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# A Socio-Economic, Nutritional and Health Study of Rural Dalit Women of Puducherry

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## ABSTRACT

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. The present paper assesses the Socio-Economic, Nutritional and Health conditions among 115 rural Dalit women of age group 21-50 above years in the village Kalittheerthalkuppam, Puducherry. A cross-sectional study was conducted using both qualitative and quantitative data-collection methods. The data was collected using a standard questionnaire, containing information on socio-economic food/nutrient intake, observations and assessment of their general knowledge and awareness about health, nutrition and taken some anthropometric measurement. The mean BMI of 43.47% Dalit women was found to be <18.5 (chronic energy deficiency) i.e. underweight. The overall quality of food and nutrient intake was poor as the intake of all the food groups was found to be much lower than their RDAs. The mean energy and protein intake was found to be consuming much below the RDAs. Similarly, the intake of nutrients was also found to be inadequate particularly of vegetables and pulses which met only 97.39% and 80% of the RDAs, respectively. Dietary deficiencies were also reflected in their physiological processes like menstrual problems and pregnancy complications, before menopause etc. Efforts are needed to improve education and diet quality of Dalit women so that they may improve their health and nutritional profile reflected their condition.

**Key words*:*** Nutritional status, Rural women, Dalit women, Dietary pattern, Anthropometry

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## INTRODUCTION

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. 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 is 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. . (Kamalapur and Reddy, 2013)

Nutritional status refers to the health of an individual as it is affected by the intake and utilization of nutrients. Nutritional health can be described at several levels. Normal nutrition does not imply a sufficiency of nutrients and energy intake, deficiency nor is excess that affords the highest level of well-being. The relationships between biological and cultural factors have well exhibited by nutritional aspects under the rubric of different ecosystems. Nutrition is concerned to a certain extent with social, economic, cultural and physiological implications of food and dietary habits. (Jaiswal, 2011).

Vedapureswaran (2012) said, Nutrition and health of a society is intimately related to its value system, its philosophical and cultural traditions and its social economic and political organization, each of these aspects has a deep influence on health and science of health and since health in its turn also influence all these aspects. It is not possible to raise the health status and quality of life of the people unless such efforts are integrated with wider effort to bring about a overall transformation of the society as a whole.

Srivasan,(2004) explain that the nutritional status of an individual depend not only on income but also on awareness of the importance of the nutritional content of food malnutrition continues to be significant problem for children and adult in India STs Lag behind other communities with respect to education , health and other requisites for good community nutrition .

Rangan (2003) explain that poor socio- economic status with its attendant poor education is associated with poor knowledge of cardio respiratory problem, risks of infection and dissemination, and with inadequate and /or delayed availability of health care. Poverty also results in poor nutrition and low body weight, which are likely to render the immune system more vulnerable to the invading environment.

In another study conducted by Khetarpal (2007) on Health and Well-Being of Rural Women, it was found that only 10 per cent of the studied women were consuming a balanced diet. The women showed a poor intake of vegetables, fruits and milk products however, the intake of oil, sugar and jaggery was nearly adequate

Dalit were suffered from social injustices and exploitations so as to present them from rising above the social status fixed for them. The Dalit being on the lowest rung of the social ladder were denied entry into several occupations which were relatively cleaner. They are very poor, deprived and socially balanced. They do not have access to enough food, health care, housing and clothing. Dalit were commonly segregated and banned from full participation in Hindu social life. Dalits are who referred to as "Broken men", untouchable, depressed class and scheduled caste. Generally, 'Dalit' means as connoting that the state of being "ground down" or "depressed", to represent the constituency of lower-caste people. The term "Dalit "is inclusive of all the oppression and exploited people in weaker section of society. Etymologically, the term is inclusive of meaning such as downtrodden, disadvantage, underprivileged, dispossessed, deprived, handicapped, abased, humble, prostrate etc. It does not however confine, merely to economic exploitation in term of appropriation of surplus but also realities of suppression of culture, ways of life and value system and more impertinently the denial of dignity.(Meena Anand, 2005) .

Dalit women are placed at the absolute bottom of the social hierarchy in India as they face symmetric and structured discrimination for three fold, as Dalits, as poor, and as women. The population of Dalit women is in India 9.79 cr. (i.e. 48.5% the total Dalit population in India). Total female population is in India is 58.7 cr. of which 16.68% is Dalit women population. (Pradeep, 2014; Census 2011). Dalit is a self designation for a group of people traditionally regarded as of lower class and unsuitable for making personal relationships. Dalit women face a triple burden of caste, class and gender" in which she sums up the plight of Dalit women, highlighting the fact that they are a distinct social group and cannot be

masked under the general categories of "women" or Dalit". Dalit women suffered unimaginable oppression, not only through caste, but gender too, from which there was no escape.

