



**ORIGINAL RESEARCH PAPER**

**Nursing**

**EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE AMONG ADOLESCENTS REGARDING ANEMIA**

**KEY WORDS:** Anaemia, Adolescents, Effectiveness, Structured Teaching Program

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**ABSTRACT**

A Pre-experimental study was conducted in Feb 2018 to assess the effectiveness of Structured Teaching Program (STP) on Knowledge among adolescents regarding anemia in Kendriya Vidyalaya, Patna, Bihar among 100 adolescents (15 – 18 years) selected using Probability Simple Random Sampling technique. Wiedenbach's "The Helping Art of Clinical Nursing" theory was adopted as conceptual framework. Knowledge score of adolescents regarding anemia before STP was 78% (average), 18% (poor) and 4% (good). Scores after STP was 64% (average), 36% (good) while none scored poor. Statistical Difference between mean and Standard Deviation (SD) of Pre test and Post test Knowledge scores before and after the STP showed a mean difference of 5.26, SD of 3.234, computed "t" statistics 16.26 at p value < 0.01 rejecting the null hypothesis at 99% confidence level. Highly significant relationship was found between Knowledge and demographic variables like sex and religion. Significant relationship of Knowledge was found with Birth order and Family income (₹) / month. Calculated Chi-square (χ<sup>2</sup>) value at p < 0.001 rejected the null hypothesis establishing highly significant association between the level of Knowledge and Pre-Post test.

**INTRODUCTION**

Anemia is one of the most widespread nutritional deficiency disease and a major public health concern affecting the entire world, of all the ages, both gender and is often ignored in both developed and developing countries. <sup>(1,2)</sup> Anemia is classified into three degrees according to WHO: mild, moderate and severe. Hb cut-off values of anemia are 10.0-11.9 g/dl (mild), 7.0-9.9 g/dl (moderate) and < 7.0 g/dl (severe). <sup>(3)</sup> Nutritional anemia is one of India's major public health problems, where more than 60% is prevalent in adolescent girls. <sup>(4)</sup> There are other conditions, causing anemia such as folate, vitamin B12 and vitamin-A deficiencies, chronic inflammation, parasitic infection, and inherited disorders. <sup>(5)</sup>

Adolescence is a period of transition between childhood and adulthood, a time of profound biological, intellectual and psychosocial changes. <sup>(6)</sup> During this time, 20% of final, adult height and 50% of adult weight are attained. Because of this rapid growth, adolescents are especially vulnerable to anemia. <sup>(6)</sup> This is a vulnerable period in the human life cycle for the development of nutritional anemia, which has been constantly neglected by public health programs. <sup>(7)</sup>

During adolescence, teenagers will acquire the Knowledge and skills that will help them to become independent and successful but iron deficiency and iron deficiency anemia can affect their learning, growth and development. Therefore adequate information can help the teenagers to stay healthy and prevent iron deficiency. <sup>(8)</sup>

**Need of the study:-**

Health is a fundamental human right and it is central to the concept of quality of life. <sup>(9)</sup> Anemia is the most common nutritional deficiency disorder in the world. Most of the anemia are due to inadequate supply of nutrients like iron, folic acid and vitamin B12, proteins amino acids, vitamin A, C, and other vitamins of B-

complex group i.e., niacin and pantothenic acid are also involved in the maintenance of hemoglobin level. <sup>(10)</sup> It is estimated that more than 50 million adolescents are anemic in India. <sup>(11)</sup> In 2009, there were 1.2 billion adolescents aged 10–19 in the world, forming 18% of world population. The vast majority of adolescents – 88% - live in developing countries. <sup>(12)</sup>

According to National Family Health Survey-4 (NHFS-4 2015-16), in India 58.5% and in Bihar 63.5% of children aged 6-59 months are anemic (<11.0 g/dl), in India 53.1% and in Bihar 60.4% of non-pregnant women aged 15-49 years are anemic (<12.0g/dl), in India 50.3% and in Bihar 58.3% of pregnant women aged 15-49 years are anemic (<11.0g/dl), in India 53% and in Bihar 60.3% of all women aged 15-49 years are anemic, in India 22.7% and in Bihar 32.3% of men aged 15-49 years are anemic (<13.0g/dl). <sup>(13)</sup>

