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RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING MANAGEMENT OF IRON DEFICIENCY ANAEMIA AMONG ANTENATAL MOTHERS IN GANGA NAGAR MATERNITY HOSPITAL AT BANGALORE

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Abstract

Background: Anaemia is the commonest haematological disorder that may occur in pregnancy. Iron deficiency is the most prevalent single deficiency state on a worldwide basis. It is important economically because it diminishes the capability of individuals who are affected to perform physical labour, and it diminishes both growth and learning in children

Aim: Aim of the study was to assess the effectiveness of Structured Teaching Programme On Knowledge Regarding Management Of Iron Deficiency Anaemia Among Antenatal Mothers.

Materials and Methods: A quasi experimental pre-test, post-test design was used. A Sample of 60 antenatal mothers were selected randomly with the use of a probability simple random sampling technique. Self structured knowledge questionnaire was used to collect the data.

Results : Inadequate knowledge was among 63.3% subjects at pre intervention which decreased to 30%. However, average knowledge was in 28.3% at pre intervention which increased to 58.3%. Adequate knowledge was in 8.3% at pre intervention which increased to 11.7% at post intervention. The mean and standard deviation in the pre and post knowledge on practice scores among antenatal mother's total pre test mean and post test mean was 18.33 and 26.61 respectively significant at $P = 0.001$ level. There was a significant difference in level of knowledge from pre to post test.

Conclusion : Having adequate knowledge regarding iron deficiency anaemia can help to prevent complications. Nursing professionals can play vital role in enhancement of knowledge of antenatal mothers regarding iron deficiency anaemia.

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Introduction:-

Anaemia is one of the most widespread nutritional deficiency diseases. It affects all age groups and both sexes in most states of India. Profoundly affected group is pregnant women (82% to 98%) and pregnant in the child bearing age (74% to 99%). Pregnant women are more vulnerable to anaemia because their need of iron are greater than those of adult men. Women having closely spaced pregnancies are particularly at risk.¹

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Nutritional anaemia is one of the India's major public health problems. The prevalence of anaemia ranges from 33% to 89 % among pregnant women and is more than 60 % among adolescent girls. Under anaemia prevention and control program of government of India, iron and folic acid tablets are distributed to pregnant women but no such program exist for adolescent girls.²

Iron deficiency anaemia is an advanced stage of iron deficiency. When the body has sufficient iron to meet its needs (functional iron), the remain is stored for later use in the bone marrow, liver, and spleen as part of a finely tuned system of human iron metabolism. Iron deficiency ranges from iron depletion, which yields little physiological damage, to iron deficiency anaemia, which can affect the function of numerous organ systems. Iron depletion causes the amount of stored iron to be reduced, but has no effect on the functional iron. However, a person with no stored iron has no reserves to use if the body requires more iron. In essence, the amount of iron absorbed and stored by the body is not adequate for growth and development or to replace the amount lost.³

The highest prevalence rate of anaemia is in the reproductive age group. It is estimated that two third of pregnant women and half of the non pregnant women in South and Sub-Saharan Africa were anaemic. Worldwide, the leading cause of anaemia is iron deficiency anaemia. Prevalence rates are higher in developing countries than in developed countries.⁴

Among different forms of anaemia, iron deficiency anaemia is a problem of serious public health importance. Iron deficiency affects about 2 billion people and is more prevalent in developing than in the industrialised world. Generally, the incidence is high among preschool children, adolescent and women in child bearing age. Young children and pregnant woman are most affected with the estimated global prevalence of 43 % and 51 % respectively.⁵

Recent estimate find iron deficiency anaemia is responsible for the fifth of early neonatal mortality and a tenth of maternal mortality. It also reduces cognitive development and work performance. Thus, about 800,000 deaths and 2 % of global disability – adjusted life years have been attributed to iron deficiency.⁶

As reported in the health information of India (1994) deaths due to anaemia among females is 5 % in the age group 5-14 years and 6 % in 15-24 years age group. Anaemia ranks to the seventh position among the causes of death. Anaemia “the silent killer” leads to 30 % of maternal deaths during child birth.⁷

In developing countries prevalent rates in pregnant women is commonly in the range of 40 % to 60 % and 20 % to 40 % among other women according to standing laid down by WHO, anaemia in pregnancy is present when the haemoglobin concentration, socio-economic deprivation in the developing countries, the level is brought down to 10 gm/ 100 ml. Adopting this lower level, the incidence of anaemia in pregnancy ranges widely from 40-80 in tropics compared to 10-20 in developed countries. There is worldwide concern that woman of childbearing age cannot meet the increased iron needs during pregnancy. In the industrial world however, iron supplementation during pregnancy is a controversial issue. On the one hand, selective iron supplementation after iron status assessment has been recommended but not all women need iron, and compliance is likely to be better when an individual's need is recognised. On the other hand, routine iron supplementation to all women in the second half of the pregnancy has been advocated in order to reach all women without the difficulties associated with assessment of iron status. Pregnant woman could possibly could meet their iron needs by increasing iron absorption efficiency. Although in that case, dietary counselling may prevent anaemia during pregnancy, supplementation with iron will be necessary to cure iron deficiency anaemia⁸

During maternity posting the investigator assessed that most of the antenatal women were malnourished, anaemic and having lack of awareness regarding daily dietary requirements. All the above said reason is not true scientifically and shows that lack of current information and no proper health education (method and media) regarding iron and folic acid supplementation and diet. The importing of knowledge about iron and folic acid necessity is an urgent and continuously needed by the mothers of respective area. The investigator was interested in educating the mothers regarding management of iron deficiency anaemia.