Manipal (1998) explained that Dalit women also faced may problems in performing their duties due to illiteracy, lack of information and dependency on the male members of their families, an important obstacle is the no-confidence motion against Dalit women as pradhan by the dominate sections. Rural elites are unable to accept the power, which has given into the hands of the poorer and disadvantaged women.

Ashalatha (2013) highlight harsh reality of the suppression, struggle and torture Dalit women face every day of their miserable lives. Dalit women are not simply duty to their poverty, economical status, or lack of education but are a direct result of the severe and suppression by the upper classes, which legitimized by Hindu religious scriptures. Caste, class, and gender discrimination prevents Dalit women from enjoying for basic human rights particularly to dignity, equality and development. Atrocities and violence against Dalit women are both a means of sustaining systemic discrimination, as well as a reaction when particularly untouchablity practices and caste norms are challenged or adhered to.

Anand (2005) study reveals that Dalit women constitute 16.3 per cent in the total population. 18 per of Dalit women live in rural areas. After the unpaid hard domestic work, they continue to toil in the hot sun as a wage earner. Dalit women undertake manual, low paid tedious, time consuming work. They get low pay. They walk miles to fetch drinking water. They live in hunt, denied of basic amenities such as sanitation, light, water. They work in building construction, carry heavy load , work in brick kiln from early morning till evening they are employed as casual laboureers in laying roads with hot that in the burning sun without sandals and without any protection they carry heavy loads, heavily burdened to collect fodder, fuel, water for everyday consumption

Even though, there are many studies related to nutritional condition of different population of India but as for on Dalit is concern there are very limited studied and especially for Dalit women there are hardly any anthropological research is available which explain the health and nutritional feature in a holistic fashion. So, the present study aims to investigate the nutritional status of the Dalit women living in rural area of Puducherry.

## MATERIAL AND METHOD

The present study was cross-sectional and was conducted among 115 Dalit women living in the rural area of Puducherry. Their age group ranging from 21-50 above years and were randomly selected, interviewed and measured using a standard questionnaire. Data on several anthropological aspects were collected like demography; health and nutritional status. Data was collected using both qualitative and quantitative data collection methods. Basic anthropometric measurements such as like height, weight, mid upper arm circumferences were taken as per the guidelines suggested by Weiner and Lowrie (1981). Dietary data were collected using 24 hours recall method and nutritional status was assessed by BMI and MUAC.

## RESULTS AND DISCUSSION

An anthropometric and nutritional analysis of the Dalit women was highlighted in this section of the paper. The data thus collected the shows age group wise distribution of anthropometric measurements based on percentage, mean, standard deviation and also prevalence of CED based on BMI and MUAC..

**Table. 1 Distribution of subject according to age group and Socio-economic profile of the Dalit women in Puducherry**

| **Age Group** | **No** | **(%)** | |
|---|---|---|---|
| 21-30 | 26 | 22.60 | |
| 31-40 | 33 | 28.70 | |
| 41-50 | 24 | 20.87 | |
| 41-50 | 24 | 20.87 | |
| 51-above | 32 | 27.83 | |
| Total | 115 | 100.00 | |
| | **Socio-economic variables** | **No. of respondent (%)** | |
| **Type of house** | Thatched | 51 | 44. 33 |
| | Tiled | 21 | 18.26 |
| | RCC* | 43 | 37.39 |

| | | | |
|---|---|---|---|
| **Type of family** | Nuclear family | 103 | 89.56 |
| | Joint family | 2 | 1.73 |
| | Broken family | 10 | 8.69 |
| **Educational status** | Illiterate | 30 | 26.08 |
| | Up to secondary | 59 | 51.30 |
| | Up to higher secondary | 20 | 17.39 |
| | Postgraduate | 6 | 5.21 |
| **Working status** | Working | 60 | 52.17 |
| | Non working | 55 | 47.82 |
| **Monthly income(Rs)** | 1000 – 1999 | 08 | 6.95 |
| | 2000 – 2999 | 05 | 4.34 |
| | 3000 – 3999 | 14 | 12.17 |
| | 4000 – 4999 | 18 | 15.65 |
| | 5000 – above | 15 | 13.04 |
| **Food habits** | Non-vegetarian | 112 | 98.00 |
| | Vegetarian | 3 | 2.00 |

***RCC –Roof Cement Concrete**

The above table show that the maximum percentage of (28.70%) Dalit women were belonged to 31-40 years age group, followed by 51 above years (27.83%) and( 20.87%). Minimum percentage of Dalit women belonged to 41-50 years age groups.

