



Transformation of Traditional Fermented Foods of South India

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Abstract — It is understood that traditional fermented foods plays vital role in the life of common people in south India by providing simple, cheap and healthy food to lead a better life. Introduction of media imposed westernised foods in the Indian market in the 1990s made undeniable mark on changes of consumption pattern of common people. We assume that people now in south India will consume less of traditional fermented foods. We also presume that traditional fermented foods may succumbed to changes in terms of availability, preparation, intake frequency, quality and quantity of foods, modification and variety based on dynamic needs of the people. In order to understand contemporary condition and complexity of traditional fermented foods and its changes and its effect on people's socio, economic, cultural and healthy life, this study is undertaken in the state of Tamil Nadu, India. It was found that government policies and socio economic factors initially triggered the changes in the consumption pattern from millet to Rice. Secondly, Globalisation and media guided market penetration of international food retailers prompted to change from rice to wheat and milk and animal foods.

Keywords — Traditional, Fermented food, Habitual Change and Consequence, Tamil Nadu.

I. INTRODUCTION

India is currently undergoing a rapid economic and demographic transformation. Since 1980, average living standards have experienced a sustained and rapid rise. The gross domestic product per capita has risen by 230 percent; a trend rate of 4 percent annually. Poverty declined and Life expectancy has risen from 54 years to 69 years while the (crude) birth rate has fallen from 34 to 22 between 1980-2010. Rapid economic growth has been accompanied by rising urbanization. Between 1980-2011, the share of the urban population rose from 23 to 31.16 percent. In Tamil Nadu, it is as high as 43 percent, much higher than the national average.

The growth momentum was accelerated by wide ranging domestic and external liberalization of the Indian economy in the 1990s. A key feature of the economic transformation has been the change in the nature of the Indian diet (Billing, 1998). As the global markets integrate and communication becomes better, diet transitions are unavoidable. This results in a move away from so called inferior foods to superior foods and a substitution of traditional staples by primary food products that are more prevalent in western diets. These shifts are reflected in higher consumption of proteins, sugars, fats and vegetables.

Rising incomes, urbanisation and changing prices of cereal and non-cereal foods are causing some tectonic shifts in the food consumption pattern. The changing

consumption patterns and rising exports are, in turn, driving a revolution of sorts in India's high-value agriculture (e.g. vegetable, fruits, oil). Dietary choices, cooking methods, food availability, accessibility and affordability, and average daily activity level played a pivotal in the increasing prevalence of obesity and lifestyle-related diseases for Indian adults. With an estimated 71.4 million people living with diabetes, India represents the largest diabetes population worldwide — and numbers are expected to continue growing. Some of the underlying factors of this dietary transition we presume that expansion of the middle class, higher female participation, the emergence of nuclear two-income families, a sharp age divide in food preferences (with younger age groups more susceptible to new foods advertised in the media), and a rapid growth of supermarkets and fast-food outlets (Chavan, and Kadam 1989).

In order to understand contemporary condition and complexity of traditional fermented foods and its changes and its effect on people's socio, economic, cultural and healthy life, this study is undertaken in the state of Tamil Nadu, India. We assume that people now in south India will consume less of traditional fermented foods. We also presume that traditional fermented foods may succumbed to changes in terms of availability, preparation, intake frequency, quality and quantity of foods, modification and variety based on dynamic needs of the people. To test and verify all the factors we discussed here, we put forth following hypothesis to validate.

Hypotheses

1. Traditionally fermented foods occupied predominant position in their food habit.
2. Consumption of traditional fermented food is changed over the period.
3. Media and Market induced food products offered alternative consumption choices.
4. Socio economic and demographic changes altered consumption pattern of fermented foods.
5. Altered consumption pattern makes people susceptible to life style diseases.

II. METHODOLOGY

It is understand that consumption pattern and food choice heavily influenced by socio economic demographic and ethnic characteristics of people. Hence attention may be given to select villages which is multi ethnic and diverse in their socio economic backgrounds. All the category should represented in our sample selection. As, we discussed earlier, urban population rapidly increasing and selection of



study site and respondents is still complicated in the urban area due to its heterogeneity nature. Considering all these criteria, we purposefully selected, Kodaripatti suburban of Madurai city. We opted for snow ball sampling and random sampling in rural site. In addition to these, we also survey traditional fermented food venders in the Madurai city in order to understand contemporary demand for traditional fermented foods.

