



Review Article

Nutritional and Health Status of Women in Tamil Nadu: Evidence from National Family Health Survey

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ABSTRACT	Manuscript Information
<p>Background: Health is an important component of human development. Women's health and nutritional status is bound up with social, cultural, and economic factors that associated all aspects of their lives, and it has consequences not only for the women themselves but also for the well-being of their whole family. Majority of the poor women are generally affected by to poor nutrition, Gender-based discrimination, dowry system, early marriage, mistreatment and abuse of women, which eventually leaves a negative impact on her overall health. In this context, this study analyse the “Nutritional and Health Status of Women in Tamil Nadu: Evidence from National Family Health Survey” is undertaken.</p> <p>Data and Methods: The present study is based on secondary data. The data has been collected from the NFHS-4 and NFHS-5 Data. Region wise and district wise analysis has been taken for this study. All Women aged between the age group of 15-49 years have been considered as a sample.</p> <p>Conclusion: Most of the women not have to access proper diet and their health care thus becomes the victim of various diseases. Government shall provide basic health education to the women household members. In overall improving the housing conditions and educational conditions may help to promoting nutritional and health status of the women largely.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 28-02-2024 ▪ Accepted: 25-03-2024 ▪ Published: 29-03-2024 ▪ IJCRM:3(2);2024:111-118 ▪ ©2024, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes <p>How to Cite this Manuscript</p> <p>Dr. R. HARIHARAN. Nutritional and Health Status of Women in Tamil Nadu: Evidence from National Family Health Survey. International Journal of Contemporary Research in Multidisciplinary.2024; 3(2): 111-118.</p>

KEYWORD: Nutritional Status, Health status of Women, Under Weight, Tamil Nadu, NFHS

1. INTRODUCTION

Women's health and nutritional status is inextricably bound up with social, cultural, and economic factors that influence all aspects of their lives, and it has consequences not only for the women themselves but also for the well-being of their whole family. Health is an important factor that not only contributes to human well-being, but also aids in economic growth globally. What's more important is that women's health concerns are numerous and influenced by various factors like gender disparities, early marriage, domestic violence and sexual abuse, malnutrition, poverty, illiteracy and access to quality healthcare,

which pose a major concern today. Women form an important pillar of society and they are the primary caretakers in every country of the world, but still, they suffer more and have poorer health outcomes around the world - with repercussions not only for women, but also for their families. May 28 is observed as International Day of Action for Women's Health, where her health and her rights take the centre stage. We need to create awareness among this vulnerable, yet intensely committed section of the society. Globally, about 800 women die every day of preventable causes related to pregnancy and childbirth, and 20 per cent of these women are from India. The health of a woman

is not a priority in our country, where 75 per cent of India's healthcare infrastructure is based in urban areas and only 1.3 per cent of its Gross Domestic Product (GDP) is for healthcare, which is significantly lower than the global average of 6 per cent. Women seeking healthcare in remote areas often stumble upon the poor quality of services being provided, where facing mistreatment and abuse during pregnancy and childbirth is a major trouble. The consequences of women's unfavourable status in India include discrimination in the allocation of household resources, such as food, and in access to health care and education as well as marriage at young ages. The loss of a husband usually results in a significant decline in household income, in social marginalization, and in poorer health and nutrition of women (Women and Health; 2009)^[9]. Biological and social factors affect women's health throughout their lives and have cumulative effects (Tinker *et al.*, 2000). Women have frequently been excluded from being health and medical research participants leading to major gaps in knowledge about women's health (Women Health NSW, 2007)^[10]. Women in poor health are more likely to give birth to low weight infants. woman's health affects the household economic well-being, as a woman in poor health will be less productive in the labour force (Kamalapur and Reddy, 2013; Singh and Abhinesh, 2022; Ranjithkumar & Manimekalai. 2021)^{[4][1][2]}.