General information of the subjects shows that, out of 115 subjects selected in the age group of 21-50 above years of Dalit women of Puducherry, majority of Dalit women are living in the thatched houses (44.33%) followed by RCC house (37.39%), the maximum percent (89.56%) of Dalit women were belonged to nuclear family, and only (1.73% ) of Dalit women were belonged to joint family. As per the

educational status concern, maximum percentage (51.30%) of Dalit women were educated up to secondary level, nearly 26% of the Dalit women were illiterate. In the case of working status nearly 52.17% of the Dalit women were having as an agriculture work, private company job and few person were worked in private school teacher. Nearly 47.82 % of the Dalit women were not working, which means they are housewife. In case of monthly income, maximum (15.65%) earned Rs. 4000-4999 per month and minimum (4.34%) earned Rs.2000-2999 per month. And their food habit were mostly non-vegetarian.

**Table. 2. Distribution of Dalit women according to illness suffered from disease**

| Illness suffered from disease | No | % |
|---|---|---|
| Fever | 77 | 66.95 |
| Cough | 85 | 73.91 |
| Dysentery | 34 | 29.56 |
| Dental carries | 68 | 59.13 |
| Stomach ache | 84 | 73.04 |
| Skin disease | 44 | 38.26 |
| Jaundice | 10 | 18.26 |
| Asthma | 21 | 8.69 |
| Ortho problem | 44 | 38.26 |
| Cardiac disease | 36 | 31.30 |
| Diabetic | 34 | 29.56 |
| Visual problem | 13 | 11.30 |
| Hearing problem | 12 | 10.43 |

The maximum (73.91%) of Dalit women were suffered from illness like cough , stomach ache (73.04%), fever (66.95%), dental carries (59.13) and minimum (8.69%) jaundice. However, (18.26%) of the Dalit women were suffering from asthma, Ortho problem (38.26%), cardiac disease (31.30%), diabetic (29.56%) visual problem (11.30%) and hearing problem (10.43%) . The main reason behind such a poor health condition may be cause of poor nutrition, unhygienic living conditions, poor environment surrounding and awareness of disease.

**ANTHROPOMETRICAL MEASUREMENTS**

**Table. 3. Distribution of Dalit women according to their Height, Weight and mid arm Circumference.**

| Measurements | Age group(yrs) | | | | |
|---|---|---|---|---|---|
| | 21-30 | 31-40 | 41-50 | 51-above | Mean± SD |
| | Mean ±SD | Mean± SD | Mean± SD | Mean± SD | |
| Weight (kg) | 58.2±7.3 | 59.2 ±7.7 | 62.1 ±8.8 | 61.5 ± 9.5 | 60.5±8.2 |
| Height (cm) | 156.9 ±4.4 | 153.8±3.5 | 156.0±4.5 | 155.5± 5.6 | 155.5±4.5 |
| Mid upper arm circumference (cm) | 27.1±2.3 | 28.7±2.7 | 29.0± 2.7 | 28.0± 3.2 | 28.2±2.7 |

Table 3. presents that mean & SD of body weight, height, and mid arm circumference among various categories of the Dalit women, Out of the 115 Dalit women were the maximum mean value & SD of body weight (62.1 kg±8.8) in case of Dalit women was found in age group 41-50 years and the minimum mean value & SD of body weight (58.2kg±7.3) was found in age group 21-30 years. However, Dalit women were found the maximum mean value & SD of height (156.9cm±4.4) in age group 21-30 years and Dalit women were found the minimum mean value & SD of height (153.8cm±3.5) in age group 31-40 years. Whereas, Dalit women were found maximum mean value & SD of mid upper arm circumference (29.0cm±2.7) in age group 41-50 years. Minimum mean value & SD of (27.1 cm) in case of Dalit women were found in age group 21-30 years.

