

# Effect of Dietary Habit during Pregnancy on the Outcome of New Born

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## ABSTRACT

**Background:** Dietary habits during pregnancy plays a key role in physical, mental and emotional development of foetus and An adequate diet during pregnancy maintains the nutritional status of the mothers and emphasis on good physical activity and avoidance of bad dietary habits.

**Methodology:** Multistage stratified sampling techniques were used for the selection of the sample. Government hospital of Mainpuri district selected purposively in the second stage. In the third stage 20% of women selected systemically out of 120-150 delivery in the hospital. Forth part was dietary survey chart of pregnant women and fifth part included the outcome of new born.

**Results:** A total of 100 cases were taken for study purpose. Pregnant women of mean age 27.55 years of age. Positive and insignificant correlations with nutrient intake of calories, vitamin B1, fat, and riboflavin, niacin with weight of new born even at 5% level of significance while negative and insignificant correlation was observed between protein vitamin A, vitamin C and iron with weight of new born even at 5% level of significance.

**Keywords:** Pregnancy, Diet, BMI, Nutrition.

## INTRODUCTION

Pregnancy and the transition to parenthood mark in major developmental period with important implication for parents for the infant parent relationship and the infant's development. When women in initially become pregnant they often think that they need to consume a significantly large number of calories to assume the growing of foetus.

An adequate diet during pregnancy maintains the nutritional status of the mothers at a level that conserve her own body tissue and contributes to the normal development and birth of a healthy full term baby's".

During the pregnancy women often become aware of nutrition seek health advice and change their diets. The healthy

development of the baby and maintaining a good body weight may be an incentive and motivator for positive dietary change at this time. It may be a good time to target women with healthy food choices and give them advises for a healthy eating.

### Some steps of best pregnancy:

There are some things the mother can do reduce risks of complication for her on her baby.

#### Physical Activity:

Most pregnant women should do kind of moderated exercise. Not only does exercise help in pregnancy (general health and body weight control it also prepares the mother for a more successful labour and delivery.

**Maintaining good body weight:** Babies born to obese mother may have an increased

risk of asthma. Doctors used to advise all women to gain weight during pregnancy. However, new research says obese women should not gain weight during pregnancy.

**Stop Smoking:** A pregnant mother who smokes regularly significantly increase the chances of having an underweight or premature baby. Women, who smoke during pregnancy risk delivery aggressive Kids.

Women who smoke early in pregnancy are more likely to give to birth to infants with heart defects.

**Alcohol Consumption:** The consumption of alcohol while pregnant can harm the baby. Pregnant women who bibe drinks early in their pregnancy increase the likelihood that their babies will be born with oral clefts.

**Diet:** A pregnant mother should follow a healthy and balanced diet that must included plenty or fruits vegetables whole grains. Several studies have shown that eating fish is good for the mother and baby. Fluid intake should be increased to at least two litres per day. Not only will fluids help get rid of toxins and waster more effectively. They will also help prevent nausea and constipation.

**Supplements during Pregnancy:** These are following-

**Folic Acid:** Pregnant woman should take folic acid tablets (supplements). Ideally, do this from at least one month before you get continue taking them until at least the end of the 12th week of pregnancy even if you are healthy and have a good diet. Folic acid is a naturally occurring vitamin found in spinach, sprouts, broccoli, green beans, and potatoes. Some bread and breakfast cereals are fortified with folic acid. If you take folic acid tablets in early pregnancy you reduce the risk of having a baby born with a spinal cord problem such as spine bifida. There is evidence that folic acid also reduces the risk of having a baby born with a cleft lip and palate, a heart defect (congenital heart disease) and the risk of a premature (Preterm: pre or early) Labour.

For most women, the dose is 400 micrograms (0.4mg) a day.

**Iron:** Maternal iron deficiency is the most common nutritional deficiency during pregnancy. Pregnant women need at least 27 milligrams of iron a day. High iron foods include spinach, Kale, Leafy greens, beans, fortified cereals, red, meat, chicken and fist for vegetarians and women who do not eat a lot of meal increase iron absorption by combining plant based source of iron with vitamin C-rich foods for example try spinach salad with mandarin oranges or cereal with strawberries.

During pregnancy one mass increase by about 12 kg most of this added weight (6 to 9 L) is water because the plasma volume increases, 85% of the placenta is water and the foetus itself is 70-90% water. This means that hydration should also be considered an important aspect of nutrition throughout pregnancy.

