



## A study to assess the effectiveness of planned teaching programme on knowledge regarding iron deficiency anemia among 1<sup>st</sup> Year GNM nursing students in a selected school of nursing at Mangalore

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### Abstract

Anemia is a critical health concern that primarily affects women and young adults. About two billion people across the world are reported to have anemia and this count is disproportionately high in developing countries due to poor health services, inadequate diet, certain diseases, most frequent pregnancies, and so on.

### Objectives

- To assess the knowledge level of 1<sup>st</sup> year GNM students regarding iron deficiency anemia by using structured knowledge questionnaire.
- To evaluate the effectiveness of planned teaching programme on knowledge regarding iron deficiency anemia among 1<sup>st</sup> year GNM students in terms of gaining post -test level of knowledge.

### Method

Pre- experimental one group pre -test post-test design was conducted to assess the effectiveness of planned teaching programme on knowledge regarding iron deficiency anemia among forty 1<sup>st</sup> year GNM students of Athena school of nursing Mangalore from 25<sup>th</sup> October to 2<sup>nd</sup> November 2023 through a structured knowledge questionnaire. Samples were selected by random sampling technique.

### Result

The result of the study shows that mean post-test knowledge score ( $\bar{X}_2=19.7$ ) was higher than mean pre-test knowledge score ( $\bar{X}_1=13.8$ ). Paired 't' test was used to find the difference between the mean pre-test and post-test knowledge score. The calculated 't' value ( $t=9.156$ ) was found to be significant.

### Conclusion

The planned teaching is an effective strategy for providing information and improves knowledge of 1<sup>st</sup> year GNM students regarding iron deficiency anemia.

**Keywords:** Effectiveness, knowledge level, iron deficiency anemia, planned teaching programme

### Introduction

Anemia is a deficiency in the number of erythrocyte cells, the quantity of hemoglobin and or the volume of packed red blood cells. It is a prevalent condition with many diverse causes such as blood loss, impaired production of erythrocytes [1].

Iron lost in women occurs during the childbearing period. During each menstrual period and average 15-20mg (269-358micromol) iron is lost. During pregnancy there is a continuous Iron drainage. This is greater in mothers below the age of 20 years, because the growth is continuing them and blood volume is increasing with each pregnancy and childbirth the iron loss may be about 500mg (8mmol) [1].

Even in temperate climate where the standard of nutrition is better iron deficiency anemia is frequent and account for 92% of all anemia. Eating clay and sometimes laundry starch (possibly as a source of calories) is also responsible for anemia, as these substance decreases iron absorption [2].

National Nutritional Anemia control program aims to reduce anemia among women of reproductive age and preach children by providing iron folate supplements, identifying and treating cases of severe anemia, providing the consumption of iron rich foods. The majority of poor women do not obtain adequate supplementation. As a result, India's very high rates of anemia persist, especially among

pregnant women, on birth weight and maternal mortality is profound [3].

Anemia is a condition that occurs when the body doesn't have enough healthy red blood cells. Without the right amount of healthy RBC, enough oxygen does not get in the body. This causes people with anemia to look pale, and often weak and tired. The most common cause are not getting enough iron on losing too much iron from heavy menstrual periods. Healthcare ptomaine recommended on multivitamin with iron if it seems like you are not getting enough iron from foods. If you already anemic the Healthcare provides well probable suggest an iron supplement [3].

### Need for the study

According to WHO iron deficiency is the most common and wide spread nutritional disorder in the world. Adolescence is the time when many developments take place both physically and mentally. In this period more nutrition and healthy diet is needed. Young women are at particular risk for the development of iron deficiency due to menstrual blood loss.

The prevalence of anemia among six groups as per the National Family Health Survey 5 (2019-21), is 25.0 percent in men (15-49 years) and 57.0 percent in women (15-49

years). 31.1 percent in adolescent boys (15-19 yrs.), 59.1 percent in adolescent girls, 52.2 percent in pregnant women (15-49 years) and 67.1 percent in children (6-59 months) [4]. From the above finding it is seen that the adolescent girls have less knowledge regarding management of iron deficiency anemia. This motivated the investigators to undertake study on effectiveness of PTP on knowledge regarding anemia among 1st year GNM students.