The BMI was calculated following standard formula (kg/m2). Nutritional status (NS) was evaluated using both BMI and MUAC. The following cuts-off points were used to identify CED according to internationally accepted BMI guidelines. (WHO, 1995)

- CED: BMI <18.5
- Non-CED: BMI≥18.5

| BMI | Class |
|---|---|
| <18.5 | Chronic Energy Deficiency |
| 18.5-25 | Normal |

| | |
|---|---|
| 25-30 | Grade-I Obesity |
| >30 | Grade-II Obesity |

***Source: W.H.O. 2004**

**Table 4 Distribution of Dalit women according to Body Mass Index (BMI) categories and estimating BMI category from Mid upper arm circumference (MUAC)**

| BMI | No. of Women | % |
|---|---|---|
| <18.5 (chronic energy deficiency) | 50 | 43.47 |
| 18.5 -25 (Normal) | 45 | 39.13 |
| 25-30 (Grade- I & II obesity) | 20 | 17.38 |
| **Total** | 115 | 100.00 |
| | **BMI<20kg/m2** | **BMI>30kg/m2** |
| MUAC <23.5cm | 65(56.52) | 70(60.86) |
| MUAC>32.0 cm | 50(43.47) | 45(39.13) |

***BMI Source: W.H.O. 2004**

Nutritional status of Dalit women was assessed using Body Mass Index (BMI) Table. 4 shows distribution of Dalit women were in different BMI categories. It is based on Body Mass Index (BMI) classification of W.H.O.2004, maximum 50(43.47 %) of Dalit women had Chronic Energy Deficiency (CED) condition and 45(39.13%) of Dalit women had found normal condition of BMI. Minimum 20(17.38%) of dalit women had found Obesity (Grade I&II) condition of BMI. Body Mass index was used to assess the nutritional status of Dalit women as it is most commonly used index of obesity or overweight, underweight and normal weight. It also show reveled that distribution of Dalit women according to estimating BMI category from mid upper arm circumference (MUAC) among the various categories of the Dalit women under study, BMI and MUAC are comparable in that they only identify people who are underweight or 'thin'. If the maximum value of BMI is less than <20 and MUAC value is less than<23.5cm (56.52%) had found as 'thin' among the Dalit women, minimum value of BMI is less than <20 and MUAC is more than >32.0 (43.47%) had found as 'not thin'. However, maximum value of MUAC is less than <23.5 and BMI value is more than >30 (60.86%) had found as 'thin', if

minimum value of BMI is more than >30 and MUAC value is more than >32.0 (39.13%) had found 'not thin' categories among Dalit women.

**Table 5 Nutritional status of Dalit women based on BMI and Mid-upper arm circumference**

| Nutritional status | Value | Percentage |
|---|---|---|
| Chronic energy deficiency | BMI<18.5 kg/m2 | 43.47 |
| Undernourished | MUAC<23.0cm | 56.52 |
| | MUAC >32.0 cm | 43.47 |

The above table reflect the prevalence of nutritional status of Dalit women based on BMI and mid-upper arm circumference, chronic energy deficiency (BMI<18.5) was found 43.47% and undernourished (MUAC<23.0 cm) was found 56.52% of Dalit women.

**Table. 7. Distribution of Dalit women according to Food Intake**

| Food(g) | Less than RDA | | RDA* | |
|---|---|---|---|---|
| | No | % | Female | Male |
| Cereals & Millets | 85 | 73.91 | 360 | 480 |
| Pulses | 92 | 80.86 | 75 | 90 |
| Milk & milk products ( ml) | 91 | 79.13 | 300 | 300 |
| Vegetables | 112 | 97.39 | 300 | 400 |
| Fruits | 85 | 77.71 | 100 | 100 |
| Sugar & Jaggery | 110 | 95,65 | 40 | 40 |
| Fats & oils | 30 | 26.08 | 35 | 35 |
| Meat, Fish & Egg | 20 | 17.39 | 30 | 30 |

***RDA source: ICMR (1998)**

The food frequency data of subjects computed as intake per day by number of respondent is summarized in Table.8.above indicate the food intake of Dalit women were comparison to Recommended Dietary Allowances (RDA). Higher percentage of dalit women (97.39%) were consumed inadequate amount of vegetables by RDA standards, similar observation was made for sugar & jaggery consumption also.

Similarly, higher percentage of Dalit women (80.86%) were consumed inadequate amount of pulses by RDA standards, similar observation was made for milk &milk product consumption also. Higher percentage of Dalit women (77.71%) were consumed inadequate amount of cereals & millets by RDA standards, similar observation was made for fruits consumption also. As a whole it has been found that Dalit women were consuming most of the important nutritive substances much below the average Recommended Dietary Allowances (RDA).

