

Effectiveness of Self Instructional Module on Knowledge Regarding Prevention of Iron Deficiency Anaemia among Adolescent Girls at Selected Pre-university Colleges of Moodbidri

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Abstract

Introduction: Iron deficiency occurs when the body fails to create enough healthy red blood cells. It occurs when the body lacks sufficient iron, which is required for the formation of haemoglobin. The World Health Organization estimates that anaemia affects 40% of children aged 6 to 59 months, 37% of pregnant women, and 30% of women aged 15 to 49 years globally. According to National Family Health Survey 5 (2019-21), prevalence of anaemia in India is 52.2% in pregnant women, 59.1% in teenage girls, and 57.0% in women. In Karnataka, anaemia affects 47.8% of women, 45.7% of pregnant women, 65.5% of children, 49.4% of adolescent girls. The Government of India took various steps to reduce anaemia. Anaemia Mukta Bharat (AMB) was launched in 2018 especially for vulnerable age groups. The Karnataka Health Department's "Anaemia Mukta Pusthika Karnataka" campaign aims to eradicate anaemia from the state by 2025. **Objectives:** To evaluate the effectiveness of Self-Instructional Module regarding prevention of iron deficiency anaemia among adolescent girls. **Methodology:** A quasi-experimental one group pre-test post-test design was used in the study. Non-probability convenience sampling was used to collect the data from 60 adolescent girls studying in P.U college Moodbidri. Data was collected by administering structured knowledge questionnaire. The post-test knowledge is assessed over a period of 7 days after intervention. **Result:** All the subjects (100%) were between 15-19 years and (90%) had a mixed dietary patten, 8.3% were non-vegetarian and (1.7%) were vegetarian. The mean post-test knowledge score of $14.00 \pm SD 2.32$ was higher than the mean pre-test knowledge scores of $13.85 \pm SD 2.06$. There is a significant difference in pre-test knowledge score and post-test knowledge score ($p < 0.001$). **Conclusion:** Self-instructional module is effective in increasing the knowledge of adolescent girls regarding prevention of iron deficiency anaemia among adolescent girls.

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INTRODUCTION

Anaemia is a condition that results when there is less amount of red blood cells than usual or the haemoglobin concentration is below normal. Haemoglobin is required to transport oxygen from lungs to every part of the body. When haemoglobin levels are insufficient or red blood cells are low, the blood cannot provide sufficient oxygen to the body's tissues [1].

Iron deficiency anaemia is a nutritional inadequacy and most frequent type of anaemia [2–4]. It is characterized by hypochromic microcytic red blood cells and is triggered by low iron levels in the body, which lowers erythropoiesis [5]. Although it affects people of all ages and genders such as pregnant women, young children, under-fives, teenage girls, and women are more likely to experience this health concern [6].

The World Health Organization defines an adolescent is a period of life between the ages of 10 and 19 years. In terms of development, physical, intellectual, emotional, psychological, and behavioural these are the most formative years [7]. Also, this is the time when iron deficiency anaemia is most likely to develop, especially in adolescent girls because of increased iron demand, menstruation, blood volume expansion, muscle mass gain, reproductive development, and enhanced cognitive function and activity [8]. People with mild to moderate iron deficiency anaemia are asymptomatic. Severe iron deficiency anaemia might result in typical anaemia symptoms, including fatigue, dyspnea, and chest pain. Iron deficiency anaemia in adolescent females frequently manifests as anaemia during pregnancy, raising the risk of preterm labor, low birth weight, and higher rates of mother and infant death. They also suffer from stunting [6].

The incidence of anaemia differs throughout the world, throughout nations, and even within a state's districts. As the prevalence of anaemia is high, there is a need for action to prevent and control this condition. The Government of India has implemented numerous measures to lower the frequency of anaemia among adolescent females. The Ministry of Health and Family Welfare established the Weekly Iron and Folic Acid Supplementation (WIFS) Program to address high prevalence and incidence of anaemia among adolescent girls [9]. The Karnataka government also launched an action plan to tackle anaemia (Anaemia Mukta Poushtika Karnataka) on November 22, 2023. The Health Minister, in association with the state women and child department, aspires to make Karnataka free from anaemia by 2025 [4].

