

## Original Research Article

# Knowledge, attitude and practices regarding nutrition among pregnant females visiting the antenatal care outpatient department of a tertiary care hospital, Pune

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## ABSTRACT

**Background:** A balanced and adequate diet is of utmost importance during pregnancy to meet the increased needs of the mother and to prevent nutritional stress. Studies have shown that a majority of pregnant women in India consume food that is deficient in protein, caloric content and other vital nutrients. In Maharashtra, 20.8% women aged 15-49 years are malnourished and 54.2% are anaemic (NFHS 5 {2019-2020} state fact sheet). Poor dietary intake is one of the common cause of micronutrient deficiency. Maternal anaemia contributes to intergenerational cycle of poor growth in the off spring.

**Methods:** A descriptive cross-sectional study was conducted in antenatal care outpatient department (ANC-OPD) of BJGMC and SGH, Pune from January 2021 to February 2021. The 94 antenatal mothers were selected randomly. Semi structured and pretested questionnaire was used to collect the data. Percentages and frequency were used to describe continuous and categorical variables. Test of significance chi square was used with p value less than 0.05 as significant. Analysis was done using SPSS version 26.0.

**Results:** The 91.5% subjects were aware about need of extra amount of food during pregnancy. The 95.7% agreed having extra food during pregnancy is good for health of mother as well as for baby. The 67% actually practiced adding extra food during pregnancy.

**Conclusions:** Education level of pregnant women and socio-economic status were positively associated with nutrition knowledge. The study shows satisfactory knowledge and attitude toward nutrition and diet during pregnancy but practices toward nutrition is still lacking among the study population. Thus, significant gap is there in translating knowledge attitude in practice.

**Keywords:** Pregnancy, Maternal nutrition, Knowledge, Nutrition education, Dietary guidelines, Practices

## INTRODUCTION

Pregnancy is one of the most important events in the life of every woman. It brings about emotional and physiological changes as well as poses extra demands in the body.<sup>1</sup> Studies have shown that a majority of pregnant women in India consume food that is deficient in protein, caloric content and other vital nutrients.<sup>2</sup> According to

NFHS-4 (2015-2016) in India 22.9% women aged 15-49 years of age have chronic energy deficiency (BMI less than normal) and 48% are anaemic.<sup>3</sup> In Maharashtra, 20.8% women aged 15-49 years are malnourished and 54.2% anaemic (NFHS-5{2019-2020} state fact sheet).<sup>4</sup> Evidences suggest that an inadequate/ excessive amount of nutrients may cause malformations/ medical problems in foetus.<sup>5</sup> Adequate maternal nutrition knowledge and

dietary practice before and during pregnancy is necessary to ensure positive pregnancy outcomes.<sup>6</sup>

Maternal nutrition and lifestyle choices are major influences on mother and child health.<sup>7</sup> The availability and supply of nutrients to the developing fetus depends on maternal nutritional status.<sup>8,9</sup> To help pregnant women achieve safe, healthy, and balanced diets, insight into the factors influencing their dietary behaviours is important.<sup>10</sup> Nutritional knowledge and attitude are important factors of dietary practices and are thus potential targets for appropriate planning of nutrition interventions for vulnerable population groups like those lactating and women that are pregnant.<sup>11,12</sup>

Maternal nutrition during pregnancy is pivotal in reducing maternal mortality and infant mortality. Evidence on maternal knowledge and attitude towards nutrition during pregnancy and its association with their dietary practices is hardly available. Poor dietary practices have been observed among pregnant mothers receiving antenatal care at the study area. All these contributing factors suggested that there was a need to do knowledge; attitude and practices study among the mothers visiting the tertiary care hospital. This study explores the nutritional knowledge and dietary practices of pregnant mothers receiving ANC care at tertiary care hospital. The study provides a basis for nutrition education programs and interventions that will ultimately help to improve quality of life and reduce morbidity mortality and health care cost. Therefore, in this study we aimed to assess the level of maternal knowledge, attitude practices towards nutrition during pregnancy and their association with the socio-demographic characteristics of pregnant women.