Traditional Fermented Foods

Fermentation is one of the oldest and most economical methods of producing and preserving food (Billings, 1998; Chavan and Kadam, 1989). Moreover, it improve nutritive values of the food, pave the way to prepare variety of stuffs and provide aesthetic appearance and taste, reduced time and labour for cooking (Simango, 1997). The preparation of many traditional fermented food still largely in home made one and some of the traditional fermented food are produced in hotel industry.

Table 1. Traditional Fermented Foods in Tamil Nadu, India

S. No	Food Item	Predominant Use
1	Koozhu (Porridge- Made from Pearl millet and Ragi)	Main food for Lunch and Dinner
2	Palayasatham (Rice with water/buttermilk overnight)	Break fast
3	Idli (Rice and Black gram flour 2:1 ratio)	Break fast and supper
4	Dosai (Rice and Black gram flour 2:1 ratio)	Break fast and supper
5	Aappam (Rice and Dhall flour)	Break fast and supper
6	Dhokla (Dhall)	Break fast and supper
7	Paniyaram (Rice Flour)	Break fast and supper
8	Thayirsatham (Rice with Curd)	Break fast and supper
9	Ahirasam (Rice flour with Jaggury)	Snacks and Side Dishes
10	Vada (Dhall flour with Water)	Snacks and Side Dishes
11	Appam (Made of Rice flour)	Snacks and Side Dishes
12	Pickles (Any vegetable/ fruits with salt and Chilly)	Snacks and Side Dishes
13	Papad (Rice and Dhall flour)	Snacks and Side Dishes
14	Toddy (Palmyra and Coconut)	Drinks
15	Lassi (Curd and Sugar)	Drinks
16	Buttermilk	Drinks

Table 1 provides list of traditional fermented foods prevalent among Tamil people. It is important to know that whether consumption of these food has been changed over the period in terms of quantity and frequency. The quantity and quality for food consumption might depends on purchasing power of the family members and cost of the food in the market, age and employment. Hence it is good to know about the some of the basic data pertaining to the respondents. The table 2 is given below illustrated with

some basic data for the respondents. From the table 2 it is clear that education plays important role in deciding employment and income which have potential to influence food preference of the respondents. Depending on the age of the respondents, we asked them to recall popular food of those days when they were young. It is evident from the table that during the 1970s millet based food consumption predominately prevails among the social system.

Table 2. General Socio Economic characteristics of Respondents

Sector	Numbers	Average Age	Average Education	Salary/Month
Government	11	53.64	11.9	16181
Private	26	44.88	10.64	13180
Labour	13	58.76	7.07	8230

Source: Data collected by the Authors December 2016 January 2017

India is experiencing rapid economic development since late 1980s which resulted in demographic, social and cultural change. Life expectancy is ever increasing and poverty levels are continued to decline. As a result of this

accelerated growth, nature of the Indian diet were also changed. As the world economy becomes more integrated and communication faster, food and diet transition would have been unavoidable (Pingali and Khwaja, 2004).

Table 3: Popular food choices of the respondents based on their age

Age of the Respondent	Recall year	Common food pattern for Breakfast	Main Ingredients	Frequency
62	1970	Palya sooru, katta sambha, keppa koozhu	Millet & cereal	Daily
66	1970	Neecha thanni, palaya sooru, keppa koozhu	Millet based	Daily
74	1960	Neeragaram, palayasooru, keppa dosai	Millet based	Daily
61	1970	Neeragaram, palayasooru, keppa dosai	Rice & millet	Daily
68	1975	Neeragaram, palayasooru, keppa dosai	Millet & cereal	Daily
65	1970	Palayasooru, koozhu	Millet & cereal	Daily
74	1965	Koozhu, Pearl Millet rotti, Ragi Kali	Millet & cereal	Daily



Age of the Respondent	Recall year	Common food pattern for Breakfast	Main Ingredients	Frequency
64	1975	Koozhu, Pearl Millet rotti, Ragi kali	Millet & cereal	Daily

Source: Data collected by the Authors December 2016 to January 2017

Globalisation and introduction of satellite television networks in India has played an enormously important role in the transformation of worthwhile traditional fermented food consumption pattern of the Indian households. The change occurred in the food consumption has far-reaching consequences in the daily life of the people. For example, this dietary transition include expansion of the middle class,

higher female participation, the emergence of nuclear two-income families, a sharp age divide in food preferences (with younger age groups more susceptible to new foods advertised in the media), and a rapid growth of supermarkets and fast-food outlets (Kulkarni and Gaiha, 2010).

