"A STUDY TO EVALUATE THE EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWLEDGE REGARDING IMPORTANCE OF NUTRITION IN PREGNANCY AND THE ILL EFFECT OF FOOD TABOOS AMONG ANTENATAL MOTHERS AT SELECTED RURAL AREAS OF AHMEDABAD, GUJARAT."

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ABSTRACT

Background

Good nutrition is an important component of a healthy lifestyle and a healthy baby. Pregnancy is one time in life when weight gain is not only desirable, but also encouraged. The average weight gain may translate into an additional 200-300 calories/day. This increases the average daily caloric intake from 2100 calories per day to approximately 2400-2500 calories per day. Poor maternal nutrition adversely affects pregnancy and birth outcomes. Taboos are defined as a social or religious custom prohibiting or restricting a particular practice or forbidding association with a particular person, place, or thing. Every society, whether rural or urban, has own taboos in almost every aspect followed throughout the way of life.

Objectives of the studies were

1. To assess the pre-test level of knowledge score regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers.
2. To assess the post-test level of knowledge score regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers.
3. To evaluate the effectiveness of planned teaching programme on knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboos among antenatal Mothers.
4. To determine association the pre-test level of knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboos with their selected demographic variables.

Methodology

Quantitative research approach was used with **Pre experimental (one group pre-test post-test)** research design. The investigator used non-probability convenience sampling technique for selecting 60 samples.

Result

The demographic variable major findings out of **60** samples majority of the samples **85%** belonged age group of 20 to 30 years, **93.3%** samples are Hindu, **88.3%** samples are educated, **76.7%** antenatal mothers are unemployed, **85%** of samples are vegetarian, **60%** samples living in joint family, **56.7%** mothers are primi-gravida and **41.7%** samples are in their 1st trimester. The mean pre-test score was **11.23** and the mean post-test score was **19.0** with mean difference of **7.77**. The table also represents that the standard deviation of pre-test score was **3.27** and standard deviation of post-test score was **3.41**. It reveals that mean post-test knowledge score was significantly higher than mean pre-test knowledge scores. The calculated 't' value was **28.618** and the tabulated 't' value was **2.000** at **0.05** level of significance. Therefore, the null hypothesis H_0 was rejected and research hypothesis H_1 was accepted.

Association of the pre-test knowledge score was found significant with demographic variables such as **occupation and gravida.** So, we accept the hypothesis H_2 for above mentioned demographic variables.

Conclusion

This indicates the Planned Teaching Programme regarding importance of nutrition in pregnancy and the ill effect of food taboos among antenatal mothers at selected rural areas of Ahmedabad, Gujarat.

INTRODUCTION

Good nutrition is an important component of a healthy lifestyle and a healthy baby. The best time to review your nutritional status to make appropriate changes is prior to conception. A very important time of fetal development is during the first several weeks of pregnancy when many women may not even realize they are pregnant. The nutritional changes that should occur prior to pregnancy must be individualized based on your medical status, weight and eating habits.

Pregnancy is one time in life when weight gain is not only desirable, but also encouraged. Recommended weight gain may depend on a number of factors, including pre-pregnancy weight. You might also expect to gain more if you are carrying multiple babies. Your health care provider can help you determine what a reasonable weight gain is for you. Many babies can weigh 7 lbs-8 lbs. before they're born, so it's easy to see how a weight gain of 25-30 lbs. is average. The average weight gain may translate into an additional 200-300 calories/day. This increases the average daily caloric intake from 2100 calories per day to approximately 2400-2500 calories per day.

An increase in the serving size would be sufficient to satisfy the increased caloric needs. The increased caloric intake should not be made up by fatty foods, but rather with increases in protein, dairy, grains, fruits or vegetables. Eating healthy does not mean eating more, but rather eating right. Pregnancy requires more nutrients besides more calories. Food is divided into fats, protein and carbohydrates plus micronutrients.

- All of the fetal body systems use proteins as the major building block. Good sources of protein are lean meat, fish, milk, beans, chickpeas, corn, spinach, legumes, whole grain and nuts etc.
- Carbohydrates are the major source of energy. Sources are grains, cereals, fruit, vegetables, and milk.
- Fats are important for fetal nervous system development and for some vitamin absorption. Saturated and hydrogenated fats/oils should always be avoided.
- Monounsaturated oils such as olive oil and canola oils are healthier. Omega-3 fatty acids such as docosahexaenoic (DHA) have been linked to higher infant IQs.

