



Socio-Economic and Nutritional Status Evaluation among the Irular Women of Tamil Nadu

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Abstract

Nutrition always remains as an important marker that attributes towards the health status of any population. It plays a crucial role in human health and well-being, despite higher economic growth, improvements in human development indicators like nutrition levels of the population have been unacceptable very slow, even in scheduled Tribe which constitute about 8.6 percent of the total population. In this study, an attempt was made to study the socio-economic and nutritional status among the Irular women of Tamil Nadu. As in general, an appealing image may appear about the Irular tribe, but a closer look shows us a different image. It is due to their geographical isolation and poor socio-economic condition, which affects the attributes towards better nutrition and makes them vulnerable to under nutrition. Analysis in present study was based on a 201 Irular women of Villupuram District, Tamil Nadu sample of 18 to 49 years of age. The study reveals the socio-economic and nutritional status among the Irular women was quite unfavourable as mean BMI of 35.4 percent women was found to be <18.5 (Chronic Energy Deficiency) i.e. Underweight. The overall food intake was very poor as per the Recommended Dietary Allowance (RDA). In conclusion, the study suggested that there is need to take immediately some strong steps both from government as well as from non-government side to protect and uplift the people of Irular tribe.

Keywords: Irular; Nutrition; Socio-Economic; Basic Metabolism Index (BMI); Villupuram

Abbreviations: BMI: Basic Metabolism Index; RDA: Recommended Dietary Allowance; UNICEF: United Nation International Children Emergency Fund; WHO: World Health Organisation; PVTG: Primitive Vulnerable Tribal Group; WHR: Waist Hip Ratio; CED: Chronic Energy Deficiencies; RDA: Recommended Dietary Allowances; ICMR: Indian Council of Medical Research; UGC: University Grants Commission.

Introduction

Nutrition plays a crucial role in human health and well-being. Man needs a wide range of nutrients to lead a healthy and active life and these are derived through the diet they

consume daily. Good nutrition is a basic component of health. Nutrition plays a major role in on individuals overall health. Psychological and physical health status is often dramatically impacted by the presence of malnutrition. Good nutrition is a basic component of health. It is of prime importance in the attainment of normal growth and development and in the maintenance of health throughout life [1]. Nutrition is a determinant of health. A well balanced diet increases the body's resistance to infection, thus warding off a host of infections as well as helping the body fight existing infection. Depending on the nutrient in question, nutritional efficiency can manifest in an array of its orders like protein energy malnutrition, night blindness, and iodine deficiency do

orders, anemia, and stunting, low body mass Index and low birth weight. Improper nutritional intake is also responsible for disease like coronary heart disease, hypertension, non-insulin dependent diabetes mellitus and cancer, among there [2,3].

At the national level, despite higher economic growth, improvements in human development indicators like nutrition levels of the population on have been unacceptable very slow. A substantial number of Indian children and women are underweight, anemic and suffer from micronutrients deficiencies. A quarter of women of reproductive age in India are undernourished, with a body mass index (BMI) of less than 18.5 kg/m [4,5]. It is well known that an undernourished mother inevitably gives birth to an undernourished baby, perpetuating an intergenerational cycle of under nutrition. Undernourished girls have a greater likelihood of becoming undernourished mothers who in turn have a greater chance of giving birth to low birth weight babies [6]. Reports of NFHS 3 data shows that every third women in India was undernourished (35.5 per cent) low body mass index and every second women was anemic (55.3 per cent) about (44 per cent) were moderately to severely thin in the age group of 15-49 years. As per the report of WHO [7] envisages the highest attainable standard of health as a fundamental right of every human being. Women and children are most vulnerable in any population, particularly in tribal population [8-10].

The word 'Tribe' denotes a group of people living in conditions characterized by low level of social and economic development. Territorial affiliation, which are practices endogamy and has neither nor little specialization and differentiation of functions [3,10]. It is culturally distinct with the other tribal or social groups existing in the region. It has its own distinct dialect, traditions and religion. Ancestor and nature worship and magic characterize its religion. These tribal groups inhabit widely varying ecological and geoclimatic conditions like hilly, forest, desert, coastal regions etc., in different concentrations throughout the country [11]. India is the second-largest country with different tribal communities all over the world after Africa [12,3].

The tribal population constitutes 8.5 percentage of the total population as per the 2011 Census. The term 'Tribe' has not been defined anywhere in the Indian constitution however the term Scheduled Tribe adopted in the constitution. Article 366 (25) refers the Scheduled Tribes as those communities, who are scheduled in accordance with Article 342 of the Constitution [13]. Tribal people are the lowest hierarchy of social order and is often characterized impure and unclean, are socially disadvantaged, marginalized and living outside from the mainstream society [14,15]. One important characteristics is that wherever they live, they are

at the bottom of economic and social ladders, they are among the disadvantage groups in any society and are the poorest, most marginalized, oppressed and deprived people in the county [16]. With this important concern researchers had made to study the socio-economic and Nutritional status of Irular Women of District Villupuram, Tamil Nadu.

