

Nutritional status of pregnant ladies in Shivpuri district of Madhya Pradesh

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Pregnant women have been widely recognized as a vulnerable group from health point of view. They need more food than normal person for the proper nourishment of the growing fetus. The field of nutrition of the pregnant women, particularly in rural area, has been sadly neglected. Against this backdrop, the study was carried out among 165 pregnant women from 07 Tehsil of Shivpuri district. A pre-tested structured interview schedule was used for the collection of general information. 24 hour recall method of diet survey was applied for the collection of dietary information. It was found that the mean iron, calcium, carotene and folic acid were much lower than the RDA volumes. In spite of better education and high-income, nutrition intake was lower than RDA in case of many sample women. Based upon the analysis, the study finally emphasizes the need for popularizing cultivation of low cost nutrition greens and vegetables in each household and imparting nutrition education to the women.

How to cite this article : Saxena, Pallavi and Saxena, Ranu (2012). Nutritional status of pregnant ladies in Shivpuri district of Madhya Pradesh. *Food Sci. Res. J.*, 3(1): 96-99.

Key Words : Nutrition, Anaemia, Health, Recommended daily allowances (RDA), Supplementary nutrition

INTRODUCTION

The nutritional status of the woman decides her reproductive performance, particularly the outcome of pregnancy. A woman who is well fed and healthy can complete pregnancy successfully giving birth to a healthy normal child. If, on the other hand, the woman is poorly nourished we pay a heavy price-the ill health and death of mother and child. Pregnant women, together with young children and lactating mothers represent the groups most vulnerable to nutritional deprivation. Most vulnerable, because their nutritional requirements are proportionally higher and the effects of malnutrition are severe and long-lasting (Bergner and Susser, 1970; Usher, 1970; Brasel and Winick, 1972; Simpson *et al.*, 1975. Yet, assessment of nutritional status during pregnancy

is not easy. The end result of pregnancy, the newborn depends for its growth in utero on the nutrients transferred from the mother, and its birth weight is dependent to a large extent on her nutritional status, not only during pregnancy but before it (Habicht, 1973; Read *et al.*, 1975, Klein *et al.*, 1976 and Frisancho *et al.*, 1977).

Adequate nutritional status of expectant mothers is essential for their health and pregnancy outcomes. Due to increased nutritional requirements pregnancy is a critical period for meeting the body's demand for macro- and micronutrients. Thus, anaemia and vitamin A deficiency (VAD) are highly prevalent nutrient deficiencies encountered in pregnant women, affecting 53.8 million (55.8 %) and 7.2 million (6.8 %) on a global scale, respectively (West, 2002 and Mason *et al.*, 2001).

Both deficiencies have been shown to result in serious health consequences including increased morbidity and mortality of both mother and child. In addition, the prevalence of teenage pregnancy is still high in most developing countries, 33 per cent on average, reaching from 8 per cent in East Asia to 55 per cent in West Africa (Boyd, 2000).

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These approximately 15 million women worldwide, who are physically immature and still in a state of growth, face even more difficulties in meeting their nutritional requirements. Among them malnutrition, maternal morbidity and adverse effects on pregnancy outcomes, e.g. low birth weight babies, were shown to be more prevalent (Mehra and Agarwal, 2004 and Baron *et al.*, 2003).

METHODOLOGY

The study was carried out among 165 pregnant women from 07 Tehsil of Shivpuri district. A pre-tested structured interview schedule was used for the collection of general information. 24 hour recall method of diet survey was applied for the collection of dietary information. Purposive sampling method was adopted for surveying the sample. The list of pregnant women was collected from Anganwadies workers. The intake of nutrients by the respondents was calculated by using nutritive value of Indian foods (Gopalan, 1991). A

recommended dietary allowance suggested by the ICMR for pregnant women was utilized to assess the adequacy of nutrient intake by the respondents.

OBSERVATIONS AND ASSESSMENT

It was observed that most of respondents belonged to 21-25 years age group in HIG (High income group), MIG (Middle income group) and LIG (Low income group). The educational status revealed that 36.36 per cent mothers illiterate in LIG, 12.73 per cent in MIG and 5.45 per cent mother illiterate in HIG.