Objectives:-

1. To assess the level of knowledge regarding iron deficiency anaemia among antenatal mothers.

2. To determine effectiveness of structure teaching programme on knowledge regarding iron deficiency anaemia among antenatal mothers.
3. To find out association between pre-test and post-test levels of knowledge of antenatal mothers regarding iron deficiency anaemia with selected demographic variables.

Materials and Methods:-

Quantitative evaluative approach was used. A quasi-experimental one group pretest -post test design was chosen for this study. Sample of 60 antenatal mothers were selected. Probability random sampling technique was used.

Data collection procedure:

The study was conducted after obtained permission from the medical officer, Ganga Nagar hospital. After obtained consent from the sample of antenatal mothers who, were selected by using probability random sampling technique and who met sample criteria. Self structured knowledge questionnaire regarding iron deficiency anaemia was used to assess the pre test level of knowledge and knowledge on practice followed by STP about iron deficiency anaemia was administered. After 7 days post test level of knowledge was assessed by using same self administered questionnaire which was used in pre test. The investigator was very much pleased to observe the excellent response while administering the post test.

Results:-

Description of sample characteristics:

Table 1. Revealed that Majority of respondents (36%) were belong to the age group 20-25 and least (15%) of respondents belong to upto 20 years. Majority of the respondents 47% were Hindu and 3 % of the respondents belongs to other religion. Maximum respondents 77% were home makers and 5% of respondents were government employee. Maximum 40% were graduate and 12% had primary education. Majority of respondents 36% income was between Rs. 5001-10000. And 12 % were Rs. 15000 and above. 43% respondents belong to joint family and 19% respondents belong to extended family. Most of the respondents 45% were vegetarian and 23% non-vegetarian. Maximum 72% were urban and 28% of respondents were from rural background. Maximum 40% were primigravida, 35 % were second gravida, 18 % were third gravida and 7 % were multigravida. Maximum 45% had no children and least 7 % of the respondents had three children. Maximum 47% had information from friends/neighbors and relatives and minimum 5 % had information from health personnel.

Pre-test post-test mean knowledge on iron deficiency anaemia:

Table 2. There was a significant increase knowledge level after S.T.P. in all the aspect. As regards to general aspects related to concept about anaemia, risk factors, sign & symptoms, diagnosis, treatment, dietary management, complication and prevention. The pre-test score was 8.33 % which increased to 51.67 % with respect to general concepts of anaemia. There was tremendous increase in scores under section risk factors in pre-test score was 11.67% which increased to 43.33 % and in signs and symptoms, pre-test score was 16.67% which increased 48.33. In diagnosis of anaemia 13.33 % which increased to 66.67 % and in treatment of anaemia 10 % in the pre test which increased to 40 % in post test. The pre-test score was 15% which increased to 43.33% with respect to dietary management of anaemia. The pre-test score was 8.33 % which increased to 50% with respect to complications of anaemia. The pre-test score was 10% which increased to 48.33% with respect to prevention of anaemia. The paired 't' test was statistically significant at 0.0001 % level.

Pre-test and post-test knowledge level of respondents on iron deficiency anaemia

In pre-test majority of respondents 61.67% were having inadequate knowledge followed by 28.33% moderate knowledge and 10 % of the respondents had adequate knowledge. But after the structured teaching programme, knowledge score was increased. In post-test most of the respondents 61.67% were having moderate knowledge followed by 5% inadequate knowledge and 33.3% were having adequate knowledge.

Evaluation of effectiveness of the S.T.P. regarding iron deficiency anaemia.

Data in table shows that the Mean post-test knowledge 26.61 was higher than Mean pre-test knowledge score 18.33 the computed 't' value 16.2 showed that there was significant difference between the pre-test and post-test mean knowledge scores ($t = 16.2$; $P < 0.001$) Hence, hypothesis H01 was accepted. This indicates that the S.T.P increasing the knowledge score of antenatal mothers.

Association between the Knowledge level of Respondents on iron deficiency anaemia.

Table 3. The results showed that there was significant Associations between knowledge score regarding iron deficiency anaemia with age ($\chi^2 = 13.412$), sex ($\chi^2 = 7.126$), occupation ($\chi^2 = 8.524$), income of the family ($\chi^2 = 39.76$) where chi square value is more than tabulated value. In type of family ($\chi^2 = 8.815$), religion ($\chi^2 = 1.838$ table value 12.592) and educational status ($\chi^2 = 12.482$ table value 15.507) df-8 chi square value is less than table value which showed no significant association.

Discussion:-

This study suggested that there was significant difference in level of knowledge regarding iron deficiency anemia in antenatal mothers. The knowledge level regarding iron deficiency anemia increased after structured teaching programme. The study also showed significant association of certain sample characteristics.

Findings of the study are supported by the study conducted by Abraham. A study to assess the effectiveness of Structured Teaching Programme on Knowledge Regarding Iron Deficiency Anaemia and its prevention among the primi antenatal Mothers. The result showed that antenatal mothers who are attending antenatal clinic in Shridevi hospitals are not having adequate knowledge on iron deficiency anemia.