Adolescence is a particularly unique period in life because it is a time of intense physical, psychosocial and cognitive development. Increased nutritional needs at this juncture related to the fact that adolescents gain up to 50% of the weight, more than 20% of their adult height, and 50% of their adult skeletal mass during this period. <sup>(14)</sup>

A 2007 Indian government "12 by 12 initiative", which aimed at ensuring to have hemoglobin of 12g/dl in Indian adolescents by 2012, listed that low dietary intake, poor availability of iron, chronic blood loss due to hookworm infestation, and malaria as the main causes of anemia in India. <sup>(15)</sup>

The Government of India, in partnership with other stakeholders, has made considerable efforts to improve the survival and development of children and adolescents. One such effort is the adolescent anemia control program, a collaborative intervention supported by UNICEF that began in 2000 in 11 states with objectives to reduce the prevalence and severity of anemia in adolescent girls through the provision of iron and folic acid

supplements (weekly), deworming tablets (bi-annually) and information on improved nutrition practices. Ensuring the nutritional, health and educational needs of its adolescent population, particularly girls, remains a key challenge for India. <sup>(16)</sup>

In Bihar 60% of adolescent girls and 30% of adolescent boys are anemic. <sup>(13)</sup> Above data and information reflects the urgency to provide education to the adolescents related to anemia and its management to curb the prevalence of anemia among adolescents. Hence, the researchers felt a need to conduct a study regarding the effectiveness of Structured Teaching Program on Knowledge regarding anemia among adolescents.

**OBJECTIVES:-**

1. To assess the existing Knowledge of adolescents regarding anemia before the administration of Structured Teaching Program.
2. To assess the Knowledge of adolescents regarding anemia after the administration of Structured Teaching Program.
3. To compare pre and post Knowledge of adolescents regarding anemia.
4. To find out the difference between the Knowledge of adolescents regarding anemia with selected socio-demographic variables.

**Hypothesis:-**

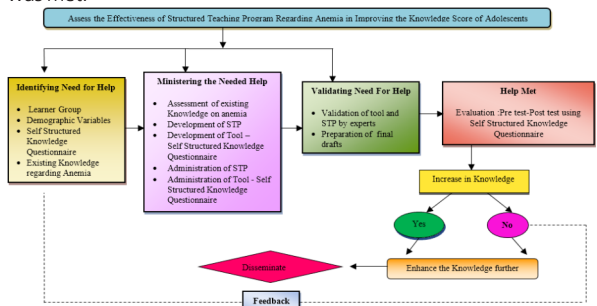
**H<sub>0</sub>-** There will be no significant difference of STP on Knowledge of adolescents regarding anemia.

**H<sub>1</sub>-** There will be significant difference of STP on Knowledge of adolescents regarding anemia.

**Operational definitions:-**

1. Knowledge–In this study it refers to the gain in comprehension of adolescents regarding anemia through Structured Teaching Program.
2. Anemia- In this study, anemia refers to the hemoglobin level less than normal levels as 12.1 to 15.1 gm/dl in adolescent females and 13.6 to 17.7 gm/dl in adolescent males.
3. Effects- In this study, it means the change in the responses of adolescents regarding anemia as a result of self-structured Knowledge questionnaire.
4. Structured Teaching Program (STP) - It refers to the teaching aids used to provide information and Knowledge regarding anemia and its management.
5. Adolescent–In this study, late adolescents are the person between age 15 to 18 years.

**Conceptual Framework:<sup>(17)</sup>** A conceptual framework is a blueprint. In this study, researchers adopted Wiedenbach's "The Helping Art of Clinical Nursing" theory (1964) having two parts: a) Helping Art of Clinical Nursing Theory, b) Nursing Practice. In the concept of Wiedenbach's art of Nursing, the Prescriptive theory describes a desired action and the ways to attain it. It consists of three components- Central purpose, Prescription, and Realities viz. agent, recipient, goal, means, framework. The main concept of Wiedenbach's Nursing Practice Theory was Identifying need for help, Ministering the needed help, Validating need for help, Help met. In this study, the researcher used the concept of Wiedenbach's Nursing Practice Theory to assess the effectiveness of STP on Knowledge regarding anemia among adolescents.