OPERATIONAL DEFINITIONS

- *Effectiveness*: In this study, effectiveness refers to the degree of which the Self Instructional Module on knowledge regarding prevention of iron deficiency anaemia, achieves desired effect in enhancing the knowledge of adolescent girls as evidenced by increase in knowledge scores.
- *Self Instructional Module*: In this study, self instructional module is one of the instructional materials that help individualized learning for adolescent girls to provide information on prevention of iron deficiency anaemia.
- *Knowledge*: In this study, knowledge refers to understanding of the adolescent girls about the prevention of iron deficiency anaemia.
- *Iron Deficiency Anaemia*: In this study, Iron deficiency anaemia is a type of nutritional deficiency anaemia caused by inadequate dietary intake of iron.
- *Adolescent Girls*: In this study, adolescent girls are those between the age of 10 to 19 years.

MATERIAL AND METHODS

Tool: The tool for data collection consists of two sections:

Tool I: Demographic Performa

It contains five items for obtaining information regarding age of the girls, religion, type of family, dietary pattern and monthly income.

Tool II: Structured Knowledge Questionnaire on Knowledge Regarding Prevention of Iron Deficiency Anaemia

It consists of 25 items for obtaining information regarding prevention of iron deficiency anaemia. Each items have 4 responses and the subjects were requested to select the best option by ticking the correct answer. The minimum score was 1 and maximum score were 25.

The tools were validated by subject experts and pretested among 6 adolescent girls in PU College (Figure 1). The reliability of tool was found to be $r(6) = 0.85$.

