



## **A Descriptive Study to Assess the Dietary Pattern among Antenatal Women Visiting at the Selected Health Centers of Punjab**

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### **ABSTRACT**

*Diet is the sum of food consumed by a person or other organism. Optimal nutrition is essential for healthy growth. Each culture and each person holds some food preferences or some food taboos. This may be due to personal tastes or ethical reasons. Individual dietary choices may be more or less healthy. Dietary habits and choices play a significant role in the quality of life, health and longevity. Having a healthy diet is a way to prevent health problems and will provide the body with the right balance of vitamins, minerals and other nutrients. A descriptive study to assess the dietary pattern among antenatal women visiting at the selected health centres of Punjab. Research approach used was the quantitative, a descriptive design was used. In this study the population is antenatal women who were visiting at selected health care centres of Punjab. Convenient sampling technique was used to collect the data. The data collected by structured knowledge questionnaire and analysed and interpretation by descriptive and inferential statistics. The result findings showed that the antenatal women were not taking required calorie according to trimester, only some women had taken calories (according to required amount) during pregnancy. Findings highlight the need for increase the dietary pattern according to trimester to reduce the risk of certain birth defects (Neural tube defects and malformations of the brain, spine and spinal cord) and low birth weight baby. Dietary intake refers to the daily eating patterns including all forms of foods and calories consumed with its relative quantities as measured by 24 hours dietary recall table. The conclusions were drawn on the basis of conclusions from the investigation. The investigations showed that the antenatal women were not taking required calorie according to trimester, only some women had taken calories (according to required amount) during pregnancy. Findings highlight the need for increase the dietary pattern according to trimester to reduce the risk of certain birth defects (Neural tube defects and malformations of the brain, spine and spinal cord) and low birth weight baby.*

**Keywords:** Antenatal women, dietary pattern, health centers.

Received 12.10.2022

Revised 23.10.2022

Accepted 30.11.2022

### **INTRODUCTION**

Diet is the sum of food consumed by a person or other organism. Optimal nutrition is essential for healthy growth. Each culture and each person holds some food preferences or some food taboos. This may be due to personal tastes or ethical reasons. Individual dietary choices may be more or less healthy. Dietary habits and choices play a significant role in the quality of life, health and longevity. Having a healthy diet is a way to prevent health problems and will provide the body with the right balance of vitamins, minerals and other nutrients. [1]

Nutritious diet is important for healthy pregnancy. Eating a healthy diet, balancing of carbohydrates, fat, proteins and fruits and vegetables, ensures good nutrition for the pregnant women. The nutritional level of women when becoming pregnant and during the time of pregnancy has significant influence on fetal, infant and maternal health outcomes. Deficiencies of nutrient such as calcium, iron, vitamins and iodine can lead to poor maternal health and further complications for baby. [2]

Eating habits can be understood in terms of what and how people eat, their selection of food and the way of getting food. Dietary pattern such as eating a range of food that is high in fruits, vegetables and fibres and low in saturated fat, sugar and salt can help in maintaining a healthy weight. Particularly, dietary pattern including regular breakfast consumption have been associated with lower body weight. [3]

### **OBJECTIVES**

1. To assess the dietary pattern of antenatal women visiting at the selected health centres of Punjab.
2. To determine association between dietary pattern and selected socio demographic characteristics of antenatal women.

## ASSUMPTIONS

- Dietary intake is a measurable phenomenon.
- Most of the antenatal mothers will take healthy diet during pregnancy.

### Research methodology:

The research approach for this was quantitative approach.

### Research design:

Descriptive research design was chosen for this study.

### Setting of the study:

The study will be conducted in antenatal women.

**Population:** Population refers to a whole group of people or things that fit the sample criteria.

**Sample:** Antenatal women

**Sample size:** 200 antenatal women

**Sampling technique:** convenient sampling technique

**Sample selection criteria:**

### Inclusive criteria

Women who were

- Pregnant and visiting in health centers.
- Pregnant and willing to participate in the study.
- Understand and communicate in Hindi and Punjabi.

### Exclusive criteria:

Women who were

- Wasn't available when data was collected.

### Data Collection Tool

#### Section A: - Socio-demographic profile sheet

Socio- demographic profile sheet were developed by the investigator for the present study to collect the personal, social and occupational characteristics of the subjects which consist eight items e.g. Age, type of family, residence, education, occupation, religion, dietary pattern, income per months, period of gestation and any medical history.