A healthy diet during pregnancy is essential for the well-being of both the mother and the developing baby. Traditional foods and practices are often followed during pregnancy to provide the necessary nutrients and support for a healthy pregnancy. Pregnant women need to consume enough calories and nutrients to support the growth and development of the baby and also maintain their health. Additionally, certain foods and practices are considered beneficial during pregnancy, such as consuming ghee (clarified butter) for its high nutritional value, drinking milk for calcium, and eating certain herbs and spices for their medicinal properties.

It is important to note that the nutrients needed during pregnancy may vary based on individual needs and factors such as age, weight, and overall health. However, during pregnancy, it is vital to consume a well-balanced diet that includes a variety of nutrients. Some essential nutrients to have in a pregnancy diet are:

- Folic acid: needed for fetal development and reducing the risk of defects
- Iron: required for the production of hemoglobin, which carries oxygen to the baby
- Protein: necessary for the growth and development of fetal tissues and organs
- Omega-3 fatty acids: critical for brain and eye development
- Vitamin D: vital for the absorption of calcium and bone health
- Vitamin B6: necessary for the development of the baby's nervous system
- Zinc: essential for fetal growth and development, as well as immune system function

Poor maternal nutrition before and during pregnancy is a significant public health concern due to adverse consequences both for mothers and for their children. Maternal malnutrition is associated with increased risk of maternal morbidity, preterm deliveries, and small-for-gestational-age babies. Maternal under nutrition remains a global concern, with 24% of women in South Asia having low body mass index (BMI). Further, 30% of women of reproductive age and 37% of pregnant women are anemic. At national level, over 18.7% of female respondents had low body mass index (BMI) and 52.2% of pregnant women between the ages of 15 to 49 years are considered anemic and in Gujarat state, with 25.2% of women having low BMI and 54.2% of pregnant women, 57.6% of non-pregnant women aged 15 to 49 years are anemic in rural area. Thus, women living in rural areas are much needed knowledge regarding importance of nutrition during pregnancy.

Poor maternal nutrition adversely affects pregnancy and birth outcomes. In many societies, there are dietary restrictions due to misconceptions or food taboos during pregnancy which consequently results in the depletion of important nutrients. Taboos are defined as a social or religious custom prohibiting or restricting a particular practice or forbidding association with a particular person, place, or thing. Every society, whether rural or urban, has own taboos in almost every aspect followed throughout the way of life. taboos related with pregnancy and immediately after child birth are enumerable. A common belief supporting these pregnancy-related taboos is that breaking them may cause abortion or deformity in newborn. One study conducted in rural area of Surendra Nagar, Gujarat where 198 women selected and result showed that 77% women had some kind of misconception associated with pregnancy. Most common food avoided Papaya. About 52.1% women said cause abortion as a reason.

A study among 1,200 women from all districts of Tamil Nadu in India showed that 82% of women avoided papaya during pregnancy. Other study among 180 women from Dhiraj hospital of Gujarat in India showed that 27% of women encountered food taboos and avoided coffee, tea, cabbage, wheat bread, banana, sugarcane and preservative drinks.

Maternal nutrition strategy by (WHO) which focuses primarily on:

- Promoting a healthy diet by increasing the diversity and number of foods consumed
- Promoting adequate weight gain through sufficient and balanced protein and energy intake.
- Promoting consistent and continued use of micronutrient supplements, food supplements or fortified foods

As above data shown that rural mothers don't have enough knowledge regarding diet during pregnancy and according to above statistical data regarding food taboos in different areas express need to study about food taboos in antenatal mothers in selected areas.

Objectives of the studies were
1.   To assess the pre-test level of knowledge score regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers.
2.   To assess the post-test level of knowledge score regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers.
3.   To evaluate the effectiveness of planned teaching programme on knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboos among antenatal Mothers.
4.   To determine association the pre-test level of knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboos with their selected demographic variables.

Methodology for research
Quantitative research approach was used with **Pre experimental (one group pre-test post-test)** research design. The investigator used non-probability convenience sampling technique for selecting 60 samples. The reliability of the Structured Knowledge Questionnaire was determined by test-retest method. With test-retest method, the reliability of the Structured Knowledge Questionnaire was found **0.83** (By Karl Pearson's Correlation Coefficient Formula) which was more than 0.70 and less than 1.0; hence the Structured Knowledge Questionnaire was found to be reliable.

