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ASSESSMENT OF USAGE OF DIETARY SUPPLEMENTS AMONG PREGNANT WOMEN AT TERTIARY CARE HOSPITAL

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ABSTRACT

Dietary supplements are products that contain vitamins, minerals, herbs, amino acids, or other dietary substances intended to supplement the diet. Dietary supplements are not meant to replace a balanced diet but rather to provide additional nutrients that may be lacking in one's diet, particularly for pregnant women. To assess the usage and documentation of dietary supplements during the period of pregnancy and analyze the dietary supplements used by pregnant women. A Prospective observational study was conducted for a period of 6 months at Basaveshwara Medical College Hospital in Chitradurga. The Data was collected through face-to-face interaction with pregnant women who attended the Hospital for Check-ups, in which 234 pregnant women provided the information through a self-designed Data collection form. The data were analyzed using the Descriptive method, result was generated through SPSS software and Microsoft Excel Sheet. Categorical data were presented in numbers and percentages. Documentation analyses were done irrespective of their Pregnancy period, Age, Diet, As per our study analyses the Highest numbers of prescribed supplements are Iron in the form of ferrous ascorbate (Elemental iron) and Folic acid which is (81.6%) followed by calcium in the form of (Vitamin-D3, Calcium carbonate) which is (76.5%), protein powder (78.2%), multivitamin syrup (26.9%), amino acid (5.1%). Categorical data were presented as numbers and percentages. The study shows Most commonly, and highly prescribed nutritional supplement was Iron and Calcium was second highest prescribed supplement followed by Protein Powder, Multi-vitamin, and Amino acid prescribed. Documentation of the Nutritional supplements prescribed for pregnant women in the hospital is done. Through

this study, we conclude that Dietary supplements have a key role in the development, and prevention of certain deficiencies so Dietary Supplements need to be promoted among pregnant women.

KEYWORDS: Dietary supplements, Pregnancy, Malnutrition, Co-morbidity.

INTRODUCTION

Pregnancy is a unique phase in women's lives, involving biological, physiological, social, emotional, and cognitive evolution. Nutrition is a crucial aspect of pregnancy.[1] Dietary supplements are oral products containing dietary ingredients like vitamins, minerals, and amino acids to address dietary deficiencies. They are available without a doctor's prescription and are crucial for improving maternal health and birth outcomes. Pregnant women have increased nutritional needs due to the growth of maternal tissues and fetal development, which cannot be met through their daily diets.[2]

Nutrition is crucial for human life, health, and development, affecting survival, physical growth, mental development, performance, productivity, and well-being. It varies with age, gender, and physiological changes, such as pregnancy, where optimal nutrients are needed for the developing foetus.[4] During this phase of development, nutrition is extremely important and because it affects the lifelong chance of developing a disease, it may be a risk factor that can be modified. The World Health Organization (WHO) has standards for prenatal care, but there are not any that define the nutritional requirements of women throughout the entire reproductive process, from conception to pregnancy and lactation. For the continuum, adequate nutrition is important during conception, throughout pregnancy, and after delivery.[3]

Malnutrition is caused by numerous factors, including inadequate diet, poor living conditions, and cultural beliefs. It affects 53.8 million pregnant women globally, with anemia and vitamin A deficiency being common micronutrient deficiencies. Adequate nutritional status is crucial for their health and pregnancy outcomes.[4] In India, 50% of kids are undernourished, and 36% of pregnant women are underweight. One million kids perished before they turned one month old. In 2017, 43% of children under the age of five were underweight, and 48% were severely underweight, resulting in dwarfism. According to UNICEF data, one-third of pregnant women in India are undernourished, which fuels the problem.[7] Malnutrition can hinder long-term development and cognitive function. Pregnant women and lactating mothers

are most affected by malnutrition, leading to prematurity and low birth weight babies. India has one of the highest numbers of malnourished new mothers, with adolescents suffering from anemia. These mothers gain only half as much weight during pregnancy compared to the global average.[5] It is a highly significant risk factor for public health that is changeable and has a significant impact on the avoidance of unfavorable birth outcomes, especially in low-income communities. An increased risk of unfavorable birth outcomes, such as miscarriage, low birth weight, preterm delivery, and intrauterine growth restriction (IUGR), has been linked to inadequate dietary consumption of vitamins and minerals. Therefore, giving women vitamin supplements before or throughout the first trimester of pregnancy may help avoid pregnancy issues.[6] India's ambitious targets to reduce malnutrition through NNM are encouraging, but higher improvement rates are needed for most states to achieve the 2022 and 2030 targets. Malnutrition remains a leading risk factor for disease burden.[7]

2. MATERIALS AND METHODS

Study Site: The study was conducted in the Basaveshwara Medical College Hospital and Research Centre, Chitradurga.

Study Approval: This study was approved by the "Institutional Ethical Committee" of S J M College of Pharmacy, Chitradurga.

Study Duration: The study was conducted for a period of 6 months.

Study Design: A hospital-based prospective observational study

Study Criteria: The study was conducted by considering the following criteria.

INCLUSION CRITERIA

- Study includes pregnant women of Basaveshwara Medical College Hospital & Research Centre, Chitradurga.

EXCLUSION CRITERIA

- Pregnant women who refused to provide information.

SOURCES OF DATA

- Demographic details collected from one-to-one interaction in suitably designed Data collection form.
- Evaluation of Data collection form.