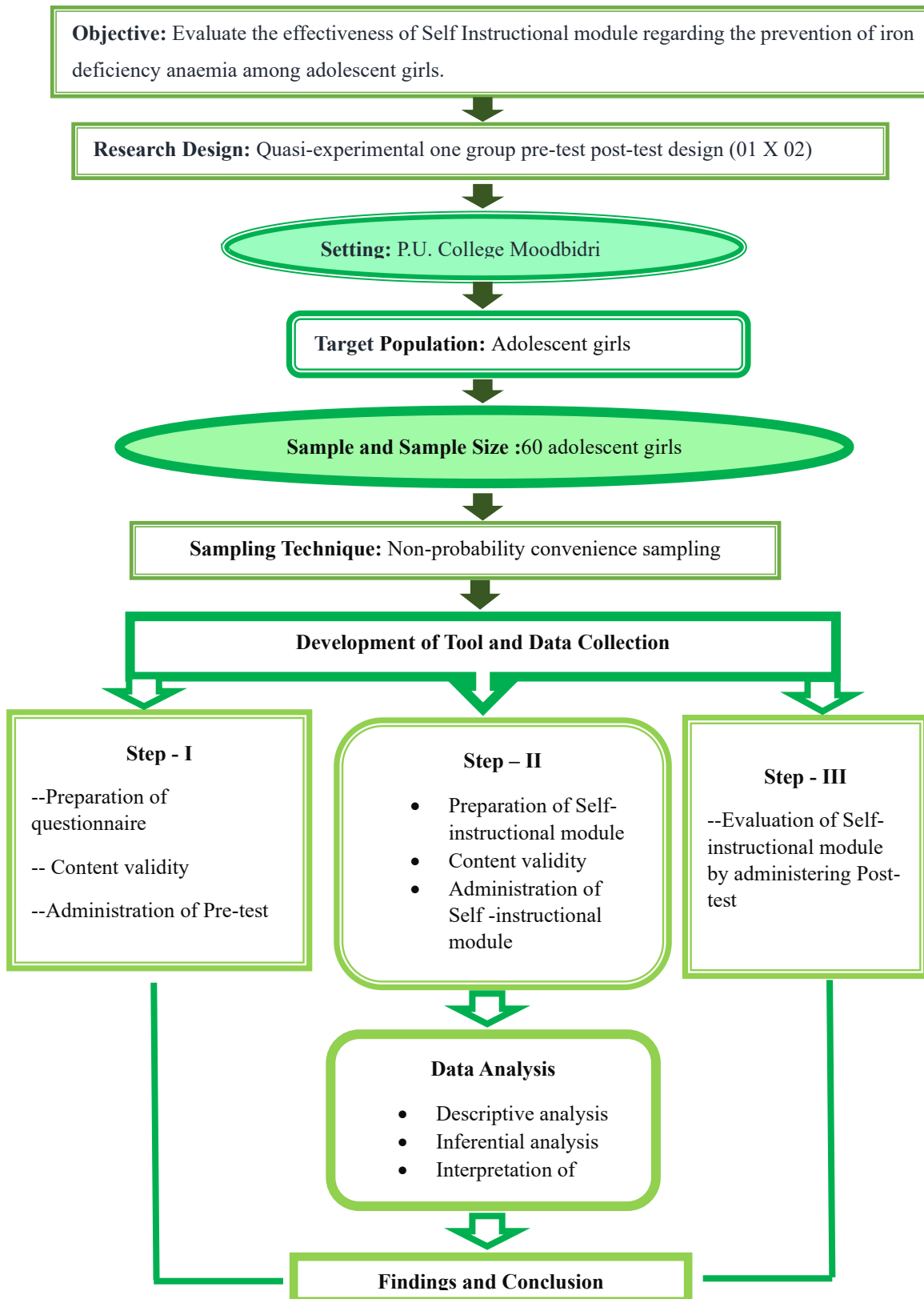


Figure 1. Schematic representation of the study.

RESULT

Socio Demographic Characteristic of Adolescent Girls

All the girls (100%) were belonging to the age group of 15 – 19 years. Majority of girls (90%) belonged to nuclear family and (10%) belonged to joint family. 8.3% were non-vegetarians, (1.7%) were vegetarians and (90%) were mixed dietary pattern.

Table 1. Frequency and percentage distribution of the subjects on the basis of selected demographic variables.

S.N.	Demographic variables	Frequency (f)	Percentage (%)
1.	Age in Years		
	a. 10-14 Years	0	0.0
	b. 15-19 Years	60	100
2.	Religion		
	a. Hindu	34	56.7
	b. Muslim	14	23.3
	c. Christian	11	18.3
	d. Others	1	1.7
3.	Type of Family		
	a. Nuclear	54	90
	b. Joint	6	10
4.	Dietary Pattern		
	a. Non Vegetarian	5	8.3
	b. Vegetarian	1	1.7
	c. Mixed	54	90
5.	Monthly Income		
	a. 10001-20000	7	11.7
	b. 20001-30000	15	25
	c. 30001-50000	20	33.3
	d. >50000	18	30

Distribution of Subject According to Their Level of Knowledge

The results revealed that in pre-test majority 52 (86.7%) had average level of knowledge, 5 (8.3%) had good level of knowledge, 3 (5%) had poor level of knowledge. In the post-test, the majority 58 (96.7%) had good level of knowledge, 2 (3.3%) had average level of knowledge.

Table 2. Comparison of the aspect wise mean pre-test and post test knowledge score on prevention of iron deficiency anaemia.

Level of knowledge		Pre-test	Post-test	Total
Poor	Count	3	0	3
	Percentage (%)	5	0	5
Average	Count	52	2	54
	Percentage (%)	86.7	3.3	90
Good	Count	5	58	63
	Percentage (%)	8.3	96.7	105
Total	Count	60	60	120
	Percentage (%)	100	100	100

Evaluation of Effectiveness of Self Instructional Module in Terms of Gain in Knowledge Score

The mean post-test knowledge score of 14.00 with SD ± 2.31 was higher than the mean pre-test knowledge scores of 13.85 with SD ± 2.06 .

The study also revealed that 't' value computed between pre test and post test knowledge score is statistically significant as $t(\text{cal}) = 18.93$, table value $t(59) = 1.67$ ($p < 0.05$). The calculated value was greater than table value.

