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Impact Of Iron Supplementation On Anxiety Among Reproductive Age Women With Iron Deficiency Anaemia

Running Title: -Impact Of Iron Supplementation

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Abstract
A Quasi- experimental study where before-and- after with control group design was conducted to evaluate the Impact of iron supplementation on anxiety among reproductive age women with iron deficiency anaemia, Tamil Nadu, using Quantitative Evaluative approach. The setting of the study was selected by adopting four stage random sampling technique with lottery method. Two rural panchayat, Sengamviduthy panchayat and Kulathur Panchayat, from Gandharvakottai taluk,Pudhukottai districts was selected as control and experiment group. Non probability purposive sampling technique was used to select the samples in both the groups. Hundred women aged 18- 49 years, with iron deficiency anemia were selected for each group. Reliability was established and Pilot study was conducted to find the feasibility in urban areas, other than the main study areas.
In pre-test both groups baseline data was collected by Structured Interview Schedule followed by Assessment of haemoglobin by using true hub haemoglobin meter, anxiety by self-rating anxiety scale(modified). Post-test was done for both the groups with same tool and the collected data was analyzed with descriptive and inferential statistics.
The study findings revealed that the highest percentages of women with iron deficiency anemia in control and experiment group were in the age group of 18-25 years, educated from higher secondary school and daily wagers. Most of them were Hindus, belonged to nuclear family with a monthly income of Rs.5001 -10000. Also, most of them not had any bad habits, and not at all taken deworming drugs.
Percentage wise distribution of haemoglobin level among reproductive age women with iron deficiency anaemia shows that highest 76% of them had moderate anaemia in control group whereas it was 72% in experimental and more or less similar percentage (11% and 12%) of them had mild and severe anaemia in control group whereas it was (15% and 15%) in experimental group in pre-test. In post-test highest 76% of them had moderate anaemia in control group whereas it was 14 % in experimental and more or less similar percentage (11% and 12%) of them had mild and severe anaemia in control group whereas it was (32% and 14%) in experimental group.
Paired 't' test was calculated to analyse the haemoglobin level among reproductive age women with iron deficiency anaemia before and after administration iron supplementation between control group was 8.95±1.12 and 8.96±1.11 with mean difference 0.01, whereas the calculated t value was found to be 1.084 at $p>0.05$ level and experimental group was 8.91±1.08 and 11.86±1.023 with mean difference 2.95, whereas the calculated t value was found to be 111.442 at $p<0.05$ level. The anxiety level among reproductive age women with iron deficiency anaemia before and after administration iron supplementation between the experimental groups was 12.66±5.32 and 12.40±5.33 with mean difference 0.26, whereas the calculated 't' value was found to be 1.594 at $p>0.05$ level.
Correlation between Haemoglobin level and Anxiety shows that post-test mean haemoglobin score in experimental group was 11.86±1.02 and mean anxiety score was 12.40±5.33. The 'r' value was 0.115.
Hence the investigator concludes that the implementation of Interventions to increase haemoglobin, and decrease anxiety was found to be effective among reproductive age women with iron deficiency anaemia

INTRODUCTION

Need for the Study

According to the open population data (2021), the global female population rate is 4 billion. Among those 2 billion women were in reproductive age (15-45 years), in India there were 65 million women and 5, 62, 25,000 women

were in reproductive age. According to the National Sample Survey (2016), the female population in Tamil Nadu is 40,901,039. In this 9, 05,018 women are in childbearing age.[14]

According to the National Family Health Survey IV (2019-2020), 58.4% of children age between 6–59 months, 53.1% of non-pregnant women age between 15–49 years, 50.3% of pregnant women age between 15–49 years, 53% of all women age between 15–49 years, 22.7% of men age between 15–49 years, 54% of adolescent girls and 29% of adolescent boys were anaemic in India. Prevalence of iron deficiency anaemia among reproductive age women in karur district was 56.6% with <12.0 g/dl haemoglobin level.[15]

Hospital based survey was conducted to assess the epidemiological profile of anaemia in central India. This study reveals that highest percentage of patients (40%) were from age group 21-30 years. Age Between 15-30 years, prevalence of anaemia was more in females than males. 57% of them had moderate anaemia and 41% of them severe anaemia. Weakness, fatigue was most common (100%) presenting symptoms and pallor was most common clinical sign (98%).

Iron deficiency has several symptoms among reproductive age women, such as pale skin colour, dizziness, drowsiness, weakness, fatigue, loss of appetite and palpitations. In addition, anaemia can also be the cause of female sexual dysfunction, headaches, nervousness, forgetfulness, lack of concentration and poor performance at work

Research Approach and Research Design

The true experimental design where before- and- after with control group was adopted for this study. Quantitative evaluative approach was used for the present study

Setting of the study

The study was conducted at Gandarvakottaitaluk in Pudhukottai district, Tamilnadu **Population**

The study Population was all the married reproductive age women (18-49 years) with iron deficiency anemia residing in rural areas of Pudhukottai district, Tamil Nadu.

