Effectiveness of Nutrient Mixture on the Level of Haemoglobin among the Adolescent Girls with Anemia

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ABSTRACT

Background: The present study aim was to assess the effectiveness of nutrient mixture on the level of haemoglobin among the adolescent girls with anemia at Kondanchery village, Thiruvallur District. **Purpose:** The current study was aim to assess the effectiveness of nutrient mixture on the level of haemoglobin among the adolescent girls with anemia. **Materials and Methods:** A quantitative research approach and Quasi- experimental research design was adopted for the present study. 60 adolescent girls with anemia selected by Purposive sampling technique. Structured questionnaire was used to collect the demographic variables and observation schedule to assess the Haemoglobin level among adolescent girls.

Results: Among 60 study participants the pretest mean score of anemia among adolescent girls was 10.29±1.06 and posttest mean score of anemia was 12.63±1.12. The mean difference score was 2.34. The calculated paired 't' test value of t=15.305 was found to be statistically significant at p<0.001 level

Conclusion: Hence the findings of present study concluded that, which clearly infers that the administration nutrition mixture among adolescent girls was found to be effective in reducing the level of anemia by increasing the level of haemoglobin in the posttest.

KEYWORDS: Anemia, Nutrient Mixture, Adolescent Gilrs, Haemoglobin level, Haemometer

INTRODUCTION

Anemia accounts for a majority of the nutritional problem across the globe and it is principally engendered by deficiency of iron. Although it occurs in all the age group, prevalence is on a higher side among women of childbearing age. Its prevalence is inordinately higher among developing nations, because of low socioeconomic status and indigent access to healthcare services.

Anaemia is the most common nutritional disorder worldwide. Anaemia is common during adolescent girls due to demands of increased growth and menstrual blood loss. WHO estimates that anaemia prevalence among adolescent girl is 27% in developing countries and 6% in developed countries. According to NFHS 4 53% of women aged 15-49 years are anaemic in India. The prevalence of anaemia in pregnant and non-pregnant females aged 15-49 years is 50.3% and 53.1% respectively in India. 2 Similarly the prevalence of anaemia in women aged 15-49 years in Madhya Pradesh is 52.5% and that in pregnant and non-pregnant women is 54.6% and 52.4% respectively as per NFHS 4. **(Veena Melwani, et al., 2018).**

National nutritional anemia control programme In India implemented through the primary health centers and sub centers. It aims at decreasing the prevalence and incidence of anemia in woman of reproductive age. Iron deficiency is the most prevalent micro nutrient deficiency and anemia were associated with impaired cognitive functioning, lower school achievement and most likely lower physical work capacity. Adolescent girls are at risk of developing iron deficient anemia because of the increased iron requirement for growth.

Anemia is most common nutritional deficiency disorder in India and remains a formidable health challenge. Anemia is defined as a condition in the

which the number of red blood cells (RBCs) their oxygen -carrying is insufficient to meet the body's physiologic needs. It is a condition when the normal number of RBCs (<4.2 million/µ1) or haemoglobin (Hb) level <12g/dl) in women and <12 in men.

Adolescent, as defined by World Health organization, it usually the period of life between 11&19 years during which most of the girls reach their puberty. This is the period, where rapid growth and visible changes are witnessed in terms of physical, mental, intellectual, emotional, emotional, psychological, and behavioural patterns. And during such rapid changes in physical growth they are also prone to Anemia.

Globally, anemia is the most common and inflexible nutritional problem affecting around w billion of the world's population having major impact on human health and social and economic development; and more than 89% of this burden occurred in developing countries Presently, the prevalence of anemia among adolescent girls is on the rise in India. Since adolescent period signalizes the beginning of menstrual period in girls, they are at a higher risk for nutritional anemia. According to recent statistics, there were about 1.2 billion adolescents worldwide, which constitute one-fifth of the total world's population and the figures are escalating. Developing countries account for about 5 million adolescent population, and in India about 21% of the total population are adolescents.

Statement of the problem:
A study to assess the effectiveness of nutrient mixture on the level of haemoglobin among the adolescent girls with anemia.

Objectives:
1. To assess the pretest and post-test level of haemoglobin among adolescent girls with anemia.