#### Section B: Assessment of Food consumed by the antenatal women visiting the selected health centres of Punjab.

This section consist of multiple choice questions having 16 items related to food consumption was prepared by the investigator along with a checklist to assess the preferences of the food consumed by the subjects. These multiple choice Questions and checklist were included in dietary assessment sheet.

#### Section c-Dietary Assessment Sheet (24 hours dietary recall):

This section consists of a dietary assessment sheet used to assess dietary intake. It consists of 6 items about Time, Meal, Menu Amount, Type of nutrients, estimated calories, respectively.

### Validity of the tool

Validity refers the extent to which a measurement tool achieves its intended goal. Validity is extent to which differences found with the measuring instrument reflect to difference among those being tested.

### Reliability of the tool

Intra rater quality of the tool was determined by administering the tool to 10 subjects. Cohen Kappa method was used and tool was found to be effective. ( $r=1$ ).

## RESULTS

### Section-A socio-demographic profile

**Table-1(a): frequency and percentage distribution of subjects according to their socio demographic variables.**

SAMPLE CHARACTERISTICS	FREQUENCY (%)
<b>Age in years-</b>	
18-21 years	025 (12.5%)
22-25 years	103 (51.5%)
26-29 years	063 (31.5%)
Above 30 years	009 (04.5%)
<b>Type of family</b>	
Nuclear family	036 (18.0%)
Joint family	164 (82.0%)
<b>Residence</b>	

Urban	037 (18.0%)
Rural	163 (81.0%)
<b>Education</b>	
No formal education	048 (24.0%)
Primary	083 (41.5%)
Secondary	049 (24.5%)
Graduation or above	020 (10.0%)

**Table-1 (A)** Reveals the frequency and percentage distribution of subjects as per their socio-demographic variables. More than half of the subjects 103 (51.5%) were in age groups 22-25 years , 63 (31.5%) subjects were in the age groups of 26-29 years , 25 (12.5%) subjects were in the age groups 18-21 years , whereas only 9(4.5%) subjects were in above 30 years of age. Majority of the subjects 164 (82.5) were from joint family whereas 36(18%) subjects were from nuclear family. The vast majority of the respondents 163(81.5%) came from rural areas, as opposed to 37(18.5%) subjects were from urban area. Less than half of the subject 83(41.5%) had studied up to primary level education, 49(24.5%) subjects had secondary level of education, 48(24%) of the subjects had No formal education and 20 (10%) subject were graduates or above.

**Table-1 (b): Frequency and Percentage distribution of subjects according to their socio demographic variables. N=200**

SAMPLE CHARACTERISTICS	FREQUENCY (%)
<b>Occupation</b>	
Housewife	178 (89.0%)
Private job	018 (09.0%)
Government job	004 (02.0%)
<b>Religion</b>	
Sikh	091 (45.5%)
Hindu	095 (47.5%)
Muslim	014 (07.0%)
<b>Dietary pattern</b>	
Vegetarian	128 (64.0%)
Non-vegetarian	056 (28.0%)
Eggetarian	016 (08.0%)

**Table-1(b)** Reveals the frequency and percentage distribution of subjects a per their socio-demographic variables .Most of the subjects 178(89%) were housewives, 18(9%) subjects had private job and only 4(2%) subjects had government job. Less than half of the subjects 95(47.5%) were Hindu, 91(45.5%) subjects were Sikh and 14(7%) subjects were Muslim. 128(64%) subjects were vegetarian, 56(28%) subjects were non vegetarian and 16(8%) subjects were Eggetarian.

**Table-1(c): Frequency and Percentage distribution of subjects according to their socio demographic variables. N=200**

SAMPLE CHARACTERISTICS	FREQUENCY (%)
<b>Income (Rs) per month of family</b>	
<10,000	035 (17.5%)
10,001-20,000	125 (62.5%)
20,001-30,000	034 (17.0%)
Above 36 weeks	006 (03.0%)
<b>Period of gestation</b>	
1 to 12 weeks(1st trimester)	094 (47.0%)
13 to 24 weeks(2 <sup>nd</sup> trimester)	065 (32.5%)
25 to 36 weeks (3 <sup>rd</sup> trimester)	041 (20.5%)
<b>Any medical history</b>	
Yes	022 (11.0%)
No	178 (89.0%)

**Table 1(c)** Reveals the frequency and percentage distribution of subjects a per their socio-demographic variables. Majority of the subjects 125(62.5%) had monthly income 10001-20000, 35(17.5%) of the subjects had monthly income less than 10000, 34(17%) of the subjects had Rs 20001-30000 and only

6(3%) of the subjects had monthly income above 30000. 94(47%) subjects had gestation period of 1 to 12 weeks, 65(32.5%) subjects had gestation period 13 to 24 weeks and 41 (20.5%) subjects had gestation periods 25 to 36 weeks. Most of the subjects 178(89%) had no medical history and 22(11%) subjects had medical history.