**Objective of the study**

- To assess the knowledge level of 1<sup>st</sup> year GNM students regarding iron deficiency anemia by using structured knowledge questionnaire.
- To evaluate the effectiveness of planned teaching programme on knowledge regarding iron deficiency anemia among 1st year GNM students in terms of gaining post -test level of knowledge.

**Methodology**

**Research approach**

Evaluatory research is the process of collecting and analyzing information related to the functioning of a programme, policy or procedure in order to assist decision makers in choosing a course of action. In order to accomplish the main objectives of deforming the effectiveness of planned teaching programme regarding iron deficiency anemia among first year GNM students, an evaluative research approach was adopted.

**Research design**

The research design used in the present study is pre-experimental one group pre-test post-test design [6].

**Table 1:** Schematic representation of one group pre-test post-test design

Group	Pre-test	Intervention	Post- test After 7 days
1 <sup>st</sup> year GNM students	O <sub>1</sub>	X	O <sub>2</sub>

**O<sub>1</sub>:** Administration of structured knowledge questionnaire on iron deficiency anemia to assess knowledge level of student nurses.

**X:** Administration of planned teaching programme to student nurses regarding iron deficiency anemia.

**O<sub>2</sub>:** Administration of structured knowledge questionnaire to assess the posttest knowledge level on 7<sup>th</sup> day.

**Variables**

Two types of variables were identified in this study.

**Dependent variable:**

In this study it refers to the knowledge level of 1<sup>st</sup> year GNM students regarding iron deficiency anemia.

**Independent variable:**

In this study it refers to the planned teaching programme regarding iron deficiency anemia for 1<sup>st</sup> year GNM students.

**Setting of the study**

The investigator selected Athena Institute of Health Sciences at Mangalore. This institute has nursing courses

like GNM, B.Sc., P.B.B.Sc. and M.Sc. and it has total strength of around 500 students.

**Population**

The population of this study comprised of 1<sup>st</sup> year GNM students studying in Athena School of Nursing at Mangalore.

**Sample**

In the present study, sample size consisted of 40 1<sup>st</sup> GNM students studying in Athena School of Nursing at Mangalore.

**Sampling technique.**

The sample for the study was selected by random sampling technique.

**Data collection tool**

A research instrument is a device used to measure the concept of interest in a research project that a researcher uses to collect data. In this study, a structured knowledge questionnaire regarding iron deficiency anemia was used to collect the data from 1<sup>st</sup> year GNM nursing students. The tool was prepared on the basis of the objectives of the study. The tool was developed by investigators by reviewing research and non-research literature, personal experience of the investigators in the clinical field, and also the opinion and suggestions from the guide and experts of medical surgical department.

**Development of the tool**

A structured knowledge questionnaire was developed by the investigators to assess the knowledge level of student nurses regarding iron deficiency anemia.

The following steps were adopted prior to the development of the tool:

1. Review of literature and experience of the investigators.
2. Discussion with the experts.
3. Construction of the structured knowledge questionnaire.
4. Pre-testing of the tool.
5. Reliability.

A structured knowledge questionnaire regarding iron deficiency anemia was developed by investigators with the help of review of literature and expert opinion from the teachers of medical surgical nursing department.

**Data collection process**

The data was collected on 25<sup>th</sup> October at 10am from the 1<sup>st</sup> year GNM students of Athena College of nursing Mangalore. On 25<sup>th</sup> October 2023, 40 students were selected using random sampling technique. The purpose of the study was explained to the students prior to the administration of the structured knowledge questionnaire to ensure the cooperation and the prompt answers. The pre-test was carried out using the structured knowledge questionnaire regarding iron deficiency anemia in the 1<sup>st</sup> year GNM class room and the average time taken to answer the questionnaire was 30 minutes. This was followed by the administration of the planned teaching programme at 10.30 am using AV aids. Information was given regarding the date and time of the post-test.

The post-test was conducted after 7 days using the same structured knowledge questionnaire on 2<sup>nd</sup> November 2023 at 2pm. All students cooperated well with the investigators during the data collection process. Data collection process was terminated after thanking the students for their cooperation, willingness to participate in this study, and prompt responses.

**Result**

The planned teaching programme had been used through the analysis and interpretation of data collected from 40 1<sup>st</sup> year GNM students of Athena school of nursing from 25<sup>th</sup> October to 2<sup>nd</sup> November 2023 through a structured knowledge questionnaire to assess their knowledge and to determine the effectiveness of a planned teaching regarding iron deficiency anemia. In this study, the data was processed and analyzed based on the objectives of the study using descriptive and inferential statistics.