Poor health and social status affect millions of women and adolescent girls around the world, making accessibility and affordability of healthcare services a challenge in 21st-century in Tamil Nadu, India. Women are generally vulnerable to poor nutrition in all phases of life, affecting their own growth and development, and are more likely to have babies with low birth weight. Gender-based discrimination (preference for a son) along with other social pathologies like the dowry system, early marriage, often results in mistreatment and abuse of women, which eventually leaves a negative impact on her overall health. In this context, this study analyse the "Nutritional and Health Status of Women in Tamil Nadu: Evidence from National Family Health Survey" is undertaken.

2. OBJECTIVES

The specific objectives of this paper are;

1. To understand the personal hygiene and household characteristics of women population in Tamil Nadu using NFHS-V in comparison of its NFHS-IV.
2. To analyse the health related characteristics of women population in terms of underweight, overweight, anaemia, high blood pressure and high blood sugar in Tamil Nadu.
3. To suggest some policy measures to improve the nutrition and health status of women population in Tamil Nadu, India.

3. METHODOLOGY

The present study is based on secondary data. The data has been collected from the National Family Health Survey IV and V (NFHS) done by the International Institute for Population Sciences (IIPS) conducted during 2015-2016 and 2019-2021 respectively. IIPS primarily offers two sorts of information: state fact sheets and district fact sheets. In our research, we used

district-level data from Tamil Nadu. This fact sheet provides information on major trends and indicators for Tamil Nadu. NFHS-5 fieldwork for Tamil Nadu was conducted in two parts for all the 32 districts of the state from 6th January 2020 to 21st March 2020, and 21st December 2020 to 31st March 2021 post lockdown by School of Public Health, SRM University. Information was collected from 27,929 households, 25,650 women age 15-49 (including 3,772 women interviewed in PSUs in the state module), and 3,372 men age 15-54. There were 32 districts according to the NFHS IV & V fact sheet report. Region wise and district wise analysis has been taken for this study. All Women aged 15-49 years within these districts have been considered as a sample.

Nutritional issues and various health-related parameters of women in Tamil Nadu have been considered as the data for this study. This study based on the collected information regarding below normal BMI, overweight or obesity, anaemia, high blood sugar and high blood pressure among women aged 15-49 years, who were different districts of Tamil Nadu. As the NFHS-4 & NFHS-5 round had almost similar content, it is possible to compare the different nutritional and health status parameters of women within the districts of Tamil Nadu, India. District-level data in Tamil Nadu has been compiled and analysed for this study.

Parameters of Study

- ⇒ BMI (Body Mass Index) indicator is used to estimate nutritional status. BMI less than 18.5 is considered under nutrition and BMI greater than 25.0 is considered overweight or obese. Body Mass Index or BMI defined as weight in Kilogram is divided by height in meters square.
- ⇒ Diabetes is a chronic metabolic disorder that is measured by elevated blood glucose levels, which should be ≥ 140 mg/dl in postprandial conditions. NFHS measured the blood sugar level randomly.
- ⇒ Hypertension is measured by elevated blood pressure, which should be ≥ 140 mmHg for systolic pressure and ≥ 90 mmHg for diastolic pressure.
- ⇒ Anaemia is a condition of a low level of Haemoglobin in the blood. All women aged 15-49 years with haemoglobin levels < 12 gm/dl have been taken for this study.

4. RESULTS AND DISCUSSION

The current study was based on cross-sectional data obtained at the unit level from the two most recent consecutive National Family Health Surveys (NFHS) IV and V. In our research, we used district-level data from Tamil Nadu. This fact sheet provides information on major trends and indicators for Tamil Nadu.