Table 3. Over all Pre-test and Post-test Mean knowledge on Prevention of iron deficiency anaemia.

Period	N	Mean	Median	Standard deviation	Standard error mean	't' value	Remark
Pre test	60	13.85	14	2.05	0.26	18.93	Significant
Post test	60	14.00	20	2.31	0.29		

Table value $t(59) = 1.67$; $p < 0.05$

Hence, the null hypothesis was rejected and research hypothesis was accepted. This shows that there was significant difference between the mean pre-test and post-test knowledge scores of adolescent girls regarding prevention of Iron deficiency Anaemia.

Association Between Pretest Knowledge Score and Selected Demographic Variables

There is no association between pre-test knowledge score and selected demographic variables.

Effectiveness of Self Instructional Module in Terms of Gain in Knowledge Score

There is significant difference in pre-test knowledge score after Self-instructional module programme on prevention of iron deficiency anaemia. Hence, research hypothesis is accepted.

Table 4. Mean, standard deviation (SD) and 't' value of pre and post test score of one group.

Period	Paired Differences		't' value	p
	Mean	SD		
Pre-Post	6.45	2.63	18.93	<0.001

DISCUSSION

The study was conducted to know effectiveness of a structured teaching program on knowledge regarding the prevention and prevalence of anaemia, a quasi-experimental study was carried out among 100 adolescent girls in a specified area of Mohali, Punjab. After receiving a systematic education program, 85 (85%) of the adolescent girls reported having adequate knowledge, while 15 (15%) of the girls reported having moderate knowledge. These results demonstrate that knowledge increases after the intervention and that there is a strong correlation between knowledge level and demographic factors [10]. Therefore, in order to lower the prevalence of iron deficiency anaemia and to promote health, it is crucial to implement numerous education programs and awareness campaigns.

The current study focused on adolescent girls since they are susceptible to iron deficiency anaemia because there is an increased need for iron as a result of growing bodies, expanding blood volumes, increasing total blood volume, and monthly blood loss.

Limitation

The study is limited to the girl who are between the age group of 10-19 years and those available at the time of study.

Implication for Nursing

Nursing Practice

Nurses plays a crucial role in the prevention of iron deficiency anaemia. Nurses also help people to cope with the problems associated with this and improve people's quality of life as a teacher, counsellor and facilitator. Nursing personal should assist the people to become aware of and adopt healthy habit in their daily lives.

Nursing Education

The present nursing curriculum is health oriented, where emphasis is given on preventive aspects rather than curative aspect alone. The innovative teaching method can be used to impart knowledge to the adolescent girls regarding iron deficiency anaemia and its prevention by using various methods of teaching like lecture, discussion, simulation, role play and demonstration. Mass media can also be used to educate the public regarding prevention of iron deficiency anaemia.

Nursing Administrator

The nurse administrator should coordinate his or her duties with the preventive, curative, promotional, and rehabilitative aspects of care. Administrators should plan in-service education programs, refreshing courses, and workshops for nurses and encourage them to engaged in such activities. Nurse administrators should be passionate in developing policies for short- and long-term health education.

Nursing Research

Nursing research play a vital role in advancement of healthcare. Nursing research empowers the nurses to conduct various Evidence based-practices and bring changes in policies and practices that have a direct impact on patient's care and outcome. Through rigorous scientific studies researcher can identify various interventions and treatments that work best for particular patient population or medical condition.

CONCLUSION

Anaemia is a global public health problem for both developed and developing country. Its prevalence is particularly high in developing country due to poverty, inadequate diet, cast issues, parasite infestation and poor access to health care services. Nowadays, the majority of adolescent girls aim to keep a slim physique, which is one of the main causes of iron deficiency anaemia in this age group and also the impact of junk food and fast food diminished dietary consumption of iron-rich foods. In order to prevent iron deficiency among adolescent girls, there is a need for preventive action and awareness regarding iron supplement and dietary modification. Nutritional counselling and training program should be set up to educate the public on the significance of iron for adolescents.

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