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A Study on How Frequently Pregnant Women of Kashmir Consume Meals and Nutritional Supplements

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Abstract: ***Evaluating the consumption of a diet among expecting mothers is highly significant, as eating habits of pregnant women can seriously affect fetal growth and, at the same time, may yield either beneficial or detrimental impacts on both the mother and the fetus. A well-balanced diet rich in nutrients is critical for a healthy pregnancy, as insufficient nutrition can seriously affect the development of the fetus and maternal health post-delivery. Therefore, it becomes highly important to study the dietary pattern of pregnant women in a place like Kashmir so as to improve health benefits for both children and their mothers and to fill the knowledge gap in pregnancy nutrition research within the particular region. This investigation focuses on analyzing the meal frequency and nutritional supplement consumption among pregnant women in their second trimester in Kashmir. The current study, which involves the purposeful sample of 350 expecting mothers, was carried out in the Maternity Hospital of the Sher-i-Kashmir Institute of Medical Sciences in Soura, Srinagar. The purposive sampling process comprised a precisely developed interview and questionnaire, which were aimed at collecting information from participants about their nutritional supplements and sociodemographic variables. This particular method is generally used in nutritional epidemiology to categorize active participants based on their nutritional status and dietary habits. The data showed that 42.3% of the women were between the ages of 25 and 30. The majorities of participants were from nuclear families and tended to live in cities rather than rural areas. The key study findings have revealed that all respondents consume rice, wheat, and milk on a daily basis. The majority of the pregnant women have been reported eating meat once a week, with more than half eating chicken every week. Fewer than half of individuals ate eggs and leafy green vegetables on a regular basis. Furthermore, the majority of the participants took folic acid, iron, and calcium supplements during their gestation period. The basic statistical tools used in the analysis of the reported data were the mean, standard deviation, and p-value. In conclusion, this study provides the importance of dietary diversity and supplementation for pregnant women in Kashmir.***

Keywords: Fetus; Food frequency; Nutrition; Pregnancy; Respondents; Supplements

1. Introduction

India's development strategy has always given preference to balanced regional development just to preserve the country's integrity and unity. Jammu and Kashmir is experiencing serious economic challenges due to its unusual physical features, traditional social structure, and historically slow-moving economy, as represented by the Valley of Kashmir, the most overpopulated area. As a result, the state's economic performance has been significantly lower than the national average (1).

In Kashmir, numerous ethnic groups, including the Kashmiri, Pahari, and Gujjar, have a wide range of cultural expressions (2). Each of these societies includes various flora and animals in their traditional cooking methods. Rice, an important part of Kashmiri cuisine, has been used since ancient times (3) and is a staple in all communities, known as "Baath" in Kashmiri. Notable local dishes include Haakh, made from collard greens, and Razma-daal, which is prepared using beans.

Nutrition during pregnancy plays a vital role in ensuring the health and well-being of both the expectant mother and the developing fetus. Pregnancy is a distinct and intricate physiological process in which the expectant mother experiences various changes to nurture the developing fetus. Sufficient consumption of essential nutrients, combined with effective management of nutritional challenges, can lead to favorable pregnancy outcomes and long-lasting health advantages for both the mother and the child. The average healthy gestation period or pregnancy in humans is forty weeks or just over 9 months, as measured from the last menstrual period to delivery. Trimesters, which are three periods of three months each, are commonly used to split a pregnancy (4).

Early in life, optimal nutrition lays the groundwork for long-term health. The risk of maternal, fetal, and long-term impacts in the developing fetus is decreased by a healthy maternal nutrition intake/dietary pattern involving nutrient-dense meals, adequate maternal body composition, and the placenta's ability to provide nutrients. While malnutrition resulting from a poor diet, both in terms of quantity and quality, is becoming a global health concern, under-nutrition is more common in low-income nations like India. Adverse delivery outcomes, particularly with regard to the new-born's birth weight, have been linked to poor mother nutritional status. But there is a complicated process involved in the relationship between maternal nutrition and the result of childbirth, and it is influenced by a variety of biological, socioeconomic, and demographic factors that vary greatly between global populations (5).

Iron is crucial for the synthesis of hemoglobin; the protein

found in red blood cells responsible for transporting oxygen throughout the body. During pregnancy, there is a significant increase in blood volume, which consequently raises the demand for iron. Iron deficiency anemia is prevalent among pregnant women and may result in complications such as preterm delivery, low birth weight, and maternal fatigue. The recommended daily intake of iron for pregnant women is 27 mg. Excellent dietary sources of iron include lean meats, poultry, fish, legumes, and iron-fortified cereals. Pairing iron-rich foods with those high in vitamin C can improve iron absorption (6).