Important household characteristics includes household composition, housing characteristics, household possessions, access to a toilet facility, and education. The household characteristics reflect the environmental risk factors and behavioural outcomes of the household population, including their likely impact on health status. Table-1 explain the personal and household details of the women respondents in Tamil Nadu

using NFHS-5 and NFHS-4 data sheet. Among the total sample households, the adolescent population (age group of 15-59) size was decrease in NFHS-5 than the NFHS-4 from both gender. Among the sex ratio wise concern, the female sex ratio is increase in NFHS-5 than NFHS-4 and rural sex ratio also little more increased than the urban sex ratio. By their years of schooling, the difference of median years of schooling also little increased in NFHS-5 than the NFHS-4. The difference of female gender literacy rate also little higher. Nearly one-fourth (24%) of households are headed by women in present status and this status

was 7.4 per cent increase in NFHS-5 than the NFHS-4. By their family system wise concern, the joint family system was increased by 3.5 per cent and the same percentage of nuclear family system was decreased in NFHS-5 than the NFHS-4. By their household’s facility wise concern, all the facility is increased in NFHS-5 than NFHS-4 but the sanitation facility is highly increased than the drinking water facility and electricity facility.

Table 1: Personal and Household Details of Women Respondents in Tamil Nadu

Category	NFHS-5	NFHS-4	Difference
Age (15-59)			
Male	61.8	64.6	-2.8
Female	66.3	68.0	-1.7
Sex Ratio			
Rural	1113	1047	66
Urban	1062	1020	42
Total	1088	1033	55
Median Years of Schooling			
Male	8.0	7.9	0.1
Female	7.0	6.7	0.3
Household Headship			
Male	76.4	83.8	-7.4
Female	23.6	16.2	7.4
Family System			
Joint Family	69.5	66.0	3.5
Nuclear Family	30.5	34.0	-3.5
Household Facility			
Electricity	99.0	98.8	0.2
Drinking Water	98.6	90.6	8
Sanitation	71.2	52.4	18.8

Source: NFHS- 4 & NFHS-5 Data fact sheet

Table-2 studies the region/district wise classification of sources of drinking water and improved sanitation facility among selected households in Tamil Nadu. By their region wise concern, improved drinking water sources was increased more than one per cent from NFHS-IV to NFHS-V in southern (1.6%) and cavery delta zone (1.2%). By their district wise concern, 11 districts among 32 districts of improved drinking water sources were depleting from NFHS-IV to NFHS-V. The depleting water resources were further depleting chances in coming years.

Therefore, government should concentrate and create awareness among important of water resources. Because of taking purified drinking water can keep women, children and all family members free from various water-borne diseases thereby boosting their immune system and contributing to their nutritional development, one of the main factors contributing to the high infant mortality rate worldwide is diarrhea. It is water borne disease (Chart-1).

Table 2: Region/District wise classification of Sources of Drinking Water and Improved Sanitation facility among Women Households in Tamil Nadu