## METHODS

A cross-sectional descriptive hospital-based study was carried from January to March-2021. This study was conducted among pregnant females visiting ANC-OPD of obstetrics and gynaecology department at BJGMC and SGH, Pune.

### Sample size

For the present study, the sample size was calculated with power 80% and confidence level of 95%, considering Knowledge proportion as 81% and absolute error as 8.1.<sup>1</sup>

$$N = 4(p \times q) / E^2 = 4 \times 81 \times 19 / 8.1 \times 8.1 = 6156 / 65.61 = 93.827$$

Thus, for the present study the minimum sample worked out was 94.

### Sampling

Systematic random sampling was used and every 3<sup>rd</sup> pregnant female visiting ANC-OPD was included in the sample as they registered until the desired sample size was fulfilled.

A semi structured pretested questionnaire was used for data collection. The questionnaire was prepared from WHO booklet "Healthy eating during pregnancy and breastfeeding-booklet for mother".<sup>10</sup>

Institutional ethics committee (IEC) clearance was obtained prior to the start of the study. The written informed consent was obtained from the study subjects.

### Study conduct

Data was collected on socio-demographic characteristics, nutrition knowledge consists of 24 questions regarding need of extra food, different food groups, sources of nutrients, supplement nutrients, avoidable substances during pregnancy, attitude consists of 11 questions which includes nutrition during pregnancy, likes and dislikes, and actual dietary practices consists of 15 questions during pregnancy.

### Inclusion criteria

Pregnant females visiting the ANC-OPD and giving consent for study participation were included in the study.

### Exclusion criteria

Pregnant females not giving consent for the study participation were excluded from the study.

### Data analysis

Analysis was done using SPSS version 26.0. Descriptive statistics was calculated. Chi square was used to see the association and  $p < 0.05$  was considered as significant.

## RESULTS

A total of 94 pregnant females attending ANC OPD were included in the study. Majority were between 23-27 years age group with the mean age of  $24.61 \pm 3.1$  years. More than half (61.7%) were from lower middle class. The educational status wise observation showed that 45.7% had up to secondary level of education while one third spouse of these subjects were graduates or post graduates. Majority was 68.1% mothers were multigravida and more than 90% were in second or third trimester (Table 1) and majority did their 4 visits ANC visits. More than three fourth were housewives.

This study explores the knowledge attitude and practices among the pregnant females.

Out of 94 subjects, 86 (91.5%) subjects had good knowledge of increasing food during pregnancy and also for iron and folic acid supplementation. The 40 (42.6%) subjects had knowledge about various food groups and 54 (57.4%) subjects were not aware about it. The 41 (43.6%) subjects had good knowledge about different sources of macronutrients like carbohydrates, proteins, fats and 53

(56.4%) did not had knowledge about sources of macronutrients (Table 2).

Positive attitude for having extra diet during pregnancy was seen among 90 (95.7%) subjects and 63 subjects practiced having extra meal in their current pregnancy (Table 3 and 4).

When association between educational status of the study subject and knowledge regarding extra amount of food during pregnancy was assessed, it was found that there was good knowledge among the subjects who had higher level of education as compared to the subjects who were illiterate or had primary level of education ( $p=0.0004$ ) (Table 5).

**Table 1: Socio-demographic characteristics of study subjects, (n=94).**

Variables	Categories	Frequency	Percentage (%)
Age (Years)	18-22	30	31.9
	23-27	44	46.8
	28-32	16	17
	33 and above	4	4.3
Residence	Rural	18	19.1
	Urban	76	80.9
Family social status	Upper middle	18	20.2
	Lower middle	59	61.7
	Upper lower	15	16
	Lower	2	2.1
Level of education of pregnant mothers	Illiterate	1	1
	Primary	10	10.6
	Secondary	43	45.7
	Higher secondary	22	23.4
	≥Graduation	18	19.1
Level of education of spouse	Illiterate	1	1.1
	Primary	6	6.4
	Secondary	29	30.9
	Higher secondary	27	28.7
	≥Graduation	31	33
Gravida	Primigravida	30	31.9
	Multigravida	64	68.1
Gestational age of pregnant mothers	First TMP	8	8.5
	Second TMP	43	45.7
	Third TMP	43	45.7
Number of ANC visits	1	20	21.3
	2	17	18.1
	3	9	9.6
	≥4	48	51.1
Occupation of pregnant mothers	Housewife	82	87.3
	Labourer	2	2.1
	Pvt. job	10	10.6
Occupation of spouse	Labourer	21	22.3
	Job	36	38.3
	Semi-skilled worker	35	37.2
	Small business	15	16
	Not working	21	22.3