**Table-2: Frequency and percentage distribution of subjects as per their intake of Carbohydrate, Protein and Fat during pregnancy. N=200**

CATEGORY	MACRONUTRIENTS	FREQUENCY(%)
	<b>Carbohydrates in grams</b>	
Inadequate	<175	005 (02.5%)
Adequate	175-210	008 (04.0%)
Over	>210	187 (93.5%)
	<b>Protein in grams</b>	
Inadequate	<40	001 (05.0%)
Adequate	40-75	061 (30.5%)
Over	>75	129 (64.5%)
	<b>Fat in grams</b>	
Inadequate	<40	090 (45.0%)
Adequate	40-80	052 (26.0%)
Over	>80	058 (29.0%)

In pregnancy, the women need about 175-210grams of carbohydrates, 40-75grams of proteins and 40-80 grams of fats per day.

The above table depicts F (%) distribution of subjects as per intake of carbohydrates, protein and fat among antenatal women 187(93.5%) were taking >210grams of carbohydrate per day, 8(4%) subjects were taking 175-210grams of carbohydrate per day, whereas only 5(2.5%) subjects were taking <175grams of carbohydrate per day.

More than half of the subjects 129(64.5%) were taking >75grams protein per day, 61(30.5%) subjects were taking 40-75grams protein per day, whereas only 10(5.0%) subjects were taking <40 grams protein per day.

More than half of the subjects 90(45.0%) were taking <40 grams fat per day, 58(29.0%) subjects were taking >80grams fat per day whereas only 52(26.0%) subjects were taking 40-80 grams fat per day.

Hence it is conducted that 93% subjects were consuming more carbohydrates, and 64.5% were consuming more proteins 45% subjects were consuming less fat than the required calories.

**Table-3: Frequency and percentages distribution of subjects as per their intake of calories according to period of gestation. N=200**

Categories	Calories	Frequency (%)
	<b>First Trimester</b>	
Inadequate	<2000 kcal	36 (38.2%)
Adequate	2000-2200 kcal	10 (10.6%)
Over	>2200 kcal	48 (51.0%)
	<b>Second Trimester</b>	
Inadequate	<2201 kcal	28 (43.0%)
Adequate	2201-2540 kcal	10 (15.3%)
Over	>2540 kcal	27 (41.5%)
	<b>Third Trimester</b>	
Inadequate	<2541 kcal	15 (36.5%)
Adequate	2541-2990 kcal	03 (07.3%)
Over	>2990 kcal	23 (56.0%)

In pregnancy, the women need about 2200 calories during the first trimester, 2540 calories during the second trimester and 2990 calories during the third trimester.

The above table depicts assessment of dietary pattern equal to half of subjects 48(51%) were taking >2200 kcal per day in first trimester, 36(38.2%) subjects were taking <2000 kcal per day, whereas only 10(10.6%) subjects were taking 2000-2200 Kcal per day in first trimester.

Half of the subjects 28(43%) were taking <2201 Kcal per day in Second trimester, 27(41.5%) subjects were taking >2540 Kcal per day, whereas only 10(15.3%) subjects were taking 2201-2540 Kcal per day in second trimester.

More than half of the subjects 23(56%) were taking >2990 Kcal per day in third trimester, 15(36.5%) subjects were taking <2541 Kcal per day, whereas only 3(7.3%) subjects were taking 2541-2990 Kcal per day in third trimester.

**Table 4- Mean and SD of total calorie consumption among subjects during pregnancy. N=200**

Total Nutrients Consumed	Maximum Consumption	Minimum Consumption	Mean±SD
Calories	5075.2 kcal	765.80 kcal	7.27±1.02
Carbohydrates	874.7 grams	55.12 grams	4.10±1.45
Proteins	260.9 grams	15.18 grams	88.8±3.29
Fats	316.9grams	4.10grams	68.54±6.06

**Table-4(b) Frequency and percentage distribution of calorie intake among study subjects during pregnancy. N=200**

CALORIES	FREQUENCY (%)
813.5-2505.4	112 (56%)
2505.5-3310.9	43 (21.5%)
3310.10-4465.7	33 (16.5%)
4465.8 -5075.2	12 (06%)

Table 4: The above table depicts the mean and SD of the total calories consumed by the subjects. Out of the 200 subjects maximum calories consumed was 5075.2 kcal and minimum calories consumed was 765.80 Kcal with SD±mean= 7.27±1.02.