Methodology

Present study is a quantitative in nature and both primary and secondary data was used. The primary data was collected among 201 Irular woman between the age of group of 18 to 49 years, who is inhabit in the three selected blocks i.e., Marakkanam, Vanur, Tindivanam in the Villupuram district of Tamil Nadu. After obtaining list of Irular inhabiting village data from Pazhangudi Irular Pathukappu Sangam (foundation) situated at Tindivanam block, Villupuram District of Tamil Nadu. A simple random technique was used for selecting the Women of Irular tribe. Data was collected by using two segments of Interview Schedules. One was semi structure interview schedule consisting of question related to socio-economic condition, like age of the respondents, family size, family type, occupation of the respondents, toilet facility, bathroom facility, and types of house and another schedule was used for collected information related to assessment of nutritional status like anthropometric measurements such as height, weight, waist circumference, hip circumference and Dietary assessments by using 24 hours recall method from each respondents. Secondary data was collected through various official reports such as UNICEF, WHO, Census of India, 2011.

Irular Tribe

According to Thurston E [17], the word 'Irular' derived from Tamil word called "Irul" which means 'darkness'. 'Irular' means who are in darkness curly hair and dark complexion is their prominent feature. Irular's speak Tamil Dialect. They have found all over district of Tamil Nadu except Ramanathapuram District of Tamil Nadu State as per the censuses (2011) [18]. Tamil Nadu state is having less tribal population when compared with other states of south India. It is having 1.10 percentage of scheduled tribe population of its total population as per the 2011 census. In which there are 36 Scheduled Tribe has accommodated by the Tamil Nadu Scheduled Tribe Act 1976, in that six (PVTG) Primitive Vulnerable Tribal Group namely Toda, Kota, Kurumbas, Kattunayakan, Irular and Paniyans. Irular are the second predominant tribal population in Tamil Nadu after the malayali tribe they come under the Scheduled Tribe and PVTG.

As per the (2011) census Population size of Irular tribe is (1, 89,661) in which male comprises (94,521) and female

comprises (95,140). More than seven-ninths of the Irular populations are mainly inhabited in the northeastern state of Tamil Nadu. In which four-ninths of the population have found in following districts namely Thiruvallur (15.93 per cent), Kancheepuram (14.65 per cent) and Tiruvannamalai (12.74 per cent) district of Tamil Nadu.

According to Census of India, 2011, Nearly 42% of

Irular people find in Thiruvallur, Kancheepuram and Tiruvannamalai district of Tamil Nadu followed by Vellore, Viluppuram and Krishnagiri district as each were having nearly 9% of Irular population. Irular population totally absent in Kanniyakumari, Pudukkottai, Theni and Ramanathapuram district of Tamil Nadu.

Results

Socio-Economic Profile

Socio-Economic Particulars	Variables	(N=201)	%
Type of House	Kucha	126	62.7
	Semi Pucca	69	34.3
	Pucca	6	3
Type of Family	Nuclear	163	81.1
	Extended	38	18.9
Size of Family	1 to 2	23	11.4
	3 to 4	132	65.7
	5 to 6	46	22.9
Literacy Rate of the Respondents	Illiterate	124	61.7
	Primary School	23	11.4
	Middle School	23	11.4
	High School	11	5.5
	Higher Sec School	12	6
	UG	1	0.5
	PG	3	1.5
Bathing Facility	Open Bathing	28	13.9
	Thatched Rice Bag	113	56.2
	Bricks Hollow Block	4	2
	Attached Bathroom	56	27.9
Toilet Facility	Open Defecation	151	75.1
	Separate Toilet	50	24.9
Drinking Water	Individual Tap	9	4.5
	Common Tap	192	95.5
Electricity	Present	193	96
	Absent	8	4
Income of the Family	Rs.3000-3999	22	10.9
	Rs.4000-4999	52	25.9
	Rs.5000-5999	37	18.4
	Rs.6000-6999	90	44.8
Occupational Status of the Respondents	Agriculture Labour	50	24.9
	Unemployed	9	4.5
	House Wife	118	58.7
	Home Maid	10	5
	Coolie	14	7

Table 1: Distribution of Irular Tribes According to Their Socio- Economic Profile.

Table 1 depicts the distribution of women Irular tribes according to their Socio- Economic Profile. Above table depict that 62.7% women Irular tribal people were living in Kucha houses followed by 34.3 % were living in Semi Pucca houses and 3.0 % were living in Pucca houses.

Most of them were living in nuclear family i.e. 81.1% and only 18.9 % were living in extended family. Most of them were having a family size of 3 to 4 member (65.7%) followed by 5 to 6 member.