Another study supported this study by a study conducted by Raksha M et al on knowledge, attitude and practices of antenatal women regarding nutrition. The study showed that assessments of knowledge and practice and health education are essential steps towards prevention of anaemia in pregnancy. Educating antenatal women about the importance of diet and implementing this into practice will help in the prevention of anaemia.

Nursing Implications:

The findings of the study will be useful in the field of nursing education, nursing practice, nursing administration and nursing research.

Nursing Education:

This study emphasizes on the enhancement of knowledge regarding iron deficiency anaemia. In order to prevent the maternal and neo-natal complications due to anaemia, in the developing countries, they should follow the idea that prevention is better than cure in the health services by improving their knowledge and quality of education.

As a nurse educator, there are abundant opportunities for nursing professionals to educate the ante natal mothers regarding iron deficiency anaemia. The study emphasizes the significance of information related to prevention practice services in hospitals. Various educational programs can be held by nurses, educationalists, health workers to bring in awareness regarding health, pregnancy and child birth.

Nursing practice:

1. Nurses are the key personnel of health team, who play a major role in health promotion and maintenance. Nursing is a practicing profession. So the investigation generally integrates findings into practice.
2. Nursing professionals working in the hospitals as well as in the community can understand the importance of health education regarding management of iron deficiency anaemia.
3. Nursing professionals can play a vital role in enhancement of knowledge of antenatal mothers regarding iron deficiency anaemia.
4. The nursing professionals can plan teaching on the aspect of iron deficiency anaemia. Different audio-visual aids can be used in imparting knowledge. By applying proper nursing practice can prevent iron deficiency anaemia and save the life of human being.

Nursing administration:

Having adequate knowledge regarding iron deficiency anaemia can help to prevent complications. Nurse administrator should arrange continuing educational programme for nursing personnel regarding iron deficiency anaemia. Nurse administrator should prepare adequate learning material for giving health education. The administrator should emphasize the need for implementing structured educational strategies for improving the knowledge of the antenatal mothers.

Nursing research:

Study reveals that there is a deficit in the knowledge of the antenatal mothers regarding iron deficiency anaemia and there is a need for extended nursing research into different aspects of iron deficiency anaemia. Nurses should come forward to take up unsolved questions in the field of iron deficiency anaemia and its prevention to carry out studies and publish them for the benefit of women, patient, public and nursing fraternity. The public and private agency also should encourage the research in this field through materials and funds.

Table- 1:- Distribution Of Respondents According To Socio Demographic Variables **n = 60.**

Sl. No.	Socio- demographic variables	Frequency	% of respondents
1	Age of years		
a	Below 20 years	09	15 %
b	20-25 years	22	36 %
c	26-30 years	18	30 %
d	above 30 years	11	19 %
2	Religion		
A	Hindu	28	47 %
B	Muslim	18	30 %
C	Christian	12	20 %
D	Others	02	3 %
3	Occupation of self		
a	Homemaker	46	77 %
b	Government employee	3	5 %
c	Private Employee	11	19 %
4	Education status		
a	Upto Primary Education	07	12 %
b	Secondary Education	16	27 %
c	Higher Secondary Education	24	40 %
d	Graduation and above	13	21 %
5	Income of the family		
a	Below Rs.5000	13	22 %
b	Rs.5001-10000	22	36 %
c	Rs.10001 – 15000	18	30 %
d	Rs. 15000 and above	07	12 %
6	Type of family		
a	Nuclear Family	23	38 %
b	Joint Family	26	43 %
c	Extended family	11	19 %
7	Type of Diet		
a	Vegetarian	27	45 %
b	Non-Vegetarian	14	23 %
c	Mixed	19	32 %
8	Place of Residence		
a	Rural	17	28 %
b	Urban	43	72 %
9	Number of Pregnancy		
A	One	24	40 %
B	Two	21	35 %
C	Three	11	18 %
D	four and above	04	7 %

10	Number of Children		
A	None	27	45%
B	One	18	30 %
C	Two	11	18 %
D	Three	04	7 %
11	Source of information		
A	Newspaper/magazine/books	11	18 %
B	Electronic sources	18	30 %
C	Friends/neighbours/relatives	28	47 %
D	Health personnel	03	5 %

