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To study the nutrition counselling affects pregnant women's nutritional consumption

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Abstract

One of the dietary patterns that has been examined the most in terms of its impact on health is the Mediterranean diet. It is distinguished by a moderate consumption of dairy products, eggs, red meat, and wine, as well as a high intake of fruits, vegetables, whole grains, legumes, fish, and nuts. In terms of nutrition, the diet is rich in mono- and polyunsaturated fatty acids, fiber, and antioxidants, and low in saturated fats. Numerous reviews and meta-analyses have proven the association between this eating pattern and various ailments, including cardiovascular disorders, neurological disorders, type 2 diabetes, and various cancers. Because of its advantages, it is particularly intriguing during pregnancy, as it has been linked to favorable outcomes for fetal development, the avoidance of neural tube defects, preterm birth, asthma and childhood allergies, maternal and fetal body weight, various fetal cardiometabolic markers, and skin conditions in infants, among other things. Pregnant women have been found to have low levels of nutritional knowledge, and there is limited adherence to healthy eating advice during pregnancy, despite the data supporting the benefits of this dietary pattern. These habits may be improved by increasing knowledge of the health hazards that poor gestational practices provide to both the mother and the fetus. Furthermore, because pregnant women are extremely driven to give their all for their unborn children, gestation is the perfect time to encourage good habits. Accordingly, the intervention that has the best chance of enhancing dietary and nutritional understanding as well as lifestyle is dietary counseling. In order to enhance pregnancy success, the World Health Organization (WHO) has emphasized the significance of health providers offering nutrition education at each prenatal visit.

Keywords: Dietary, Defects, Preterm Birth, Asthma, Pregnancy, Gestational

Introduction

Early pregnancy is associated with nausea and vomiting, which is commonly known as "morning sickness" since it frequently strikes early in the day but can happen at any time. Nausea during pregnancy can be caused by abnormalities in the neurological system, placental protein poisoning, or abnormalities in the metabolism of carbohydrates. Another nutritional issue that arises during pregnancy is constipation. Periodic difficulties in eliminating may be caused by pressure from the expanding uterus on the duct. During the trimester, heartburn or a feeling of fullness may be typical complaints. Sometimes during the trimester, there is mild, physiological oedema in the extremities. This condition is also brought on by the uterus's expanding strain on the veins. The growing fetus has a high nutritional requirement at this time, both in terms of quantity and quality. Nutrient shortages in this era lead to low birth weight babies or premature deliveries. Through the placenta, nutrients and oxygen necessary for the growth of the fetus are transported from mother blood to fetal blood. Even at the expense of the mother's reserves, some nutrients, such as folate, iron, and ascorbic acid, are permitted to cross the placenta and reach the fetus in sufficient amounts. While the placenta permits the transfer of certain nutrients, such as thiamine, riboflavin, vitamin B complex, pyridoxine, and D, pregnancy and even preconception can also cause uncertainty and concerns about a woman's new identity as a (future) mother, prompting her to reconsider and reevaluate her diet. Because of this, pregnancy-and especially a first pregnancy-is likely to be one of the few crucial occasions when women are prepared to make changes to their dietary habits that are difficult to do at other times. As a result, becoming pregnant can be viewed as a major life transition for a woman and

will positively impact her family's future nutritional habits and general health. The reason for introducing this occurrence is the "life course perspective." In addition to the more conventional factors, such as personal health or behavior patterns across time, cultural and contextual impacts, this life transition plays a role. Additionally, it opens up a whole new window of opportunity for initiatives promoting healthy nutrition. In light of the life course viewpoint, attempts are undertaken to gain insights on the behavioral patterns of smoking behaviors prior to conception, during pregnancy, and after pregnancy. However, it's interesting to investigate whether women actually become more aware of their nutrition and how much importance they place on it in comparison to other lifestyle factors like exercise and hygiene in order to gain insight into the life course perspective with regard to pregnancy and nutrition.