As far as their literacy concern, most of the Irular tribal people were Illiterate (61.7%) and 22.8% were literate only up to either Primary School or Middle School. Only less than 5% Irular tribal people were literate up to either undergraduate or post graduate or even completed any diploma.

Most of women Irular tribal people generally prefer Thatched Rice Bag type of Bathing Facility (56.2%) followed by bathing in open (13.9%) and 27.9 % were taking bath in bathroom, they mostly go for open defecation (75.1%). Only 24.9% were having Separate Toilet facility.

The main source of drinking water among most of the family were Common Tap (95.5%), Most of the houses were having an electivity facility. As far as their income of the family concern, most of the Irular tribal people's family income was Rs.6000-6999 (44.8%), followed by Rs.4000-4999 (25.9%) and Rs.5000-5999 (18.4%). Only less than 5% Irular women were unemployed, otherwise they were mostly House Wife (58.7%).

So, majority of the respondent belongs to age group of 20 – 29 years (54.2 %) and were living in kacha houses, in that (58.2 %) houses were constructed in porampokku land and (41.8%) houses were constructed in government allotted land and mostly living in nuclear family i.e. nuclear family structure having 5 to 6 members were more prevalent among the study area.

They were illiterate; their houses do not have bathing facility even if there was bathing facility but such bathing facility were thatched made by rice bag, depended upon the common tap water for drinking purpose and other household activities, houses have electricity facility and their monthly income were less than seven thousand rupees and were mostly housewife.

Table 2 reflects the distribution of Irular tribes according to their Waist Hip Ratio (WHR) and Body Mass Index (BMI). In case of waist hip ratio, out of the 201 women Irular tribes, Maximum (45.3%) women Irular tribes were having a WHR-0.81- 0.85 and belongs to Moderate health risk category

followed by low risk grade (35.3 %) i.e. (WHR-<0.80) and minimum 19.4% respondents were having a WHR->0.85and belongs to Severe health risk category.

Physical and Nutritional Status

Waist Hip Ratio	Health Risk	%
<0.80	Low risk	35.3
0.81 – 0.85	Moderate risk	45.3
>0.85	Severe risk	19.4
BMI	Classification	%
<16	III Degree	8.5
16 – 16.99	II Degree	8
17 – 18.49	I Degree	18.9
18.5 – 19.99	Low Normal	13.9
20 – 24.99	Normal	42.3
25 – 29.99	Obesity	8.5

Table 2: Distribution of Irular Tribes According to Their Waist Hip Ratio (WHR) and Body Mass Index (BMI).

Whereas, In case of Mass Index, Maximum (42.3%) women Irular tribes were having a BMI-20.0– 24.9 and belongs to normal health category. 35.4% respondents come under Chronic Energy Deficiencies (CED) category i.e. 8.5% of the respondents comes under Degree III (BMI: <16), 8.0 % comes under the Degree II (BMI: 16-16.99) and 18.9 % comes under the Degree I (BMI: 17-18.49). Nearly 14% respondents were having a BMI-18.5-19.99 and belong to low normal health category and 8.5 % were having a BMI 25-29.99 and belongs to Severe health risk category i.e. Obesity.

Food Groups	ICMR-RDA (2010)	Actual Intake
Cereals	330	375
Pulses	75	60
GLV	100	135
Other Vegetables	200	160
Roots and Tubers	200	175.5
Milk and Milk products	300	140
Fruits	100	40
Sugar and jiggery	30	20
Fats and oils	2	25

Table 3: Distribution of Irular Tribes According To Actual Mean Food Intake and Compare with ICMR-RDA (2010).

Table 3 shows the distribution of Irular tribes according to actual mean food intake and compare with ICMR-RDA (2010). Researcher found that the consumption of cereals and Green leafy vegetables was up to the level of Recommended Dietary Allowances (RDA) of ICMR (2010). But, all the other important nutritive food intake of respondents was less than the Recommended Dietary Allowances of ICMR (1906) [19].

Nutrients	ICMR-RDA (2010)	Actual Intake
Protein (g)	55	34.9
Fat (g)	25	20.9
Energy (kcal)	2230	1216.1
Calcium (mg)	600	647.4
Iron (mg)	21	15.8
Thiamin (mg)	1.1	0.9
Riboflavin (mg)	1.3	0.6
Niacin (mg)	12	12.3
Vitamin C (mg)	40	49
Magnesium (mg)	310	328.8
Zinc (mg)	10	5.5

Table 4: Comparison of Actual Mean Intake of Nutrients with ICMR-RDA.

Above table shows the comparison between actual mean intakes of nutrients with ICMR-RDA. In general the overall mean intake of various nutrients intake among the respondents such as protein, fat, Energy, Iron, Riboflavin, Thiamin, Niacin, Zinc were lower than the recommended RDAs. However, the intake of Magnesium, Calcium, was higher than the recommended RDA.