A B vitamin, folic acid is crucial for DNA synthesis and cellular division and is particularly important during pregnancy. It is essential for the development of the neural tube, which leads to the formation of the brain and spinal cord. A deficiency in folic acid intake is closely linked to neural tube defects (NTDs) such as spina bifida and anencephaly (7). The average adult woman needs 200 micrograms of folate per day from her diet, while the ICMR recommends 500 micrograms per day during pregnancy. During pregnancy, folic acid becomes more necessary for the growth of the fetus and placenta as well as for the synthesis of DNA and maternal erythropoiesis. To lower the risk of delivering a new-born with a neural tube defect, such as spina bifida, the Institute of Medicine (IOM) of the National Academy of Sciences and the U.S. Public Health Service both advise all women of childbearing age, or during the reproductive years, to take 400 micrograms of synthetic folic acid daily (8). Foods rich in folic acid encompass leafy green vegetables, citrus fruits, beans, and fortified cereals. The overall pattern regarding meal frequency and supplement intake among pregnant women in Kashmir indicates that while rice, wheat, and milk are consumed on a daily basis, the consumption frequency of other food items varies. For example, more than one third of participants consume pulses every day, whereas meat is eaten on a weekly basis. In contrast, chicken is consumed less often, with over half of the individuals reporting its intake once a week. Green leafy vegetables and eggs are consumed daily by less than half of the respondents. Most participants regularly take supplements such as folic acid, iron, and calcium throughout their pregnancy.

This paper aims to,

- Research the demographics of the expectant mothers.
- Determine how frequently the respondents consumed meals when they were pregnant.
- Evaluate the respondents' use of dietary supplements throughout their pregnancies.

Type of whole foods/nutritional supplements examined,
The present study examined various whole foods/nutritional supplements, including cereal, rice, wheat, pulses, meat, poultry, and dairy products; fruits and vegetables; as well as folic acid, calcium, and iron supplements.

A woman must maintain a healthy diet once she becomes pregnant, but it's equally critical to consider her nutritional state during the time of conception. Furthermore, a woman's weight at the time of conception can have a significant impact on the course of her pregnancy, the baby's delivery, and the health of the new-born. These factors make it crucial for a woman to receive care prior to becoming pregnant. It is advised by experts to expand the scope of prenatal care to encompass the pre-conception phase as well as the regular medical attention a woman receives during her pregnancy. A healthy diet for all women of reproductive age is essential for public health because around half of pregnancies in the US are unplanned (8).

According to the "Think Nutrition First" recommendations from the Federation of International Gynaecologists and Obstetricians (FIGO), the top 6 vital nutrients that women need to prepare for and enjoy a healthy pregnancy are included. These consist of vitamin B12, vitamin D, iodine, iron, and folic acid. It also emphasizes how antioxidants affect the course of pregnancy (9).

The risk of birth defects is decreased by folic acid. (10) Supplementing with folic acid has been shown by Cohrane to prevent neural tube defects (NTDs), as reported in De-Regil et al. (11), a review article. For women in the reproductive age group, 400 micrograms of folic acid are advised.

Research has shown that women who consume more folic acid are less likely to miscarry (12), while inadequate folate status in the mother is linked to preterm delivery, low birth weight kids, and fetal growth retardation (13).

A lower incidence of congenital abnormalities was linked to vitamin B12 supplementation with folic acid during the preconception period (14, 15).

According to a Cochrane analysis, iron supplementation during pregnancy avoided iron deficiency anaemia and decreased the chance of delivering low birth weight (LBW) babies (birth weight <2.5 kg) (16).

For a fetus's brain to develop normally, iodine is essential. Children born to pregnant women who have a moderate iodine deficit experience developmental delays. For instance, a UK study found that older children whose mothers experienced mild iodine shortage in the early stages of pregnancy were more likely to have low IQs than children whose mothers had normal iodine levels during gestation (17).

Before or during the early stages of pregnancy, taking supplements of calcium has been shown to improve fetal and neonatal outcomes, lower maternal mortality and morbidity, and protect women from pre-eclampsia/toxemia. (18).

Lack of vitamin D during pregnancy increases the risk of developing fibroids and endometriosis because the human ovary, endometrium, and myometrium have been shown to express the vitamin D receptor (19).

Zinc, vitamin E, and vitamin A can all have an impact on the success of a pregnancy. The World Health Organization only advises vitamin A supplementation during pregnancy in regions with widespread vitamin A deficiency. This will lead to an improvement in the mortality and morbidity rates for mothers and fetuses. Prevent xeropthalmia, anemia, and infections (20). Antioxidant supplementation during pregnancy lowers the incidence of oxidative stress-related

pregnancy problems, such as pre-eclampsia.