Pregnancy weight growth should be considered in relation to the size of the female, the amount of weight she carried before to conception, and the number of fetuses. The expectant mother has to eat in order to meet her personal needs, the needs of her fetus, and to prepare her body for breastfeeding. For a number of minerals, the detrimental effects of severe deficiency are well-established, particularly during the periconceptional phase.

A fetus that receives inadequate nutrition during pregnancy may suffer consequences. Additionally, it is observed that the nutrition during pregnancy has an impact on the adult illness pattern of the ensuing child. Premature birth, low birth weight kids, anemia, cardiovascular disorders, hypertension, diabetes, and obesity in both the mother and the child are just a few of the inconveniences that can result from inadequate nutrition. Girls' daily energy needs rise by 350 kcal during pregnancy, while their daily protein needs rise by eighteen grams daily. Inadequate consumption of protein, carbohydrates, iron, vitamin C, and other nutrients can result in nutrient deficiencies, although other factors such as socioeconomic status, the environment, both worm infestation and malaria. Maternal malnutrition is associated with social, economic, and cultural issues that may lead to low birth weight, early birth, or stillbirth.

A person's ability to live a physically healthy life and maintain normal health is strongly correlated with their level of nutrition. While inadequate or improper diet lowers fitness and increases susceptibility to illness, proper nutrition keeps man healthy and fit. Because a person's health is determined by how they consume and use nutrients, their nutritional status is a term used to describe their overall health.

Statement of Problem

On a regional and global scale, India's progress is crucial for improving maternal and neonatal health. According to the most recent international figures, India's maternal mortality rate in 2014-16 was 130 per 100,000 live births, while the neonatal mortality rate was 34 per 1000 live births in 2018. Both data show decreases from previous years' rates. Many women have a combination of chronic energy shortage, low pregnancy weight growth, anaemia, and other micronutrient deficiencies. These factors, combined with insufficient obstetric care, contribute to high maternal mortality rates and poor newborn outcomes. Maternal malnutrition is influenced not just by a lack of adequate nutrition, but also by socio-demographic factors and mothers' nutritional education throughout pregnancy. Although maternal nutrition is critical in reducing maternal mortality and morbidity throughout pregnancy.

Review of Literature

Northstone, *et al.* (2020) [1] conducted a study on "Dietary patterns in pregnancy and associations with socio-demographic and lifestyle factors," which described dietary patterns and their connections with socio-demographic and lifestyle factors. The 'health conscious' diet component was linked to lower educational levels, increased parity, and those who were not working in the third trimester. Higher educational levels, owner–occupied property, fewer financial troubles, and older age were connected with the 'health-conscious' component; these may be referred to as the more socially wealthy. Not unexpectedly, the'vegetarian' component was substantially related with women who identified as vegetarians.

"Does social class predict diet quality?" Darmon, N., and Drewnowski, A. (2020) [2] reported. Diet quality is influenced not just by age and gender, but also by occupation, education, and income - the traditional socioeconomic status (SES) or social class indicators. The impacts of several socioeconomic factors on nutrition and diet appear to be comparable, despite the fact that they are independent. Diet quality follows a socioeconomic gradient, according to a significant body of epidemiologic research. Higher-quality meals are connected with more wealth, whereas energy-dense, nutrient-poor diets are preferred by people with a lower socioeconomic standing (SES) and less financial resources. Whole grains, lean meats, fish, low-fat dairy products, and fresh vegetables and fruit are more likely to be consumed by people with a better socioeconomic status, as this study shows. Consumption of refined grains and added fats, on the other hand, has been linked to lower socioeconomic status. SES has an impact on micronutrient intake and, as a result, food quality.

In a study titled "Socioeconomic, demographic, and lifestyle factors associated with dietary patterns of women living in Southern Brazil," Lenz *et al*. (2019) [3] discovered a positive relationship between diet and socioeconomic status, indicating that women with higher socioeconomic status are more likely to eat a healthy diet.

