

A Study on Trends and Drivers of Transformation in Dietary Pattern in India

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ABSTRACT

The economic growth in India has been accompanied by growth in food supply but the increase in food supply has not resulted in improved nutritional status of majority of the people. Due to increase in income, change in lifestyle, increasing urbanization and globalization, there have been considerable changes in the food habits and dietary pattern of Indian households. Since the food consumed plays a major role in the nutritional and health status of the people, it is important to analyse the pattern of food consumption among the people. Thereby the objectives of the paper are, to examine the changes in consumption pattern of food in our country and to depict its implications on the nutritional and health status of the people. The study is based on secondary data sourced from different rounds of NSSO Reports, FAOSTAT and other reliable sources. The changes observed from the NSSO reports include, decline in proportion of food expenditure to the total Monthly Per Capita Consumer Expenditure (MPCE) and also the share of cereals which is the major food in our country has reduced in total consumption expenditure. It implies that people have diversified their diet with more vegetables, fruits, milk, meat, fish, eggs with fewer cereals in respect to their income level (NSSO, GoI). In recent years, there have been inclusion of western foods like pizza, burger and soft drinks/beverages in people's food habits and reduction of indigenous traditional food items which can be attributed to Globalization. In urban areas these changes are more witnessed with increased use of fast food and street food. Increase in availability of variety of foods and demonstration effect have been the major cause for shift in the food habits. These changes in turn have influenced the nutritional and health status of the people in the country. While the increase in consumption of cereals and other healthy food like milk, fruits and vegetables has resulted in improved nutritional status, the increased consumption of highly-calorific, high-sugar and fatty food, has led to rise in incidence of obesity and other diet-related diseases like diabetes, cardiovascular disease and cancer among other problems. Overall, the results indicate substantial transformation in food habits and dietary patterns of people at all levels.

Keywords: Diet, Health, Western Food, Consumption Pattern, Demonstration Effect.

INTRODUCTION:

The economic growth in our country has been accompanied by growth in food supply but the increase in food supply has not resulted in increase in nutritional status of majority of the people. Demand for food in Indian households has changed over time and what we consume today is different from what was consumed years ago. This change has incurred mainly due to factors like income, price level, individual's taste and preference, customs and habits, geographical location,

change in lifestyle and working conditions; and these factors are complex and inter linked in determining the demand for food in a country. Alongside, it is essential to note that our country is undergoing rapid urbanization combined with globalization and it has resulted in socio-cultural changes in people’s daily life. Thereby urbanization and globalization also plays a considerable role in influencing tastes and preferences of individual, along with availability and accessibility of the food consumed. These changes in dietary pattern have in turn influences the nutritional and health status of the people in a country. Against this background, this study is a modest attempt to examine the changes in consumption pattern of food in our country and depict its implications on the nutritional and health status of the people in India.

OBJECTIVES:

- To examine the transformation in dietary pattern in India
- To analyze the trends and drivers of changes observed in dietary pattern in India
- To depict the implications of transformation in dietary pattern on the Nutritional and Health status of the people

METHODOLOGY:

The study is entirely based on secondary source of information, collected from different rounds of NSSO Reports and FAOSTAT (Food and Agriculture Organization of the United Nations Statistics Division) and National Health Profile among others. The changes in dietary pattern has been analyzed using the secondary data sourced from 27th, 38th, 50th, 61st and 68th rounds of NSSO reports which are the earliest and latest reports available on food consumption pattern. These data enables temporal comparison of pre and post New Economic Policy period i.e., before and after 1991 in India and helps to analyze the influence of globalization on the changes in demand for food consumption pattern in India. The analytical part of this study consists of four sections. The First section analyzes the trend and changes in food consumption pattern in India. The second section deals with the influence of major driving forces i.e., urbanization and globalization on the food consumption pattern in the country. The third section examines the implication of dietary pattern on the nutritional and health status of the people in India. Then the fourth section describes the summary of the findings and provides policy suggestions before ending with conclusion.

ANALYSIS AND DISCUSSION:

I). A). TREND AND CHANGES IN DIETARY PATTERN:

The expenditure level of a person depends on that person’s income level. An increase in expenditure implies the increasing purchasing power which in turn refers to increase in income. On that basis, the variable of ‘Monthly Per Capita Consumer Expenditure (MPCE) on food item ’has been used to study the changes in food consumption pattern in respect to change in income.