RESULT
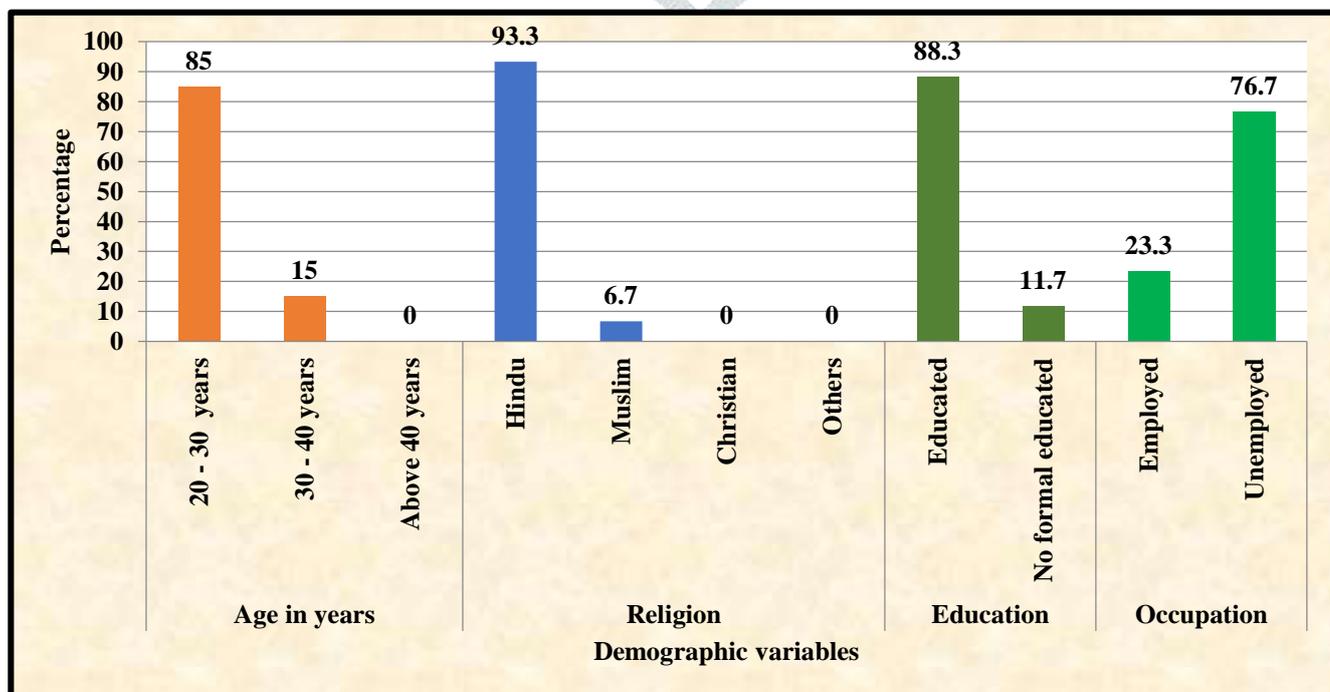## 4.1 ANALYSIS AND INTERPRETATION OF DEMOGRAPHIC VARIABLES OF THE SAMPLES

Table 4.1 Frequency and percentage wise distribution of samples based on demographic variables.

[N=60]

Sr. No	Demographic variables	Variables	Frequency (f)	Percentage (%)
1	Age in years	20 - 30 years	51	85.0
		30 - 40 years	9	15.0
		Above 40 years	0	0
2	Religion	Hindu	56	93.3
		Muslim	4	6.7
		Christian	0	0
		Others	0	0
3	Education	Educated	53	88.3
		No formal educated	7	11.7
4	Occupation	Employed	14	23.3
		Unemployed	46	76.7

5	Diet	Vegetarian	51	85.0
		Non-vegetarian	0	0
		Mixed	9	15
6	Type of family	Nuclear	24	40.0
		Joint	36	60.0
		Extended	0	0
7	Gravida	Primigravida	34	56.7
		Multigravida	26	43.3
8	Gestational age of mother	1st trimester	25	41.7
		2nd trimester	19	31.7
		3rd trimester	16	26.7

Table 4.1: Presents information about the study participants across various variables. The majority of the participants (85.0%) were between 20-30 years of age, while 15.0% were in the 30-40 years age group, with no participants above 40 years. Regarding religion, most participants were Hindu (93.3%), followed by Muslims (6.7%), with no representation from Christians or other religions. In terms of education, 88.3% had received formal education, whereas 11.7% had no formal education.

