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Dr. Shreedhar D Dandappanavar
MS .DNB, FMAS (Laparoscopy)
Chief Health Officer,
Chitguppi Hospital, Hubli
Dharwad Municipal Corporation,
Hubli, Karnataka, India

Dr. Ashwini Ananthaiah
Consultant Paediatrician,
Chitguppi Hospital, HDMC, Hubli,
Karnataka, India

Corresponding Author:

Dr. Shreedhar D Dandappanavar
MS .DNB, FMAS (laparoscopy)
Chief Health Officer,
Chitguppi Hospital, Hubli
Dharwad Municipal Corporation,
Hubli, Karnataka, India

A prospective study to assess the dietary pattern and nutrient intake in pregnant women in government hospital, Karnataka, India

Dr. Shreedhar D Dandappanavar and Dr. Ashwini Ananthaiah

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Abstract

Women's nutrition plays a crucial role in optimising pregnancy outcome and influencing maternal, neonatal and child health outcomes. According to studies maternal undernutrition is estimated to account for 20% of childhood stunting and 83% of the neonatal deaths are due to low birth weight and short gestation. This was a prospective study conducted for four months and nutritional status of the participants was assessed by the 24-hours diet recall. The study revealed that mean age of the participants was 22 years, 84% of participants had completed intermediate or equivalent education, 44% of participants were homemakers, 68% percent of selected pregnant women took proper sleep for 8-10 hours and remaining 32 percent pregnant women took rest for 5-7 hours, 78% did not exercise regularly. As compared to revised RDA recommendations by ICMR 2010 guidelines the average intake of energy was lower by 980 K calories, average intake of protein was lower by 34 grams, the average intake of carbohydrates was lower by 219 grams, and average intake of fat was lower by 5 grams.

Decades of policy and programmatic efforts have been made in India to tackle the continuing challenge of malnutrition. The lack of knowledge, tool or method to assess the nutrient needs in pregnancy is to be addressed. Government should aim to shape markets to help increase access to low-cost, high-quality micronutrient supplements for women, and drive product innovation for nutrition. This also includes exploring innovative ways to deliver nutrition services to women and low-cost, field-friendly methods to assess micronutrient deficiencies in women.

Keywords: Maternal nutrition, under nutrition, diet

Introduction

It is well known that an undernourished mother inevitably gives birth to an undernourished baby, perpetuating an intergenerational cycle of undernutrition. 83% of the neonatal deaths are due to low birth weight and short gestation, according to two new studies [1]. Maternal under nutrition is estimated to account for 20% of childhood stunting [2]. Women's nutrition plays a crucial role in optimising pregnancy outcome and influencing maternal, neonatal and child health outcomes [3].

Poor maternal nutrition and the resulting Low Birth Weight (LBW) infants remain the single most important cause of infant morbidity and mortality in the world and reduction in the rate of LBW has been named by WHO as one of the global indicators of progress. In majority of LBW infants, the seed of death is sown much before they are born which increases the risk of perinatal, neonatal mortality and growth retardation and chronic diseases as adults.

Maternal nutrition plays a fundamental role in optimizing pregnancy outcome and unlike other factors, such as heredity or pre-existing conditions; the nutritional status is amenable to change [4].

Pregnant women must be well nourished to meet the demands of her offspring, her own body needs, and to prepare her body for lactation [5]. There is a paucity of information on dietary habits of pregnant women and hence this study was undertaken.

Methods and Materials

This was a prospective study conducted in obstetrics and gynaecology department at Hubli Dharwad Municipal Corporation govt hospital, Hubli, Karnataka. The study duration was four months. Pregnant women visiting to gynaecology and obstetrics department was considered as sample frame. The study was approved by the institutional human ethics committee.

Patients were required to provide written informed consent prior to entering the study. After taking written informed consent, fifty pregnant women were enrolled in this study on the basis of convenient sampling. All participants were informed about the study purpose before their enrolment in the study. Pregnant women having mental or physical challenges were excluded from the study.