2. To assess the effectiveness of nutrient mixture on the level of haemoglobin among the adolescent girls with anemia.

3. To associate the post-test level of haemoglobin among the adolescent girls with anemia with their selected demographic variables.

Methods and Materials:
The study used quantitative research approach and Quasi-experimental research design with the sample size of the study was 60 who has adolescent girls with anemia who were selected by purposive sampling

technique and who fulfilled the inclusion criteria. The inclusion criteria were Adolescent girls in the age group of 12 – 19 years, Adolescent girls who are able to understand Tamil and English and the exclusion criteria were Adolescent girls with other comorbidities, Adolescent girls who are not willing to participate in the study, Adolescent girls who have irritable bowel syndrome. The study was conducted at Kondanchery, Thiruvallur District. Structured questionnaire was used to collect the demographic variables and observation schedule to assess the Haemoglobin level. On day 1 pretest was conducted among the samples and on the same day Nutrient Mixture was given to the samples and the posttest was conducted after 7days. The data was collected for a period of 1week and the collected data were analyzed using descriptive and inferential statistics.

Results and Discussion:
Section A: Structured questionnaire to assess the demographic variables on geriatric patients
The table 1 shows that most of the adolescent girls in the experimental group, 16(53.3%) were aged 10 – 14 years, 12(40%) had secondary education, 30(100%) residing in rural area, 20(66.6%) were Hindus, 23(76.7%) belonged to nuclear family, 18(60%) had family income of 5000 – 10,000 per month, 1(56.7%) received information through TV/Radio.

Whereas in the control group, 19(63.3%) were aged 10 – 14 years, 13(43.3%) had secondary education, 30(100%) residing in rural area, 20(66.6%) were Hindus, 21(70%) belonged to nuclear family, 15(50%) had family income of 5000 – 10,000 per month, 14(46.7%) received information through TV/Radio.

The table 2 shows that most of the adolescent girls in the experimental group, 17(56.6%) were aged between 10 – 12 years at the age of menarche, 17(56.7%) had regular menstrual cycle, 20(66.6%) had 2 – 3 days of menstruation, 16(53.4%) had normal blood flow, 23(76.7%) were non-vegetarian and had checked haemoglobin level recently.