Regarding occupation, 76.7% of the participants were unemployed, while 23.3% were employed. Dietary habits showed that 85.0% were vegetarian, and 15.0% followed a mixed diet, with no participants being strictly non-vegetarian. Family structure analysis indicated that 60.0% belonged to joint families, whereas 40.0% were from nuclear families, with no extended families represented.

In terms of gravida status, 56.7% were primigravida, while 43.3% were multigravida. The distribution of participants based on gestational age revealed that 41.7% were in their first trimester, 31.7% in the second trimester, and 26.7% in the third trimester. These findings provide an overview of the demographic characteristics of the participants in the study.
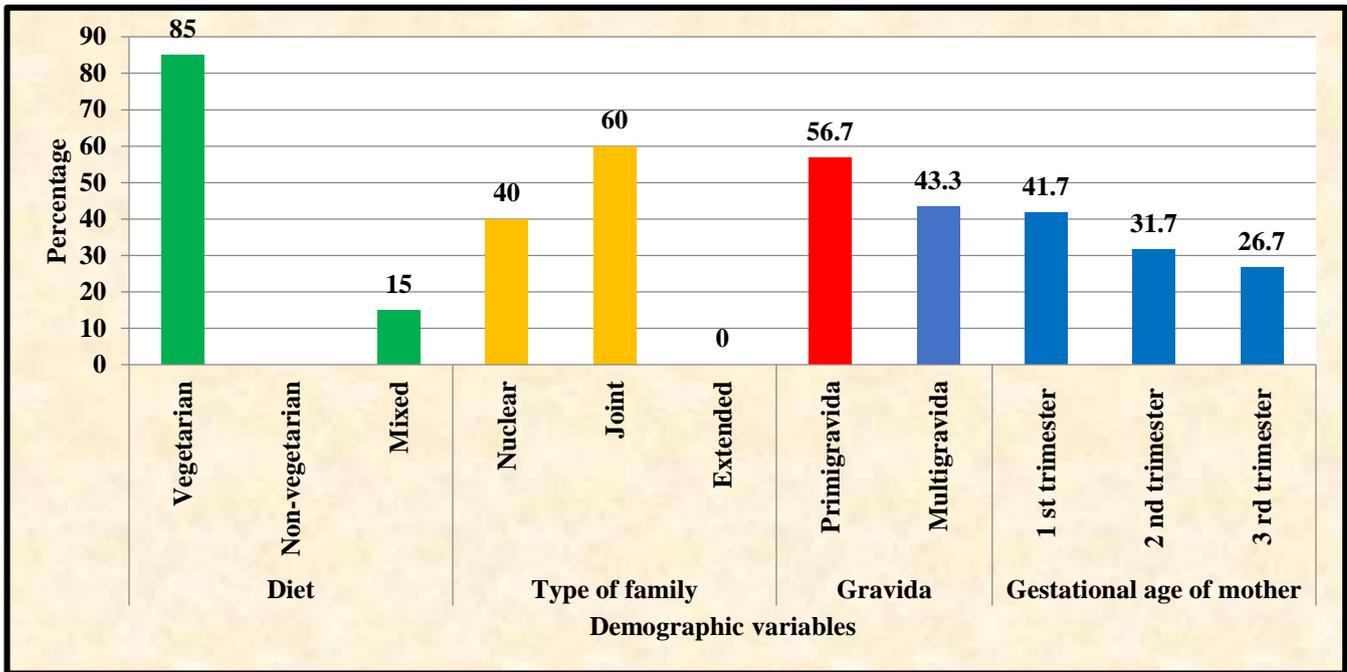
Figure 5: Bar graph showing Percentage wise distribution of samples based on demographic variables

4.2 ANALYSIS AND INTERPRETATION OF DATA RELATED TO PRE-TEST AND POST-TEST KNOWLEDGE SCORE OF THE SAMPLES

Table-4.2.1 Frequency and percentage distribution of pretest and posttest level of Knowledge regarding Importance of nutrition in pregnancy and the ill effect of food taboos, among antenatal mother.