**Table 2: Pregnant mothers' knowledge regarding nutrition during pregnancy.**

Knowledge	Yes, frequency (%)	No, frequency (%)
Knowledge about need of extra amount of food during pregnancy	86 (91.5)	8 (8.5)
Knowledge about different food groups	40 (42.6)	54 (57.4)
Knowledge about sources of macronutrients	41 (43.6)	53 (56.4)
Knowledge about sources of micronutrients	55 (58.5)	39 (41.5)
Knowledge about need of iron and folic acid supplements	63 (67)	31(33)
Knowledge about use of iodized salt for cooking	88 (93.6)	6 (6.4)

Continued.

Knowledge	Yes, frequency (%)	No, frequency (%)
Whether Tea and coffee good for health during pregnancy	8 (8.5)	86 (91.5)
Knowledge about avoidable substances during pregnancy	89 (94.7)	5 (5.3)

Table 3: Pregnant mothers' attitude regarding nutrition during pregnancy.

Attitude	Agree, frequency (%)	Neutral, frequency (%)	Disagree, frequency (%)
It is good to take extra food during pregnancy	90 (95.7)	4 (4.3)	0
It is good to have different types of food during pregnancy	71 (75.5)	22 (23.4)	1 (1.1)
Skipping a main meal everyday will not affect pregnant woman's health	2 (2.1)	41 (43.6)	51 (54.3)
It is good to have green leafy vegetables daily in meal	90 (95.7)	4 (4.3)	0
It is good to have iron and folic acid supplementation	93 (98.9)	1 (1.1)	0
It is good to have calcium supplementation	93 (98.9)	1 (1.1)	0
It is good to prepare food using iodized salt	94 (100)	0	0
It is good to drink 3-5 L of water daily during pregnancy	91 (96.8)	3 (3.2)	0
It is good to have tea and coffee during pregnancy	3 (3.2)	3 (3.2)	88 (93.6)
It is good to have alcohol pregnancy	0	2 (2.1)	92 (97.9)
It is good to have tobacco during pregnancy	0	2 (2.1)	92 (97.9)

Table 4: Pregnant mothers' practices regarding nutrition during pregnancy.

Practices	Yes, frequency (%)	No, frequency (%)
Added at least 1 additional meal from non-pregnant diet	63 (67)	31 (33)
Eat 2-3 servings of nuts or legumes per day	45 (47.9)	49 (52.1)
Eat 2-3 servings of meat or fish per day	10 (10.60)	84 (89.4)
Eat 2 servings of green leafy vegetables per day	72 (76.6)	22 (23.4)
Eat 2-3 servings of fruits per day	72 (76.6)	22 (23.4)
3 servings of cereals, whole grain or other complex carbohydrates per day	64 (68.1)	30 (31.9)
Use iodized salt for cooking	92 (97.9)	2 (2.1)
Consume iron and folic acid supplementation daily	87 (92.6)	7 (7.4)
Consume calcium supplementation daily	86 (91.5)	8 (8.5)
Consume tea and coffee with meal	17 (18.1)	77 (81.9)
Consume tobacco in your current pregnancy	3 (3.2)	91 (96.8)
Consume alcohol in your current pregnancy	0	94 (100)
Avoided one or more food during pregnancy	6 (6.4)	88 (93.6)
Drink 3-5 litre of water daily	51 (54.3)	43 (45.7)
Consuming any other food/medicine to have better outcome of the pregnancy	10 (10.6)	84 (89.4)

Table 5: Association of education status with knowledge about need of extra amount of food during pregnancy.