Anemia also affects 37% of pregnant women and 30% of women of reproductive age (21). In many low- and middle-income nations, the growing number of women who are overweight or obese is also causing serious worry (22). More than 80% of women did not consume enough of the vital micronutrients, according to studies done in Guatemala, India, Pakistan, and the Democratic Republic of the Congo (23). More than half of Indian women suffer from anemia, while almost 40% of women between the ages of 15 and 49 are underweight (24), and roughly 25% are overweight or obese (24). Additionally, according to the NNMB results, most pregnant women's intake of vital minerals including iron, vitamins A and C, and folic acid is less than 50% of what is advised (25).

Overweight and obesity, along with other noncommunicable diseases, have developed as a result of public procurement systems' greater promotion of unhealthy, low-cost food options and high sugar and carbohydrate content. These international recommendations are in accordance with Indian government standards, which place a strong emphasis on a number of crucial nutrition interventions meant to improve pregnant women's diets. A major initiative in India, the National Nutrition Mission, also called POSHAN Abhiyaan, aims to improve maternal nutrition through a number of tactics, including community engagement, technology use, behavior change communication, capacity building, and cross-sector collaboration (26). India's current maternal diet improvement initiatives include a wide range of dietary intake- focused programs and legislation. However, obstacles like inadequate delivery methods, logistical problems, scarce resources, underutilization, and notable inequalities in access to food and healthcare services still hinder efforts to improve pregnant women's diets.

2. Materials and Methods

To get the needed information for the current investigation, both primary and secondary sources of data were consulted.

Primary Data

The current investigation was carried out in a medical facility. The Sher-i-Kashmir Institute of Medical Sciences (SKIMS) Maternity Hospital in Soura, Srinagar, was the primary location from where the sample was obtained. It is one of the oldest, largest and vital departments of Sher-i-Kashmir Institute of Medical Sciences (SKIMS). Apart from providing evidence based, quality patient care, it serves as a Premier Referral Centre for obstetric and gynecological patients. Ever since its expansion in December 2021, all these activities have drastically increased.

The food frequency questionnaire (FFQ) serves as a method for both quantitative and qualitative evaluation of food consumption within a specific population over a designated timeframe. This approach is essential in nutritional epidemiology research because it enables researchers to categorize individuals based on their nutritional status, dietary habits, and nutrient consumption. A methodical program of standardized questionnaires and interviews was developed to gather data from expectant mothers ranging from 18 to 45 years of age, falling in the second trimester and not suffering from any chronic disease. The most recent standards were followed in the preparation of the questionnaire. The basic statistical tests used in analysis were mean, standard deviation and p-value.

Secondary Data

Information gathered from secondary sources included information found in books, published research papers, journals for public health and medicine.

3. Sample Dimensions and Methodology

Sample Dimensions

Participants in the study had to be pregnant women, with a minimum sample size of 350. Five districts were chosen purposively from the ten districts in the Kashmir Valley, taking into account both urban and rural areas. The sample size was allocated according to probability proportionate to size among the designated districts. The following formula was used to determine the sample size (27):

$$n = \frac{NZ^2\,\alpha/2\ \ (1-p)}{d^2\,(N-1) + NZ^2\ ^{\alpha/2}(1-p)}$$

Whereas,
n = the smallest sample size needed for the study N = is the size of population.
Z = 1.96 at the significant level 5%
α = stands for significance level (5%).
p = percentage of Kashmir Valley's registered pregnant women d = is the 5% margin of error

There were 350 pregnant women and their newborns enrolled in this study. Among them, 165 were from rural areas and 185 were from urban areas. Purposively, pregnant patients were chosen from the hospital until the target number of subjects was attained.

Procedure for Selecting Samples

The data collecting sample consisted of pregnant women who were enrolled in the Obstetrics and Gynecology department at the SKIMS hospital located in the Srinagar area. Every third pregnancy was systematically included among all pregnant patients who visited the outpatient department (OPD).

The tool used in the present study, devised as per the objectives of the study, was essentially a carefully designed questionnaire supplemented by an interview schedule that was employed to extract data on nutritional supplements and sociodemographic traits. After a thorough and detailed study of the problem and the review of literature, a preliminary questionnaire was framed (28). This was pre-tested on 10% of the sample size to ensure the validity and feasibility and was then used in the study. The questionnaire was administered to the pregnant women through face-to-face interview during the morning hours. During the second trimester hospital visit, FFQ measured dietary intake to determine what kinds of foods the pregnant women were consuming. To get insight into the respondents' eating patterns, data on the frequency of consumption of five different food items on a daily, weekly, monthly, and annual

basis was gathered. After that, the data on food frequency was entered into a proforma that had been predesigned.