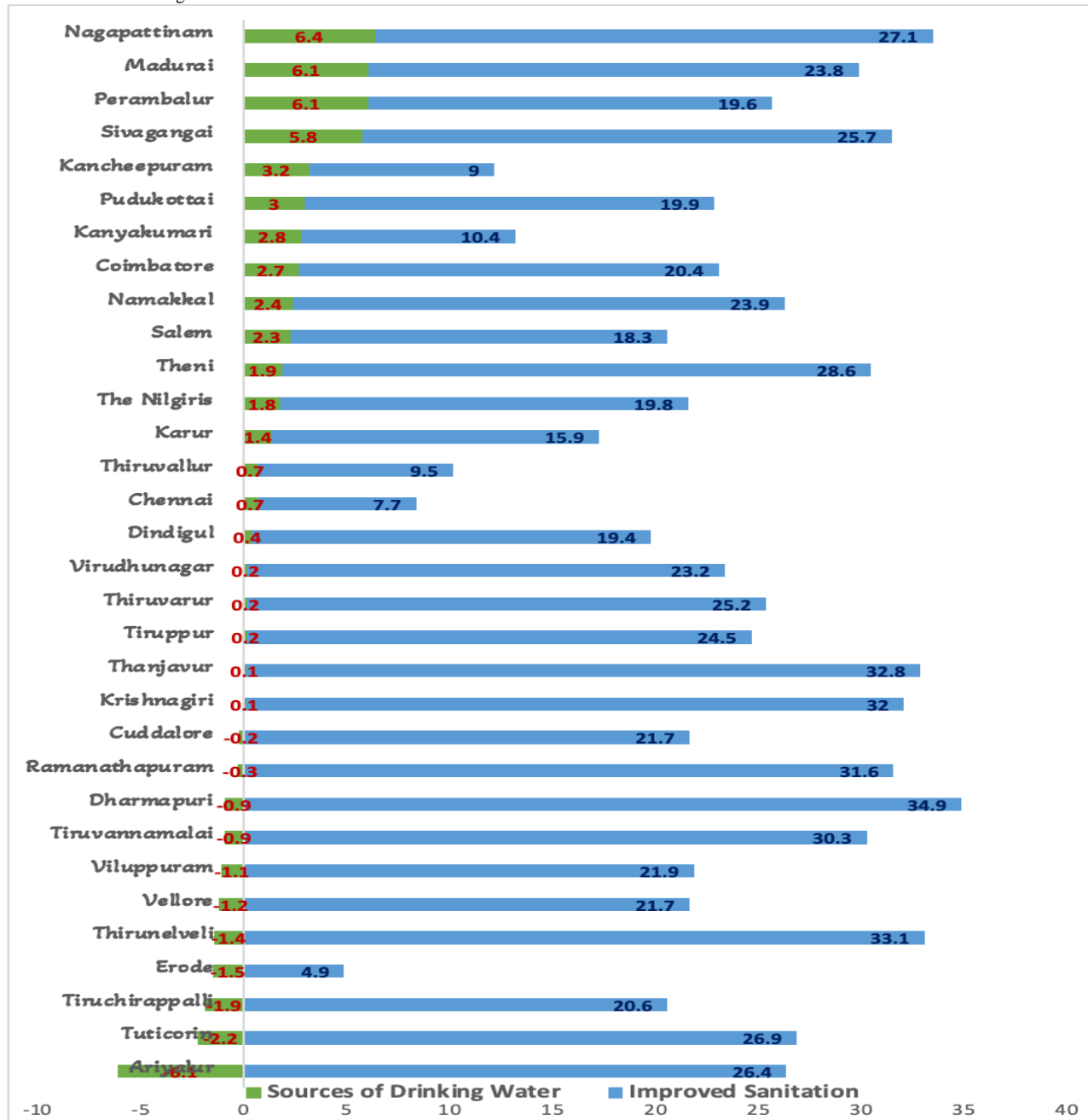
Region wise District Classification	Source of Drinking Water*	Improved Sanitation facility*	Region wise District Classification	Source of Drinking Water*	Improved Sanitation facility*
North Eastern Zone			Cavery Delta Zone		
Chennai	0.70	7.70	Ariyalur	-6.10	26.40
Cuddalore	-0.20	21.70	Karur	1.40	15.90
Kancheepuram	3.20	9.00	Nagapattinam	6.40	27.10
Thiruvallur	0.70	9.50	Perambalur	6.10	19.60
Tiruvannamalai	-0.90	30.30	Pudukottai	3.00	19.90
Vellore	-1.20	21.70	Thanjavur	0.10	32.80
Viluppuram	-1.10	21.90	Thiruvarur	0.20	25.20
Mean	0.2	17.4	Tiruchirappalli	-1.90	20.60
North Western Zone			Mean	1.2	23.4
Dharmapuri	-0.90	34.90	Southern Zone		
Krishnagiri	0.10	32.00	Kanyakumari	2.80	10.40
Namakkal	2.40	23.90	Madurai	6.10	23.80
Salem	2.30	18.30	Ramanathapuram	-0.30	31.60
Mean	0.98	27.28	Sivagangai	5.80	25.70
Western Zone			Thirunelveli	-1.40	33.10
Coimbatore	2.70	20.40	Tuticorin	-2.20	26.90
Dindigul	0.40	19.40	Virudhunagar	0.20	23.20
Erode	-1.50	4.90	Mean	1.6	25.0
The Nilgiris	1.80	19.80			
Theni	1.90	28.60			
Tiruppur	0.20	24.50			
Mean	0.9	19.6			