Table 4. Popular Food Choices of the people over the period

1970	1980	1990	2000	2014
Kodo millet Kanji	Sorgum Dosa/Rotti	Rice	Idli	Dosa
Foxtail millet Kanji	Kodo millet kanji	Parotta	Dosa	Idli
Sorghum Rotti/Koozhu	Rice	Dosa	Rice	Meat
Pearl Millet Koozhu	Rava uppuma	Chappathi	Noodles	Egg and Fish
Finger millet	Pongal	Poori	Fried Rice	Noodles
Koozhu/Rotti/Dosa	Pearl Millet Koozhu	Briyani	Cornflakes	Rice
Barnyard millet kanji	Sorgum Adai	Uthaapam	Fried chicken	Burger
	Finger Millet	Idiappam	Grilled chicken	Pizza
	Koozhu/Kali/Dosa		Naan/Chappathi	Fried Chicken
				Variety and Fried Rice Tandoori

Source: Oral interview with local food expert and focus group discussion with Scientist held by the authors in Home Science College and Research Institute, Madurai during 8 Jan 2017

From the above table 4 indicated that transition happened from millet to rice and later from rice to wheat and recently from wheat to corn, milk and animal foods. Indians today eat twice as much meat, egg and fish as they did in the early 1980s. Consumption of fruits has risen even more spectacularly - almost three times during the same period.

What are being eaten less than before are cereals (e.g. wheat, rice) and pulses (Gulati, 2004). These changes implicitly increased expenditure on food per family. Prices of the food over the period has been increased exponentially whereas income was not increased at the same pace.

Tabel 5. Income and Food prices over the period

Year/ Criteria	1960	1970	1980	1985	1990	2000	2014
Cost of consumption (Rs/M/HH)	122.48	197.5	686.25	1680	2769.33	4549.23	7800
Income/Month (Rs)	150.56	256.25	900.55	2145.89	2625.5	5100.65	11180

Source: Data collected by the Authors December 2016 to January 2017.

Table 6. Frequency of traditional fermented food consumption during the Year 1970-80.

	1970-80s									
	Daily		weekly twice		weekly		Monthly		Rare	
	No	%	No	%	No	%	No	%	No	%
Koozhu	30	60	18	36	14	24	9	18	0	0
Palayasatham	18	32	15	30	15	30	5	10	0	0
Pulichathanni	16	32	16	32	9	18	2	4	0	0
Kali	8	16	12	24	12	24	9	18	6	32
Idli	0	0	3	6	6	12	5	10	26	12
Dosai	0	0	2	4	3	6	5	10	18	52
Aappam	0	0	1	2	1	2	10	20	12	36
Paniyaram	0	0	0	0	0	0	3	6	18	24
Curdrice	0	0	0	0	0	0	1	2	12	36
Athirasam	0	0	0	0	0	0	3	6	14	24
Vada	0	0	0	0	5	10	6	12	18	28
Rice	12	24	18	36	15	30	40	80	16	36

Source: Data collected by the Authors December 2015 to January 2016

Table 7. Frequency of traditional fermented food consumption during the Year 2016

Food Items	2016									
	Daily		weekly twice		weekly		Monthly		Rare	
	No	%	No	%	No	%	No	%	No	%



Idli	25	50	16	32	21	42	8	16	0	0
Dosai	18	36	12	24	12	24	6	12	0	0
Koozhu	1	2	3	6	14	28	19	38	0	0
Palayasatham	2	4	3	6	15	30	15	30	6	12
Pulichathanni	0	0	0	0	0	0	5	10	45	90
Aappam	12	24	13	26	19	38	15	30	13	26
Kali	0	0	1	2	2	4	2	4	12	24
Paniyaram	3	6	9	18	9	18	3	6	15	30
Curdrice	0	0	1	2	2	4	1	2	16	32
Athirasam	0	0	0	0	1	2	3	6	12	24
Vada	21	42	25	50	23	46	6	12	0	0