4. Results and Discussion

Table 1: Respondent Distribution by Age, (N=350)

Variables	Class	N	%	Mean±SD
Age (years)	≤20	20	05.7	26.6±4.69
	20-25	112	32.0	
	25-30	148	42.3	
	30-35	51	14.6	
	>35	19	05.4	

The age distribution of the respondents is displayed in **Table 1** Age of the patients ranged from ≤20 to >35 years (Mean±SD, 26.6±4.69) It is evident from the table that the bulk of the respondents, or 42.3%, were between the ages of 25 and 30. Next in line was the age group of 20 to 25 years, with 32.0%. 14.6% were in the age group of 30 to 35 years. In the age groups of ≤20 and >35, the proportion was just 5.7% and 5.4%, respectively. R-4.4.3 software was used as a statistical tool to calculate the mean and standard deviation.

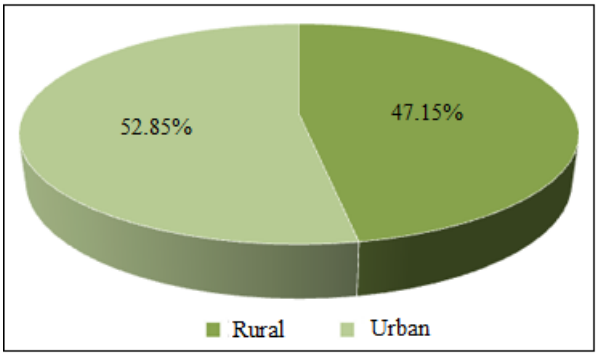

Figure 1: Respondent Distribution by Residence

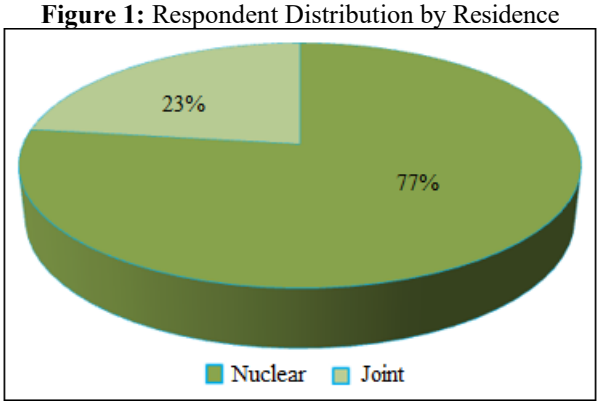

Figure 2: Respondent Distribution by Family Type

52.85% and 47.15% of the respondents, respectively, were from urban and rural areas, according to **Figure 1** Only 23% of the respondents belonged to a joint family, whereas the majority, or 77%, were from nuclear families (**Figure 2**).

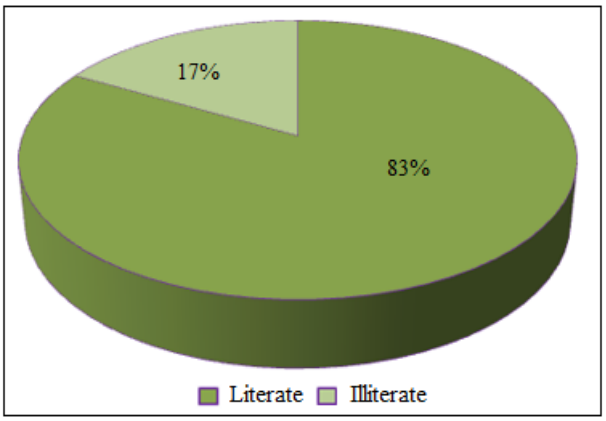

Figure 3: Respondent Distribution by Educational Status

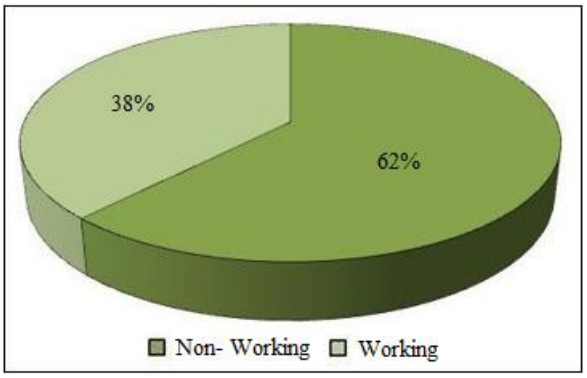

Figure 4: Respondent Distribution by Occupation

Figure 3 shows that 83% of the respondents, or the majority, were literate, while only 17% were not. **Figure 4** shows that just 38% of respondents were employed, with the majority, or 62% of respondents, being housewives who do not work.