N.R. Rout (2019) [4] attempted to determine the variation in food consumption and nutritional status of women in rural and urban locations in relation to several background variables. It also tries to represent the disparity between the recommended and actual levels of food intake among various categories of women. In terms of food intake, metropolitan women had a stronger position in all food categories. Nutritional status was found to be positively connected to respondent's education, husband's education, household standard of living, and husband's occupation.

Objectives of the study

1. Determine the nutritional status of pregnant mothers.
2. To see how nutrition counselling affects pregnant women's nutritional consumption.

Research Methodology

This community-based cross-sectional study included both descriptive and analytical elements and focused on a subset of pregnant patients from hospitals in the Allahabad District. One kind of observational study that examines data gathered from a community at a particular moment in time is the cross-sectional study, also known as the prevalence study.

The sample size was set by the prevalence rate of malnutrition in Uttar Pradesh, which was 25.3 percent of the women (NFHS-4, 2015-16). The actual sample size for the study was calculated using the method for single population percentage based on this prevalence rate.

According to quantitative analysis, the sample size was estimated to be 300, but at the time of the study, 260 pregnant women between the ages of 20 and 40 were available for the study. Hospitals, nursing homes, and PHC respondents were gathered (Primary Health Centres). The technique of systematic purposive sampling was used.

Inclusion criteria- All pregnant women in their first and second trimesters who are between the ages of 20 and 40

Exclusion criteria- All participants were excluded from the study, with the exception of pregnant women in their first and second trimesters.

Result and Data interpretation

Table 1: Distribution of Respondents according To Food habit

S. No.	Food habit	Total (N=260)	
		n=frequency	Percentage (%)
1.	Vegetarian	140	54
2.	Non-vegetarian	60	23
3.	Ovo-vegetarian	60	23
Total		260	100

The distribution of respondents by eating behavior is displayed in table. Given that the majority of pregnant women practice Hinduism, it was found that the majority of respondents (54%) were vegetarians. The percentage of non-vegetarian responders was roughly 23%. Just 23% of those surveyed were either eggitarians or ovo-vegetarians. People's eating habits differ depending on local traditions and customs.

Table 2: Distribution of respondents according to the is nutrient in take in first trimester

Sedentary respondents of first trims tern=79								
Nutrients	**Energy (Kcal)**	**Protein(g)**	**CHO (g)**	**Fat(g)**	**Iron (mg)**	**Calcium(mg)**	**Vitamin C(mg)**	**Folic acid(µg)**
Average Nutrient intake	1998.6±140.73	67.3±6.53	349.6±42.54	36.57±4.77	29.20±4.16	893.7±114.60	86.70±33.02	166.6±27.70
RDA	2250	78	337.5	30	35	1200	60	500
Difference	-251.2	-10.5	+12.1	+6.57	-5.6	-306.1	+26.7	-333.2
t-cal	15.645	13.916	2.501	12.013	11.670	23.406	7.113	105.088
t-tab	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664
Result	S*	S*	S*	S*	S*	S*	S*	S*
Moderate respondents of first time stern=29								
Average Nutrient in take	2082.6±167.46	73.8±5.70	367.7±36.70	35.0±3.61	31.0±4.51	918.6±212.64	83.37±26.61	179.51±21.30
RDA	2580	78	387	30	35	1200	60	500
Difference	-497.2	-4.0	-19.1	+5.0	-3.8	-281.2	+23.47	-320.37
t-cal	15.407	3.600	3.534	7.228	4.320	6.858	4.554	104.118
t-tab	1.703	1.703	1.703	1.703	1.703	1.703	1.703	1.703
Result	S*	S*	S*	S*	S*	S*	S*	S*