#### **Aim and Objectives:**

Food is the essential part of health of the pregnant women and their children. Health status of the new born is depend on the food consume by his mother. Diet recommended for pregnant women by ICMR is required and should be taken by the pregnant women is also important to reduce the infant and Maternal mortality keeping the above fact the investigator motivated to undertaken a study on the effect of food among pregnant women on the outcomes of new-born. The finding of present study may be helpful to improve the health of pregnant women and their new born and reduce the mortality.

#### **Objectives:**

To study the socio-economic characteristics of the pregnant mothers.

To study the food habits among the pregnant mothers.

To access the nutrient intakes among pregnant mother through 24 hours recall methods.

To study the outcome of new born.

To correlate the nutrient intake with certain selected variable of new born.

#### **Material and Method:**

**Duration of the Study:** The present investigation carried out from August 2016 to May 2017.

**Sampling Procedure:** Multistage stratified sampling techniques were used for the selection of the sample. Mainpuri district was selected purposively as it was convenient to the researcher. Mainpuri district consists of one government hospital which was again selected purposively in the second stage as it was the need of the study. In government hospital conducted 120-150 delivery in a month. Out of them 20% of pregnant women were selected systematically in the third stage. Thus 100 pregnant women were selected in the month of August 2014 to December 2014. Thus, 100 pregnant women were the unit of information for the present study.

**Research Tool:**

The first part was related to general information or social demographic characteristics of the family i.e. age, religion, caste, family type, members in the family monthly income and expenditure on food.

Second part include anthropometric measurement.

(i) **Height:** Height is a linear measurement made up of following counter apartments leg. Pelvis, spine and skull, Head Chest.

While measuring the height, first the subject was asked to remove her shoes, stand on even floor over with the centre of her back touching her feet, head, touching to the walls, The head was to be held comfortable erect. The arm was hanged loosely by the side. The measuring tape was held parallel to the subject body and smooth thin scale was held on the top of the head in a centre in a centre, excruciating the hair at a right angle to the rate, height was read off to the nearest 0.5 cm (Gopaldas. 1987)

(ii) **Weight:** Weight was usually regarded as the most meaningful method because weight deficit is related to nutritional deficiency.

A portable weighing machine was used for this purpose. The scale was adjusted to

zero before with minimal clothing was asked to stand on the platform of the scale without shoes and without touching anything. Weight was recorded to the nearest of 0.25 kg (gopaldas 1987)

(iii) **Body Mass Index:** The Body Mass Index (BMI) is a measure for human body shape based on individual weight and height. It provides a reasonable indication of the nutritional status. Body Mass Index is divided as the individual body weight divided by the square of their height.

BMI-  $\text{Weight (Kg)/Square of height (m)}$

Table: Showing the classification of BMI

BMI Class, Presumptive Diagnosis

<16.0, chronic energy deficiency grade H Severe

16.0-17.0 Grade II Moderate

17.0-18.5 Grade I Mild

18.5-20.0 Normal

20.0-25.0 Normal

25.0-30.0 Obese grade I

> 30.0 Obese Grade II

Third part was related to the food habit of pregnant women. It included food habits of the respondents their eating habits, number of meals taken in a day, regularity of meal intake, consumption of fruits, vegetables and its frequency and consuming outside and its frequency.

Forth part was dietary survey chart of pregnant women: The basis aim of a dietary survey is to assess the diet of population groups or individuals. This can also be used to obtain information regarding various aspects of food behaviour.

Dietary survey constitutes an essential part of any complete study of nutritional status of individuals or groups providing essential information on nutrient intake levels, sources of nutrients, food habits and attitudes. (Swami Nathan).

Fifth part included the information of outcome of new-born: It included how come to know about outcomes of new-born and delivery. To know about geostatic periods, mode delivery, place of delivery, types of delivery Live Birth of child, sex of

child, weight, height of child and health of child etc.

The 24 hour recall method was used in the present study. This is the most extensively used method of dietary survey and is often employed using an interview.

The subjects were asked to report the food items consumed along with their raw ingredients. These were recorded in standard volumetric and later converted to raw weight of food, i.e. groups and the nutritive value was calculated using the food tables as per recommended by ICMR (Gopalan et.al. 2007).

### Statistical Analysis

The collected data were coded, tabulated and analysed using various statistical techniques. The statistical tests were used to know the relationship between dependent and independent variables among the various group of study. The significance levels was used as 5 percent for rejecting the hypothesis.