Whereas in the control group, 13(43.3%) were aged between 10 – 12 and 13 – 15 years at the age of menarche, 15(50%) had regular and irregular menstrual cycle, 16(53.3%) had 2 – 3 days of menstruation, 15(50%) had normal blood flow, 24(80%) were non-vegetarian and 19(63,3%) had checked haemoglobin level recently.
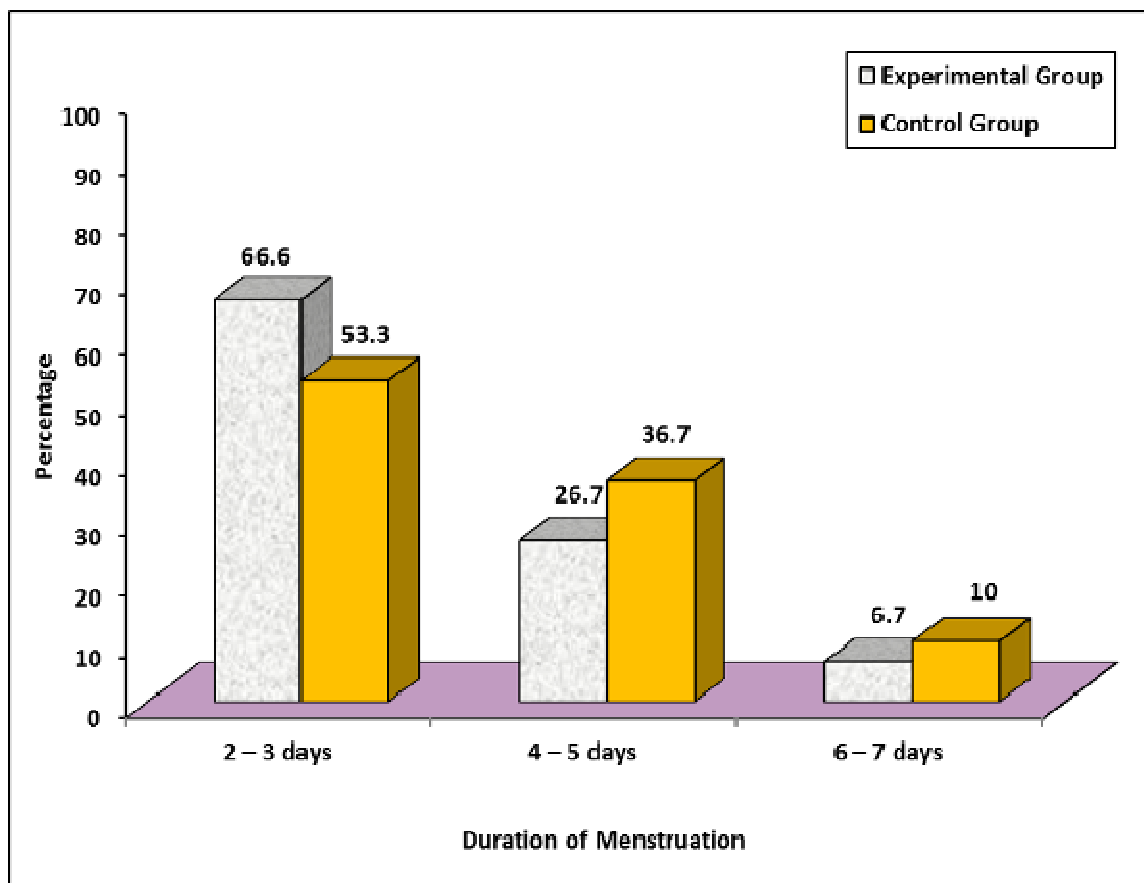
Percentage distribution of duration of menstrual cycle among the adolescent girls in the experimental and control group
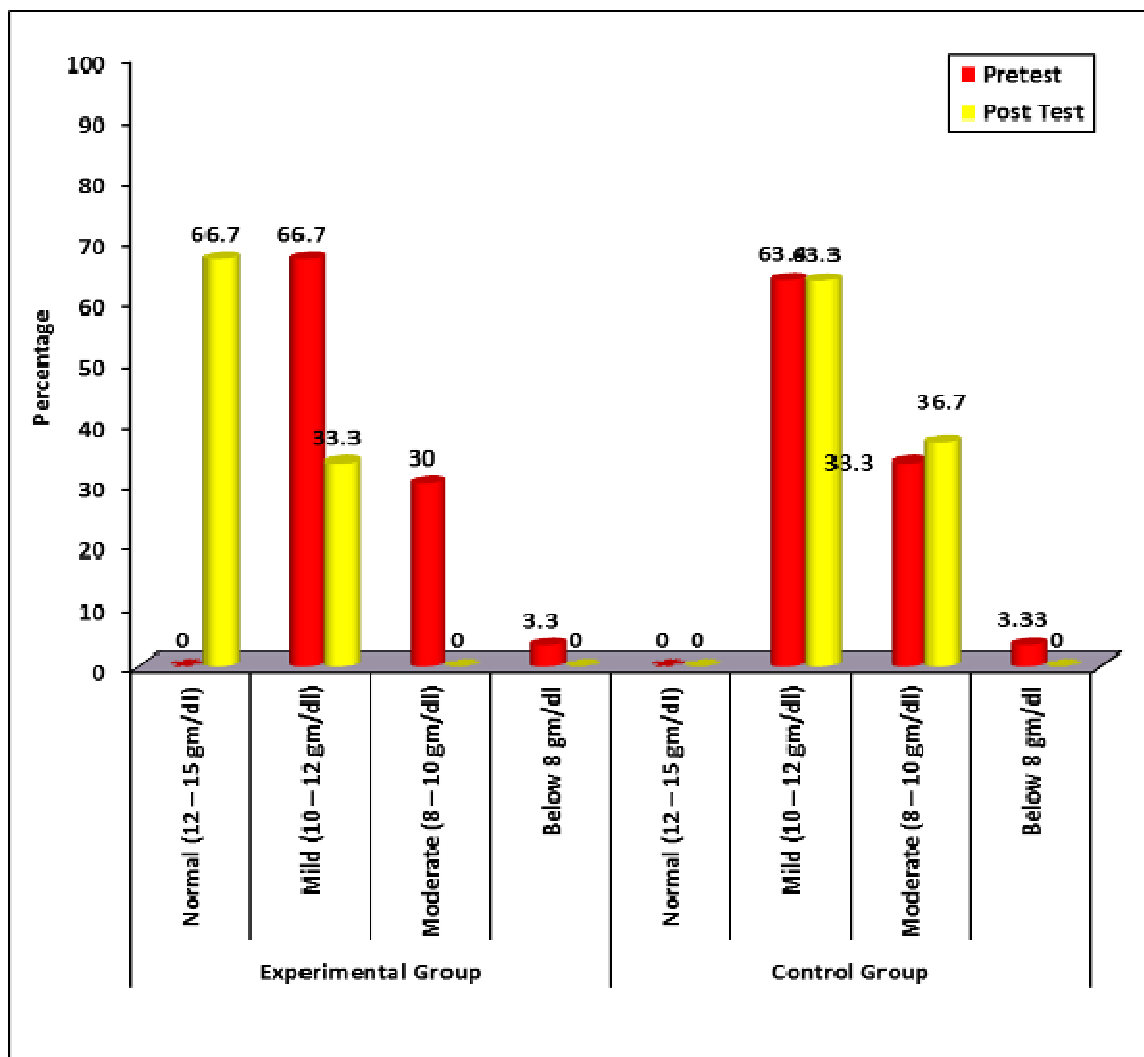
Section B: Observation of haemoglobin level