Table 1: Changes in Monthly Per Capita Expenditure for Food Item

YEAR	MONTHLY PER CAPITA EXPENDITURE FOR FOOD ITEM (RS.)	MONTHLY PER CAPITA TOTAL CONSUMER EXPENDITURE	SHARE OF FOOD IN TOTAL CONSUMER EXPENDITURE (%)
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			(RS.)			
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
27 th round (1972-1973)	32.16	40.84	44.2	63.3	72.76	64.51
38 th round (jan1983- dec1983)	73.63	97.31	112.5	164.0	65.44	59.33
50 th round (1993-94)	177.8	250.3	281.4	458.0	63.18	54.65
61 st round (2004-2005)	307.6	447.41	558.78	1052.36	55.04	42.51
68 th round (2011-2012)	621.96	922.91	1278.94	2399.24	48.63	38.46

Source: Different NSSO rounds

From the Table 1 and Figure 1, it can be clearly seen that while the amount of expenditure for food has increased steadily during the period 1972-73 to 2011-12, the percentage share of expenditure on food to total consumer expenditure has decreased continuously during the same period .In 1972-73, while 72.76 percent and 64.51 percent of consumer expenditure was spent on food in rural and urban India respectively, only 48.63 percent (rural) and 38.46 percent (urban) of consumer expenditure was made for food in the year 2011-12. The fall in proportion of food expenditure is more rapid since 1993-94, which might be due to increase in consumption of non food items like durable goods influenced by globalization. Also during the entire study period, while the amount spent on food in urban areas has been higher than rural areas, the proportion of expenditure on food to total consumer expenditure has been lesser in urban than in rural India. Overall the situation is, with increase in income, there has been increase in consumption expenditure for food items, but the level of increase in expenditure for food items has been less than the level of increase in income which correlates with the Keynes Psychological Law of Consumption.

B). CHANGES IN COMPOSITION OF FOOD EXPENDITURE

Over the years, there have been substantial changes in the composition of food expenditure in both rural and urban areas of the country which has been analyzed in Table 2, in terms of percentage composition of monthly per capita expenditure for various food items.

TABLE 2: PERCENTAGE (%) COMPOSITION OF MONTHLY PER CAPITA FOOD EXPENDITURE

FOOD ITEMS	1972-73	1983	1993-94	2004-05	2011-12	1972-73	1983	1993-94	2004-05	2011-12
	RURAL					URBAN				
Cereals	40.6	32.3	24.2	18.01	12.0	23.3	19.4	14.0	10.06	7.3
Pulses &PulseProducts	4.3	3.5	3.8	3.07	3.1	3.4	3.2	3.0	2.14	2.1
Milk & Milk Products	7.3	7.5	9.5	8.47	9.1	9.3	9.2	9.8	7.92	7.8

Edible Oil	3.5	4.0	4.4	4.60	3.8	4.9	4.8	4.4	3.46	2.7
Meat, Egg & Fish	2.5	3.0	3.3	3.33	3.6	3.3	3.6	3.4	2.71	2.8
Vegetables	3.6	4.7	6.0	6.10	4.8	4.4	5.0	5.5	4.45	3.4
Fruits and Nuts	1.1	1.4	1.7	1.86	1.9	2.0	2.1	2.7	2.25	2.3
Beverages etc.	2.4	3.3	4.2	4.54	5.8	7.6	6.8	7.2	6.21	7.1
Food Sub Total	72.9	65.6	63.2	55.05	48.6	64.5	59.1	54.7	42.51	38.5
Total MPCE	100	100	100	100	100	100	100	100	100	100

Source: Different NSSO rounds

From Table 2, it can be clearly seen that there has been continuous fall in proportion of expenditure for cereals from 40.6 percent in 1972-73 to 12 percent in 2011-12 in rural areas and 23.3 percent in 1972-73 to 7.3 percent in 2011-12 in urban areas. Similarly, both in rural and urban areas the proportion of expenditure for pulses and pulse products has declined during this period. At the same time, there has been increase in composition of expenditure for other food items like milk, edible oil, meat, egg, fish, vegetables, fruits and beverages mainly in rural areas. Whereas, in urban areas there have been fall in composition of expenditure for other food items with exception of fruits during the same period. These changes signify diversification of diet in India over the years. This can be clearly seen in the Figure 2, pie diagram which shows that the expenditure for food has been more equally distributed among various food items during 2011-12, whereas in 1972-73, major portion of the expenditure was skewed towards cereals in both rural and urban areas.