**Organization of findings**

The data were organized under the following sections:

**Section 1:** Description of Baseline Characteristics.

**Section 2:** Knowledge level regarding iron deficiency anemia.

**Section 3:** Effectiveness of PTP regarding iron deficiency anemia in terms of gain in knowledge scores.

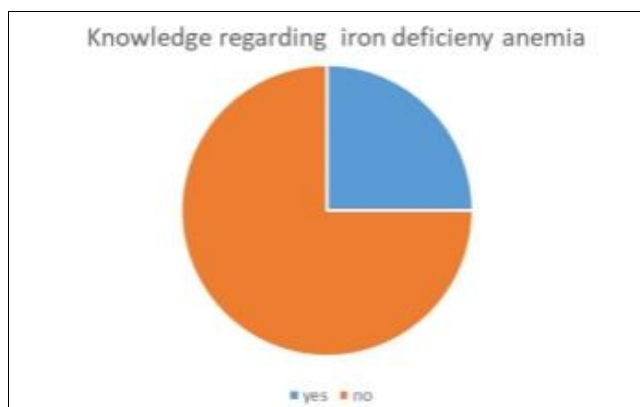
**Table 1:** Frequency and percentage distribution of the samples

Sl. No.	Variables	Frequency	Percentage (%)
1.	Age in years		
	▪ 12-19	29	72.5
	▪ 20-25	11	27.5
2.	Gender		
	▪ Male	0	0
	▪ Female	40	100
3.	Knowledge regarding iron deficiency anemia		
	▪ Yes	30	75
	▪ No	10	25

**Section 1:** Description of Baseline Characteristics.

N=40

This section deals with the description of sample characteristics in terms of frequency and percentage. The findings are presented using tables.



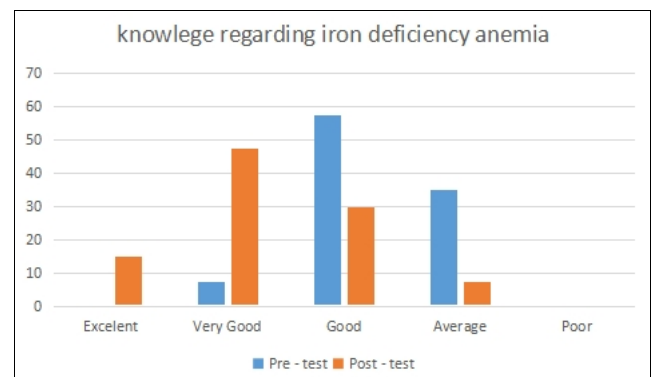
**Fig 3:** Pie diagram representing distribution of subjects according to their baseline data related to knowledge regarding iron deficiency anemia

**Section 2: Knowledge level regarding iron deficiency anemia**

Knowledge level of 40 1<sup>st</sup> year GNM students regarding iron deficiency anemia was assessed using a structured knowledge questionnaire and was analyzed using descriptive and inferential statistics which are represented in Table2 and Figure2.

**Table 2:** Distribution of subjects according to grading of pre-test and post-test knowledge score  
N=40

Grading	Range of score	Pre-test f	%	Post-test f	%
Excellent	25-30	0	0.0	6	15
Very good	19-24	3	7.5	19	47.5
Good	13-18	23	57.5	12	30
Average	7-12	14	35	3	7.5
Poor	1-6	0	0.0	0	0.0



**Fig 4:** Bar diagram representing the distribution of subjects according to their level of knowledge

The data in table 2 and figure 3 shows that in the post-test, majority of the subjects (47.5%) had very good knowledge score ranging from 19 -24, whereas in the pre –test, majority of the subjects (57.5%) had only good knowledge score ranging between 13 -18. In the post-test, 15% subjects had excellent knowledge score between 25 -30, but in the pre-test none of the subjects had excellent knowledge.

**Table 3:** Mean, median, and standard deviation of pre-test and post-test knowledge score  
N=40

Knowledge level	Mean	Median	SD
Pre-test	13.8	14.56	3.5
Post-test	19.7	20.57	4.87

The data in the table 3 shows that the mean post-test knowledge score (19.7±4.87) is higher than the mean pre-test knowledge score (13.8±3.5).