Sampling Technique

Multi stage random sampling technique was used in selecting the study area.

Sample size

The sample size included in this study was 100 reproductive age women with iron deficiency anemia for control group and 100 for experimental group.

Criteria for selection of sample

Inclusion criteria for sampling:

Women who are

- Married women with reproductive age between 18-49 years
- willing to participate within the study.
- having iron deficiency anaemia. (mild , moderate,severe)
- throughout the amount of information assortment

Exclusion criteria for sampling:

Women who are

- attained Post-menopausal
- already on treatment with iron deficiency
- life threatening anemia
- affected with alternative infections like communicable diseases, cancer, Enteric disturbances and hematological issues

Developmental Tool

The steps for preparing the tool was

- review of related literature
- preparation of blue print
- description of the tool
- validity of the tool
- modification of the tool
- translation of the tool
- reliability of the tool
- preparation of the final draft

approval from the guide

Table No. 3.1: Categories of anemia for women (WHO, 2018)

Observation	Hemoglobin Level
No anemia	12-16.0 gm/dl
Mild	11-11.9 gm/dl
Moderate	8-10.9 gm/dl
Severe	6.5- 7.9 gm/dl
Life threatening	Below 6.5 gm/dl

Anxiety
Self-rating Anxiety inventory scale consists of 14 -item self-report inventory made to assess the anxiety level
Scale Scoring Ranges
0-14 Mild
15-28 Moderate

Method of Data Collection
Ethical Consideration
Prior to the data collection ethical approval was obtained from ethical committee (IRB) at Vinayaka Mission's Kirupananda Variyar Medical College Hospital Salem..Written permission was obtained from the village president / village administrative office from the selected villages for control and experimental group. The written and oral consent was obtained from the subjects before conducting the study.

Data Collection Procedure
- Participants were made to feel comfortable and relaxed.
- Introductions was given related to the topic.
- Goods reports were maintained.
- Purpose of the study was explained to participants.
- Items regarding the demographic data was asked as per the interview.

RESULT & CONCLUSION

Tab.4.2.1: Assessment of haemoglobin level among reproductive age women withiron deficiency anaemia before and after administration iron supplementation between experimental and control group.

(n = 100)

Parameters	Control group				Experimental group			
	Pre test		Post test		Pre test		Post test	
	No	%	No	%	No	%	No	%
No anemia (12-16.0 gm/dl)	-	-	-	-	-	-	32	32
Mild (11-11.9 gm/dl)	11	11	11	11	15	15	54	54
Moderate (8-10.9 gm/dl)	76	76	77	77	72	72	14	14
Severe (6.5- 7.9 gm/dl)	13	13	12	12	13	13	-	-

Percentage wise distribution of haemoglobin level among reproductive age women with iron deficiency anaemia shows that highest 76% of them had moderate anaemia in control group whereas it was 72% in experimental and more or less similar percentage (11% and 12%) of them had mild and severe anaemia in control group whereas it was (15% and 15%) in experimental group in pre-test.
In post-test highest 76% of them had moderate anaemia in control group whereas it was 14 % in experimental and more or less similar percentage (11% and 12%) of them had mild and severe anaemia in control group whereas it was (32% and 14%) in experimental group.

Tab.4.2.3: Comparison of haemoglobin levels among reproductive age women with iron deficiency anaemia after administration iron supplementation between experimental and control group.

(n = 100)

Parameters	Post-test Values				Difference	t- value	P-value
	Control Group		Experimental Group				
	Mean	SD	Mean	SD			
Haemoglobin level	8.96	1.11	11.86	1.02	2.9	19.234	0.000

Unpaired t test was calculated to analyze the comparison of haemoglobin level among reproductive age women with iron deficiency anaemia age after administration iron supplementation between control and experimental groups was 8.96±1.11 and 11.86±1.02 with mean difference 2.9, whereas the calculated t value was found to be 19.234 at $p<0.05$ level.

It was interpreted that the difference occurred was true not by chance. Hence the stated research hypothesis (H_1) was accepted and concludes that there is significant difference in the haemoglobin level among reproductive age women with iron deficiency anaemia after administration iron supplementation between control and experimental groups.

Tab.4.2.6: Comparison of level of anxiety among reproductive age women with iron deficiency anaemia after administering iron supplementation between experimental and control group.

(n = 100)

Parameters	Post-test Values				Difference	t- value	P-value
	Control Group		Experimental Group				
	Mean	SD	Mean	SD			
Anxiety	12.65	5.32	12.40	5.33	1.25	0.332	0.740

Unpaired t test was calculated to analyze the comparison of anxiety level among reproductive age women with iron deficiency anaemia after administration iron supplementation between control and experimental groups was 12.65±5.32 and 12.40±5.33 with mean difference 1.25, whereas the calculated t value was found to be 0.332 at $p>0.05$ level.

It was interpreted and concludes that there is a significant difference in the anxiety among reproductive age women with iron deficiency anaemia after administration iron supplementation between control and experimental groups.