## RESULTS AND DISCUSSION

**Table -1: Distribution of pregnant women according to their socio-economic characteristics.**

| Parameter                          | Category        | Pregnant Women |      |
|------------------------------------|-----------------|----------------|------|
|                                    |                 | No.            | %    |
| Age in years                       | 20 – 25         | 24             | 24.0 |
|                                    | 25 – 30         | 26             | 26.0 |
|                                    | 30 – 35         | 28             | 28.0 |
|                                    | 35 – 40         | 2              | 2.0  |
|                                    | Mean            | 27.55          |      |
|                                    | SD              | 3.26           |      |
| Religion                           | Hindu           | 85             | 85.0 |
|                                    | Muslim          | 15             | 15.0 |
| Caste                              | General         | 31             | 31.0 |
|                                    | Backward        | 49             | 49.0 |
|                                    | Schedule        | 20             | 20.0 |
| Education                          | High School     | 9              | 9.0  |
|                                    | Intermediate    | 24             | 24.0 |
|                                    | Graduate        | 44             | 44.0 |
|                                    | Post-graduate   | 23             | 23.0 |
| Occupation                         | Service         | 12             | 12.0 |
|                                    | Teaching        | 12             | 12.0 |
|                                    | Housewives      | 76             | 76.0 |
| Area                               | Rural           | 32             | 32.0 |
|                                    | Urban           | 68             | 68.0 |
| Family Monthly Income in Rs.       | 0 – 25000       | 34             | 34.0 |
|                                    | 25000 – 50000   | 54             | 54.0 |
|                                    | 50000 – 75000   | 12             | 12.0 |
|                                    | Mean            | 31300.00       |      |
|                                    | SD              | 11526.93       |      |
| Monthly Expenditure on Food in Rs. | 0 – 5000        | 43             | 43.0 |
|                                    | 5000 – 10000    | 51             | 51.0 |
|                                    | 10000 and Above | 6              | 6.0  |
|                                    | Mean            | 5160.00        |      |
|                                    | SD              | 2077.11        |      |
| Family Type                        | Nuclear         | 65             | 65.0 |
|                                    | Joint           | 35             | 35.0 |

Above table reveals the distribution of pregnant women according to socio-economic characteristics. One hundred pregnant women were selected from government hospital, Mainpuri. Out of total pregnant women, majority of them (28.0%) were in the age group of 30 – 35 years followed by 26.0% were in the age group of 25 – 30 years and the minimum (2.0%) were in the age group of 35 – 40 years.

Further analysis of data from above table shows that the mean age of pregnant women was 27.55 years with standard deviation of 3.26 years in the present study. Similar finding was observed by Coysa Ji et.al (1994).

Regarding the religion of pregnant women, out of total pregnant women, majority of them (85.0%) were from Hindu religion and remaining (15.0%) were from Muslim religion. Verma, et.al. (2001) supported the finding of the present study as they indicated that most of the mothers in both groups being Hindu and small percentage being Christian and Muslim.

Regarding the caste, majority of the pregnant women (49.0%) were belonging to backward casts, followed by 31.0% of general casts and the Minimum (20.0%) were belonging to schedule caste. Similar finding was reported by Molloy, A.M. et.al. (2008), as they observed that majority of mothers belonging to backward caste, followed by general caste, and the minimum were belonging to schedule tribe.

As regard to education, majority of the pregnant women (44.0%) were educated up to graduate, followed by (24.0%) to intermediate and the minimum (9.0%) were educated to high school. The similar findings were also observed by Vaijyanath and Deka (2003) as they observed that minimum women were illiterate and maximum graduates.

Regarding the occupation, majority of the pregnant women (76.0%) were engaged in household work and remaining (12.0%) each were engaged in teaching and service respectively.



Regarding area belonging to pregnant women, maximum (68.0%) were belonging to urban area while remaining (32.0%) were belonging to rural area. Vaijyanath and Deka (2003) supported the finding of present study that most of the pregnant mothers were living in urban areas while remaining living in rural areas.

Regarding the family income, majority of them (54%) were belonging to family having monthly income of Rs. 25000-50000 followed by (34.0%) having family income monthly of Rs. 0 – 25000 and the minimum (12.0%) were belonging

to family having monthly income of Rs. 50000-70000.

Regarding expenditure on food, majority of the pregnant women (51.0%) were spending on food Rs. 5000-10000 per month followed by 43.0% spending on food to Rs. 0-5000 per month and the minimum (6.0%) were spending on food Rs. 10000 and above per month.

Regarding type of family, majority of the pregnant women (65.0%) were belonging to nuclear families while remaining (35%) were belonging to joint families.