[N=60]

Level of knowledge	Score	Pre-test		Post-test	
		frequency	Percentage (%)	frequency	Percentage (%)
Poor Knowledge	0-7	12	20.0	0	0
Average knowledge	8-14	40	66.7	12	20.0
Good knowledge	15-30	8	13.3	48	80.0
Total		60	100%	60	100%

Table 4.2.1 Shows that in pretest, majority of the participants, 40 (66.7%) samples had average knowledge level, 12 20%) samples had poor knowledge level and only 8 (13.3%) had good knowledge level. Whereas in post-test, majority 48 (80%) samples had good knowledge level, 12 (20%) samples had average knowledge level and none of the samples had poor knowledge level. This shows the shifting of knowledge from poor and average to good in post-test.
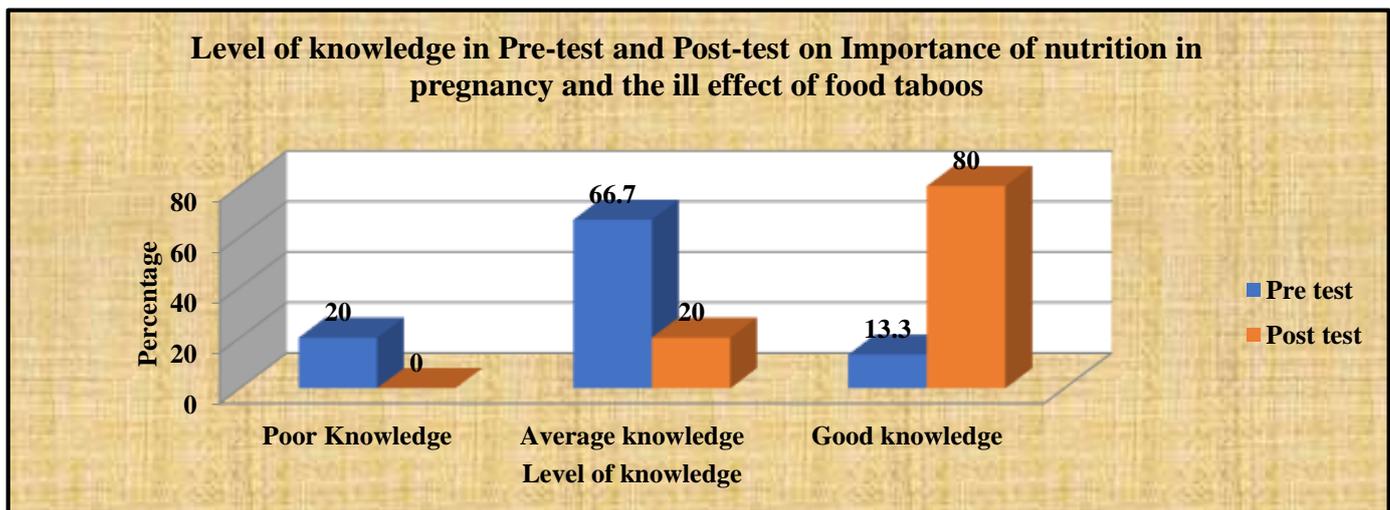
Figure 6: Bar graph showing the Percentage wise distribution of Sample according to the level of knowledge in Pre-test and Post-test on Importance of nutrition in pregnancy and the ill effect of food taboos

Table 4.2.2 Area wise comparison of knowledge score in pre-test and post test

[N=60]

Areas	Max score	Pre test			Post test			Mean difference	% of knowledge gain
		Mean	Mean%	SD	Mean	Mean%	SD		
Introduction & Definition of nutrition	2	0.78	39	0.77	1.4	70	0.53	0.62	31
Components of Nutrition	4	1.38	34.5	0.99	2.42	60.5	0.72	1.04	26
Increased nutritional requirement during pregnancy	14	5.18	37	2.00	8.67	61.93	1.65	3.49	24.93
Introduction & Definition of food taboo	2	0.73	36.5	0.68	1.57	78.5	0.49	0.84	42
Local Dietary habits and nutritional problems	6	2.50	41.67	1.14	3.83	63.83	1.09	1.33	22.17
Adverse effect of food taboo	2	0.45	22.5	0.62	1.11	55.5	0.64	0.66	33
Over all	**30**	**11.23**	**37.43**	**3.27**	**19**	**63.33**	**3.41**	**7.77**	**25.9**

Table 4.2.2 presents an area-wise comparison of knowledge scores in the pre-test and post-test among participants. The overall mean knowledge score in the pre-test was 11.23 (37.43%), which improved to 19 (63.33%) in the post-test, showing a mean difference of 7.77 and a knowledge gain of 25.9%.