Nutritional status of the participants was assessed by the 24-hours diet recall. All participants were asked about the previous day's food intake at breakfast, lunch, evening and dinner. For maintaining uniformity and reduction of uncertainty we have used table spoon (15ml), tea spoon (5ml), bowl (300ml), large cup (250ml), tea cup (150ml) cup for estimating the quantity of food items. Average nutrient intake per day was calculated and compared with Recommended Dietary Allowances (RDA)

Results

A total of 50 pregnant women were enrolled for the study. Table 1 shows the demographic profile of the study participants. The mean age of the participants was 22 years. Majority of participants had nuclear families (76%). The entire participant except two came from urban location. 84% of participants had completed intermediate or equivalent education, 44% of participants were home makers.

Table 1: Demographic profile of study participants

Demographic factors	Number (n =50)
Age (Years)	
≤ 20	1
21-25	39
26-30	8
> 30	2
Location	
Urban	42
Rural	8
Family type	
Joint	12
Nuclear	38
Education	
≤ High School	6
Intermediate	42
Graduation	2
Occupation	
Working	28
House wife	22

Table 2 shows the lifestyle of the participants. 68% percent of selected pregnant women took proper sleep for 8-10 hours and remaining 32 percent pregnant women took rest for 5-7 hours. Majority of pregnant women (78%) did not exercise regularly. None of the participants indulged in tobacco smoking or alcohol.

Table 2: Lifestyle of study participants

Lifestyle	
Duration of sleep	
8-10 hours	34
5-7 hours	16
Exercise	
Yes	11
No	39
Smoking	
Yes	00
No	50
Alcohol	
Yes	00
No	50
Meals skipped	
Yes	18
No	32

Table 3 shows the overall intake of nutrients in comparison to revised Recommended Dietary Allowances (2010 ICMR). The average intake Was significantly lower among all the pregnant women compared to revised RDA. The average intake of energy (1600±200) was lower by 980 K calories compared to revised RDA. The average intake of protein (44±10) was lower by 34 grams compared to revised RDA for protein requirement of pregnant women. Similarly, the average intake of carbohydrates was lower by 219 grams compared to revised RDA for carbohydrates as recommended by ICMR 2010 guidelines. Similarly, the average intake of fat was lower by 5 grams compared to revised RDA for Fat requirement of pregnant women.

Table 3: Average nutrient intake of study participants

Nutrients	Energy (Kcal)	Protein (g)	CHO (g)	Fat (g)
Average nutrient intake	1600±200	44±10	280±30	25±5
RDA	2580	78	499.5	30
Difference	980	34	219.5	5

Discussion

A quarter of women of reproductive age in India are undernourished, with a body mass index (BMI) of less than 18.5 kg/m (Source: NFHS 4 2015-16). It is well known that an undernourished mother inevitably gives birth to an undernourished baby, perpetuating an intergenerational cycle of under nutrition.

Energy and micro-nutrient deficiency in pregnancy can lead to intra uterine-growth retardation, low birth weight, preterm delivery, birth defects, reduced physical and mental potential of the child and neonatal death [6]. Also, poor maternal nutritional would lead to anaemia in pregnancy which is recognized as an important cause of maternal mortality in India [7]. As per Indian Council of Medical Research recommendation, a pregnant woman should increase the energy intake by 350 Kcal and protein intake by 23gm in addition to the normal recommended intake [8].

Decades of policy and programmatic efforts have been made in India to tackle the continuing challenge of malnutrition. In 2017, India released the National Nutrition Strategy, which outlined measures to address malnutrition across the life cycle.⁹ In early 2018, the Prime Minister of India launched the National Nutrition Mission (NNM), also known as POSHAN Abhiyaan, to bring focus and momentum to this effort, which has the overarching goal of reducing child and maternal malnutrition [10, 11].

Government of India has initiated several programs to improve nutritional status of pregnant and lactating mothers which included ICDS (Integrated Child Development Scheme), RCH (Reproductive Child Health), NNAPP (National Nutritional Anaemia Prophylaxis Program), CSSM (Child Survival and Safe Motherhood Program) [12]. Despite massive and multidimensional efforts only 21% women are able to receive the benefits of ICDS scheme during pregnancy [13].

Our present study revealed the grossly low intake of both calories and protein in comparison with revised RDAs published by ICMR. There is a lack of knowledge regarding nutrient needs and required food consumption in pregnancy. Also, there is lack of a tool or method to assess the food intake of each pregnant women for adequacy of food consumption, also dynamically point out the deficiencies with respect to each pregnant women's BMI, months of pregnancy, single or twin gestation, and activity levels. The pregnant women need guidance and assessment for every meal they consume for deficiency and immediate

rectification of the meal by increasing quantity of specific item in their consumed meal. And if need be correcting the remaining deficiency with oral nutrition supplements as required.