Source: Data collected by the Authors December 2016 to January 2017

Traditionally, Indians are habituated to prepare and consume food from locally produced and available. Depending on the season, choices of the food were also changed. After 1990s globalisation poured with new food variety with relatively better prices which tempted burgeoning middle class to taste. Younger generation of the middle class happened to taste these westernised food, slowly changed and preferred those food over traditional one. This is because younger generation is quick in adopting the changes. Moreover, planned execution of marketing of the product through well spread retails store

and make it available even in the small petti shop pave the way to easy access. The access and availability of the westernized food product ruled over the affordability of the Indian consumers (Gulati Ashok, 2004). Table 6 and 7 revealed that consumption of traditional fermented food has been drastically reduced over the period of thirty years. Very simple, inexpensive, healthy and nutritive foods such as Koozhu, Palayasatham and Pulichathanni (Neeragaram) almost forgotten by the people. Age and gender characteristics were also have a part in deciding their food choices.

Table 8. Food Preference by Age and Gender

Children		Women		Men	Elders	
Items	No (%)	Items	No (%)	No (%)	Items	No (%)
bread and sandwich	12 (24)	Rice and Briyani	31 (62)	34 (68)	Koozhu	23 (46)
Idli Dosa	10 (20)	Naan, Parotta and Chappathi	10 (20)	4 (8)	Millet Rotti	11 (22)
Chappathi and Poori	7 (14)	Palaya Satham	5 (10)	6 (12)	Palaya Satham	9 (18)
Noodles	6 (12)	Koozhu	4 (8)	5 (10)	Rice	5 (10)
Cornflakes	6 (12)				Idli	2 (4)
Fried chicken	5 (10)					
Rice and Briyani	4 (8)					

Source: Data collected by the Authors December 2016 to January 2017

It is evident from the above table 8 that only elders preferred traditional fermented foods such as Koozhu and interestingly children were showed their preference towards Idli and Dosa rice based traditional fermented foods.

Table 9. Internal and external factors influencing people's choice of Westernised food

S. No.	Factors for Change	Number	Percentage
1	Change	45	90
2	Ready made/ Half cooked	42	84
3	Laziness	42	84
4	Variety	41	82
5	Easy to cook	40	80
6	Availability	35	70
7	Access	34	68
8	Increased income	32	64
9	Advertisement	30	60
10	Affordability	29	58
11	Taste basis	26	52
12	Status	25	50
13	Healthy and Nutritive	5	10

Source: Data collected by the Authors December 2016 to January 2017

It could be observed from the Table 9 that there were around 12 factors which contributing towards respondent's choice of westernised food. It is interesting to note that 90 percent of the respondents expressed their opinion that just for change they moved to western and non-traditional food. As discussed earlier in this paper, around 50 percent of the respondents have chosen these foods because of availability and easy access. Laziness also become an important factor for deciding food choice. It is because of working women and women participation in the work force may reduce their willingness to cook after returning from the work. Factors such as healthy and Nutritive were received very low score which showed that respondents were completely aware about its ill effect. Many studies concluded that continuous intake of fast foods adversely affect the health. Life style diseases such as diabetics, blood pressure, stress and tension were increasing among the Indian population.

III. CONCLUSION

In this paper, we have examined the change in the nature of food demand in Tamil Nadu, India in the last 30 years. We identified three distinct stages of food transition



associated with period of economic growth. Initially, people depends on locally produced foods which mainly made of millets and secondly public distribution system made rice availability among the people in cheaper price. So, the people slowly changed from millet based fermented foods to rice based fermented foods. Thirdly, globalisation brought variety of wheat based food choices to the people. It was coincided with increased income of the middle income group. These group of people for want of change and lack of time due over working and women participation in the work have changed to new food products over traditional one. But all the respondents were aware that foods which not produced from locally cultivated crops were not good for health. It leads to life style diseases such as diabetics, blood pressure and work stress. Hence, it is good time to reinvent and reintroduce traditional fermented foods through appropriate media with variety and diversified choices. This should be done with urgently as these fermented traditional foods offer very safe, healthy, nutritive and economical choices.

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