In the "Introduction & Definition of Nutrition" section, the mean pre-test score was 0.78 (39%), which increased to 1.4 (70%) in the post-test, indicating a 31% knowledge gain. For "Components of Nutrition," the pre-test mean was 1.38 (34.5%), which improved to 2.42 (60.5%) post-test, with a knowledge gain of 26%.

The "Increased Nutritional Requirement During Pregnancy" area showed a significant improvement, with the pre-test mean score of 5.18 (37%) increasing to 8.67 (61.93%) post-test, resulting in a 24.93% knowledge gain. Similarly, in the "Introduction & Definition of Food Taboo" section, the pre-test mean of 0.73 (36.5%) rose to 1.57 (78.5%), reflecting a 42% knowledge gain. Regarding "Local Dietary Habits and Nutritional Problems," the mean score increased from 2.50 (41.67%) in the pre-test to 3.83 (63.83%) in the post-test, showing a 22.17% knowledge gain. The "Adverse Effect of Food Taboo" section showed improvement, with the mean score rising from 0.45 (22.5%) to 1.11 (55.5%), indicating a knowledge gain of 33%. Overall, the data suggests a significant improvement in knowledge scores across all areas after the intervention, demonstrating the effectiveness of the educational program.
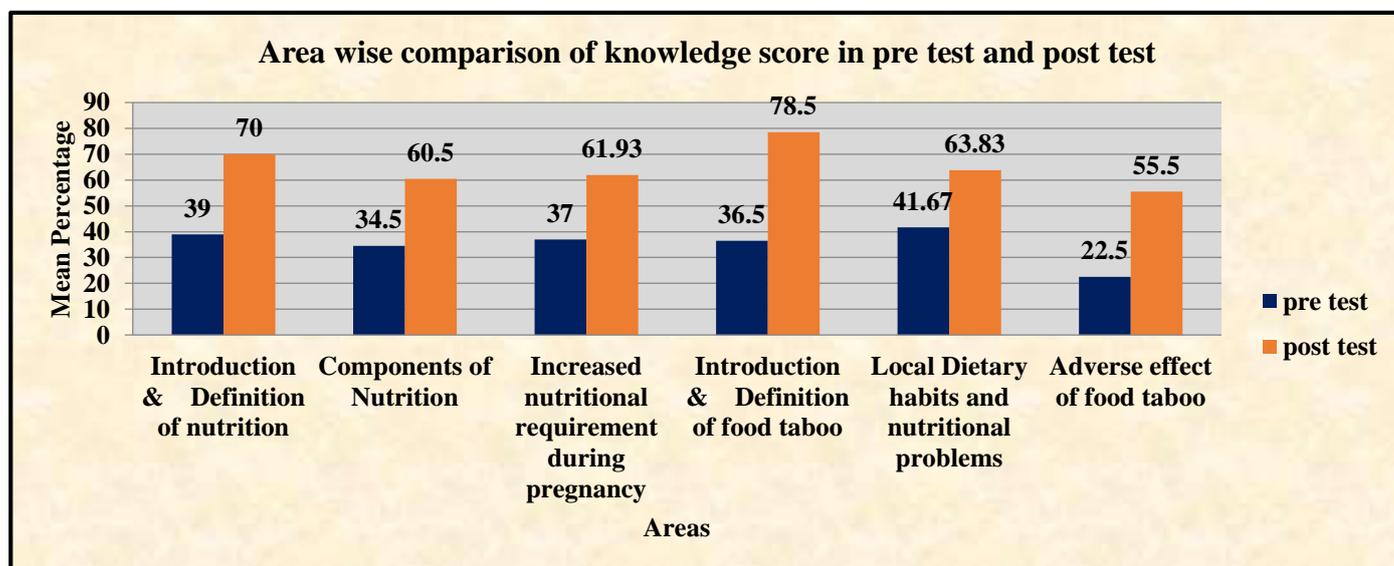

Area wise comparison of knowledge score in pre test and post test

Figure 7: Bar graph showing Area wise comparison of knowledge score in pre-test and post-test

