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**PREVALENCE OF ANEMIA & ITS IMPACT ON  
HEALTH STATUS OF RURAL & URBAN ADULT WOMEN**

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India is a land of rural community and women constitute nearly half of its population. 80% of Indian women live in rural areas. According various survey reports, the female adult constitute nearly one tenth of total Indian population. (NIPCCD 1916), WHO 1906, Report of Government of India 2001) and the quality of this group is more significant in the context of national development. Therefore adult women health plays an important role in determining the health of the future generation.

The anthropometrical measurements of rural adult women were lower when compared with well to do groups (Chaturvedi *et al* 1914) It is due to the development process of these women exert significantly increased demands of both micro and macro nutrients , (Sokarjo et al 2014 Lopez martos 2014). Many studies revealed that women receive inferior quality of diet. (Ghosh 1915 Gupta 1916, Bardhan 1917) Whereas these women were more likely to have low intakes of energy, carbohydrates, iron, calcium and niacin. (Woodward 1915, NNMB 1975-80, pushpamma 1912, Seshadri 1912 Yeguang Jun 1915) According to Nutritional and health profile data about 60% of adult women were undernourished which leads to consequent malnutrition makes women more vulnerable to infections and deficiency disease.

Iron is one of the most abundant elements in human body. But Indian adult women diet content very low iron, which may not meet their body iron requirement. The increase need of iron for adult women on one hand and the difficulty to meet iron requirement on the other hand make adult women in general and in particular more prone to iron deficiency anemia. An eleven country study found that more than 40% of women in Asian countries including India were anemic (Hb < 115 g/l Kurz 1916). The percent prevalence of anemia among in adult women was 4, 12 , 23 in upper middle and poor socioeconomic groups respectively ( Khanduja and Agarwal 1969 , Khanane and Ghonekar 1917). While Narsing rao study concluded the percent prevalence of anemia in 25-40 years, Females was 95.1 , 66.7 and 18.4 respectively. About 65% of the upper income and 79% slum group adult women of Hyderabad had different grades of anemia, while 17 to 22% of both groups had Hb levels below 10g/dl indicating moderate to severe anemia (

Rao et al 1914) The overall incidence of anemia (Hb < 12 percent) was around 25% irrespective of urban and rural residence ( Raman 1915) This micronutrient deficiency( iron deficiency ) in female adult can seriously affect their health ( WHO 2016) i.e this deficiency have debilitating effects on growth , development and functional capacities of rural &urban adult women. Moreover it is clinically manifested by rapid exhaustion, muscular weakness, anorexia ( Leibel 1917 , Oppern heimer et al 1918 ) These symptoms can also affect on physical work output ( Ohiral et al 1981).

Any deprivation during adulthood are believed to adversely affect the outcome of pregnancy, resulting in high maternal mortality, low birth weight , and poor nutritional status of the infants ( Harrison et al 1915 , Naeya et al 14 , Brabian etal 1912). WHO has suggested that the four basic approaches for iron deficiency anemia are supplementation with medicinal dietary iron, nutrition education, to increase dietary intake, the control of infection and fortification of a staple with iron. From above four methods, recently many investigators hare proved that iron therapy is the most useful method of reducing the problem of anaemia .

To combat the anemia's problem in India, National Nutritional anemia prophylaxis programmers were started. In this view in the present investigation, an attempt has been made to improve the ongoing supplementation programme to encourage in rural &urban areas of Beed district. At the same time instead of medicinal supplementation, it was decided to assess the impact of dietary supplementation on anaemic adult women and improve the iron status of these rural &urban adult women.

**Objectives:-**

- 1) To study the growth pattern of rural &urban adult women.
- 2) To know the dietary pattern of rural& urban adult women.
- 3) To know the socioeconomic status of rural & urban adult women.
- 4) To study the prevalence of anaemia in rural & urban adult women.
- 5) To impart the nutritional knowledge on rural & urban adult women.