The maximum carbohydrates consumed was 874.7 grams and minimum consumed was 55.12 grams with SD±mean=4.10±1.45. The maximum proteins consumed was 260.9 grams and minimum consumed was 15.18 grams with SD±mean=88.8±3.29.

The maximum fats consumed was 316.9grams and minimum consumed was 4.10 grams with SD±mean=68.54±6.06.

Table 4(a) -Depicts the frequency and percentage distribution of subjects as per their calories consumption the table shows that majority of the subjects (112%) consume up to 2505.4K cal/day , 43 subjects take between 2505.5-3319.9 Kcal/day, 33 subjects take 3319.10-4465.7 Kcal/day while only 12 subjects found of taking 4465.8-5075.2 Kcal/day.

### Section-c

**Table- 5(a): association between dietary pattern and socio demographical variables. N=200**

Demographical variables	Category	Total	Dietary Pattern			Chi-sq and Df
			First Trimester f (%)	Second Trimester f (%)	Third Trimester f (%)	
<b>Age</b>	a. 18-21 years	025	12(048.0%)	10(040.0%)	03(012.0%)	8.65 6 (.194)
	b. 22-25 years	103	49(047.6%)	32(031.1%)	22(021.4%)	
	c. 26-29years	063	31(049.2%)	21(033.3%)	11(017.5%)	
	d. Above 30 year	009	02(022.2%)	02(022.2%)	05(055.6%)	
<b>Type of family</b>	a. Joint family	036	15(041.7%)	13(036.1%)	08(022.2%)	.50 2 (.777)
	b. Nuclear family	164	79(048.2%)	52(031.7%)	33(020.1%)	
<b>Residence</b>	a)Urban	037	19(051.4%)	09(024.3%)	09(024.3%)	1.44 2 (.487)
	b) Rural	163	75(046.0%)	56(034.4%)	32(019.6%)	
<b>Education</b>	a. No formal education	048	28(058.3%)	12(025.0%)	08(016.7%)	12.70 6 (.048*)
	b. Primary education	083	42(050.6%)	27(032.5%)	14(016.9%)	
	c. Secondary education	049	21(042.9%)	15(030.6%)	13(026.5%)	
	d. Graduate & above	020	03(015.0%)	11(055.0%)	06(030.0%)	

Table: - 5(a) Show association between selected socio-demographic variable and dietary pattern among antenatal women. As per chi <sup>2</sup>test, association between dietary pattern among antenatal women and

education found significant at level of  $p < 0.05$ . Hence there is a significant relationship between dietary pattern among antenatal women and education.

As per  $\chi^2$  test association between Dietary Pattern among antenatal women and age, type of family, area of residence found no significant at level of  $p > 0.05$ . Hence there is no significant relationship between Dietary Pattern among antenatal women and socio-demographic variable i.e. age, type of family, area of residence.

**Table- 5(b): Association between Dietary Pattern and Socio Demographical Variables. N=200**

Demographical Variables	Category	Total	Dietary pattern			Chi-sq and df
			First Trimester f (%)	Second Trimester f (%)	Third Trimester f (%)	
Occupation	a. Housewife	178	88(049.4%)	55(030.9%)	35(019.7%)	6.96 4 (.138)
	b. Private	018	05(027.8%)	07(038.9%)	06(033.3%)	
	c. Government job	004	01(025.0%)	03(075.0%)	00(000.0%)	
Religion	a.Sikh	091	48(052.7%)	28(030.8%)	15(016.5%)	4.03 4 (.402)
	b.Hindu	095	41(043.2%)	33(034.7%)	21(022.1%)	
	c.Muslim	014	05(035.7%)	04(028.6%)	05(035.7%)	
Dietary pattern	a. Vegetarian	128	73(057.0%)	37(028.9%)	18(014.1%)	17.55 4 (.002*)
	b. Non Vegetarian	056	17(030.4%)	20(035.7%)	19(033.9%)	
	c. Eggiterian	016	04(025.0%)	08(050.0%)	04(025.0%)	

Table: - 5(b) Show association between selected socio-demographic variable and dietary pattern among antenatal women. As per  $\chi^2$  test, association between dietary pattern among antenatal women and their dietary pattern found significant at level of  $p < 0.05$ . Hence there is a significant relationship between dietary pattern among antenatal women and their dietary pattern.