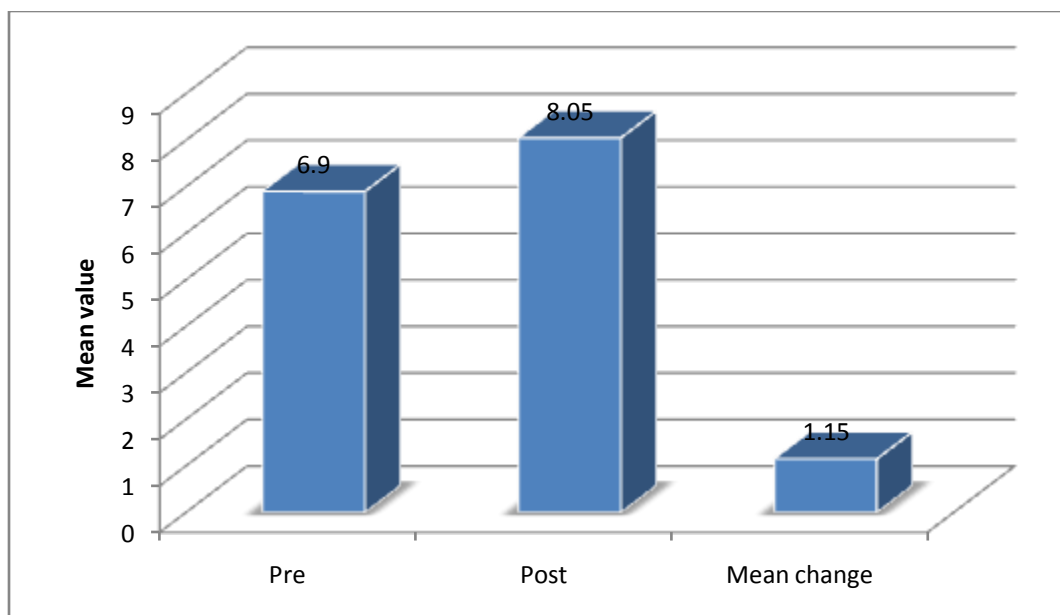


Fig. 1:- Comparison of Knowledge regarding general concepts about anaemia scores from Pre to Post intervention.

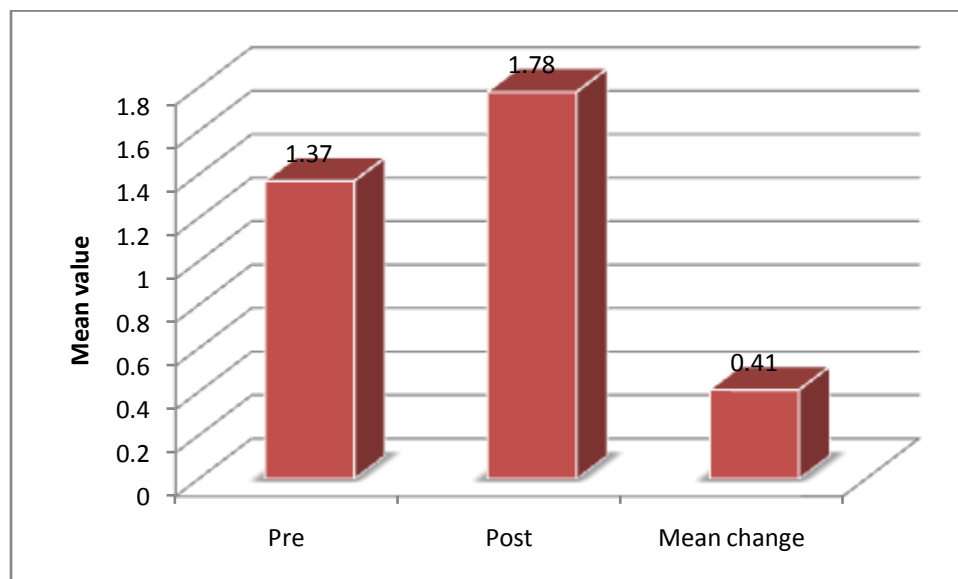


Fig. 2:- Comparison of Knowledge regarding risk factors of anaemia scores from Pre to Post intervention.

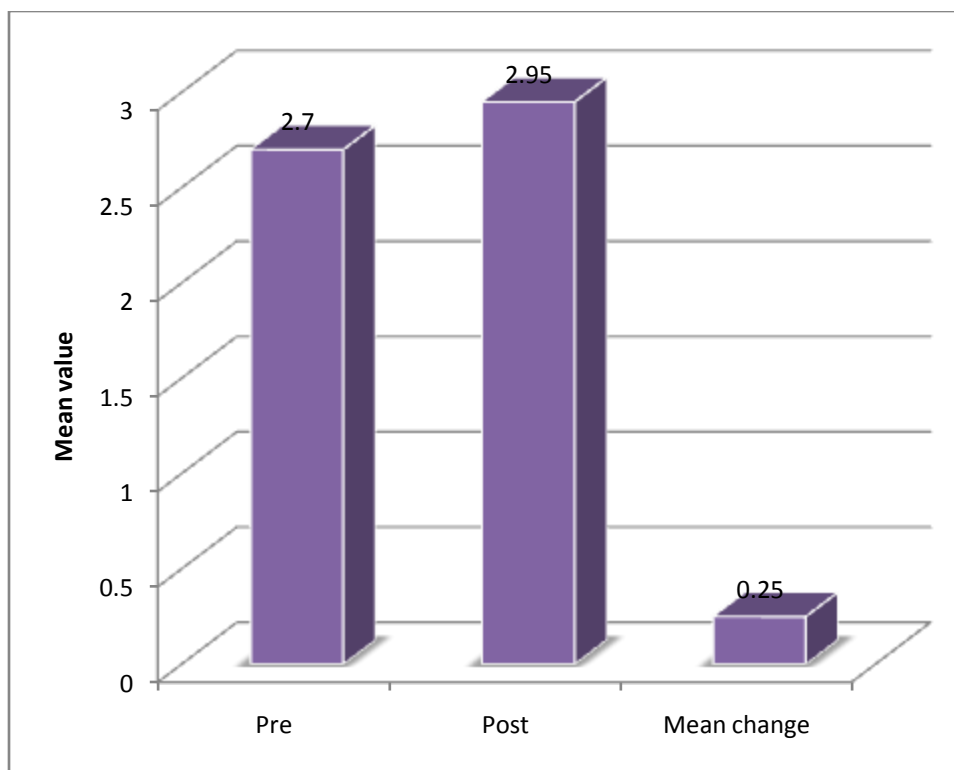


Fig. 3:- Comparison of Knowledge regarding signs and symptoms of anaemia from Pre to Post intervention.