**Methodology:** - The present study was carried out in the different rural areas of Parli and Beed district. Five hundred rural adult women in the age of 20 to40 years belonging lower, middle and high income group were selected. A socioeconomic and dietary survey was carried out with the help of questionnaire cum interview schedule. All the information related to religion, education, monthly income, family type, and dietary habit etc. was collected and manipulated in the table form. Two hundred fifty (250) rural adult women were selected for dietary supplementation programme. These women were divided in to two groups. In group (A) 125adult women were treated as experimental sample, but in group C one hundred and twenty five adult

women were treated as control sample. Dietary supplementation i.e. (groundnut and jaggary Ladu 150gm) was provided to experimental sample for ninety days. But control sample did not receive any dietary supplementation. Anthropometrical data of group A and group C samples were measured before and after supplementation.

Hb level of all selected samples (250) were also analyses before and after supplementation. A thorough clinical examination of (250) selected sample was carried out with the help of physician before and after supplementation.

### **Result and discussion: -**

The result of socio economic survey revealed that maximum no. (48%) of study samples were in the age 20 to 30 years. It was noted that 60% of the adult women were passed only tenth std. It was observed that 57.5% adolescent girls were belonging to nuclear family system. Majority of the head of families (father) i.e. 68.5% were working in their agriculture field and only 8.5% were engaged in service. Therefore 51% families were having their monthly income less than 4000/- only 20 % families were having their income above 15000. The backward character of agriculture and existence of industrial activities are the main reason for poor condition of rural families. These families were spending major part of their monthly income on farm cultivation and only few families were spending their income on education or any other requirement.

The food consumption survey was carried out by 24 hours recall method. Fifty adult women from each income group were selected for food consumptions survey (i.e. lower, middle and higher ) All nutrients were inadequate in the diet of rural samples as compared to RDA of ICMR. Observation of the present study shows that inadequate income sources makes it difficult and impossible to rural families to get nutritious food items, which is daily requirement of her body. Generally most of the rural families cultivated leafy vegetables which are the rich sources of iron and vitamins, but they sell it. Therefore the intake of negligible quantity of leafy vegetables by these women was one of the responsible factors for higher incidence of iron deficiency anemia & other nutritional deficiencies among them.

After applying WHO's criteria for labeling anemic women, it was observed that 95% adult women were anemic . But the severity of anemia was different in different samples.

**Bio-Chemical Measurements:-**

With the help of bio-chemical measurement the data was analysed and discussed in the following heads.

**Hemoglobin level:**

**Table No.1 Percentage of anemia in adult women**

Hb (gm/dl)	Grade of Anaemia	No. of women (urban areas)	Percentage	No. of women (rural areas)	Percentage
<7	Severe	02	0.8	05	04
7 – 9	Moderate	48	38.4	65	52
9-11	mild	60	48	45	36
<11	Normal	15	12	10	08

The above table represents the anemia in rural and urban adult women. 0.6% and 4% of severe anemia was found in urban and rural adult women respectively, whereas 52% in urban and 38.4% in rural adult women were having moderate type of anemia. While 36% urban and 48% rural adult women were having mild type anemia. Only 8% and 12% urban and rural women were having normal grade anemia. Thus it seems that the percentage of anemia is more in urban adult women as compared to rural adult women.

**Table No. 2 Percentage distribution of condition of anemia in adult women in supplementation programme.**

Condition of Anaemia	Group A (N=125)		Group C (N=125)	
	Before suppl.	After Suppl.	Before suppl.	After Suppl.
<b>Normal</b>	15 (12%)	70 (56%)	10 (8%)	08 (6.4%)
<b>Mild</b>	20 (16%)	49 (39%)	15 (8%)	18 (14.4%)
<b>Moderate</b>	70 (56%)	21 (16.8%)	75 (60%)	71 (56.8%)
<b>Severe</b>	20 (16%)	10 (8%)	50 (24%)	53 (42.4%)

The condition of anemia in rural and urban adolescent girls before and after supplementation is presented in the above table. Before supplementation the normal, mild, moderate and severe condition of anemia in group A was 12%, 16%, 56% and 16% respectively. But after supplementation only 8% & 16.8% women were having severe & moderate anaemic condition and 39.2% samples were having mild anemia. But majority of them that is 56% samples were normal.