Table 2: Respondent Distribution by Family Monthly Income (Rs.)

Variable	Class	N	%	Mean ± SD
Monthly Income (Rs)	<5K	9	2.6	21778.57± 12979.28
	5K-10K	70	20	
	10K-20K	119	34	
	20K-30K	52	14.8	
	30K-40K	51	14.6	
	≥40K	49	14	

The distribution of respondents by family income per month is displayed in **Table 2**. Monthly income of the patients ranged from <5K to ≥40K (Mean±SD, 21778.57±12979.28) The majority of respondents, or 34%, reported monthly incomes between Rs. 10000 and Rs. 20,000, with 20% reporting incomes between Rs. 5000 and Rs. 10,000. 14.8% and 14.6% of the respondents earned between Rs. 20,000–30,000 and Rs. 40,000–60,000 a month, respectively. Merely 2.6% of families had a monthly income of less than Rs. 5000. R-4.4.3 software was used as a statistical tool to calculate the mean and standard deviation.

Table 3: The Respondents' Cereal and Pulse Consumption Pattern

Variable	Class	Daily Once (D1)	Daily Twice (D2)	Alternatively (A)	Weekly Once (W1)	Weekly Twice (W2)	Monthly Once (M1)	Yearly	Never	P-Value
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Cereals (gm.)	Rice	7(2.0)	343(98)	-	-	-	-	-	-	0.0004998
	Wheat (Roti)	2(0.6)	348(99.4)	-	-	-	-	-	-	
	Corn Flour	7(2)	-	-	43(12.3)	-	168(48)	91(26)	(11.7)	
	Rice Flour (Roti)	-	-	3(0.86)	35(10)	-	137(39.14)	160(45.7)	15(4.3)	
Pulses (gm.)	Pulses	140(40)	-	15(4.29)	57(16.29)	35(10)	73(20.85)	25(7.14)	5(1.43)	

While evaluating the respondents' frequency of cereal and cereal product consumption (**Table 3**), All respondents (100%) reported eating rice every day; the majority (98%) ate it twice a day, while only a small portion (2%) used to eat it once a day. Every respondent regularly consumed wheat in the form of roti. Conversely, just 2% and 12.3% of people consumed corn flour on a daily and weekly basis, respectively. Nearly 50% of the respondents, or 48%, reported using corn flour on a monthly basis. A quarter of that amount, or 26%, was consumed annually. When rice flour intake was taken into account, it was shown that none of the expectant mothers regularly consumed rice flour. A very small portion, 0.86%, used to take it on alternate days of the week. Less than half- 39.14% and 45.7%, respectively- used to take it monthly and annually. Nonetheless, a small percentage of respondents, 11.7% and 4.3%, respectively, never consumed corn or rice flour during the course of the year.

Regarding the respondents' intake of pulses, it was found that the majority, or 40%, used to eat them every day, while 20.85% used to consume them once a month. 16.29% and 10% of respondents, respectively, consumed pulses once or twice a week.

Since the p-value obtained is 0.0004998, as determined for the data points, this value is considered statistically significant, implying that there is a low likelihood of obtaining the observed data or more extreme data under the null hypothesis. This means that the results are unlikely to have arisen by coincidence and therefore provide evidence to reject the null hypothesis.

Table 4: Respondents' Pattern of Flesh Food and Egg Consumption

Variable	Class	Daily Once (D1)	Daily Twice (D2)	Alterna--tively (A)	Weekly Once (W1)	Weekly Twice (W2)	Monthly Once (M1)	Yearly	Never	P-Value
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Flesh Foods (gm.)	Beef	-	-	-	17(4.86)	-	31(8.86)	201(57.43)	101(28.85)	0.0004998
	Meat	11(3.14)	08(2.29)	44(12.57)	133(38)	117(33.43)	34(9.71)	3(0.86)	-	
	Chicken	12(3.43)	07(2)	35(10)	178(50.86)	95(27.14)	23(6.57)	-	-	
	Fish	-	-	-	3(0.86)	4(1.14)	20(5.71)	320(91.43)	3(0.86)	
	Eggs	166(47.43)	-	98(28)	45(12.86)	12(3.43)	14(4)	15(4.28)	-	