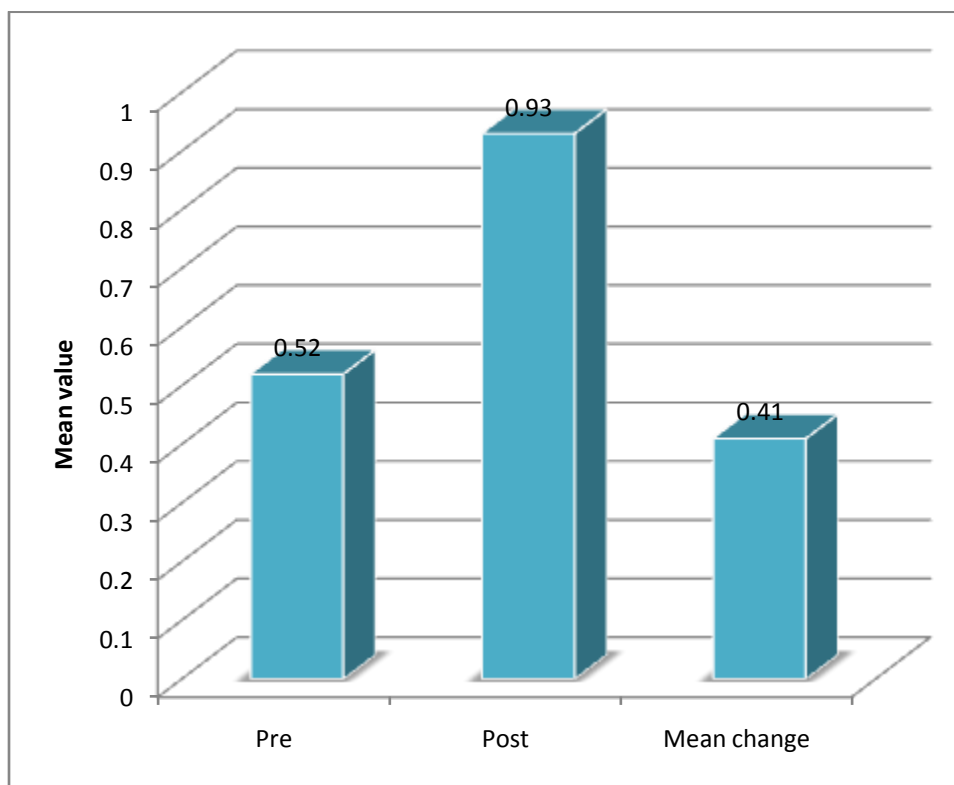


Fig. 4:- Comparison of Knowledge regarding diagnosis of anaemia from Pre to Post intervention.

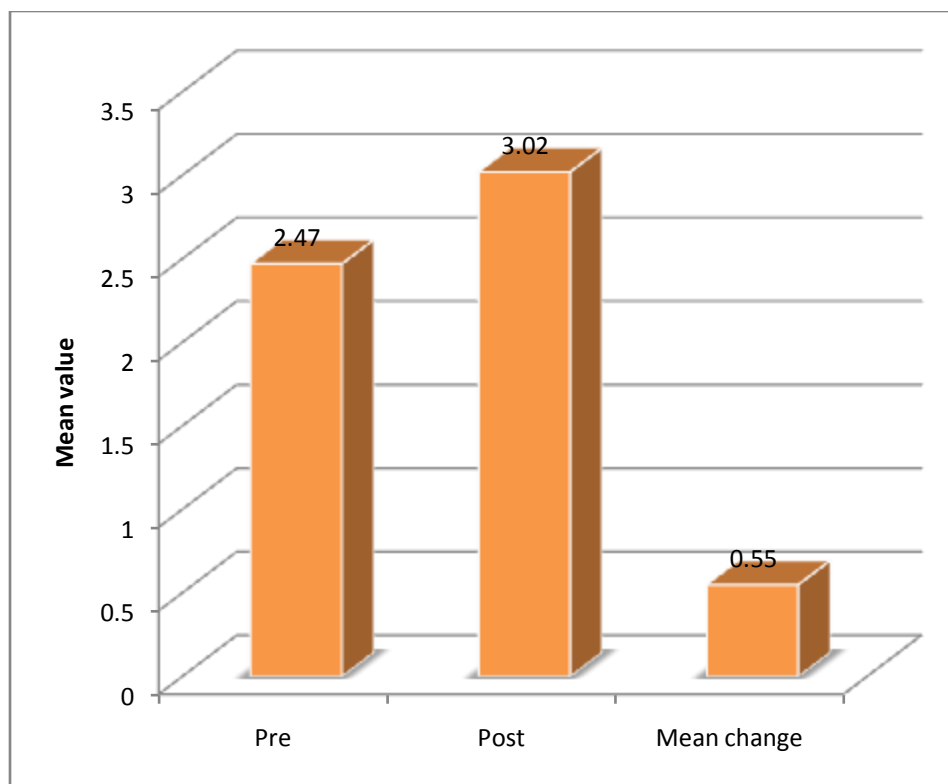


Fig. 5:- Comparison of Knowledge regarding treatment of anaemia from Pre to Post intervention.

