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Prevention of anemia among antenatal women

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Abstract
Introduction: Anaemia during pregnancy is a public health problem especially in developing countries and it is associated with an increased incidence of both maternal and foetal morbidity and mortality.
Objective: To assess the effectiveness of planned teaching programme on knowledge and self-care regarding prevention of anemia among antenatal women.
Method and Material: A pre-experimental post-test only design was conducted on 30 antenatal women selected by purposive sampling technique. Data was collected in the month of February 2019 through interview technique at Batra Hospital & Medical Research Centre, New Delhi. Telephonic follows up and fixing up of appointment was done. Post-test was taken on 7th day.
Result: The findings revealed that 12(40%) women had very good knowledge score, 11(36.7%) women had good knowledge score and 7(23.3%) women had average knowledge score after implementation of planned teaching programme regarding prevention of anemia among antenatal women. But in self-care 8 (26.7%) women had very good self-care score, 16(53.33%) women had good self-care score and 5(16.7%) women had average self-care sore and 1(3.3%) women had poor self-care score after implementation of planned teaching programme regarding prevention of anemia among antenatal women. The co-efficient correlation shows a positive relationship between knowledge and self-care score regarding prevention of anemia. There was significant association of self-care with age which was found statistically significant at 0.05 level indicating that self-care score was dependent on age which means the age between 24-30 years have more knowledge and can perform self-care to prevent from anemia during pregnancy.
Conclusion: The findings revealed that the planned teaching programme was effective where anaemia during pregnancy can be prevented through Planned Teaching Programme and encouraging self-care.

Keywords: Effectiveness, planned teaching programme, knowledge, self-care, Anemia

Introduction
Anaemia during pregnancy is a public health problem especially in developing countries [1] and it is associated with an increased incidence of both maternal and foetal morbidity and mortality [2]. WHO estimates that 42% of children less than 5 years of age and 40% of pregnant women worldwide are anaemic [3].
Anemia was one of the main pregnancy related complications (62.3%), other complications include difficult labor (3%), postpartum hemorrhage, and pre-eclampsia (1.6%) each abortions/stillbirths (3.5%). About (35.6%) of the women had maternal or fetal morbidity. The fetal complications include low birth weight (25.5%) followed by premature delivery (0.2%) and birth asphyxia (0.5%) [4].
A community based cross sectional study shows that the prevalence of anemia in pregnancy was found out to be 72.75%. 291 pregnant women had their Hb & less than 11 gm % and 109 pregnant women were those who had their Hb level of more than 11gm%. Distribution of the pregnant women according to severity of anemia, 37% of women had moderate anemia with Hb 7.9-9.0, 33% of the women had mild anemia with 10-10.9gm%, 28% of the pregnant women were those who did not have anemia their Hb was more than 11gm% and 2% of the women were whose who have severe anemia Hb below 7gm % [5].
A descriptive study conducted on 300 pregnant women findings revealed that 25.0% of the pregnant women had history of anemia before pregnancy, 66.7% of them had poor knowledge, and 70.0% of them had neutral attitude toward iron deficiency anemia. And 40.0% of them obtained poor practices score regarding prevention of iron deficiency anemia [6].

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Previous study reveals that the antenatal mothers lack an awareness on the prevention and management of anemia during pregnancy. A one time teaching given to the mothers was significant in improving their Knowledge on the prevention and management of anemia [7]. The overall pretest knowledge score was it is evident that out of 200 antenatal mothers, 106 (53%) have inadequate knowledge, 67 (33.5%) have moderate knowledge and the rest belong to adequate knowledge group. After the teaching programme the knowledge assessment showed 78.5% have adequate knowledge and the rest 21.5% belong to the moderate level and none were in the poor group. In the pretest most of the mothers had negative attitude towards management of anemia, 83.5% have negative attitude. After intervention it was seen that those with negative attitude also changed to positive resulting in 100% positive attitude sample [8]. However, it is need to educate the mother to prevent from anemia during pregnancy and also it will help to improve the health of the mother and newborn. Thus, it can reduce the complication, maternal and neonatal morbidity and mortality.

Aims of the study
The study was conducted to assess the effectiveness of planned teaching programme on knowledge and self-care regarding prevention of anemia among antenatal women.

Methods
The study was conducted on 30 antenatal women by using pre-experimental design with one group post-test only design. The data was collected in the month of February 2019 by using purposive sampling technique. The inclusion criteria were antenatal women who had visited at antenatal OPD of Batra Hospital & Medical Research Centre and are available at the time of data collection.