*S=Significant

Table presents information on the average nutrient intake of the sedentary respondents. With the exception of fat and vitamin C, the selected respondents' total dietary intake of food in the form of nutrients during the first trimester of pregnancy was below the Recommended Dietary Allowances (RDA) for the majority of the nutrients. Because they were unable to eat a healthy meal due to nausea, vomiting, and unease during the first trimester, respondents' average nutritional intake was lower than that of respondents in the second trimester. By 251.3 kcal, the average energy intake (1998.6±140.73 kcal) fell short of the RDA. Their average protein intake (67.3±6.53g) was 10.6 g less than the RDA since they weren't regularly consuming milk, pulses, or milk products. Their urge to consume spicy, oily, sour, fried, and fatty foods to lessen their nausea and vomiting may have contributed to their mean intake of fat (36.57±4.77g) being greater than the RDA. The mean iron consumption of respondents was 29.20±5.22 mg, which is 5.7 mg less than the recommended daily intake of 35 mg during pregnancy. Additionally, the average daily calcium consumption (893.7±114.60 mg) was below the recommended daily allowance. Due to nausea and vomiting, they eat lemons, oranges, or mausambi to modify her taste buds, which resulted in a mean intake of vitamin C (86.70±33.02 mg) that was 26.8 mg above the recommended daily allowance. The average folate intake (166.6±27.70 µg) was below the recommended daily allowance. The average dietary intakes of the moderate first-trimester respondents were greater than those of the sedentary first-trimester women, but lower than the Recommended Dietary Allowances (RDA) for all nutrients except fat and vitamin C. The RDA was 497.3 kcal more than the average calorie consumption (2082.6± 167.46 kcal). The average protein intake (73.8± 5.70g) was 4.1g less than the recommended daily allowance. The RDA was exceeded by the mean intake of fat (36.70± 3.61g). The mean iron intake (31.0± 4.51 mg) of responders was 3.9 mg less than the recommended daily consumption of 35 mg during pregnancy. Additionally, the average daily calcium intake (918.6± 212.64 mg) was below the recommended daily allowance. The mean vitamin C consumption (83.37± 26.61 mg) was 23.48 mg higher than the recommended daily allowance. The average folate consumption (179.51± 21.30µg) was below the recommended daily allowance.

Table 3: Distribution of respondents according to their nutrient in take in second trimester

Sedentary respondents of second times tern= 130								
Nutrients	**Energy (Kcal)**	**Protein(g)**	**CHO(g)**	**Fat(g)**	**Iron(mg)**	**Calcium(mg)**	**Vitamin C(mg)**	**Folic acid(µg)**
Average Nutrient in take	2069.7±147.86	72.0±7.78	367.4±37.33	34.5±4.80	30.2±4.56	937.3±169.63	78.41±17.32	177.3±21.15
RDA	2250	78	337.5	30	35	1200	60	500
Difference	-180.1	-5.8	+30	+4.5	-4.6	-262.5	+18.41	-322.5
t-cal	13.711	8.303	9.040	10.616	11.116	17.421	11.963	170.904
t-tab	1.660	1.660	1.660	1.660	1.660	1.660	1.660	1.660
Result	S*	S*	S*	S*	S*	S*	S*	S*
Moderate respondents of second time stern= 22								
Average Nutrient intake	2203.4±45.85	75.2±6.54	39.2±14.56	36.6±2.86	31.6±4.65	923.3±51.00	78.6±13.27	197.6±7.22
RDA	2580	78	387	30	35	1200	60	500
Difference	-376.4	-2.6	+6.0	+6.60	-3.2	-276.5	+18.5	-302.2
t-cal	35.702	1.706	0.004	9.860	2.980	23.570	6.100	179.528
t-tab	1.729	1.729	1.729	1.729	1.729	1.729	1.729	1.729
Result	S*	S*	NS*	S*	S*	S*	S*	S*