**Table-2 : Mean nutrient intake among pregnant women as compared to RDA.**

| Nutrient Intake | Unit | Pregnant Women |        | RDA   | Excess/Deficit |         |
|-----------------|------|----------------|--------|-------|----------------|---------|
|                 |      | Mean           | SD     | Mean  | Amount         | %       |
| Calories        | Kcal | 2318.63        | 175.78 | 2525  | - 206.37       | - 8.17  |
| Protein         | gm   | 55.15          | 3.87   | 65    | - 9.85         | - 15.15 |
| Calcium         | mg   | 980.29         | 116.80 | 1000  | - 19.71        | - 1.97  |
| Vitamin A       | µg   | 2265.48        | 211.89 | 24000 | - 134.52       | - 5.69  |
| Vitamin B1      | mg   | 1.15           | 0.20   | 1.30  | - 0.15         | - 11.54 |
| Vitamin C       | mg   | 40.13          | 2.92   | 40    | + 0.13         | + 0.33  |
| Iron            | mg   | 35.54          | 3.06   | 38    | - 2.46         | - 6.47  |
| Fat             | gm   | 28.91          | 0.59   | 30    | - 1.09         | - 3.63  |
| Riboflavin      | mg   | 1.54           | 0.26   | 1.50  | + 0.04         | + 2.67  |
| Niacin          | mg   | 20.19          | 2.39   | 16    | + 4.19         | + 26.19 |

Above table shows the mean intake of various nutrient intake pregnant women and compared with RDA by ICMR. Mean intake calories, protein, calcium, vitamin. A, vitamin B1, iron and fat were found to be deficit as compared to RDA. Maximum deficiency was observed regarding protein (15.15%) as compared to RDA among pregnant women. While Mean intake of vitamin C, riboflavin and niacin were found to be excess as compared to RDA. Maximum excess was observed regarding niacin (26.19%) as compared to RDA among pregnant women. Similar findings were also reported by Khalid, et.al. (2007) as they found that percentages of the mean nutrient intake below the recommended dietary allowances (RDA) for pregnant women.

**Table-3: Distribution of the new born according to their weight.**

| Weight in Kg. | New Born    |              |
|---------------|-------------|--------------|
|               | No.         | %            |
| 2 – 3         | 76          | 76.0         |
| 3 – 4         | 24          | 24.0         |
| <b>Total</b>  | <b>100</b>  | <b>100.0</b> |
| <b>Mean</b>   | <b>2.78</b> |              |
| <b>SD</b>     | <b>0.86</b> |              |

Above table shows the distribution of the new born according to weight. Regarding the weight of new born, majority of them (76.0%) were having weight of 2-3 kgs. while remaining (24.0%) were having weight of 3 – 4 kgs.

Further analysis of data from the above table shows that the mean weight of new born was 2.78 kgs. with standard deviation of 0.86% kgs. in the present study. Verma et.al. (2001) also observed that mean birth weight of new-born was 2.67 kg. in their study.

Below table 4 highlights the correlation between the nutrient intake of pregnant women with weight of new born.

Positive and significant correlation was observed between nutrient intake of calcium among pregnant women with weight of new born (<0.05) that is as the nutrient intake of calcium increases among pregnant mothers, the weight of new born also increases and vice-versa.

Positive and insignificant correlations were observed between nutrient intake of calories, vitamin B1, fat, and

riboflavin, niacin with weight of new born even at 5% level of significance while negative and insignificant correlation was

observed between protein vitamin A, vitamin C and iron with weight of new born even at 5% level of significance.

**Table-4: Correlation between nutrient intake of pregnant women with weight of new born**

| Parameter          | Unit | Statistical Values |        |         |       |       |
|--------------------|------|--------------------|--------|---------|-------|-------|
|                    |      | Mean               | SD     | r       | t     | p     |
| Weight of New Born | Kg.  | 2.78               | 0.26   |         |       |       |
| Calories           | Kcal | 2318.63            | 175.78 | + 0.037 | 0.367 | >0.05 |
| Protein            | gm   | 55.15              | 3.87   | - 0.161 | 1.165 | >0.05 |
| Calcium            | mg   | 980.29             | 116.80 | + 0.232 | 2.361 | <0.05 |
| Vitamin A          | µg   | 2265.48            | 211.89 | - 0.171 | 1.718 | >0.05 |
| Vitamin B1         | mg   | 1.15               | 0.20   | + 0.016 | 0.158 | >0.05 |
| Vitamin C          | mg   | 40.13              | 2.92   | - 0.061 | 0.605 | >0.05 |
| Iron               | mg   | 35.54              | 3.06   | - 0.229 | 0.089 | <0.05 |
| Fat                | gm   | 28.91              | 2.58   | + 0.173 | 1.369 | >0.05 |
| Riboflavin         | mg   | 1.54               | 0.26   | + 0.173 | 1.369 | >0.05 |
| Niacin             | mg   | 20.19              | 2.39   | + 0.168 | 1.687 | >0.05 |

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