Source: NFHS- 4 & NFHS-5 Data fact sheet

Note: *Percentage difference between the selected Households of NFHS-5 and NFHS-4 Data

Chart 1: Percentage Difference* between the District wise classification of Sources of Drinking Water and Improved Sanitation facility among Women Households in Tamil Nadu from NFHS-IV to NFHS-V

*+ Positive Difference and – Negative Difference



Among the zone wise concern, the mean difference of sanitation facility is highly improved in north western zone and southern zone (25%) in Tamil Nadu. Among the district wise concern, the percentage of sanitation facility was highly improved in Dharmapuri (34.9%), Tirunelveli (33.1%), Thanjavur (32.8%), Krishnagiri (32%), Ramanathapuram (31.6%) and Tiruvannamalai (30.3%). The overall improved sanitation facility in all the districts of Tamil Nadu is highly improved from the period of 2015-16 (NFHS-IV) to 2020-21 (NFHS-V).

Improved and clean sanitation systems can keep women and children free from various insect-borne and vector-borne diseases, which greatly improve health. Nutritional deficiency and under-weight among women may occur for various reasons. Heavy workload, poverty, early marriage and childbirth, deficiency of nutrition and unhygienic practice may occur under nutrition (Rao K. M *et al.*, 2010). As per Table-3, Region/District-Wise differences among under-weight, over-weight and Anaemia Women in Tamil Nadu have been observed for most of

the districts. among those districts, the most improving districts were Sivaganga (7.4%), Krishnagiri (6.4%) and Kanyakumari (6.4%) and where a maximum reduction of underweight women has been noticed between the two rounds of NFHS in these districts. However, Chennai (10%) is the most vulnerable districts where the percentage of underweight women is continuously high. On the other side, no such changes occurred in North Eastern Zone within these 5 years. Based on the result, it has been observed that the prevalence of underweight women has decreased from the 4th round of NFHS to the 5th round which is a obviously good sign for women's nutritional health. Because very minimum changes only happened between the two NFHS round. Still, the prevalence of under nutrition is so high in Tamil Nadu. Therefore, our Government should concentrate more on under-weight women living regions, create more awareness, and establish new health schemes especially in those under-weight women living regions.

All the 32 districts of Tamil Nadu, most of the districts women has been identified overweight or obese. This trend has continuously increasing. Western zone (13.8%) and North

Eastern Zone (12.0%) are the major two region where a maximum increasing rate (10% and more) of obesity has been observed. Within the southern zone, the prevalence of obesity is the lowest in Ramanathapuram (1.4%). Namakkal (18.5%) and Tiruppur (17.0%) districts of the Western and North Western Zone are more vulnerable as the maximum percentage of overweight women has been identified. Although the rate of under nutrition among women has decreased in Tamil Nadu where the prevalence of obesity has steadily increased in most of the regions. Obesity is a excessive fat deposits that can impair health. People can gain weight for various reasons like inactivity, sedentary lifestyle, overeating of unhealthy foods, absence of awareness about notorious food etc. Uncontrollable fatty and junk food consumption are the major reasons for obesity. Prolonged working hour and a sedentary lifestyle makes people dependent on fast and junk food, which is randomly increasing day by day. To improve women health status and to provide economic security, the Government of Tamil Nadu implemented various health related programmes and employment generating activities especially women gender.

Table 3: Region/District wise differences among Under-Weight, Over-Weight and Anaemia Women in Tamil Nadu