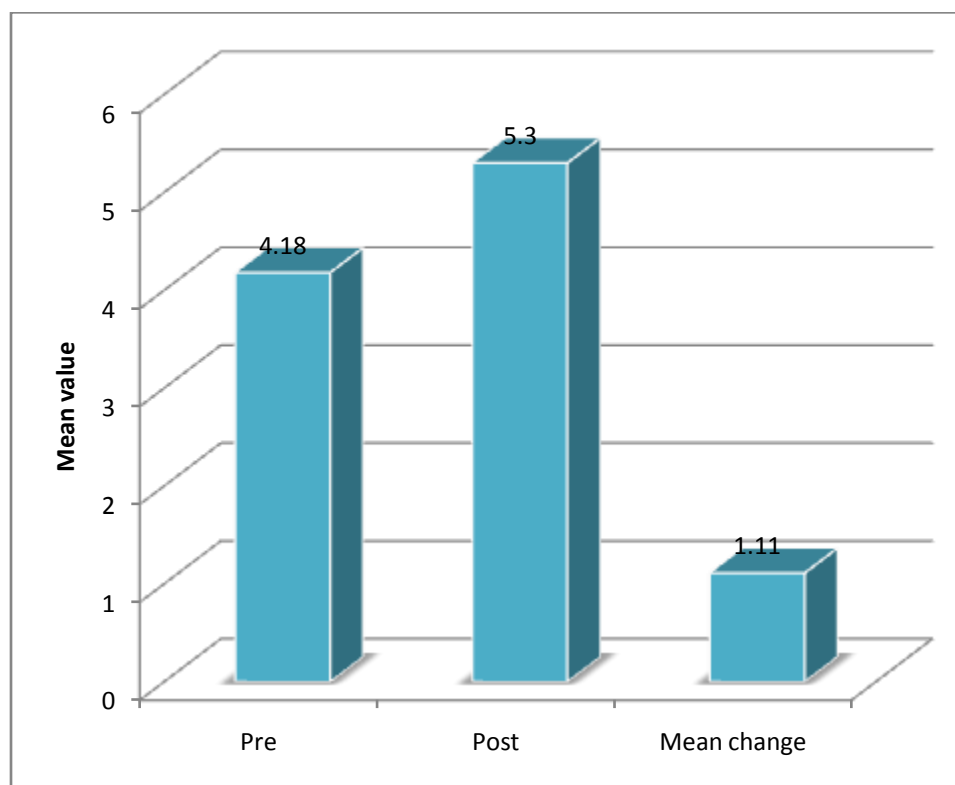


Fig. 6:- Comparison of Knowledge regarding dietary management of anaemia from Pre to Post intervention.

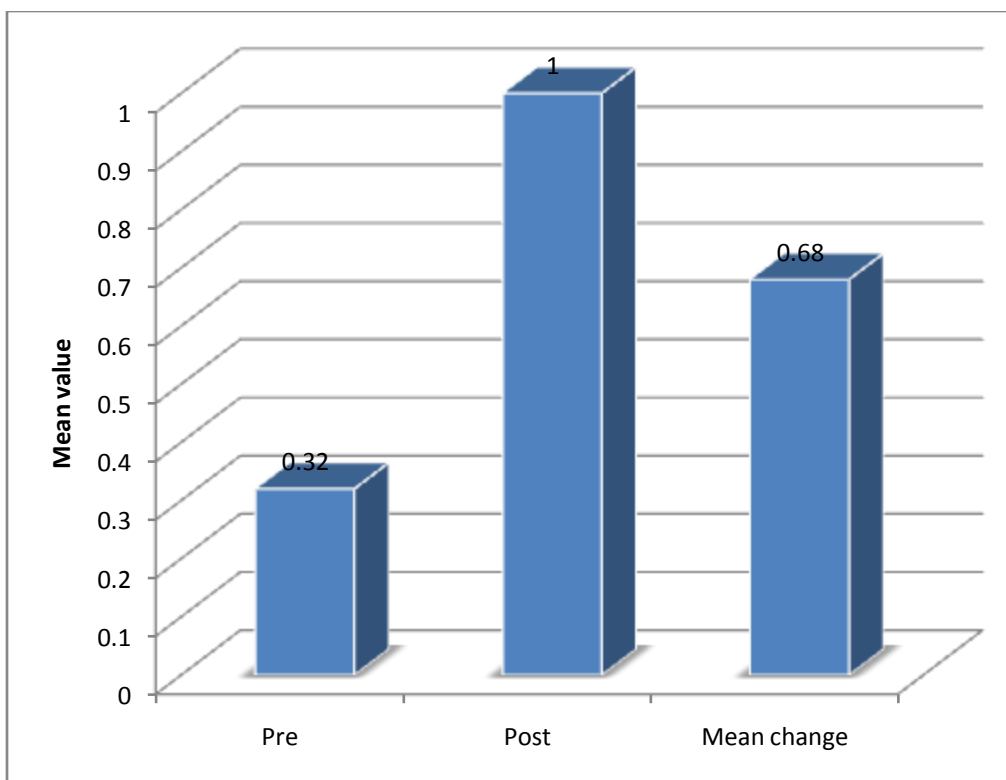


Fig. 7:- Comparison of Knowledge regarding complications of anaemia from Pre to Post intervention.