*S=Significant

The average food consumption of the second-trimester sedentary respondents is displayed in Table 3. With the exception of fat, carbohydrate, and vitamin C, the majority of the nutrients were below the RDA. The average nutritional intake of respondents in the second trimester was higher than that of respondents in the first trimester. Their weight increased as a result of an increase in total caloric intake. 2069.7±147.86 kcal was the average calorie intake, which was 180.2 kcal less than the RDA. The average protein intake (72.0±7.78 g) was 5.9 g less than the recommended daily allowance. The average consumption of carbohydrates (367.4±37.33 g) and fat (34.5±4.80 g) exceeded the RDA. The respondents' mean iron consumption (30.2±4.56 mg) was 4.7 mg lower. Additionally, the average daily calcium consumption (937.3±169.63 mg) was below the RDA. The average daily intake of folic acid (177.3±21.15µg) was below the recommended daily allowance.

The average food intake of the second-trimester moderate responses was higher than that of the sedentary women in the first trimester, but it was lower than the Recommended food Allowances (RDA) for all nutrients except fat, carbohydrate, and vitamin C. Compared to the RDA, the average energy intake (2203.4±45.85 kcal) was 376.5 kcal lower. The average intake of fat (36.6±2.86 g) was higher than the RDA, while the average intake of protein (75.2±6.54 g) was lower by 2.7 g. The mean iron intake (31.6±4.65 mg) of responders was 3.3 mg less than the recommended daily consumption of 35 mg during pregnancy. Additionally, the average daily calcium intake (923.3±51.00 mg) was below the recommended daily allowance. The mean vitamin C consumption (83.2± 13.27 mg) was 23.3 mg more than the recommended daily allowance. The average folate intake (197.6±7.22µg) was below the recommended daily allowance.

Conclusion

Pregnancy is a physically taxing state. In India, it has been discovered that during the pre-pregnancy, pregnancy, and breastfeeding phases, the diets of women from low socioeconomic classes are practically the same. During pregnancy, a woman's usual dietary requirements rise to satisfy the needs of the growing foetus and the maternal tissues linked with pregnancy. Energy and practically all types of energy nutrients are in higher demand. Pregnancy necessitates an extra 350 kcals a day in terms of energy. Additional protein is necessary during the first trimester, 6.9 g during the second trimester, and 22.7 g during the third trimester of pregnancy. During these physiological times, some micronutrients are required in greater quantities. Folic acid supplementation during pregnancy lowers the risk of congenital abnormalities and boosts birth weight. To meet the high demands of erythropoiesis, both the mother and the growing foetus require iron (RBC formation). Calcium is necessary for the healthy formation of the offspring's bones and teeth both during pregnancy and afterward. In the same way, iodine ensures the mental health of the developing foetus and infant. The caloric demands of a pregnant woman are not uniformly distributed. It is minor in early pregnancy, but increases dramatically towards the end of the first trimester, then remains rather steady during the second and third semesters. A proper dietary balance is required to ensure adequate energy intake for the fetus's growth without relying on the mother's own tissues to keep her pregnancy going. Micronutrient insufficiency has been linked to stunted growth, low birth weight, and pregnancy problems in several studies. Iron is one of the most researched micronutrients that is thought to be deficient in pregnant women's diets. This is because anaemia caused by iron deficiency is a major concern in developing and developed countries alike (WHO, 1992), and iron deficiency, with or without anaemia, is estimated to affect roughly 25% of poorer pregnant women. Other micronutrients, such as folic acid, are unique to iron. Because both the foetus and the child rely on appropriate maternal micronutrient storage, proper diet is equally essential for pregnant women. The majority of nutrient requirements can be satisfied via careful dietary attention, but many nutrients, such as iron, calcium, and vitamins, require supplementation during pregnancy. Even during pregnancy, most minerals may be absorbed through a balanced diet without supplementation. Antenatal moms have long been regarded as a particularly susceptible category in terms of health. It is widely acknowledged that the growing foetus necessitates more food. They are a significant population category with increased nutrient requirements. The nutritional intake and dietary practises of pregnant women require special care.

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