II). INFLUENCE OF GLOBALIZATION AND URBANIZATION ON DIETARY PATTERN:

Globalization policies in India facilitated the entry of global food brands, which has caused considerable change in the food habits of people in India. People have been able to consume different types of cuisine from around the world like American, Chinese, Mexican, Continental and French due to globalization. These international cuisine restaurants are increasing every day due to increase in people’s demand and their yearning to explore different food items. Similarly, change in lifestyle, working environment due to urbanization also influences the changes in demand for food especially towards more convenience and processed food. For example, Noodles is an important convenience food which belongs to foreign food habit has been added to our dietary pattern nowadays. The influence of globalization and urbanization on dietary pattern can be represented by growth of the major multinational food companies in India which offers westernized fast food.

TABLE 3: GROWTH OF MULTINATIONAL FOOD CHAINS IN INDIA

FOOD CHAIN	NUMBER OF OUTLETS IN INDIA	EXPANSION PLAN
Coca-Cola	2.6 million	USD 5 Billion by 2020
PepsiCo	NA (Not Available)	Rs.33000crores by 2020
Cafe Coffee Day	1694	100 new outlets by 2017 year end
Domino’s Pizza	1127(May 2017)	150 new stores every year for next three to five years

Pizza Hut	432	700 outlets by 2022
KFC	395	NA
McDonald's	300	Rs.500 to 700 crores and double the outlets by 2020
Subway	600	2000 outlets by 2020

Source: Compiled from various sources

As the result of Globalization and opening up of the Indian market to global companies many Multinational Food Chains expanded their market by investing and opening their franchise in India. Among them Coca-Cola and PepsiCo are major brands that offer different beverages which has penetrated even rural areas in India. Then, as shown in Table 3, Cafe Coffee Day with 1694 outlets, Domino's Pizza with 1127 outlets, Kentucky Fried Chicken (KFC) with 395 outlets, Pizza Hut with 432, McDonald's(300) and Subway with 600outlets are the major food chains that entered India due to globalization and are located essentially in urban areas of the country. These food chains mainly sells western food itemslike pizza, burger, fries etc., With their taste and marketing skills, they have attracted the young population of the country and these food products have become a part of the food habits of people in India. The increasing demand for these food items can be represented through the expansion plan of major Multinational Food Companies in India as shown in Table 3.From Table 3, it can be clearly seen that all the companies are planning to make huge investments and expand their base in India and thereby harness the vast Indian consumers.

These brands primarily focused on the more affluent consumers in initial stages, but in recent times they are targeting the middle income groups in second and third tier cities by offering products at lesser price compared to their outlets in other countries. As an extension of these food cultures, there has been increase of fast food and street food centers even in small towns and cities, which offer replica of these food items at low prices that are mostly provided in unhygienic conditions with less quality. These foods are highly caloric and contain more fats, salt, sweeteners, artificial flavors and colors. They are sold and available mostly in urban areas only. Thus urban areas typically offer residents a wider choice of dietary patterns from foreign cultures and therefore people in urban areas have undergone higher level of shift in food habits than people in rural areas (Vepa 2004) (Pingaliand Khwaja2004). The major driving forces that make people to demand more of these processed convenience foods are sedentary and fast paced lifestyle, increase of working women, transport facilities, repeated advertisements and quick delivery services. Thus urbanization and globalization plays an important role in determining the food habit of the people residing.

III). IMPLICATIONS OF DIETARY CHANGES ON NUTRITIONAL AND HEALTH STATUS:

After having looked at the consumption pattern of food items and the major driving forces that caused the changes in consumption pattern, it is important to study the implications of these changes on the nutritional and health status of the people in the country.