The instruments used for data collection were demographic variables of antenatal women consisting of 10 items. Structured knowledge questionnaire comprising 25 items covering the area of general knowledge and management of anemia. The items were in the form of multiple choice questions comprised of four options where possessed one correct answer scoring 1 mark and wrong answer possess 0 mark. The maximum possible score is 25 and minimum score is 0. Structured self-care questionnaire comprised of 15 items regarding prevention of anemia during pregnancy. The test items were in the form of 3 points rating scale to denote the self-care score where point 1 indicate "never", 2 indicate "sometimes" and 3 indicate "always". The maximum possible score is 45 and minimum is 15 on the structured self-care assessment tools.

The data of demographic variables were collected on 1st day and teaching regarding prevention of anemia was provided. Telephonic follows up and fixing up of appointment was done. Post-test was taken on the 7th day. Formal administration approval was obtained from Batra Hospital & Medical Research Centre, New Delhi.

Data analysis
Data were analyzed by using SPSS software. For evaluation of the data, percentage, arithmetic mean, standard deviation and co-efficient correlation and chi-square for association were done.

Result

Table 1: Frequency and percentage distribution of antenatal women regarding prevention of anemia to selected demographic variables N= 30

Sample Characteristics	Frequency	Percentage
Age		
>25	11	36.7
25-29	14	46.7
30-35	2	6.6
Above 35	3	10
Religion		
Hindu	26	86.6
Muslim	2	6.7
Sikh	2	6.7
other	0	0
Family type		
Joint	25	83.3
Nuclear	5	16.7
Education		
Illiterate	1	3.33
Primary	9	30
Secondary	12	40
Graduation & above	8	26.7
Occupation		
Housewife	25	83.3
Private	4	13.33
Government	1	3.33
Others	0	0
Monthly income		
<5000	3	10
5000-10000	0	0
10001-15000	9	30
>15000	18	60
Obstetrical score in terms of gravida		
One	13	43.33
Two	12	40
Three	4	13.33
Above three	1	3.33
HB Level		
No Anemia	6	20
Mild (9-10.9 gm %)	16	53.3
Moderate (7-8.9gm %)	7	23.3
Severe (<7 gm %)	1	3.3

The data in the table 1 depicted the demographic variable of antenatal women. Nearly half of the women 14 (46.7%) were in the age group of 24-30 years. Majority of the women belongs to Hindu 26 (86.7%) religion. Majority of the women were from joint family 25 (83.3%). Nearly half of the women 12 (40%) had secondary educational status. Majority of the women 25(83.3%) were housewife. Most of the women 18 (60%) had the family income of more than 15000. Nearly half of the women 13 (43.33%) were primigravida. Most of the women 16 (53.3%) had mild anaemia (9-10.9 gm %) hemoglobin level, 7 (23.3%) had moderate anaemia (7-8.9%) Hb level, 1 (3.3%) had severe anaemia (<7gm %) Hb level.

Table 2: Percentage and frequency distribution of antenatal women regarding prevention of anemia in terms of level of knowledge N=30

Level of Knowledge score	Frequency	Percentage
Very good (≥75%)	12	40
Good (61-74%)	11	36.7
Average (50-60%)	7	23.3
Poor (<50%)	0	0

Maximum score-25 Minimum score-0

Table 2 revealed that 12 (40%) women had very good knowledge score, 11 (36.7%) women had good knowledge score and 7 (23.3%) women had average knowledge score after implementation of planned teaching programme regarding prevention of anemia.
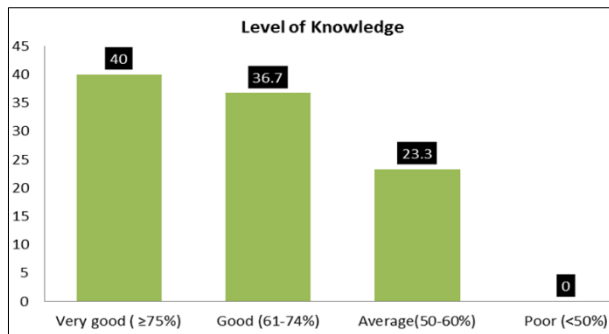

Fig 1: Bar graph showing percentage and frequency distribution of antenatal women regarding prevention of anemia in terms of level of knowledge

Table 3: Range, mean, median, standard deviation of knowledge score of antenatal women regarding prevention of anemia N= 30

Knowledge score	Range	Mean	Median	Std. Error of Mean	Standard Deviation
Post-test	13-25	18.13	17	0.594	3.256

Maximum score-25 Minimum score-0

Data in table 3 represents the mean percentage and standard deviation of knowledge score of women 18.13±3.256 after implementation of planned teaching programme regarding prevention of anemia.