4.3 ANALYSIS AND INTERPRETATION OF DATA RELATED EFFECTIVENESS OF PLANNED TEACHING PROGRAM REGARDING IMPORTANCE OF NUTRITION IN PREGNANCY AND THE ILL EFFECT OF FOOD TABOOS AMONG ANTENATAL MOTHER

Table 4.3 Effectiveness of planned teaching program on knowledge regarding Importance of nutrition in pregnancy and the ill effect of food taboos among antenatal mother

[N=60]

Knowledge score	Mean	Mean difference	SE	SD	Df	Calculated Paired 't' test value	Table value	p value
Pre test	11.23	7.77	0.271	3.27	59	28.618	2.000	<0.05
Post test	19			3.41				

Paired t test was used to compare the pretest and post-test knowledge of antenatal mothers   regarding Importance of nutrition in pregnancy and the ill effect of food taboos.

Table 4.3 Shows the comparison of pre-test and post-test knowledge scores. The pre-test mean score was 11.23, while the post-test mean score was 19. The mean difference between pre and post-test was 7.77, representing a 25.9% increase. The standard deviation (SD) for the pre-test was 3.27, and for the post-test, it's 3.41. The paired 't' test value was 28.618 and the table value was 2.000 with a p-value less than 0.05, indicating a statistically significant improvement from pre to post-test. The degrees of freedom (df) for the analysis were 59. This suggests a substantial increase in knowledge levels after the intervention. Hence the null hypothesis H_{01} was rejected and H_1 is accepted. This indicates that the structured teaching program was effective in increasing the knowledge of antenatal mothers regarding Importance of nutrition in pregnancy and the ill effect of food taboos.
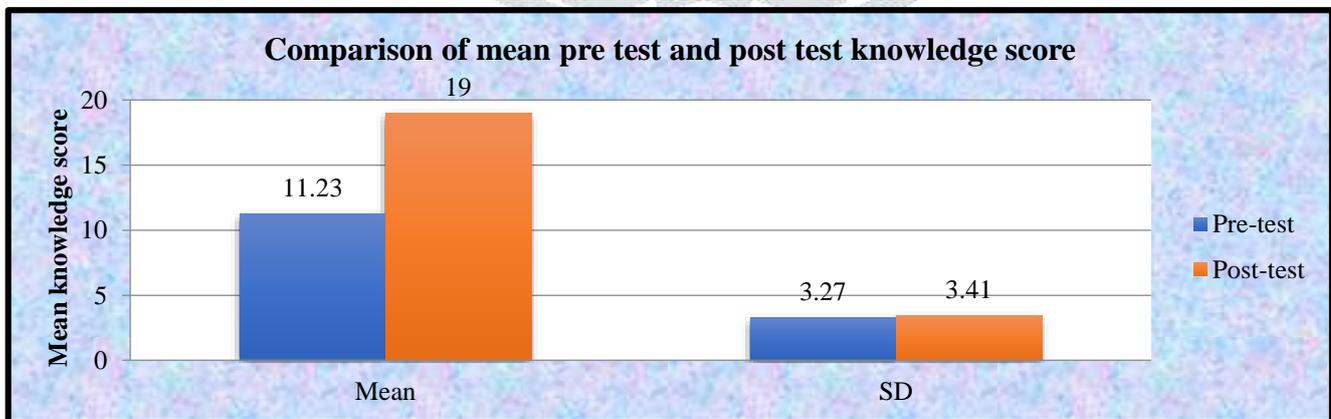

Figure 8: Bar graph showing Comparison of mean and standard deviation of pre rest and post-test knowledge score.

4.4 ANALYSIS AND INTERPRETATION OF DATA RELATED ASSOCIATION BETWEEN PRE-TEST KNOWLEDGE SCORE WITH SELECTED DEMOGRAPHIC VARIABLE

Sr. No.	Demographic Variables	Poor	Average	Good	(f)	X^2 Value	Table Value	df	Remarks
1.	Age in years					0.654	5.991	2	NS
	20-30 years	11	33	7	51				
	31- 40 years	1	7	1	9				
2.	Religion					1.339	5.991	2	NS
	Hindu	12	37	7	56				
	Muslim	0	3	1	4				
3.	Education of mother					1.617	5.991	2	NS
	Educated	11	36	6	53				
	No formal education	1	4	2	7				
4.	Occupation					**8.618**	**5.991**	**2**	**S**
	Employed	1	5.991	5	14				
	Unemployed	11	5.991	3	46				