On the other hand before supplementation 8% adult women were normal and 8%, 60% & 24% samples were having mild, moderate and severe type of anemia in group ‘C’ but after completion of ninety days supplementation programme of group ‘A’ only 6.4% adolescent women remained normal and 14.4%, 56.8% and 42.4% adult women were having mild, moderate and severe type of anemia.

**Table No. 3 Percentage distribution of hemoglobin status of urban and rural adult women:**

Age	Deficient		Low 10 < 11.5		Acceptable > 11.5	
	No.of adult women	Percentage	No.of adult women	Percentage	No.of adult women	Percentage
20	32	12.8%	14	5.6	07	2.8
25	27	10.8%	14	5.6	06	2.4
30	24	9.6%	23	9.2	05	2.0
35	22	8.8%	24	9.6	07	2.8
40	28	11.2%	23	9.2	04	1.6
	<b>133</b>	<b>53.2%</b>	<b>88</b>	<b>39.2</b>	<b>29</b>	<b>11.6</b>

The study result revealed that majority of the adult women i.e. 53.2% were having their Hb status below 10 gm/dl. Whereas 39.2% adult women were having Hb status less than 11.5 gm/dl. Only 11.6 adult women were having acceptable Hb status. Thus it is indicated that the lack of awareness about their daily diet may be responsible factor for the deficient condition of Hb status.

That means 90% of rural adult women of experimental had mild, moderate, severe anaemia. While in control group samples 93.99% and 50% have severe anaemia. But after supplementation programme most of the adult women become normal and only 53.33% experimental samples & 90% and Control Samples had moderate & several type anaemia respectively. But there was no decrease in anaemic samples of control group. Before supplementation majority of the experimental samples i.e 85% were having less hemoglobin level than normal, but after supplementation there had been increased in the Hb level of rural adult women. But there was no increased in the Hb level of control group.

In the clinical examination 35% of adult women appeared to be normal, but 10 and 12% of samples have angular stomatitis and stomatitis were present respectively. In the group A, 24% and 23% of women had pallor and weakness symptoms, but these symptoms were disappeared after supplementation. In control samples pallor and weakness symptoms remained unchanged. These symptoms were present in these samples due to inadequate supply of highly needed nutrients during this period. It was observed that dietary intakes of rural & urban samples was very low and daily physical activity was high. Therefore rural women weight about 1 to 2kg less than urban counterparts.

The study data suggests that anaemia might be one manifestation of overall dietary inadequacy and consequent of under nutrition. Since it is possible that dietary supplementation can be helpful to improve the Hb level and the nutritional status of rural & urban women.

In the present study efforts have been made for this rural & urban adult women for better nutritional status and improvement in the Hb level of the same. It was found that dietary supplementation of iron has the advantage of producing rapid improvement in iron status of the adult women as well as it is beneficial and effective for increase in the Hb level of study samples. Therefore supplementation programmes are very necessary in rural & urban areas along with nutrition education must be given by applying informal type of teaching methods and it is necessary to involve these women in such type of programmes, which can be helpful for their better health and nutritional status.

Finally it may be said that to change the dietary pattern of rural & urban adult women it is very important to start iron supplementation for the girls before adolescent period which can store the iron store for present as well as future demands.

### **Recommendation:**

The following recommendation can be made in the light of the result of the present study.

1. Educational status of Adult women can be improved by motivating them to providing them educational services at home, community and national level.
2. The nutritional status of rural & urban adult women is very low, Hence health status should be improved with the help of nutrition education by involving health agencies, mahila mandals or social organizations etc.
3. There is a need to improve female literacy and encourage them informal teaching.
4. Knowledge about use of locally available foods in daily life should be given involving them in I.C.D.S. programmes.

5. Further detail investigation can be done in this area and a package of various nutrition education aid can be developed and implemented.

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