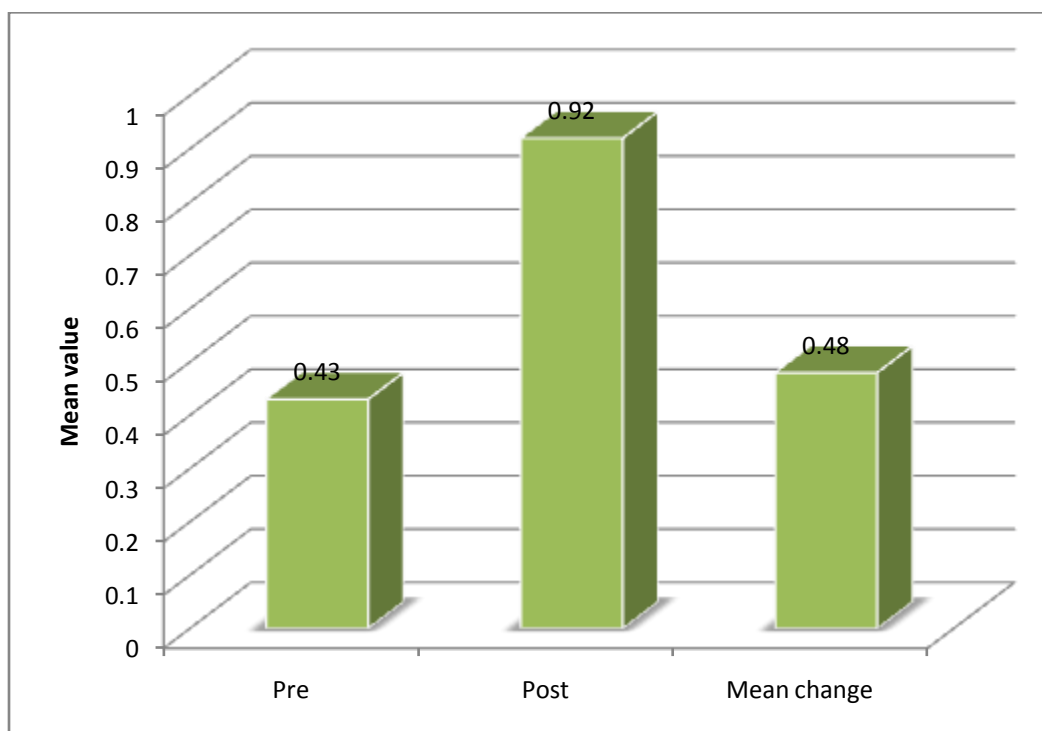


Fig. 8:- Comparison of Knowledge relating to prevention of anaemia from Pre to Post intervention.

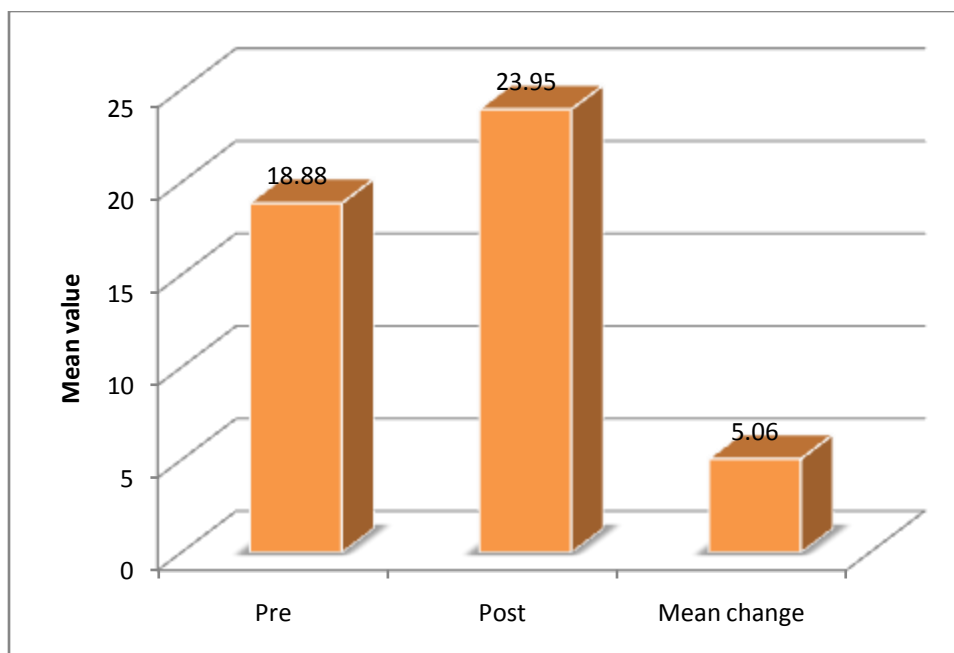


Fig. 9:- Comparison of Overall Knowledge about anaemia from Pre to Post intervention.