**Section 3: Effectiveness of planned teaching programme regarding iron deficiency anemia in terms of gain in knowledge scores**

This section deals with the analysis and interpretation of the data collected from forty 1<sup>st</sup> year GNM students to evaluate the effectiveness of planned teaching programme regarding iron deficiency anemia in terms of gain in knowledge scores. Data regarding pre-test and post- test knowledge scores were analyzed in terms of descriptive and inferential statistics.

### Significance of difference the pre-test and post-test knowledge regarding iron deficiency anemia

In order to find the significance of difference between the pre-test and post-test score, paired 't' test was used and the data is presented in the table 4.

To test the statistical difference between pre-test and post-

test knowledge scores, the following null hypothesis was formulated

**H<sub>01</sub>:** There will be no significant difference between the mean pre-test and post- test knowledge regarding iron deficiency anemia at 0.05 level of significance.

**Table 4:** Mean, mean difference, SD differences, and 't' value of pre-test and post-test knowledge regarding iron deficiency anemia N=40

Variable	Pre-test Mean	Post-test Mean	Mean Difference	SD Difference	t-value
Knowledge score	13.8	19.7	5.9	1.3205	9.156

The data presented in table 4 shows that the mean post-test knowledge score ( $\bar{x}_2=19.7$ ) was higher than the mean pre-test knowledge score ( $\bar{x}_1=13.8$ ). The computed 't' value ( $t_{40}=9.156$ ) is higher than the table value ( $t_{40}=2.02$ ,  $p<0.05$ ). Hence the null hypothesis was rejected and the research hypothesis was accepted. So that the planned teaching programme was effective increasing the knowledge of 1<sup>st</sup> year GNM students regarding iron deficiency anemia.

### Discussion

#### Section 1: Knowledge level regarding iron deficiency anemia

The mean post knowledge scores [ $X=19.7$ ] was higher than the mean pre-test knowledge scores [ $X_1=13.3$ ].

A study to assess the effectiveness of planned teaching programme on knowledge regarding iron deficiency anemia among 1<sup>st</sup> year GNM nursing students in a selected school of nursing at Mangalore. Majority students had average knowledge regarding iron deficiency anemia. The total knowledge score of the students with mean and SD of  $13.3\pm 2.85$  in the post-test was mean and SD of  $21.3\pm 4.46$ . Very highly significant difference was found between pre-test and post-test knowledge score of the sample in area of knowledge regarding anemia [5].

#### Section 2: Effectiveness of Planned Teaching Programme in terms of post-test knowledge scores

The findings of present study showed that Planned Teaching Programme was effective in improving the knowledge regarding anemia. The mean pre-test score was  $13.8\pm 3.54$  the mean post-test knowledge score was found to be  $19.7\pm 4.87$ . These findings were statistically significant at  $t_{40}=2.02$ ,  $p \leq 0.05$ . This shows that the planned teaching programme was highly effective in improving the knowledge of students regarding anemia.

A similar study was conducted to evaluate the effectiveness of structured teaching programme on knowledge regarding iron deficiency anemia among adolescent girls of Jawaharlal Nehru Inter College Kanpur. The research design was one group pre-test post-test design. The sample size was 40, selected by purposive sampling technique. The mean of overall pre-test knowledge score was 13.6 and the mean of overall post-test knowledge score was 19.9. improvement in the knowledge score of samples from pre-test to post was tested for stastical significance using paired t test ( $t=2.269$ ), shows significant difference between pre and post-test score ( $p0.05$ ) [6].

### Conclusion

Findings of the study showed that the knowledge of 1<sup>st</sup> year GNM students regarding iron deficiency anemia was less before the administration of the planned teaching programme. The planned teaching programme regarding iron deficiency anemia facilitated them to gain more knowledge regarding iron deficiency anemia, which was evident from the post- test knowledge score. Hence it was inferred that the planned teaching is an effective strategy for providing information and improve knowledge of 1<sup>st</sup> year GNM students regarding iron deficiency anemia.

### Limitation of the study

- The samples were chosen from only one institute this restricts the generalization of the study
- The structured knowledge questionnaire was used for the data collection restricted the amount of information that could be obtained from the student nurses
- The study did not use a control group. The investigators have no control over the events that took place between pre-test and post-test.
- Study did not assess the clinical practice of student nurses.

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