The frequency of consumption of eggs and flesh meals by the participants is displayed in (**Table 4**). The table's graphic makes it abundantly evident that just a small percentage of the subjects- 3.14% and 2.29%, respectively- used to eat meat on a daily basis. The bulk of respondents- 38% and 33.43%- ate meat once or twice a week, respectively. 57.43% of the respondents, or more than half of the sample, reported consuming beef annually, while 28.85% said they never did. Merely 8.86% and 4.86% of the population, respectively, consumed beef once every month and once every week. There was no evidence of everyday beef consumption among the respondents. More than half of the subjects, or 50.86% of the respondents, consumed chicken once a week, while 27.14% consumed it twice a week, according to the respondents' consumption patterns. Just 3.43% and 2% of respondents, respectively, reported eating chicken once or twice a day. Only a small percentage of miners- 10% and 6.57%, respectively- took it on alternate days and on a monthly basis, respectively. Of the respondents, a sizable portion (91.43%) occasionally consumed fish annually. Everyday fish consumption was absent from all respondents. Of those surveyed, less than half (47.43%) had eggs just once a day, whereas 28% consumed eggs on alternate days of the week. Egg consumption on a weekly and monthly basis was quite low.

Table 5: The Respondents' Fruit and Vegetable Consumption Pattern,

Variable	Class	Daily Once (D1)	Daily Twice (D2)	Altern--atively (A)	Weekly Once (W1)	Weekly Twice (W2)	Monthly Once (M1)	Yearly	Never	P-Value
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Vegetables (gm.)	Green Leafy Vegetables	155(44.29)	15(4.29)	30(8.57)	28(8)	111(31.71)	11(3.14)	-	-	0.0004998
	Fruits	89(25.43)	249(71.14)	4(1.14)	-	7(2)	1(0.29)	-	-	
	Roots & Tubers	129(36.86)	14(4)	56(16)	78(22.29)	37(10.57)	34(9.71)	2(0.57)	-	
	Other Vegetables	23(6.57)	-	63(18)	69(19.71)	113(32.29)	74(21.14)	7(2)	1(0.29)	

Examining (**Table 5**) shows how much fruit and vegetables the respondents consumed. The table shows that 71.14% of the respondents, or the majority, used to eat fruits twice a day. The remaining 25.43% of respondents, or 1/4 of the

group, only ate fruits once a day. Few respondents reported eating fruits on a weekly or monthly basis. Regarding the various kinds of vegetables, it was found that less than half of the respondents (44.29%) consumed green leafy vegetables (GLV) on a daily basis, while 31.71% consumed them twice a week. Just 4.5% of the respondents consumed roots and tubers twice a day, compared to the majority, or 36.86%, who did so once a day.

Table 6: The Respondents' Pattern of Milk and Milk Product Consumption

Variable	Class	Daily Once (D1)	Daily Twice (D2)	Alterna--tively (A)	Weekly Once (W1)	Weekly Twice (W2)	Monthly Once (M1)	Yearly	Never	P-Value
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N(%)	
Milk and Milk Products (g/mL)	Milk	167(47.71)	83(23.71)	57(16.29)	15(4.29)	14(4)	5(1.43)	-	9(2.57)	0.0004998
	Milk (Tea)	35(10)	315(90)	-	-	-	-	-	-	
	Cheese	12(3.43)	-	10(2.86)	109(31.14)	36(10.29)	153(43.71)	25(7.14)	5(1.43)	
	Curd	76(21.71)	58(16.57)	90(25.71)	72(20.57)	50(14.29)	3(0.86)	1(0.29)	-	

The frequency distribution of the use of milk and milk products by the respondents daily, weekly, monthly, and annually is presented in (**Table 6**). From the above table, it can be seen that all respondents (100%) took their tea with milk. The majority of the respondents, or 25.71% of the selected respondents, used curd on an alternative day of the week, while 20.57% and 21.71% used it once a week and every day, respectively. On the other hand, when it comes to cheese consumption patterns by the respondents, 43.71% of them consume it once in a month, whereas 31.14% consume it once in a week. Only 3.43% of the respondents consume it daily.

