	0.297	0.689**	0.817	0.483**	0.737	0.563**
West	0.272	0.247**	0.334	0.365**	0.600	0.290**	0.554	0.364**

** Significant at 1%

Table-7 Elasticity coefficients of Fat & food

Region	Rural				Urban			
	2009 - 10		2004 - 05		2009 - 10		2004 - 05	
	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.	R ²	β coeff.
All India	0.995	0.958**	0.995	1.083**	0.981	0.731**	0.991	0.921**
East	0.899	0.891**	0.935	1.144**	0.903	0.848**	0.834	1.201**
North	0.839	0.816**	0.829	1.352**	0.944	0.831**	0.887	0.938**
North East	0.227	0.738**	0.527	1.212**	0.683	1.027**	0.774	1.170**
South	0.866	0.650**	0.935	0.898**	0.944	0.627**	0.966	0.859**
UT	0.686	0.812**	0.320	0.981**	0.759	0.631**	0.838	0.780**
West	0.682	0.656**	0.733	0.851**	0.829	0.643**	0.858	0.809**

** Significant at 1%

Conclusion

The decline in calorie intake levels over the years is hard to explain when the most factors affecting the intake levels have shown a positive trend. The rising income, better productivity, availability & accessibility of food grains and government schemes & policies make it difficult to discern this behaviour. There can be a multitude of views for this behaviour but it is difficult to pin point a single reason explaining the observed phenomenon.

It may be concluded from the results of study that the calorie intake in rural as well as urban areas has waned down during the period between 1993-94 and 2009-10. Similarly pattern was also found in Protein intake over the same time period. The fat intake on the contrary has been rising. This may also reflect the fad of increase in consumption of fatty processed foods and increasing popularity of such food among masses, especially among the youths. Since India is a country full of diversity the intake level of different food also varies greatly. In general, the eastern and north-eastern regions of the country seem lagging in having proper diet. The coefficient of elasticity shows that energy and nutrient intake do not increase in tandem with rise in consumer expenditure but in terms of fat intake, the same is close to unity.

Therefore, making proper nutrition available and affordable to masses remains one of the leading challenges that the country faces today. With the ever rising incidences of lifestyle diseases, more so in the recent years, spreading awareness through active participation of all the stakeholders has to be given paramount importance. It is vital to inculcate appropriate food habits right from childhood and

disseminating information through schools could be a welcome step. We, as a nation, do not have shortage of food today, but sadly people are not able to make the right choices. We have made our gadgets smart, without which also we can survive, but it's high time now that we make our diets also 'SMART'.

Conflict of Interest: None declared

References

- [1] Deaton A. and Dreze J. (2009) *Economic and Political Weekly*, 44(7),42-65.
- [2] International Conference on Nutrition (ICN) (1992) Human Nutrition in the Developing World, FAO Corporate Document Repository, <http://www.fao.org/docrep/w0073e/w0073e03.htm>
- [3] Li Nicholas and Eli Shari (2010) In Search of India's Missing Calories: Energy Requirements and Calorie Consumption, downloaded from http://emlab.berkeley.edu/~webfac/emiguell/e271_f10/Li.pdf
- [4] Mittal S. (2007) *Economic and Political Weekly*, 42(5),444-447.
- [5] National Institute of Nutrition (NIN) (2011) *Indian Council of Medical Research*, Hyderabad (India).
- [6] Ramachandran Prema (2008) *Bulletin of the Nutrition Foundation of India*, 29, 2.
- [7] Rao C.H.H. (2000) *Economic and Political Weekly*, 35(4),201-206.
- [8] Ray R. (2007) *Development and Change*, 38 (2), 321-343.
- [9] Ray R. and Lancaster G. (2005) *Economic and Political Weekly*, 40,46-56.

- [10] Shimokawa Satoru (2012) *Food policy*, 38, 35–46.
- [11] World Bank (2011) An Urgent Call for Action: Undernourished Children of South Asia, <http://www.worldbank.org/poverty>.
- [12] NSS survey report of 66th Round (July 2009 - June 2010) and A report (2009) on nutrient requirements and Recommended Dietary Allowances (RDA) for Indians of the Expert Group of the Indian Council of Medical Research, National Institute of Nutrition, Hyderabad.