## DISCUSSION

Women are generally vulnerable to under nutrition especially during pregnancy and lactation where the food and nutrient requirement are more during that period. The demographic consequences of the lower status in women has formed expression in various form such as female infanticide, higher death rate for women compared to, lower sex ratio, lower literacy rate in female lower level of employment of women in the non-agricultural sector as compared to men ect., (Srivasan and Tara 1989). Health is a universally cherished goal. Health cannot 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. (Srinivasan 1987).

Bisht et.al (2013) reported that out of 65 women Energy Deficiency (CDE) were found in 20.6% to be underweight 46% of women were normal, 12.7% women were at risk of overweight and 3.2% were Obesity. Joseph. et. al (2008) in a study found that the urban women from Tamil Nadu , who were normal 26.9%, overweight 34.8% and obesity 41.86% respectively. In other study find out in five tribal groups of women were 59.38% are under weight, 37.50 % are normal weight 2.44 % over weight and only 0.68 % was seen in obese. (Naidu, 2002) Body Mass index was used to assess the nutritional status of Dalit women as it is most commonly used index of obesity or overweight, underweight and normal weight. The waist-hip ratio differentiates the distribution of fat on the lower body and upper body. Similarly, the present study found out it is based on Body Mass Index (BMI) classification of W.H.O. 2000, 39.13% of Dalit women had normal BMI. Chronic Energy Deficiency (CED) was seen in 43.47% of Dalit women. Obesity (Grade I&II) was seen in 12.17 % and 5.21% of Dalit women.

The findings reveal that the Dalit women of rural village Kalitheerthalkuppam at Mannadipet commune in Puducherry district were highly undernourished as nearly 43.47% of the Dalit women. The present study reported 28.69% Dalit women as having height <153 cm and 22.60% having weight <58 kg. If <45 kg is taken as cutoff or weight than 22.0% of these women can be termed as low weight. This is

quite high when compared to studies reported from other parts of India. In their study in rural Tamil Nadu, Samuel and Rao (1992) had found 14.1% as having height <145 cm and 37.3% as having weight <40 kg. Similarly Anderson (1989) reported 56.0% of women in Gujarat and 63.05 of women in Maharashtra as having weight <40 kg. In another study from Uttar Pradesh 54.6% mothers were found to have weight <40 kg and 31.3% mothers were found to have height <145cm (Tripathi et al., 1987).

A study conducted by Verma *et al.* (2003) on 320 female subjects representing rural population of selected areas of district Shimla of Himachal Pradesh found that wheat and maize were the main cereals consumed by the respondents. Among pulses, black gram dal was most commonly consumed. Desi ghee was consumed in good amounts with almost every food preparation. Singh (2006) in his study conducted in Haryana revealed that milk intake was so poor that only 18 per cent reported taking milk daily, once in a week(43%) and majority had never taken during the lactation.

Rao and Balakrishna (2010) study found that food and nutrient intake of cereals and millets was 402 g and 365 g respectively in tribal and rural women. Except for other vegetables and roots and tubers, the intake of all the other foods was lower than the suggested level in both the area. The intake of income elastic foods such as milk, oils and fats was higher in rural than in tribal women, however the intake of cereals and millets was higher among tribal women. Dhobhal et.al. (2003) also reported the average intake of energy was lower than RDA among women of Uttarkashi. In similar case of present study found that higher percentage of Dalit women (80.86) are consumed inadequate amount of pulses by RDA standards, similar observation was made for milk and milk product consumption also. Similarly, maximum of Dalit women (77.71%) are consumed inadequate amount of cereals & millets by RDA standards; however vegetables and fruits consumption was lowest. As a whole it has been found that Dalit women were consuming most of the important nutritive substances much below the average of Recommended Dietary Allowances (RDA).

Nutritional status of the subject was revealed that majority of the Dalit women followed the regular pattern of three time meals a day where some the Dalit women were missed regular pattern of three meals of day. Most of subjects were non-vegetarian with few exceptions (3%) but the consumption of once or twice a week. Their staple food was rice and ragi. Consumption of vegetable and fruits were low which could be due to their poor socio-economic status

## CONCLUSION

The result of the present study revealed inadequate dietary intake, that inspire of poor economic conditions they control their food items from their available income. Still now, their nutritional status is not an exceptional one. It has been observed that poor nutritional status is one of the most serious health problems, especially hidden during pregnancy and lactation period among Dalit women. Dalit 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. To eradicate the problem of poor nutritional status, source of income generation should be improved, educational standard must be uplifted long with awareness regarding nutrients, daily allowances of low budget and local resources based balanced diet. 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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