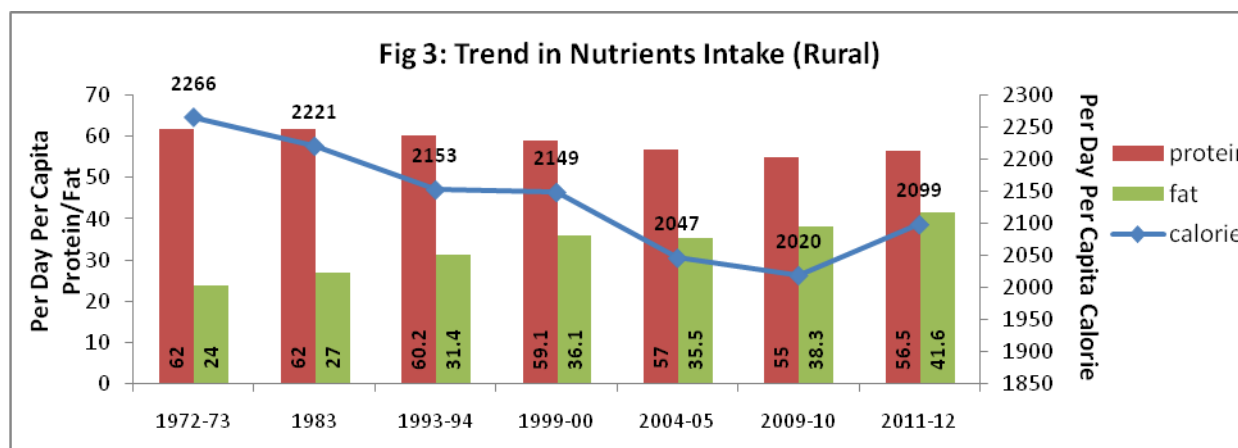
A). CHANGES IN NUTRITIONAL STATUS:

The nutritional status of a person depends to a large extent on the food consumed by the individual. Over the years there has been considerable fall in under nutrition in India. As per FAOSTAT report, the percentage of under nutrition in India has declined from 23.7 percent in 1991 to 14.5 percent in 2016 (www.fao.org). This improvement can be conceived from Table 1 and Table 2, which shows increase in food expenditure along with diversification of food pattern which have been important forces in reducing under nutrition. Meanwhile, it is needless to emphasize the importance of data on intake levels of nutrients of the people in a country for understanding their general nutritional status. The three components of food which provide the energy are carbohydrates, fat and proteins and the unit of measuring energy is Kilocalorie (Kcal). Intake of dietary energy per person continues to be the most widely used indicator of the level of nutrition of a population (NSS 68th Round). Accordingly, the Table 4 and Figure 3 and Figure 4 analyze the nutritional status of the population through Per Capita Energy consumption, Protein consumption and Fat consumption per day over the years.

TABLE 4: TREND IN AVERAGE PER DAY PER CAPITA CALORIE, PROTEIN AND FAT INTAKE

YEAR	CALORIES(KCAL)		PROTEIN (GM)		FAT(GM)	
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
1972-73	2266	2107	62.0	56.0	24.0	36.0
1983 Jan-Dec	2221	2089	62.0	57.0	27.0	37.0
1993-94	2153	2071	60.2	57.2	31.4	42.0
1999-2000	2149	2156	59.1	58.5	36.1	49.6
2004-05	2047	2020	57.0	57.0	35.5	47.5
2009-10	2020	1946	55.0	53.5	38.3	47.9
2011-12	2099	2058	56.5	55.7	41.6	52.5

Source: Nutritional Intake in India, NSS 68th Round, NSSO



Trend in Average Per Day Per Capita Calorie Intake:

From the Table 4 and Figure 3 and Figure 4, it can be clearly seen that, in rural areas the average per capita calorie intake have been reducing during the entire study period and marked a modest growth in 2011-12 compared to 2009-10. Similarly in urban areas also the average per capita calorie intake decreased in every temporal study period except during 1999-2000 and 2011-12 period. Overall there has been fall in average per capita calorie intake in both rural and urban areas from 2266kcal(1972-73) to 2099kcal (2011-12) in rural and from 2107kcal(1972-73) to 2058kcal(2011-12) in urban areas. It can be noted that the level of per capita calorie intake has been lesser than the minimum calorie intake of 2400 Kcal per person per day for the rural areas and 2100 Kcal for urban areas, prescribed by the planning commission in measuring poverty.