The mean age at marriage of the respondents was 67.27 per cent in LIG got married within 20 years of age, in middle income group 49.09 per cent in 20-25 year and in high income group marriage age was found maximum in 26-30 year age.

Maximum percentage of joint family was found in LIG (72.73) and minimum in HIG (40) and maximum percentage of nuclear family was found in HIG (60) and minimum in LIG (27.27).

Out of the total, 45.45 per cent women's were house wives

Table 1. Personal profile of pregnant ladies

Respondents	High income group		Middle income group		Low income group	
	N	%	N	%	N	%
Age group						
Up to 20 years	13	23.64	12	21.82	22	40
21-25 years	17	30.91	17	30.91	19	34.55
26-30 years	13	23.64	15	27.27	7	12.73
31 and above	12	21.82	11	20	7	12.73
Educational qualification						
Illiterate	3	5.45	7	12.73	20	36.36
Up to middle school	6	10.91	10	18.18	17	30.91
Up to high school	9	16.36	12	21.82	9	16.36
Up to intermediate	11	20	15	27.27	6	10.91
Up to graduate	19	34.55	8	14.55	3	5.45
Up to post graduate	7	12.73	3	5.45	0	0
Occupation						
House wife	11	20	21	38.18	25	45.45
business	13	23.64	10	18.18	7	12.73
Service	22	40	17	30.91	1	1.82
Other activities	9	16.36	7	12.73	22	40
Age of marriage						
Up to 20	6	10.91	13	23.64	37	67.27
21-25	28	50.91	27	49.09	13	23.64
26-30	21	38.18	15	27.27	5	9.09
Type of family						
Nuclear	33	60	28	50.91	15	27.27
Joint	22	40	27	49.09	40	72.73
Sex of living children						
Male	17	42.5	28	62.22	19	41.30
Female	23	57.5	17	37.78	27	58.70

in LIG, 23.64 per cent were engaged in business, 40 per cent were engaged as service, 40 per cent as skilled labourers. Respondents were divided into three groups according to per capita income per month. Group-I (up to Rs.1000/- per month), group-II (Rs.2000/- per month), group-III (Rs.2000/- above per month).

Nutrient intake of the respondents:

Table 2 indicates the average intake of different nutrients in comparison to the RDA. Recommended daily allowance (RDA) is the intake of nutrients derived from the diet that keeps nearly all people in good health. It takes into account the individual variation in nutrient needs and also availability of nutrients, which may vary from diet to diet (Gopalan *et al.*, 2002).

As per RDA, the energy consumption should have been 2525 kcal/day. The average energy consumption of pregnant women was considerably 110 kcal (4.6%) low in HIG, 175 kcal (6.9%) low in MIG and 295 kcal (11.7%) low in LIG as compared to RDA. The less intake of calories leads to various problems. Even though the pregnant women took more cereal foods, still a deficit intake was observed. During pregnancy, protein rich diet promotes optimum fetal growth. RDA for protein for pregnant women is 65 g/day. In this study the mean protein intake by the mothers was 10.8 per cent deficit in HIG, 20 per cent in MIG and 38.5 per cent deficit in LIG as compared to RDA. The recommended calcium intake during pregnancy is 1000 mg/day. But mean calcium intake of the mothers was lesser by 2.5 per cent in HIG, 12 per cent in MIG and 34.5 per cent in LIG than RDA. The percentage of iron deficit was 23.7 per cent in HIG, 34 per cent in MIG and 50 per cent deficits in LIG.

The average daily intake of carotene (Vitamin A) was also deficit 3.25 per cent in HIG, 12 per cent in MIG and 33.8 per cent

deficit in LIG. The low intake of calcium, iron and carotene noted among pregnant women might have been due to the inadequate intake of green leafy vegetables and vegetables.

The average intake of thiamine was 14.3 per cent in HIG, 29 per cent in MIG and 53.6 per cent deficit in LIG than RDA. The mean intake of riboflavin was 7.14 per cent less in HIG, 21 per cent in MIG and 56.4 per cent in LIG as compared the RDA.