Table 3: Frequency and percentage distribution of pretest and posttest level of anemia among adolescent girls in the experimental and control group

N = 60(30+30)

Level of Anemia	Experimental Group				Control Group			
	Pretest		Posttest		Pretest		Posttest	
	F	%	F	%	F	%	F	%
Normal (12 – 15 gm/dl)	0	0	20	66.7	0	0	0	0
Mild (10 – 12 gm/dl)	20	66.7	10	33.3	19	63.4	19	63.3
Moderate (8 – 10 gm/dl)	9	30.0	0	0	10	33.3	11	36.7
Below 8 gm/dl	1	3.3	0	0	1	3.33	0	0

The above table 3 shows that in the pretest of experimental group, 20966.7%Z) had mild level of anemia, 9(30%) had moderate level of anemia and only 1(3.3%) had severe anemia whereas in the posttest after the intervention, 20(66.7%) were normal and 10(33.3%) had mild level of anemia.

Percentage distribution of pretest and posttest level of anemia among adolescent girls in the experimental and control group

Table 4: Comparison of pretest and posttest level of anemia among adolescent girls within and between the experimental and control group

N = 60(30+30)

Group	Pretest		Posttest		Mean Difference score	Paired 't' test & p-value
	Mean	S.D	Mean	S.D		
Experimental Group	10.29	1.06	12.63	1.12	**2.34**	**t = 15.305 p=0.0001, S*****
Control Group	10.22	1.06	10.25	1.05	0.03	t = 1.511 p=0.142, N.S
Mean Difference Score	0.07		**2.38**		***p<0.001 S – Significant N.S – Not Significant	
Student Independent 't' test & p-value	t = 0.256 p=0.799, N.S		**t = 8.498 p=0.0001, S****			

The table 4 depicts that in the experimental group, the pretest mean score of anemia among adolescent girls was 10.29±1.06 and posttest mean score of anemia was 12.63±1.12. The mean difference score was 2.34. The calculated paired 't' test value of t=15.305 was found to be statistically significant at p<0.001 level which clearly infers that the administration nutrition mixture among adolescent girls was found to be effective in reducing the level of anemia by increasing the level of haemoglobin in the posttest.

Discussion: Hence the research hypothesis H_1 that stated earlier **"There will be a significant difference between the pretest and posttest level of haemoglobin among adolescent girls with anemia"** was accepted.

Hence the research hypothesis H_2 that stated earlier **"There will be a significant association of posttest level of level of haemoglobin among adolescent girls with anemia with their selected demographic variables"** was accepted for the demographic

variable education and not accepted for all other demographic and clinical variables.

Conclusion:

The present study assessed the effectiveness of nutrient mixture on the level of haemoglobin among the adolescent girls with anemia. Based on statistical findings, it is evident that administration of nutrition mixture among the adolescent girls with anemia was found to be effective in reducing the level of anemia by improving the level of haemoglobin level among the adolescent girls.

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