TREND IN AVERAGE PER DAY PER CAPITA INTAKE OF PROTEIN

Similar to average per capita calorie intake, the average per capita protein intake also declines during the entire study period in rural area with exception in 2011-12. Whereas in urban areas the average per capita protein intake increases till 1999-2000 and it decreases in the next decade and then ends with a modest growth in 2011-12. But overall there has been fall in average per capita protein intake in both rural and urban areas from 62 grams in 1972-73 to 56.5 grams in 2011-12 (rural) and 56 grams (1972-73) to 55.7 grams(2011-12) in urban areas. The decline in protein intake can be attributed to fall in consumption of pulses (Table 2), as pulses are the important source of protein.

TREND IN AVERAGE PER DAY PER CAPITA INTAKE OF FAT

Unlike average per capita calorie and protein intake, the average per capita fat intake per day has increased during the entire study period except in 2004-05, where there has been marginal fall in both rural and urban areas. Apart from that, the average per capita fat intake has registered a significant growth from 24 grams (1972-73) to 41.6 grams (2011-12) in rural areas and from 36 grams (1972-73) to 52.5 grams (2011-12) in urban areas. The differences in rural and urban India's expenditure and composition of food consumption shown in Table 1 and Table 2 are reflected in the nutritional status of rural and urban households. While there has been fall in average per capita calorie and protein intake, the average per capita fat intake has undergone a substantial increase which has caused intake of unbalanced nutrients. This signifies the change in dietary pattern of people towards food with high fat substances which are essentially influenced by urbanization and globalization.

B). IMPLICATIONS ON HEALTH:

Health problems related to diet may be caused by a limited intake of dietary energy or excessive intake of dietary energy or unbalanced diet. The consumption of diets with a high caloric and fat density and sedentary lifestyles are closely related to the increase in the frequency of nutrition-related diseases, diabetes, hypertension, cardiovascular diseases and some types of cancer (WHO/FAO, 2003). To depict the implications of unbalanced diet on the health, the trend in two major Non-Communicable Diseases in India i.e., Diabetes and Coronary Heart Disease (CHD) which is closely related to the dietary pattern of an individual have been analyzed in Table 5.

Table 5: Number of CHD and Diabetes Cases in India

Year		Coronary Heart Disease	Diabetes
2000	Rural	14740808	9988262
	Urban	12300104	15825855
	Total	27040912	25814117
2005	Rural	18007899	11087005
	Urban	17878889	19952927
	Total	35886789	31039932
2010	Rural	22280577	12227483
	Urban	24688119	25444482
	Total	46968695	37671965
2015	Rural	25430046	13201058
	Urban	36092297	32608091
	Total	61522343	45809149

Source: National Health Profile (NHP), MoHFW, GoI

The adverse effect on health due to changes in dietary and nutrition intake over the years is enormous. The data in Table 5 on Coronary Heart Disease (CHD) and Diabetes is an evidence of adverse effect of changes in food habits in our country. There is massive growth in both CHD and diabetes cases during the period of 2000 to 2015 from 2.7crores to 6.1crores of CHD and 2.5crores to 4.5crores of diabetes. Further, the increase in the number of CHD and diabetes cases are higher in urban than in rural areas over the years. The prevalence of these diseases is expected to increase rapidly in India in coming years.

OBESITY IN INDIA:

Another important diet related disease increasing in India is obesity. As on 2015, about 30 million Indians are obese and it is predicted to double in the next 5 years (Obesity Foundation India). According to a recent study of Lancet, India had only 0.4 million obese men and 0.8 million obese women in 1975; but in 2014, the number shot up to 9.8 million obese men and 20 million obese women. Further, Indian men and women occupied the 5th and 3rd rank respectively in prevalence of obesity in the world in 2014 (NCD Risk Factor Collaboration, The Lancet, 2016). Even though diet is not the only factor responsible for these health effects; food habits play a major role in occurrence of these diseases.

IV). VIRTUOUS CIRCLE OF DEMAND FOR FOOD:

In recent years there has been increase in peoples concern about the quality of the food consumed due to increased public awareness and incidence of diet related diseases. People are seeking for safer food products that are healthy and specifically free from chemical inputs or genetic modifications. Accordingly people prefer organic food products that are produced with natural manure and ingredients (Garibayand Jyoti2003). However, there are no scientific evidences proving the superiority of organic food over the conventionally grown crops in terms of nutrition and taste. But as organic foods does not contain any residual of toxic chemical fertilizer and

pesticides and have some additional safety aspects of natural manure, the organically grown food is believed to be safer and reduces the possibilities of certain health risks. Along with it people are also moving towards traditional indigenous food items like ragi, oats, millets, maize among other things. The transition can be observed from the increasing market of products using these food grains as ingredient and produce and sell in the form of biscuits, health drinks, corn flakes, noodles etc., In this way a virtuous circle has been formed in the demand and dietary pattern of people in our country.