Discussion

Health and Nutrition care is one of the most important of all human endeavors to improve the quality of life especially of the tribal people [20,15]. It implies the provision of conditions for normal, physical and mental development and functioning of human being individually as well as in a group. Nutritional problems and health practices of tribal communities have been profoundly influenced by the interplay of complex social, cultural, educational, economic and political practices [20,21,3]. The common beliefs, customs, traditions, values and practices connected with Nutrition and disease have been closely associated with the treatment of diseases.

Nutrition is a universally cherished goal. Health and Nutrition cannot be forced upon the people. It is a positive attribute be forced upon the people. It is a positive attribute

of life and the organization of health services to all people is considered to be the key step towards development [22]. In most tribal communities, there is a wealth of folklore associated with health and nutritional belief [1,3]. Tribal populations are particularly vulnerable to malnutrition due to their traditional socio-cultural practices and low literacy level. Several studies on growth and nutritional status were done in rural or urban India [21,23]. Studies on tribes are very few and there is very limited report on the nutritional status of Irular Tribe.

The finding in the present study opens a debatable point about the role of different indices of nutritional status assessment. Body mass index was used to assess the nutritional status of tribe's population as it is most commonly used index of obesity or overweight, underweight and normal weight. The BMI increased with age in females but showed an irregular trend in the present study. The inconsistency of any particular trend may be attributed to cross sectional nature of data, variation in nutritional status, physical activity level or energy expenditure, similarly in case WHR.

After the analysis of the data, the results shows that, in case of WHR, 35.3% respondents were belongs to low health risk grade and 45.3% had moderate health risk condition, similarly, 19.4 % of the respondents had severed health risk conditions. However, in case of BMI, nearly 35.4% Women Irular tribe comes under the Chronic Energy Deficiencies (CED) category and 8.5% respondents come under the obesity category.

The overall the socio-economic condition of Irular Women were found to highly poor and the mean intake of various micronutrients intake such as protein, fat, Iron, Riboflavin, Thiamin, Niacin, and Zinc were lower than the recommended RDAs; however, the intakes of Magnesium, Calcium, were higher than the recommended RDA. This indicates the inadequacy of food energy consumption among female, similar response was also observer among several other tribes of India [1,3]. As a whole it has been found that most of the tribal people were consuming most of the important nutritive substances much below the average Recommended Dietary Allowances (RDA). It is evident that differences in anthropometric measurements and indices are due to variations in socio-economic and nutritional status and the differences were statistically nonsignificant [10,24].

The prevalence of under nutrition and overweight or obesity as studied with the help of BMI differed among Irular tribes but was not statistically significant. The variations in nutritional status due to income and education are well studied [25-27]. Tungdim MG, et al. [28] showed the relationship between nutritional status and tuberculosis treatment. There is hardly much study on the variations

in nutritional status among women of Irular tribes of Tamil Nadu. Prabhakara GN, et al. [29] while studying food consumption in urban slums workers found calorie consumption was 94 percent of RDA. Vijayaraghavan K, et al. [30] found 48.3 per cent of the population of Karnataka to be inadequate for calorie and protein. Their diets were also deficient in iron, calcium and vitamins. In their diet survey of a rural population, found 83.33 per cent of families were consuming diets less in proteins and calories NFHS [31] and Barker M, et al. [32] found women to have a significantly lower BMI than their male peers. Women were thinner in joint land-owning families, where the main occupation was farming, than those in non-farming families. Women were more likely to work full time in farming than men, to carry the burden of all household chores, to have less sleep, and to eat less food away from home than men, a similar response was also observed in the present study.

Thus the study reveals that in spite of poor economic conditions they manage their food items from their available income. Still, their nutritional status is not an excellent one. It has been observed that poor nutritional status is one of the most serious health problems, especially among female. The problem of poor nutritional status is severely influenced by poverty, illiteracy and unawareness regarding basic nutrients. To eliminate the problem of poor nutritional status, source of income generation should be enhanced, educational standard must be uplifted along with awareness regarding nutrients, daily allowances of low budget and local resources based balanced diet.

Conclusion

The above finding reveals the Irular women have been facing nutritional problems i.e. inadequate dietary intake because of poor socio-economic conditions. It has been observed that poor nutritional status is one of the most serious health problems, especially hidden during pregnancy and lactation period among women. Tribal women were particularly vulnerable to under nutrition compared to other women. The problem of poor nutritional status is cruelly influenced by poverty, illiteracy and unawareness concerning basic nutrients. Hence there is a need to provide special attention to this group in improving their nutritional status by intervening appropriate health and nutrition programmes like nutrition education, iron supplementation and deforming both during adolescence and during adulthood.

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Conflict of Interest: No conflict of interest

Ethical Approvals: University Doctoral Committee

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