Region wise District Classification	Under-Weight*	Over-Weight*	Anaemia*	Region wise District Classification	Under-Weight*	Over-Weight*	Anaemia*
North Eastern Zone				Cavery Delta Zone			
Chennai	10.0	8.3	-3.6	Ariyalur	-1.4	11.9	5.5
Cuddalore	-4.5	6.1	-1.2	Karur	3.0	3.3	9.0
Kancheepuram	3.1	7.2	3.6	Nagapattinam	-3.3	5.0	11.0
Thiruvallur	-0.8	16.3	1.7	Perambalur	0.9	5.1	6.8
Tiruvannamalai	-3.5	10.7	-2.4	Pudukottai	-3.2	7.3	7.4
Vellore	-3.0	11.1	-4.9	Thanjavur	-3.0	9.5	0.8
Viluppuram	-1.4	12.4	-0.4	Thiruvarur	-4.4	8.0	-0.3
Mean	-0.0	10.3	-1.0	Tiruchirappalli	-1.2	2.2	-3.3
North Western Zone				Mean			
Dharmapuri	-2.8	8.0	-16.6	-1.6	6.5	4.6	
Krishnagiri	-6.4	10.1	-3.4	Southern Zone			
Namakkal	-1.4	18.5	2.8	Kanyakumari	-6.4	10.5	1.0
Salem	-1.9	10.9	-8.9	Madurai	-2.7	5.3	-4.5
Mean	-3.2	12.0	-6.5	Ramanathapuram	-3.5	1.4	3.3
Western Zone				Sivagangai	-7.4	5.0	-2.5
Coimbatore	-3.7	15.6	-5.4	Thirunelveli	-5.4	10.7	-15
Dindigul	-1.2	12.4	-8.4	Tuticorin	-6.0	7.4	-3.1
Erode	0.7	9.7	7.9	Virudhunagar	-0.5	4.5	1.0
The Nilgiris	-1.9	16.3	-6.5	Mean	-4.6	6.4	-1.9
Theni	-3.3	11.7	-8.7				
Tiruppur	-2.0	17.0	-3.4				
Mean	-1.9	13.8	-3.5				

Source: NFHS-4 & NFHS-5 Fact Sheet

Note: *Percentage difference between the selected Households of NFHS-5 and NFHS-4 Data

The prevalence of all types' anaemic women aged 15-49 years in various districts of Tamil Nadu and who have low haemoglobin levels in their blood. According to NFHS data, for pregnant women haemoglobin level less than 11g/dl and for non-pregnant women less than 12g/dl have been considered anaemia. based on the above the table, decreasing trends of anaemia among women have been identified within all the region of

Tamil Nadu except Cavery Delta Region (4.6% increased). There are 12 vulnerable districts of Tamil Nadu where increasing trends of anaemia have been observed compared with NFHS-4 fact sheet data. Dharmapuri (-16.6%) and Salem (-8.9%) are the only two districts where most decreasing trends of anaemia have been identified. Karur (9.0%) district had the highest increasing rate of anaemia among women.

Table 4: Region/District wise differences between High Blood Pressure and High Blood Sugar Women in Tamil Nadu

Region wise District	High Blood Pressure*	High Blood Sugar*	Region wise District	High Blood Pressure*	High Blood Sugar*
North Eastern Zone			Cavery Delta Zone		
Chennai	4.4	0.9	Ariyalur	3.4	3.6
Cuddalore	3.6	3.4	Karur	5.9	1.7
Kancheepuram	5.0	0.3	Nagapattinam	4.7	-1.8
Thiruvallur	5.7	0.1	Perambalur	2.6	-0.2
Tiruvannamalai	2.6	0.8	Pudukottai	4.5	-0.7
Vellore	5.6	-0.4	Thanjavur	6.1	-0.8
Viluppuram	3.1	0.9	Thiruvarur	3.0	3.6
Mean	4.3	0.9	Tiruchirappalli	3.0	0.5
North Western Zone			Mean		
Dharmapuri	6.3	-2.5	4.2	0.7	
Krishnagiri	3.7	-1.4	Southern Zone		
Namakkal	5.9	1.3	Kanyakumari	5.1	0
Salem	4.9	-0.3	Madurai	2.9	-0.5
Mean	5.2	-0.7	Ramanathapuram	4.2	1.5
Western Zone			Sivagangai	3.0	1.5
Coimbatore	6.2	1.3	Thirunelveli	3.7	-0.9
Dindigul	4.4	1.9	Tuticorin	4.2	1.7
Erode	6.8	1.3	Virudhunagar	3.2	-2.2
The Nilgiris	8.1	-1.4	Mean	3.8	0.2
Theni	5.0	0.3			
Tiruppur	6.3	1.7			
Mean	6.1	0.8			