The internet penetration even among rural youth is quite high and most of the pregnant women are in the age group of 20-25 years who also use smart phones and social media tools. And considering the slow progress achieved with government policy and conventional schemes to tackle pregnancy associated malnutrition, time is ripe to use, as part of policy interventions, novel pregnancy specific nutrition software applications like Jeevini-NOS for addressing the maternal malnutrition in a more efficient and effective manner.

Conclusion

Poor maternal nutrition and the resulting Low Birth Weight (LBW) infants remain the single most important cause of infant morbidity and mortality in the world and reduction in the rate of LBW has been named by WHO as one of the global indicators of progress.

This was a prospective study conducted for four months and nutritional statuses of the participants were assessed by the 24-hours diet recall. The study revealed that mean age of the participants was 22years, 84% of participants had completed intermediate or equivalent education, 44% of participants were home makers, 68% percent of selected pregnant women took proper sleep for 8-10 hours and remaining 32 percent pregnant women took rest for 5-7 hours, 78% did not exercise regularly. As compared to revised RDA recommendations by ICMR 2010 guidelines the average intake of energy was lower by 980 K calories, average intake of protein was lower by 34 grams, the average intake of carbohydrates was lower by 219 grams, and average intake of fat was lower by 5 grams.

Decades of policy and programmatic efforts have been made in India to tackle the continuing challenge of malnutrition. The lack of knowledge, tool or method to assess the nutrient needs in pregnancy is to be addressed. Government should aim to shape markets to help increase access to low-cost, high-quality micronutrient supplements for women, and drive product innovation for nutrition. This also includes exploring innovative ways to deliver nutrition services to women and low-cost, field-friendly methods to assess micronutrient deficiencies in women.

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Declarations

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Conflict of Interest: none

Ethical approval: yes

References

1. India State-Level Disease Burden Initiative Malnutrition Collaborators. The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990-2017.
2. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, *et al.* Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. 2013;371:243-260.
3. Mason JB, Saldana LS, Ramakrishnan U, Lowe A, Noznesky EA, Girard AW, *et al.* Opportunities for improving maternal nutrition and birth outcomes: synthesis of country experiences. *Food Nutr Bull*. 2012;33(2 Suppl 1):S104-S137.
4. Ajantha, Singh AK, *et al.* Evaluation of dietary choices, preferences, knowledge, and related practices among pregnant women living in an Indian setting. *J Clin Diagn*

Res. 2015;9(8):4-10.

5. Taleb S, Kaibi M, Deghboudj N. Assessment of nutritional status of pregnant women attending the City Tebessa PMI. *Natl J Physiol Pharm Pharmacol*. 2011;1(2):97-105.
6. Abu-Saad K, Fraser D. Maternal nutrition and birth outcomes. *Epidemiol Rev*. 2010;32:5.
7. Maternal mortality in India 1997-2003 [Internet]. Available from: http://mp.gov.in/health/Maternal_Mortality_in_India_1997-2003.pdf
8. Indian Council of Medical Research. Nutrient requirements and recommended dietary allowances for Indians. New Delhi: ICMR, c2010. p. 255.
9. NITI Aayog, Government of India. Nourishing India: National Nutrition Strategy. NITI Aayog; c2017.
10. Ministry of Women and Child Development, Government of India. POSHAN Abhiyaan (National Nutrition Mission) [Internet]. 2019. Available from: <https://icds-wcd.nic.in/nnm/home.htm>
11. Ministry of Women and Child Development, Government of India. PM launches National Nutrition Mission and pan-India expansion of Beti Bachao Beti Padhao at Jhunjhunu in Rajasthan [Internet]. Press Information Bureau, 2018. Available from: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=177166>
12. Madhavi LH, Singh HKG. Nutritional status of rural pregnant women. *People's J Sci Res*. 2011;4(2):20-23.
13. Arnold F, Parasuraman S, Arokiasamy P, Kothari M. National Family Health Survey (NFHS-3) India 2005-06. Mumbai and Calverton, Maryland, USA: International Institute for Population Sciences and ICF Macrop; c2009.

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