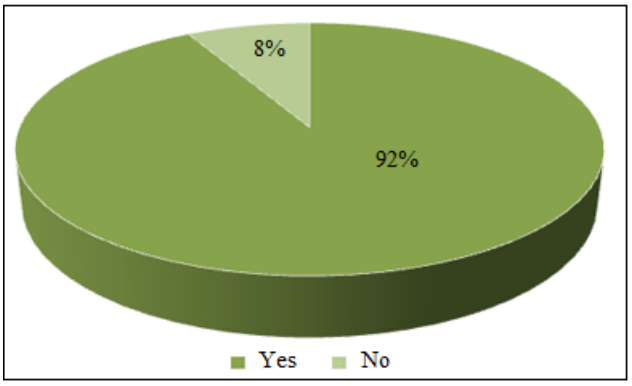

Figure 5: Respondents' Intake of Supplements

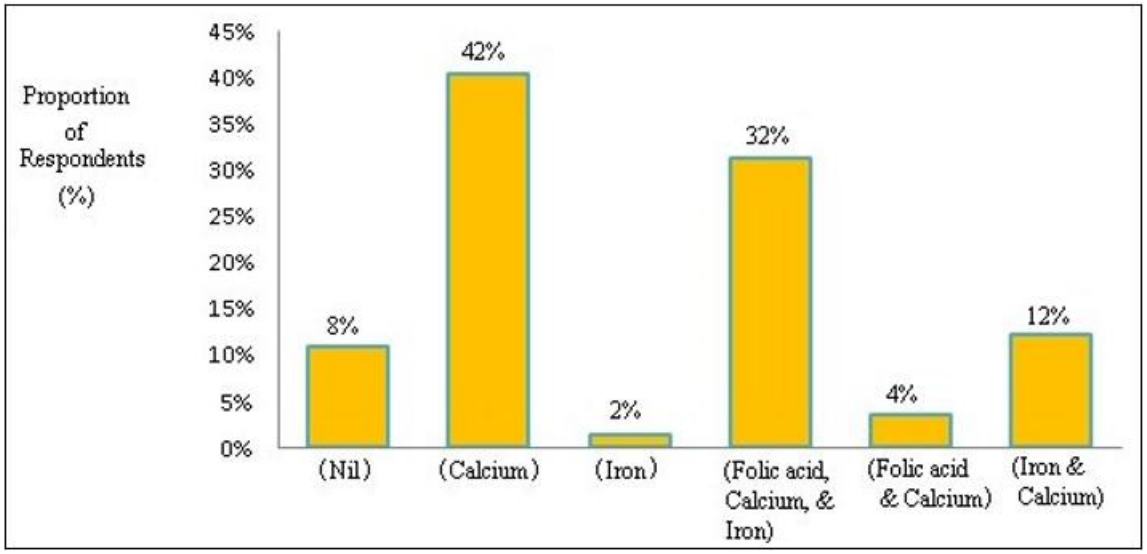

Figure 6: Type of Supplements taken by the Respondents

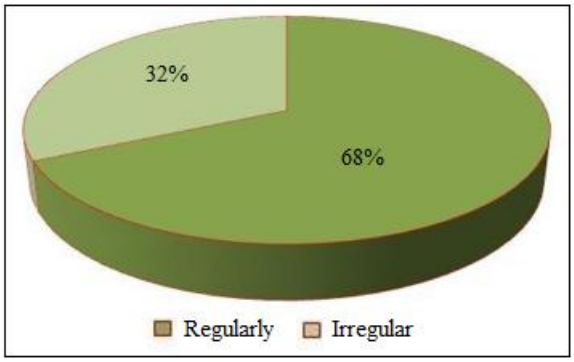

Figure 7: Respondents' Supplement Intake Frequency

Figure 5 shows that 92% of the respondents, or the majority, took supplements when pregnant, while only 8% did not. During pregnancy, 42 per cent of women took calcium supplements, and 32 per cent took all three supplements (folic acid, calcium, and iron) (**Figure 6**). Furthermore, the study (**Figure 7**) showed that just 32% of women had used supplements irregularly during pregnancy, compared to the majority, or 68%, who took them regularly.

The expected outcomes of the study,
All respondents consumed rice daily (98% twice daily), and wheat regularly. 40% ate pulses daily, while others consumed them less frequently. Meat consumption varied, with 38% eating it weekly and 57.43% consuming beef annually. Over half ate chicken weekly, and 47.4% consumed eggs daily. 71.14% consumed fruits twice daily. Less than half (44.29%) ate green leafy vegetables daily. All

consumed milk with tea; curd and cheese consumption varied. 92% of pregnant respondents took supplements, with 68% taking them regularly.

5. Discussion and Recommendations

Pregnant women need a nutritious and well-balanced diet containing proteins, vitamins (vitamin A, vitamin C, B1, B2, and folate), iron, calcium, and fibers. The recommended dietary intake for pregnant women differs from one woman to another based on their nutritional status and choice of foods. Nutritious diets and regular exercise enable women to avoid excessive bodyweight gains during pregnancy. Nutritional deficiency during pregnancy is known to be associated with poor infant growth, premature births, and susceptibility to illnesses in the long run. It is, therefore, important for pregnant women to consume a nutritious and well-balanced diet in order to ensure proper nourishment and avoid the danger of adverse health effects on the mother and infant. This study investigated nutritional intake and found that it largely meets nutritional recommendations.