Education status	Yes, n=86 (%)	No, n=8 (%)	Chi square	P value
Illiterate	0 (0)	1 (12.5)	20.44	0.0004
Primary	7 (8.1)	3 (37.5)		
Secondary	39 (45.3)	4 (50)		
Higher secondary	22 (25.6)	0 (0)		
≥Graduation	18 (20.9)	0 (0)		

## DISCUSSION

The present Study aimed to assess the level of knowledge, awareness and maternal attitude regarding nutrition during pregnancy. Pregnant mothers were interviewed, their responses were recorded and analysed.

Study reveals that more than the three fourth mother 86 (91.5%) had knowledge about need of extra amount of

food during pregnancy and 8(8.5%) stressed on routine diet in line with the findings of study done by Sanyogita et al where 81.1% of subjects stressed on adding extra diet in pregnancy.<sup>1</sup> 40(42.6%) subjects had knowledge about various food groups and 54 (57.4%) subjects were not aware about it. This shows weak knowledge about food groups among the targeted population. The 41 (43.6%) subjects had good knowledge about different sources of macronutrients like carbohydrates, proteins,

fats and 53 (56.4%) did not had knowledge about sources of macronutrients. Study done by Zelalem et al shown similar finding where (43.8%) believe to eat variety of food during pregnancy but knowledge level was less comparative to our study (66.5%) regarding necessity to eat more during pregnancy than their non-pregnant state.<sup>5</sup>

In this study, outcome on the attitude of the participant regarding pregnancy nutrition reveals that, out of 94 subjects 90 (95.7%) agreed for having extra food during pregnancy whereas 4 (4.3%) were neutral regarding addition of extra food during pregnancy, none of the subject disagreed about having extra food during pregnancy. This shows a high positive attitude regarding need and importance of extra food during pregnancy as comparative to the study done by Dana et al in this study the 75% of the studied population had a positive attitude towards importance of maternal and infant nutrition whereas 25% had a negative attitude.<sup>13</sup> Practices among pregnant females regarding nutrition during pregnancy indicated that out of total 94 subjects 63 (67%) added at least 1 additional meal from a non-pregnant diet and 31 (33%) subjects did not changed their diet intake and it was same as before. The findings are similar with the study findings of Zerfu et al showing 53% of the participants with good dietary practices and the other 47% having bad dietary habits during pregnancy.<sup>14</sup>

In this study it was observed that there is significant association of education level of subjects with knowledge about need of extra food during pregnancy ( $p=0.0004$ ). This indicates that education of women is essential for good knowledge regarding nutrition during pregnancy. Similar findings were found in study done by Sanyogita et al which illustrates that out of 291 mothers, 50 (100%) with intermediate or above, 72 (94.7%) with high education and 48 (85.7%) with middle education could tell that extra diet is required during pregnancy as compared to 51 (81%) with primary education and 70 (61.4%) illiterates.<sup>1</sup>

Nutrition education to pregnant women during their ANC visit can improve the nutrition knowledge of pregnant women. Specific interventions programme should be initiated to broaden current focus of iron supplementation during pregnancy to audience specific practical nutrition education to improve nutrition knowledge of pregnant women. The results of this study are beneficial for the authorities to take appropriate steps in the direction of enhancing the nutritive value of food by fortification, creating awareness and implementing supplementation schemes. Targeted nutrition education programs should be developed and implemented and evaluated for women to improve nutritional knowledge and behaviours or practices that subsequently lead to healthier material diets and improved infant outcomes.

The limitation of the study includes chances of response bias because of the sensitive topic.

## CONCLUSION

The study shows satisfactory knowledge and attitude toward nutrition and diet during pregnancy but practices toward nutrition is still lacking among the study population. Thus, significant gap is there in translating knowledge attitude in practice. Awareness generation is required regarding importance of nutrition during pregnancy.

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