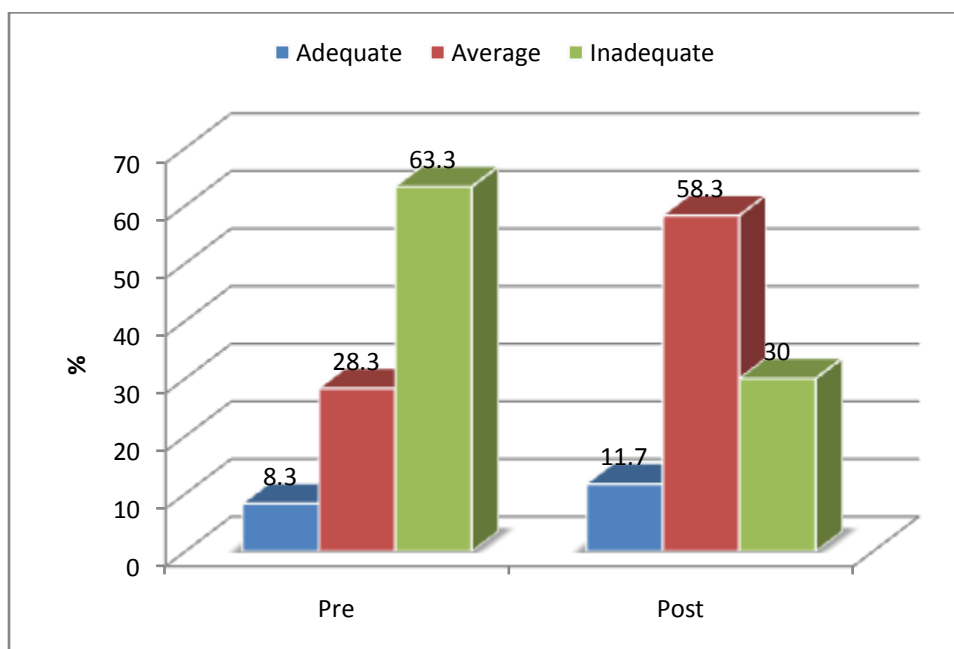


Fig. 10:- Level of overall knowledge

Table. 4:- Evaluation of effectiveness of the STP regarding Iron deficiency anaemia.

Knowledge Assessment	Mean	Difference of mean	S.D.	d f	Paired t-Test
Pre test	18.33	7.72	6.712	1.851	16.2*
Post test	26.61		4.861		

* Significant at P = 0.001 level

Table.5:-Association between Post Test Knowledge with socio demographic variables.

Demographic variable		Overall Knowledge						
		Inadequate		Moderate		Adequate		Chi square
		N	%	N	%	N	%	
Age in years	< 20	2	3.33	6	10	1	1.66	4.68
	21-25	-	-	11	18.3	11	18.33	DF=4
	26-30	-		15	25	3	5	
	>31	1	1.66	5	8.33	5	8.33	
Religion	Hindu	2	3.33	18	30	8	13.33	6.34
	Muslim	1	1.66	15	25	2	3.33	DF=4
	Christian	-		2	3.33	10	16.33	
	others	-		2	3.33	-		
Occupation of self	Home Maker	3	5	28	46.66	15	25	5.23
	Govt. Employee	-		-		3	5	DF=4
	Pvt. Employee	-		9	15	2	3.33	
Education Status	Upto Primary	3	5	4	6.66	-		7.62
	Secondary	-		13	21.66	3	5	DF=6
	Hr. Secondary	-		13	21.66	11	18.3	
	Graduation & above	-		7	11.6	6	10	16.66
Income of family	Below Rs.5000	2	3.33	10	16.66	1	1.66	8.12
	Rs.5001-10000	-		16	26.66	6	10	DF=6
	Rs.10001-15000	1	1.66	8	13.33	10	16.66	
	above Rs.15001	-		3	5	4	6.66	
Type of family								
A	Nuclear Family	-		16	26.66	7	11.6	4.32
B	Joint Family	-		18	30	8	13.33	DF=4
C	Extended family	3	5	3	5	5	8.33	
Type of Diet								
A	Vegetarian	2	3.33	19	31.66	6	10	3.53
B	Non-Vegetarian	-		6	10	8	13.33	DF=4
C	Mixed	1	1.66	12	20	6	10	
Place of Residence								5.64
A	Urban	1	1.66	26	43.33	16	26.66	DF=2
B	Rural	2	3.33	11	18.33	4	6.66	
Number of Pregnancy								
A	One	3	5	14	23.3	7	11.66	7.46
B	Two	-		15	25	6	10	DF=6
C	Three	-		6	10	5	8.33	
D	four and above	-		2	3.33	2	2.33	
Number of children								
A	None	1	1.66	16	26.66	10	8	12.32
B	One	1	1.66	11	18.33	6	10	DF=6
C	Two			8	13.33	3	5	
D	A. Three and above	1	1.66	2	2.33	1	1.66	
Source of information								
A	Newspaper/magazine /books	1	1.66	8	13.33	2	2.33	6.49
B	Electronic sources	-		14	23.33	4	6.66	DF=4
C	Friends/neighbours /relatives	2	3.33	13	21.66	13	21.66	
D	Health personnel			2	3.33	1	1.66	

Conclusion:-

Our study supports the conclusion that educating antenatal women about the importance of diet and implementing this into practice will help in the prevention of anemia. Structured teaching programme on knowledge to woman may bring about a change in their nutritional habits and ensuring early registration and regular follow up which will go a long way to help in reducing the incidence of anemia which is the commonest morbid condition prevailing in our country and also the leading cause of maternal mortality.

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