The symptoms of anemia during pregnancy are well known; nonetheless, many women may not feel themselves to be at risk. In most countries, facility-based antenatal care (ANC) is the primary method for administering prenatal iron and folic acid (IFA) supplements. However, concerns such as limited accessibility and delays in the initial visit provide substantial barriers to improving coverage and adherence. Health staff must be trained on prenatal supplement standards and acquire counseling skills in order to properly manage adverse effects and monitor adherence. Governments should look into community-based delivery techniques to improve the frequency of encounters and give women tailored care throughout their pregnancy. There is a need for investment in strategic communication to persuade women, their families, health workers, and policymakers about the significance and advantages of supplementation for all expectant mothers.

6. Important Conclusions

- The majority of respondents (42.3%) were between the ages of 25 and 30, and more than half (52.85%) were from urban centers. Only 23% of the respondents belonged to a joint family, while the majority (77%) came from nuclear families.
- Of the respondents, the majority (83%) were literate, while just 17% were not. Just 38% of the respondents were employed, with the majority, or 62%, being housewives.
- The majority of respondents, or 34%, reported monthly incomes between Rs. 10,000 and 20,000.
- When the respondents' intake of cereals and cereal products was evaluated, it was found that 100% of them consumed rice every day, with the majority (98%) consuming it twice daily and the remaining little portion (2%) only eating it once a day. Every respondent also regularly consumed wheat in the form of roti.
- In terms of the respondents' intake of pulses, it was found that the majority, or 40%, used to eat them every day, while 20.85% used to consume them once a month. Only once or twice a week, respectively, did 16.29% and 10% take pulses.
- The majority of respondents, or 38%, reported eating meat once a week, on average. Annually, over half of the participants, or 57.43%, reported consuming beef. According to the respondents' consumption patterns, more than half of the participants used to eat chicken once a week. Less than half of the respondents (47.43%) consumed eggs once a day, with 28% consuming them on alternate days of the week.
- Of the respondents, 71.14% used to consume fruits twice a day, which constituted the majority. The remaining 25.43%, or 1/4, used to consume fruits just once a day. Regarding the various kinds of vegetables, it was found that less than half of the respondents (44.29%) consumed green leafy vegetables (GLV) once a day, while 31.71% consumed them twice a week.
- Every respondent (100%) regularly consumed milk with their tea. The bulk of respondents, or 25.71% (1/4th of the sample chosen), took curd on alternate days of the week. When cheese intake was taken into account, it was found that 43.71% of the respondents consumed it once a month, while 31.14% consumed it once a week.
- The majority, or 92% of the respondents, took supplements when they were pregnant, with only 8% not taking one. 32% of pregnant women took all three supplements- calcium, iron, and folic acid- while 42% took calcium alone. The survey also showed that only 32% of women had taken supplements irregularly during pregnancy, while the majority, or 68%, took supplements regularly.

This study offered new perspectives on the use of diverse whole foods and dietary supplements during pregnancy, as well as their relationships with various demographic factors, general knowledge, and attitudes. The results suggest that the main reason pregnant women utilize different foods and dietary supplements is to combat nutritional deficiencies and fulfill the increased metabolic demands of pregnancy. There is a significant need to improve awareness among expectant mothers regarding the appropriate use of foods and dietary supplements during this time. It is recommended to engage the wider community through media outlets, policy makers, nutritional interventions, and healthcare professionals and to work towards the establishment of national guidelines for the appropriate use of foods and dietary supplements in pregnancy.

List of abbreviations

FFQ, Food Frequency Questionnaires; IOM, Institute of Medicine; K, 1000; FIGO, Federation of International Gynecologists and Obstetricians; SKIMS, Sher-i-Kashmir Institute of Medical Sciences; NTDs, neural tube defects; LBW, delivering low birth weight; OPD, outpatient department.

Author Contributions

SAL and IR conception and layout, IR data collection, SAL data analysis and interpretation, SAL drafted the manuscript, and SAL revised it critically for essential intellectual quality. The version of the manuscript to be published has been approved by SAL and IR.

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The corresponding author has access to all data related to this

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Consent for Publication
Not applicable

Conflict of Interest
The authors declare that they have no conflicts of interest.

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Ethical approval
This study was conducted in accordance with the principles and declarations of the SKIMS Institute, good clinical practice guidelines, and applicable laws and regulations.

Informed Consent Statement
Informed consent was obtained from all subjects involved in the study.

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Figures Originality
We confirm that the figures used in the manuscript are original and not reproduced from any published articles.

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