**Fig 1:** Wiedenbach's Helping Art Theory (1964) to assess the effectiveness of STP on Knowledge regarding anemia among adolescents

**Methodology:**

**Research Approach:** Pre experimental approach and Pre test-Post test research design was adopted for the qualitative study.

**Variables:**

**Independent variable:** Structured Teaching Program.

**Dependent variable:** Knowledge regarding anemia.

**Description of the tool:**

**Section I:** Consisting of 7 items -

a) Demographic profile of adolescents consisting of age, sex, religion, dietary pattern, meal pattern (per day), Source of information, birth order.

b) General Information consisting of type of family, number of family members, family income (/month), weekly iron and folic acid supplementation program (WIFS).

**Section II:** Consisting of 26 self structured multiple choice questions which was divided into five parts as follows:

**Part A** – Knowledge on general information about anemia.

**Part B** – Knowledge regarding causes and type of anemia.

**Part C** – Knowledge regarding clinical features and diagnosis.

**Part D** – Knowledge regarding prevention of anemia.

**Part E** – Knowledge regarding treatment of anemia.

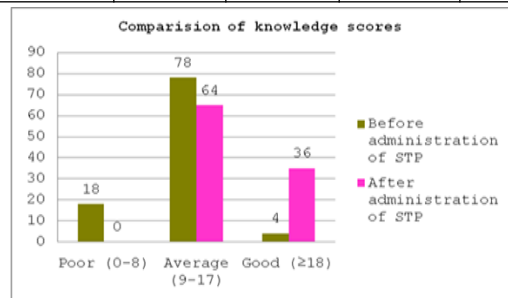
**The level of Knowledge was classified and scored as Poor (0-8), Average (9-17), Good (above – 18).**

**Validity and reliability of the tool:** Validity of the tool was done by 13 experts out of which 09 from Nursing field and 04 experts from Medical field. For the reliability **Cronbach's alpha test** was used which was 0.8, found to be acceptable.

**RESULT AND DISCUSSION:** Maximum 78% adolescents scored as average in the Pre test before the administration of STP in comparison to 64% scoring average in the post test after the administration of STP.

**Table 1: Knowledge of adolescents regarding anemia before and after the administration of STP**

Knowledge Score	Before administration of STP		After administration of STP	
	Frequency	Percent	Frequency	Percent
Poor(0-8)	18	18	0	0
Average(9-17)	78	78	64	64
Good(≥18)	4	4	36	36
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>



**Table 2: Statistical Difference between mean and S.D. of Pre test and post test (Paired sample t-test):**

The Knowledge scores of adolescents before and after the administration of STP to 100 adolescents with a mean difference of 5.26, SD of 3.234, computed "t" statistics as 16.26 shows high significance. Since the p value < 0.01, the null hypothesis is rejected at the 99% confidence level.

Knowledge scores	Paired difference		t-test	df	p-value	Significance
	Mean	SD				
<b>Before and after STP</b>	5.26	3.234	16.26	99	< 0.001	Highly significant

**Table 3: Chi-square test- Pre test and Post test for level of Knowledge:**

Calculated Chi-square ( $\chi^2$ ) is greater than tabulated Chi-square value at  $p < 0.01$  hence, null hypothesis was rejected establishing highly significant association found between the level of Knowledge and Pre-Post test. Thus, it is concluded that STP is more effective.