Source: NFHS- 4 & NFHS-5 Data fact sheet

Table-4 shows the Region/District wise differences among High Blood Pressure and High Blood Sugar Women in Tamil Nadu. Among the total women in Tamil Nadu, an increasing trend of prevalence of high blood pressure and blood sugar has been observed according to the NFHS fact sheet data. The table illustrate that 11 districts (Thiruvallur, Vellore, Dharmapuri, Namakkal, Coimbatore, Erode, the Nilgiris, Theni, Tiruppur, Karur, Thanjavur and Kanyakumari) of Tamil Nadu have greater than 5 per cent increasing trends of hypertension and the maximum increasing trends of hypertension have been observed in The Nilgiris (8.1%) and Erode (6.8%) districts of Tamil Nadu. Based on their NFHS-5 data sheet, the present status of prevalence of high blood pressure among women of Tamil Nadu showed highest in The Nilgiris (10.9%) followed by Erode (9.0%). There is an increasing trend of diabetes and hypertension has been observed in all districts of Tamil Nadu. The prevalence of diabetes is very high among women of all regions. Therefore, Our Government should seriously concentrate on this issues to reduce the level of high blood pressure to all the affected women in Tamil Nadu.

Malnutrition is also one of the key factor to affects the blood sugar level of the body as a lack of essential nutrients body cannot produce an ample amount of insulin to regulate sugar levels, which leads to increased blood sugar or diabetes. It is also one of the r major reason that the prevalence is very high among rural women who are not dealing with a sedentary lifestyle like urban people. Urban people are more affected by high blood sugar due to overconsumption of fast food, physical inactivity, overweight or obesity etc. Another study also stated that high-income groups are more vulnerable to metabolic disorders due to their lifestyle (Prasad DS *et al.*, 2012; Ravikiran M *et al.*, 2010)^{[5][7]}. The table data illustrates that Ariyalur and Thiruvarur

(3.6%) and Cuddalore (3.4%) are the most sensitive districts where the maximum increase rate of blood sugar has been noticed. Out of all five regions of Tamil Nadu, the four region of Tamil Nadu showed the increasing rate of high blood sugar whereas according to the NFHS-5 fact sheet. North Eastern region showed the current highest (0.9%) prevalence of high blood sugar among women and North Western Zone showed the current lowest prevalence of high blood sugar among women (-0.7%).

5. CONCLUSION

From the above analysis, the results showed that there is a significant change has been observed between the two rounds of NFHS. The nutritional and health status among women needs more attention and concern. Increasing trends of obesity, anaemia, diabetes and hypertension among women of Tamil Nadu have been revealed that make a threat to women’s health and development as well as to society. As per NFHS data, the percentage of obese and overweight women is increased from NFHS-4 to NFHS-5, which also increases the risk of metabolic disorder. There is a severe change in nutritional status among women of Tamil Nadu has been observed. The prevalence of obesity among women is increased whereas the percentage of under nutrition is decreased.

Tamil Nadu women, especially those in backward areas, need to be empowered to receive greater health care. Women’s are the most vulnerable group than males to various aspects in the society particularly for their health care. Most of the women not have to access proper diet and their health care thus becomes the victim of various diseases. Nutritional education is essential to promote the health status of women. Government shall provide basic health education to the women household members

through evening schools or Anganwaadi workers with the help of educated rural women youths. In overall improving the housing conditions and educational conditions may help to promoting nutritional and health status of the women largely. Comprehensive health and sanitation program should be implemented in backward districts of Tamil Nadu to promote the health status of women. Government should increase the budget allocation for health and sanitation programme to improve the basic health facilities in backward districts especially women households. To maintain flexibility women's should walk, jog, garden that may burn their calories and accompany friends that make you happy in order to relieve the stress. Since healthy mind lives in healthy body so a women with good health can contributes better in all fields of life including science and technology

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