As per  $\chi^2$  test association between Dietary Pattern among antenatal women and occupation and religion found no significant at level of  $p > 0.05$ . Hence there is no significant relationship between Dietary Pattern among antenatal women and socio-demographic variable i.e. occupation and religion.

**Table- 5(c): Association between Dietary Pattern and Socio Demographical Variables. N=200**

Demographical Variables	Category	Total	Dietary pattern			Chi-sq and df
			First Trimester f (%)	Second Trimester f (%)	Third Trimester f (%)	
Income (Rs) Per month of family	a. <5,000	035	29(082.9%)	04(011.4%)	02(005.7%)	50.71 6 (.000*)
	b. 5001-10,000	125	62(049.6%)	43(034.4%)	20(016.0%)	
	c. 10,001-15,000	034	03(008.8%)	16(047.1%)	15(044.1%)	
	d. >15,000	006	00(000.0%)	02(033.3%)	04(066.7%)	
Period of gestation (in weeks)	a. 1to 12weeks	094	94(100.0%)	00(000.0%)	00(000.0%)	4.00 4 (.000*)
	b. 13 to 24weeks	065	00(000.0%)	65(100.0%)	00(000.0%)	
	c. 25 to 36 weeks	041	00(000.0%)	00(000.0%)	41(100.0%)	
Any Medical History	a. Yes	022	08(036.4%)	05(022.7%)	09(040.9%)	6.34 2 (.042*)
	b. No	178	86(048.3%)	60(033.7%)	32(018.0%)	

Table: - 5(c) Show association between selected socio-demographic variable and dietary pattern among antenatal women. As per  $\chi^2$  test, association between dietary pattern among antenatal women and family monthly income, period of gestation and any medical history found significant at level of  $p < 0.05$  hence there is a significant relationship between dietary pattern among antenatal women and family monthly income, period of gestation and any medical history.

Results shows that assessment of dietary pattern equal to half of subjects 48(51%) were taking >2200 kcal per day in first trimester, Half of the subjects 28(43%) were taking <2201 Kcal per day in Second trimester and More than half of the subjects 23(56%) were taking >2990 Kcal per day in third trimester. Out of the 200 subjects maximum calories consumed was 5075.2 kcal and minimum calories consumed was 765.80 Kcal with SD±mean= 7.27±1.02.The maximum carbohydrates consumed was 874.7 grams and minimum consumed was 55.12 grams with SD±mean=4.10±1.45. The maximum proteins consumed was 260.9 grams and minimum consumed was 15.18 grams with SD±mean=88.8±3.29.The maximum fats consumed was 316.9grams and minimum consumed was 4.10 grams with SD±mean=68.54±6.06. Majority of the subjects (112%) consume up to 2505.4K cal/day , 43 subjects take between 2505.5-3319.9 Kcal/day, 33 subjects take 3319.10-4465.7 Kcal/day while only 12 subjects found of taking 4465.8-5075.2 Kcal/day.

## DISCUSSION

Present study findings revealed that more than half of subjects 48(51%) of the subjects were taking >2200 kcal per day in first trimester, 36(38.2%) subjects were taking <2000 kcal per day, whereas only 10(10.6%) subjects were taking 2000-2200 Kcal per day in first trimester.An opposing study conducted by SantanaJ D M et al (2015) that 50.4% and 49.3% of the subjects the dietary intakes in the first and third trimesters and there was no statically significant correlation between four dietary patterns ( coffee group, fried snack group, fruit group and fat group) [4].

Present study findings also revealed that majority of the subjects 187 (93.5%) were taking >210 gm of carbohydrates, 129 (64.5%) subjects were taking protein whereas 90(95%) subjects were taking fat in their diet. Thus present study results conducted that majority subjects had higher intake of carbohydrates and low intake of fat and proteins. A similar study was conducted by Olayiwola I O et al. Result reports that about 98% of respondents consumed more of carbohydrates diet compared to protein diet which is most important especially during pregnancy to improve their nutritional and that of the unborn baby [5].

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## CITATION OF THIS ARTICLE

Nitika Thakur, Suman Vashist, Kulpooja, Poonam Yadav. A Descriptive Study to Assess the Dietary Pattern among Antenatal Women Visiting at the Selected Health Centers of Punjab. Bull. Env.Pharmacol. Life Sci., Spl Issue [4]: 2022: 667-673