FINDINGS:

The findings of the entire study can be summarized in the Table 6 as follows.

TABLE 6: SUMMARY OF THE FINDINGS

In the entire process of diet transition the important force driving the transition is Dussenberry or Demonstration effect. It is the effect on the behavior of individuals caused by observation of the actions of others and their consequences. The effect is particularly noticeable in consumption behavior of individuals which includes food consumption among others. In the first stage of diet transition, people moved from coarse grains to superior grains because coarse grains were considered inferior and they wanted to consume superior grains consumed by rich people resulting from Demonstration effect. Then after globalization, people mainly from high income group were interested in western foods like pizza and considered them as superior to Indian foods. Therefore people from middle income group also demanded those foods which acted as a sign of high status and modern fashion. Nowadays these foods are consumed by all groups of people. In all these changes Demonstration Effect plays the dominant role. Having said that, in developed countries there is increasing trend of people consuming organic and balanced nutritious food that are considered healthy. Consequently affluent people in our country are moving towards organic and nutritious food in want of healthy life and again Demonstration Effect plays the major role.

Suggestions of potential policy strategies:

This paper has evidently presented the determinants and the way in which food pattern has changed and the consequent changes in the nutritional and health status of the people in India. There are many programs which try to address the food and nutrition problem in our country. Coordination between Government, Agriculture, Education, Health and Nutrition is essential for having a healthy food culture. In that context some of the potential strategies include the following:

- Indian government is striving to provide food security to all its citizens through various policies and programs. The National Food Security Act is the most important one in this direction, which aims to give adequate quantities of cereals (predominantly wheat and rice) at cheap price to the most vulnerable people. At the same time, food strategies must not merely be directed at ensuring just food security for all, but must also ensure providing adequate quantities of nutritious, safe and good quality foods which could form a healthy diet.
- There is coexistence of under nutrition and obesity in India. Policy-makers in our country have to think about possible policy measures that can help to control the growing obesity problem without disturbing the progress in fighting hunger.

- There is increased availability of processed and packaged food, and the consumers have the right to know what they buy and eat. But in majority of cases consumers are not aware of the product's various attributes like processing and packaging, food handling and warnings, date of manufacturing and expiry, detailed ingredient and nutritional contents among other things. Appropriate policies therefore need to be put in place which makes it mandatory to put these information labelled on the products. Consumers should be provided with this knowledge to enable them to choose products that are healthy.
- The World Health Organization (WHO) has recommended the use of fiscal policy to influence food prices in ways that encourage healthy eating (WHO,2008).Levying a tax on calorie-rich, unessential food items and beverages has been the preferred route to rein in the consumption of unhealthy products in some countries like Mexico and Denmark. Likewise, the state of Kerala has announced 14.5 percent tax on certain calorie rich food such as pizzas, doughnuts and burgers sold in branded restaurant (The Hindu News Daily July 08, 2016). To reduce the consumption of unhealthy food, the government should set a limit for calorie and/or fat level and tax all food items that are above this limit. The Government should also bring sugar-sweetened drinks, refined products and packaged food with high salt content under taxable product list as these items poses serious health risks.
- Taxing unhealthy food should be accompanied by encouragement and subsidies of healthy and wholegrain food items. A holistic approach like this will be effective in making changes in our food habit.

CONCLUSION:

To conclude, there have been substantial changes in the food consumption pattern at all levels in India over the years. This change has occurred in two stages. The first stage is expansion stage with expansion and diversification of quantity and quality of food consumed. The next stage is substitution stage with substituting indigenous traditional food with western food in context of globalization and urbanization. This food consumption behaviour has influenced the nutritional and health status of people. Despite causing fall in level of under nutrition in the country it has also resulted in over nutrition and diet related diseases in the country. Thus the government is in the brink of addressing the paradox of dual burden by promoting healthy eating for healthy life of the people in the country.

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