5.	**Diet**					0.850	5.991	2	NS
	Vegetarian	10	35	6	51				
	Mixed	2	5	2	9				
6.	**Type of family**					0.625	5.991	2	NS
	Nuclear	6	15	3	24				
	Joint	6	25	5	36				
7.	**Gravida**					**7.398**	**5.991**	**2**	**S**
	Primi gravida	8	25	1	34				
	Multigravida	4	15	7	26				
8.	**Gestational Age**					3.163	9.488	4	NS
	First trimester	7	15	3	25				
	Second trimester	4	12	3	19				
	Third trimester	1	13	2	16				

S: Significant, NS: Non-significant at 0.05 level of significance

Table 4.4 shows the association of the pre-test knowledge scores of the samples with demographic variables such as Age, Religion, Education, Occupation, Diet, Type of family, Gravida, Gestational age.

Regarding Age group with the pre-test knowledge scores the calculated value of chi-square 0.654 and it was less than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, age had not significant association with the pre-test knowledge score of the sample.

Regarding Religion of the sample with the pre-test knowledge scores the calculated value of chi-square 1.339 and it was less than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Religion had not significant association with the pre-test knowledge score of the sample.

Regarding education of the mother with the pre-test knowledge scores the calculated value of chi-square 1.617 and it was less than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Education of mother had not significant association with the pre-test knowledge score of the sample.

Regarding Occupation of the sample group with the pre-test knowledge scores the calculated value of chi-square 8.618 and it was more than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Occupation had significant association with the pre-test knowledge score of the sample.

Regarding Diet with the pre-test knowledge scores the calculated value of chi-square 0.850 and it was less than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Diet had not significant association with the pre-test knowledge score of the sample.

Regarding Type of family with the pre-test knowledge scores the calculated value of chi-square 0.625 and it was less than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Type of family had not significant association with the pre-test knowledge score of the sample.

Regarding Gravida with the pre-test knowledge scores the calculated value of chi-square 7.398 and it was more than table value 5.991 of chi-square at 2 degree of freedom and 0.05 significant. Hence, Gravida had significant association with the pre-test knowledge score of the sample.

Regarding Gestational age with the pre-test knowledge scores the calculated value of chi-square 3.163 and it was less than table value 9.488 of chi-square at 4 degree of freedom and 0.05 significant. Hence, Gestational age had not significant association with the pre-test knowledge score of the sample.

This indicate that the demographic variables "**occupation (X^2=8.618, df= 2) and Gravida (X^2=7.398, df= 4)"** has the significant association between pre-test knowledge among samples. So, we accept the hypothesis H_2 for above mentioned demographic variables.

DISCUSSION

The present study was conducted to the effect of planned teaching programme regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers selected rural areas of Ahmedabad, Gujarat. The researcher has collected the samples by the Non-Probability Convenience Sampling Technique. The researcher has collected the data by using a structured knowledge questionnaire to evaluate the knowledge of importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers.

The researcher has used a pre-experimental, one group pre-test post-test design. The tool consists of demographic variables, structured knowledge questionnaire to evaluate the effect planned teaching programme regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers in selected rural areas of Ahmedabad, Gujarat. The main study was conducted in the month of January 2025, on 60 antenatal mothers of selected rural areas of Ahmedabad, who met the inclusion criteria and were selected by non-Probability convenience sampling technique. After the selection of samples, the level of knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers was assessed by using the structured knowledge questionnaire.

The result of the study was majority of the samples gain in knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboo after administration of Planned Teaching Programme

CONCLUSION

The following conclusions could be drawn from the present study findings:

Analysis and interpretation of data collected from 60 samples, before and after administration of a Planned Teaching Programme in terms of knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers in selected rural areas of Ahmedabad, Gujarat. Descriptive and inferential statistical methods were used to analyze the data. The mean post-test knowledge score was higher than the mean pre-test knowledge score. The significance of the difference between pre-test and post-test scores was statistically test using 't' test and it was found significant.

Hence, it was proved that the Planned Teaching Programme was effective in increasing knowledge regarding importance of nutrition in pregnancy and the ill effect of food taboo among antenatal mothers in selected rural areas of Ahmedabad, Gujarat.

ETHICAL DECLARATION

Ethical Approval obtained formal permission from the Jilla panchayat. A consent from form has been obtained from participants.

CONSENT FOR PUBLICATION

Consent for publication given by author and Co-author.

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