Table 4: Percentage and frequency distribution of antenatal women regarding prevention of anemia in terms of level of self-care N=30

Level of Knowledge score	Frequency	Percentage
Very good (≥75%)	8	26.7
Good (61-74%)	16	53.3
Average (50-60%)	5	16.7
Poor (<50%)	1	3.3

Maximum score = 45 Minimum score-0

Table 4 revealed that 8(26.7%) women had very good self-care, 16(53.3%) women had good self-care and 5(16.7%) women had average self-care and 1(3.3%) women had poor

self-care after implementation of planned teaching programme regarding prevention of anemia.
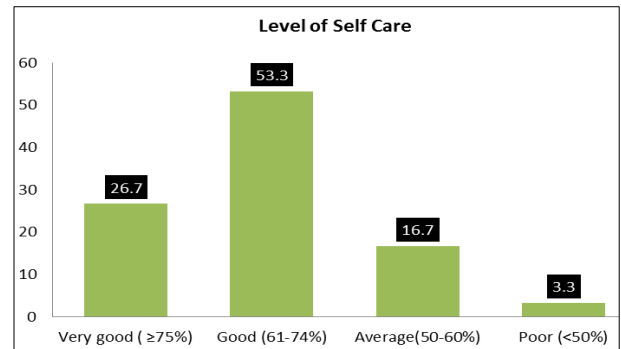

Fig 2: Bar graph showing percentage and frequency distribution of antenatal women regarding prevention of anemia in terms of level of self-care

Table 5: Range, mean, median, standard deviation of self-care score of antenatal women regarding prevention of anemia N= 30

Self-Care score	Range	Mean	Median	Std. Error of mean	Standard deviation
Post-test	21-40	31.40	32	0.765	4.190

Maximum score-45, Minimum score-0

Data in table 5 represents the mean percentage and standard deviation of self-care of women 31.40±4.190 after implementation of planned teaching programme regarding prevention of anemia.

Table 6: Co-efficient correlation between knowledge score and self-care score of antenatal women regarding prevention of anemia N= 30

Items	Mean & SD	Median	Mean difference	Co-efficient
Knowledge score	18.13±3.256	17	13.27	1
Self-care score	31.40±4.190	32		

Table 6 interpreting the mean and standard deviation of knowledge score and self-care score were 18.13±3.256 and 31.40±4.190 with mean difference 13.27. The co-efficient correlation between knowledge score and self-care score is 1 which shows that there is a positive relationship between knowledge and self-care. Hence, research hypothesis H_3 was accepted and null hypothesis H_{03} was rejected.

Table 7: Association between knowledge score with selected demographic variables regarding prevention of anemia N=30

Demographic variables	Pretest Knowledge Score				Chi-square (λ^2)	DF	P Value
	Poor	Average	Good	Very Good			
Age							
>25		3	3	5	4.922	6	0.554
25-29		2	7	5			
30-35		1	1	0			
Above 35		1	0	2			
Religion							
Hindu		5	10	11	3.144	4	0.534
Muslim		1	0	1			
Sikh		0	0	0			
other		1	1	0			
Family type							
Joint		7	8	10	2.291	2	0.318
Nuclear		0	3	2			
Education							
Illiterate		1	0	0	4.224	6	0.646

Primary		2	3	4			
Secondary		3	4	5			
Graduation & above		1	4	3	0	0	0
Occupation							
Housewife		7	9	9	3.064	4	0.547
Private		0	2	2			
Government		0	0	1			
Others		0	0	0			
Monthly income							
<5000		0	1	2	1.795	4	0.773
5000-10000		0	0	0			
10001-15000		3	3	3			
>15000		4	7	7			
Obstetrical score in terms of gravida							
One		3	4	6	4.275	6	0.640
Two		2	5	5			
Three		1	2	1			
Above three		1	0	0			
HB Level							
No Anemia		2	4	0	7.386	6	0.287
Mild (9-10.9 gm %)		3	6	7			
Moderate (7-8.9 gm %)		2	1	4			
Severe (<7 gm %)		0	0	1			

The Table 7 depicted that the association of knowledge score of antenatal mother with selected demographic variables regarding prevention of anemia i.e age (λ^2 = 4.922, 0.554), religion (λ^2 = 3.144, p = 0.534), types of family (λ^2 = 2.291, p= 0.318), educational status (λ^2 = 4.224, p = 0.646), occupation (λ^2 = 3.064, p = 0.547), monthly income (λ^2 = 1.795, p = 0.773), Obstetrical score in terms of gravida (λ^2 = 4.275, p = 0.640) and Hb level (λ^2 = 7.386, p = 0.287) respectively was found to be non-significant at 0.05 level of significance.