STUDY PROCEDURE

- This was a prospective observational study carried out for a period of six months after getting approval from the institutional ethics committee.
- The study will be conducted among pregnant women at Basaveshwara Medical College Hospital & Research Centre, Chitradurga.
- The study will be carried out with prior permission from the Principal/Higher authorities of the institution.
- The data will be collected from the students in a suitably designed data collection form
- The study includes a self-designed questionnaire that has been filled out by the study subjects during one-to-one interaction in a particular hospital.

STATISTICS

The collected data was entered into a Microsoft Excel spreadsheet and the results were analysed by using IBM SPSS-25. Descriptive methods were applied for the analysis of data.

RESULTS

1. Details of Age Classification

A total of 234 subjects were found during the study period. The age groups among them are classified as 18-30 (82.9%) and 31-45(17.1%). The results are shown in Table No.1 followed by graphical as presented in Table No. 1

Table No 1: Age distribution.

Age			
Sl No:	**Age (years)**	**Frequency**	**Percent**
1	18-30	194	82.9%
2	31-45	40	17.1%
3	Total	234	100%

2. Details of Co-Morbidity

A total of 234 subjects were found during the study period. The groups among them are co-morbidity to be found to be as shown in the results as shown in Table No. 2

Table No. 2: Co-Morbidity.

Co-Morbidity			
Sl No:	**Co-Morbidity**	**Frequency**	**Percent**
1	NO	148	63.2%
2	Yes	86	36.8%
3	Total	234	100%

3. Details of the Age and Co-morbidity Crosstabulation

This is a cross table of comorbidity and age that shows the correlation between age and co-morbidity among obtained data.

Table No. 3: Age and co-morbidity Crosstabulation.

Age in years		Co-morbidity		Total
Sl No:		No	Yes	
1	18-30	127	67	194
2	31-45	21	19	40
3	Total	148	86	234

4. Details of the Number of subjects as per Trimester

The number of patients is divided as per the trimester Among 234 subjects in the first trimester 31(13.24%) second trimester 23(9.28%) and third trimester 180(75.92%) can be seen.

Table No. 4: Number of subjects as per Trimester.

Trimester	Number Of Patients	Percentage
1st	31	13.24%
2nd	23	9.28%
3rd	180	76.92%
Total	234	100 %

5. Details of the percentage of supplements

The percentage of supplements given to pregnant women has been calculated according to the study and displayed in the form of a table and chart below.

Table No. 5 Percentage of supplements.

Supplements	Frequency	Percent
Iron	191	81.6
Calcium	179	76.5
Protein Powder	183	78.2
Vitamin-C	133	56.8
Multi-vitamin	51	26.9
Amino acid	12	5.1

DISCUSSION

Dietary supplements have the function of supplying nutrients to its users. While the nutritional value is higher during pregnancy, we must still make sure that each vitamin is delivered in sufficient amounts to meet the needs of the developing foetus. Numerous studies have shown that pregnancy is a crucial time for the kid's physical and mental development,

which benefits both the mother and the unborn child. It is possible to offer dietary supplements including iron, calcium, magnesium, zinc, and vitamins A, B, C, D, E, and K. By **Mudhaliar MR et al.,** (2017), 194 of the 234 pregnant women in our study were between the ages of 18 and 30 years old. Additionally, 148 (63.2%) of the 234 pregnant women did not have any co-morbid conditions. In comparison, 86 (36.8%) had co-morbid conditions and suffered from conditions like anemia, eclampsia, gestational diabetes, and hypothyroidism while they were pregnant.

Protein Powder 183 (78.2%), multi-vitamin 63 (26.9%), Amino acid 12 (5.1%), and Iron 191 (81.6%) were the supplements with the highest reported use, respectively, when compared to **Kalyani B biradar et al.,** (2015) study. When compared to Jun S et al. (2020), vitamin C was low and calcium 179 (76.5%) was next to high supplement. We discovered that while the **Moran-Lev H et al.,** (2019) study assessed the amount of application of dietary recommendations during pregnancy, the level of application of recommendations for loyalty to certain foods was lower. Folic acid and iron were often utilized by participants in our study (85% and 76%, respectively), which is comparable to our study. For instance, only 34% and 24% of pregnant women increased their use of products fortified with calcium and iron, respectively. Compared to statistics from 2002, which revealed a 30.5% fidelity rate among pregnant women, there has been a considerable rise in the amount of folic acid supplements used. The main outcomes of this study by **Xiang C, et al.,** (2022) were that a considerable proportion of pregnant women (94.8%) utilized dietary supplements during pregnancy and that almost 29.8% of the respondents used four distinct dietary supplements at the same time. Calcium (65.7%) and iron (46.9%), zinc (40.9%), DHA (25.7%), and folic acid (21.3%) were the most often used dietary supplements. We discovered that there is a slight variation in the selection of dietary supplements compared to this study. In addition, most pregnant women believed that dietary supplements might either prevent and improve (89.2%) or treat (78.7%) problems connected to nutrition. Multiple (more than four) supplement users during pregnancy were shown to have a higher likelihood of having a bigger gestational age, according to multivariate analysis.

CONCLUSION

From our research Due to low hemoglobin levels and an increase in anemic conditions among pregnant women, iron in the form of ferrous ascorbate (Elemental iron) and folic acid was the most popular and frequently prescribed dietary supplement. More calcium (Vitamin-D3,

Calcium carbonate) was recommended since it helps to strengthen bones and lower the risk of premature delivery. Due to the low weight of the pregnant women, protein powder, multivitamins, and amino acids were recommended more often to supply the baby with the nutrition it needs to develop. According to the study, the nutritional supplements that were recommended for pregnant women were properly documented and kept in the hospital's records. We infer from this study that dietary supplements have a critical role in development and in preventing deficiencies so Dietary Supplements need to be promoted among pregnant women.

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