Tab.4.3.2: Paired t test value of post-test haemoglobin level among reproductive age women with irondeficiency anaemia between experimental and control group.

(n = 100)

Parameter	Control group		Experimental group		Mean difference	t-test
Haemoglobin Level	Mean	SD	Mean	SD		
	8.96	1.11	11.86	1.023	2.9	20.71

Table value: 1.96 (<0.05 *level) 2.576 (<0.01 level) 3.291 (<0.001*** level)**

Paired t test was calculated to assess the significant difference between experimental and control group post-test haemoglobin level among reproductive age women with iron deficiency anaemia after administration iron

supplementation in experimental group was 11.86±1.023 whereas it was 8.96±1.11 in control with mean difference 2.9. The calculated t value 20.71 was found to be higher than table value 1.96 at p>0.05 level. It interprets that the haemoglobin level was found to have significant difference in experimental group.
Hence, the difference occurred was true not by chance which reveals iron supplementation used to increase haemoglobin level were effective among reproductive age women with iron deficiency anaemia. So, the stated research hypothesis (H_1) was accepted (Tab. No 4.3.2).

Tab.4.3.4: Paired t test value of post-test anxiety level among reproductive age women with iron deficiency anaemia between experimental and control group.

(n = 100)

Parameter	Control group		Experimental group		Mean difference	t - test
Anxiety	Mean	SD	Mean	SD		
	26.65	0.68	6.61	5.33	20.04	43.18

Table value: 1.96 (<0.05 *level) 2.576 (<0.01 level) 3.291 (<0.001*** level)**
Paired 't' test was calculated to analyse the significant difference between experimental and control group post-test anxiety level among reproductive age women with iron deficiency anaemia after administration iron supplementation in control group was 26.65±0.68 in whereas in experimental groups it was 6.61±5.33 with mean difference 20.04, whereas the calculated 't' value 43. was found to be greater than the table value 1.96 at p>0.05 level in experimental group.
It was interpreted that the difference occurred was true not by chance which reveals that iron supplementation used to decrease anxiety level were effective among reproductive age women with iron deficiency anaemia. So, the stated research hypothesis (H_2) was accepted (Tab. No 4.3.4).

Table 4.3.8: Association between post-test value of anxiety level with their selected demographic variables among reproductive age women with iron deficiency anaemia in experimental group.

(n = 100)

S. No.	Demographic Variables	Anxiety			
		Df	Table value	χ^2	p-value
Biographic variables					
1	Age in years	48	65.171	57.928	0.154 NS
2	Educational Status	48	65.171	61.416	0.092 NS
3	Monthly income of the family	32	46.194	39.273	0.176 NS
4	Types of family	16	26.296	14.165	0.586 NS
5	Religion	*	*	*	*
6	Occupation	48	65.171	55.843	0.204 NS
Clinical variables					
7	Personal Habit	*	*	*	*
8	Dietary pattern	*	*	*	*
9	Duration of deworming drug taken	16	26.296	6.877	0.976 NS

(NS - Not Significant S- Significant *<0.01 highly significant *<0.05 Significant**
***No statistics are computed because Religion, Personal Habit and Dietary pattern is a constant**
Chi square test was used to find out the association in post-test anxiety level among reproductive age women with iron deficiency anaemia with their demographic variables and clinical variables shows that, in experimental group, that there is no significant association between post-test haemoglobin level and their demographic variables. Hence the stated research hypothesis (H_4) was rejected which was true not by chance (Tab. No 4.3.8).

Table 4.3.10: Correlation between post test score with haemoglobin level and anxietyamong women of reproductive age with iron deficiency anaemia in experimentalgroup

(n = 100)

Parameter	Experimental group (Post-test)				'r' value
	N	Mean	SD	SE	
Haemoglobin	100	8.96	1.11	.111	0.953 (p<0.001)
Anxiety	100	6.61	5.33	.533	

Karl Pearson Correlation co-efficient test was used to find out Corelation between post test score of haemoglobin level and anxiety among reproductive age women withirondeficiency anaemia in experimental. It reveals that the post test score on haemoglobin and anxiety ($r = 0.953$, $p < 0.001$) among reproductive age women withirondeficiency anaemia in experimental have significant positive correlation.

Hence, the correlation between haemoglobin level and anxiety was true not by chance. which reveals that iron supplementation used to increase the haemoglobin level and decrease the anxiety level were effective among reproductive age women with iron deficiency anaemia. So, the stated research was hypothesis (H_5) was accepted **(**Table. No 4.3.10).

CONCLUSION

The present study assessed the impact of iron supplementation on anxiety and sexual dysfunction among reproductive age women with iron deficiency anaemia. The findings of the study revealed that the mean post-test values of haemoglobin level were significantly increased and anxiety level was decreased in experimental group.

Overall, the study findings reveal that the interventions to increase haemoglobin and decrease anxiety level promoted comfort and satisfaction for the women who felt happiness with their increase haemoglobin.

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