Table 8: Association between Self-care Score with selected demographic variables regarding Prevention of Anemia N=30

Demographic variables	Pretest self-care Score				Chi-square (λ^2)	DF	P Value
	Poor	Average	Good	Very Good			
Age							
>25	0	3	7	1	17.549	9	0.041[*]
25-29	0	2	8	4			
30-35	0	0	0	2			
Above 35	1	0	1	1			
Religion							
Hindu	1	5	13	7	2.740	6	0.841
Muslim	0	0	1	1			
Sikh	0	0	0	0			
other	0	0	2	0			
Family type							
Joint	1	3	13	8	3.810	3	0.283
Nuclear	0	2	3	0			
Education							
Illiterate	0	0	0	1	7.083	9	0.628
Primary	0	2	6	1			
Secondary	0	2	6	4			
Graduation & above	1	1	4	2			
Occupation							
Housewife	1	3	13	8	5.385	6	0.495
Private	0	2	2	0			
Government	0	0	1	0			
Others							
Monthly income							
<5000	0	1	0	2	7.958	6	0.241
5000-10000	0	1	4	3			
10001-15000	1	3	13	3			
>15000	0	0	0	0			
Obstetrical score in terms of gravida							
One	0	3	8	2	9.820	9	0.365
Two	1	1	7	3			
Three	0	1	0	3			
Above three	0	0	1	0			
HB Level							

No Anemia	0	0	4	2	9.382	9	0.403
Mild (9-10.9 gm %)	0	3	10	3			
Moderate (7-8.9 gm %)	1	2	2	2			
Severe (<7 gm %)	0	0	0	1			

The Table 8 shows that there was significant association of self-care with age ($\lambda^2 = 17.549$, p = 0.041) which was found statistically significant at 0.05 level indicating that self-care score was dependent on age which means the age between 24-30 years have more knowledge and can perform self-care to prevent from anemia during pregnancy. Further, there was no significant association of religion ($\lambda^2 = 2.740$, p = 0.841), types of family ($\lambda^2 = 3.810$, p= 0.283),educational status ($\lambda^2 = 7.083$, p = 0.628), occupation ($\lambda^2 = 5.385$, p = 0.495), monthly income ($\lambda^2 = 7.958$, p = 0.241), Obstetrical score in terms of gravida ($\lambda^2 = 9.820$, p = 0.365) and Hb level ($\lambda^2 = 9.382$, p = 0.4 respectively was found to be non-significant at 0.05 level of significance.

Thus, null hypothesis H_{02} was partially accepted and research Hypothesis H_1 was partially rejected.

Discussion
The present study shows that (40%) women had very good knowledge score, (36.7%) women had good knowledge score and (23.3%) women had average knowledge score after implementation of planned teaching programme regarding prevention of anemia which is similar to the findings of T Vinaya Kumari (2014) [9] shows that 54% women had satisfactory knowledge, 38% women had poor knowledge and 8% had good knowledge regarding anemia during pregnancy. Women (26.7%) had very good self-care, (53.33%) had good self-care and (16.7%) had average self-care and (3.3%) had poor self-care after implementation of planned teaching programme regarding prevention of anemia which is similar to the findings of Tabish Hussain *et al*. (2010) [10] shows that 77.9% women were aware of the term IDA.

Conclusion
The study was conducted to evaluate the effectiveness of planned teaching programme on prevention of anemia in antenatal women at Batra Hospital and Medical Research Centre, New Delhi. The study concluded that most of the antenatal women had very good knowledge score but in self-care, most of the antenatal women had good self-care score. The co-efficient correlation between knowledge score and self-care score is 1 which shows that there is a positive relationship between knowledge and self-care. The findings revealed that planned teaching programme was effective and the women who had more knowledge can do the self-care to prevent from anemia during pregnancy.

Limitations
Generalization of the findings is limited. In the present study, only post-test for knowledge and self-care was assessed after implementation of the planned teaching programme.

Recommendations
A similar study can be conducted on large number of samples to generalize the findings. A comparative study to assess knowledge and self-care on anemia among two different group of antenatal women can be done.

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