The intake of niacin was 16.7 per cent in HIG, 28 per cent in MIG and 50 per cent deficit in LIG than RDA and the mean intake of vitamin C was 11.8 per cent in HIG, 20 per cent in MIG and 40 per cent deficit in LIG than RDA. RDA for folic acid for pregnant women is 600mg/day. The mean intake of folic acid was deficit by 8 per cent in HIG, 15 per cent in MIG and 27.5 per cent deficit in LIG than RDA. This might be due to the inclusion of inadequate amounts of green leafy vegetables and dairy foods. Similar observations have also been reported in other studies for protein and iron diet (Mohapatra *et al.*, 1990 and Mridula *et al.*, 2003).

Woman needs extra nutrients, particularly energy and protein, during pregnancy. The diet of an Indian woman is usually not different whatever be her physiological status, *i.e.* she consumes the same amount of food whether she is pregnant. The home diets of women provide as low as 1500-1600 kilocalories during pregnancy. Shivpuri districts women particularly women living in villages are also physically very active even during pregnancy. They carry out agricultural and other jobs in addition to household jobs. Thus, if these physical tasks are taken into account the energy deficit in the diets of pregnant women can be as high as 800-1000 Kcal per day. Why are the intakes so low? The low intakes are due to poverty or low purchasing power. In addition, due to ignorance, taboos and false beliefs pregnant women do not consume certain foods and sometimes even reduce their intake of food. They believe

Table 2. Average nutrient intake by pregnant women in comparison with RDA

Nutrients	Unit	RDA	Actual intake mean								
			HIG	Excess/deficit	%	MIG	Excess/deficit	%	LIG	Excess/deficit	%
Energy	kcal	2525	2415	110	4.36	2350	175	6.9	2230	295	11.7
Protein	g	65	58	7	10.8	60	5	20	45	20	38.5
Calcium	mg	1000	975	25	2.5	882	118	12	655	345	34.5
Iron	mg	38	29	9	23.7	25	13	34	19	19	50
Fat	mg	30	28	2	6.67	27	3	10	23	7	23.3
Vit. A	µg	770	745	25	3.25	680	90	12	510	260	33.8
Vit.C	µg	85	75	10	11.8	68	17	20	51	34	40
Folic acid	mg	600	552	48	8	512	88	15	435	165	27.5
Vitamin. B12	µg	2.6	1.9	0.7	26.9	1.5	1.1	42	1.1	1.5	57.7
Vitamin B1 - thiamin	mg	1.4	1.2	0.2	14.3	1	0.4	29	0.65	0.75	53.6
Vitamin B2 - riboflavin	mg	1.4	1.3	0.1	7.14	1.1	0.3	21	0.61	0.79	56.4
Vitamin B3 - niacin	mg	18	15	3	16.7	13	5	28	9	9	50

HIG= High income group

MIG= Middle income group

LIG= Low income group

that if they eat more food during pregnancy they will deliver bigger and heavier babies. They fear that this may lead to difficult delivery. Hence, they do not consume adequate diets. This might have been due to poor knowledge on nutrition and ignorance about health by these women. Therefore, apart from supplementary nutrition to pregnant women of poor socioeconomic status, emphasis should be given towards nutrition and health education adopting multi-media approach. The agriculture extension home science extension officials should encourage the rural women to cultivate low cost nutritious fruits, vegetables, etc. and popularize the same for consumption in the rural families.

For supplementary nutrition, iron and folic acid tablets should be supplied to the pregnant women. For the maintenance of healthy and active life, access to safe and nutritious food is essential. For the food security of the household, purchasing power of the family should be increased through various income generating schemes.

There is, therefore, a need to educate women along with providing dietary supplements during pregnancy. Dietary supplements based on locally available foods can, to a large extent, bridge the dietary gap. These food supplements for the pregnant woman should be made much more culture specific. For instance, pregnant women in Gujarat and Maharashtra traditionally consume a high energy food called 'Methipak' during the last stages of pregnancy. Similarly, other regions of the country have typical traditional snacks offered to pregnant and lactating women. The use of such foods can be encouraged. This will not only improve the nutritional status of women but reduce the incidence of low birth weight among the babies.

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Received : 25.01.2012; Revised: 25.02.2012; Accepted : 25.03.2012