Test	Knowledge level			Total	Chi square	df	P
	Poor	Average	Good				
Pre	18	78	4	100	44.98	2	<0.001
Post	0	64	36	100			

**DISCUSSION:**

**1. Effectiveness of Structured Teaching Program in terms of gain in Knowledge in the adolescents regarding anemia.**

The findings of the present study showed that the mean post test Knowledge scores (16.54) in all the areas were higher than the mean Pre test Knowledge score (11.28) after administration of STP. The data were computed using the paired "t" test which showed that the research hypothesis was accepted depicting that the gain in Knowledge in the adolescents was "not by chance," instead the adolescents significantly gained Knowledge on anemia. This study was supported by a descriptive survey carried out by Sonia Chongtham (2017)<sup>(19)</sup> to determine the prevalence of anaemia and to evaluate the effectiveness of Planned Teaching Program on prevention and control of anaemia among 60 anaemic adolescent school children irrespective of genders, in terms of Knowledge and practice in selected Government School of Rajasthan, indicating that 60% were anaemic, 37(61.67%) lived in joint family, 50(83.3%) were vegetarian, 33(68.75%) female adolescent were menstruating. It was concluded that mean post test Knowledge score (27.25) of adolescent school children was higher than their mean Pre test Knowledge score (18.66) indicating increase in the Knowledge of adolescent school children.

Subhashini, A Sumithra and Gomathi (2016)<sup>(19)</sup> carried out a pre experimental research study in selected Nursing College, Tamilnadu among fifty adolescent girls aged 17-19 years old to assess the effectiveness of STP on prevention of iron deficiency anaemia. Findings showed that 38% had moderate Knowledge, and 62% had adequate Knowledge regarding prevention of iron deficiency anemia in the post test in comparison to Pre test where 44% had inadequate Knowledge, 44% had moderately adequate Knowledge and 12% had adequate Knowledge. Researcher concluded that there was a significant increase in the Post test Knowledge scores after STP.

**2. Association between the Knowledge of adolescents regarding anemia with selected demographic variables.**

The present study revealed that there is an association between the Knowledge of adolescents related to anemia with selected demographic variables since  $p < 0.05$  (5%). There was a definite significant association of demographic variables viz. sex, religion, birth order and family income (₹/month) in the pre test. The current study was supported by Al-alimi Abdullah Ahmed, Bashanfer Salem, Morish Mohammed Abdo (2018)<sup>(20)</sup> to determine the prevalence and risk factors of Iron Deficiency Anemia among 500 apparently healthy Yemeni students aged 17-25 years old at Hodeida University, Yemen indicating strong association of gender with anemia among female students (54%).

The study conducted by T Kaur and M Kaur (2015)<sup>(21)</sup> on anemia among 250 rural adolescent girls aged 13-15 years in district Karnal to highlight the problem of anemia and to study the dietary and other factors in its etiology revealing a strong association between Hindu religion (63.18%) and anemia; too supported the present study.

The following studies did not support the present study: Yerpude Pravin N and Jogdand Keerti S (2013)<sup>(22)</sup> conducted a cross sectional study of socio demographic determinants of anemia among 440 adolescent boys aged to 10-19 years old of Urban Slum Area in South India, revealing that there was significant association of anemia more in nuclear families than in joint families which did not

support the present study, as type of family was not significant in the present study.

Srivastava Anurag, Kumar Rakesh and Sharma Mukesh (2016)<sup>(23)</sup> conducted a cross sectional epidemiological study to assess the Nutritional anemia in 604 unmarried adolescent girls aged 13-19 years old in the rural areas of District Amroha, Uttar Pradesh which revealed that there was significant association of anemia with increased family size but in the present study, number of family members with anemia was not significant.

**Implications:**

The findings of this study have valuable implication towards nursing education, nursing practice, nursing administration and nursing research. The nurse educators can use the result of the study as an informative illustration for imparting education in an effective way by imparting various health information's, assisting the community in developing their health care potentials and utilising the health informatics. Nursing practice requires a blend of the most current Knowledge and practice standards with an insightful and human approach to client care, so the researcher's generally integrate findings into practice which should be research based in order to meet the social challenges. The health care administrators should be able to motivate and initiate the health professionals in organising, conducting and participating in various educational programs that would contribute to better health care delivery system. There is a wide scope of conducting research study in depth using different tools in order to assess the Knowledge of adolescents regarding anaemia.

**CONCLUSION:**

The conclusion inferred, was that Interactive method of teaching with the help of Structured Teaching Program was an effective method of enhancing the Knowledge of the subjects under study.

**Recommendations:**

The study can be replicated in different settings and all sectors with a larger sample in any age group and gender.

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**Conflict of Interests:** The authors declared no conflict of interests.

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