EFFECT OF NUTRIENT GRAIN BALL ON LEVEL OF HEMOGLOBIN AMONG ANAEMIC ADOLESCENT GIRLS IN SELECTED SCHOOLS

Ms.Smita M Waghmare[1], Dr. Vijaya Rahul Kumbhar [2]

[1] Department of Obstetric and gynecology Nursing Bharati vidyapeeth (Deemed to be University), College of Nursing, Sangli, Maharashtra, India.

[1]smita603.sw@gmail.com, [2]vijaya.kumbhar@bharatividyapeeth.edu.in

ABSTRACT: The optimum level of functional or metabolic effectiveness of a living organism is known as health. Adolescence means a stage of development in which a human being transition from childhood to adulthood. This juncture is extremely important, since these changes are formative in the life of a person, where major physical, behavioral and psychological changes happen. Puberty / Adolescence begin with the development of secondary sexual characteristics and ends when the physical growth of the body is completed Good eating habits throughout puberty are crucial as body changes during this time influence a person's nutritional needs.The prevalence of anemia in India is the highest at 39.86%while Canada has the lowest at just 3%.The reduced hemoglobin level is known as iron insufficiency anemia or hypo chromic anemia and is classical in women who are pregnant, young children and female with extreme flow of blood during their menstruation period. According to GLOBAL DATA HEALTHCARE (2018) it is a very common disease in India.

Keywords- Nutrient grain ball, hemoglobin, anemic adolescent girls

INTRODUCTION

At the international level the information on epidemiology analyzed the literature to determine the total incidence of anemia in the sixteen major pharmaceutical markets that US ,France, Germany, Italy, Spain, UK, Japan, Australia, Brazil, Canada, China, India, Mexico, Russia, South Africa, and Korea total prevalence is defined as including both diagnosed and undiagnosed cases. Menstruation increases the loss of iron in young girl, hence increasing the need for more intake of iron.[1]Adding iron rich food sources in the regular diet helps to keep the level of hemoglobin within a normal range and keeps your body working optimal.[2]

According to a few studies consumption of nutrient grain, made up of locally available, cheap ingredients showed remarkable results in improving the level of hemoglobin among adolescent girls. nutrient grain ball contain a fair amount of iron (10.71g/dl) nutrient grain ball strengthens the body immune power ,stamina and has proved to be an excellent remedy for anemia, especially for adolescents by giving the nutrient grain ball it will helps to increase the hemoglobin level.[3]

Reaserch Statement:

A study to evaluate the effect of nutrient grain ball on level of hemoglobin among anemic adolescent girls from selected high schools corporation area.

OBJECTIVES OF THE STUDY:

1) To assess the level of hemoglobin before administration of nutrient grain ball in experimental and control group.

2) To assess the level of hemoglobin after administration of nutrient grain ball in experimental group.

3) To compare the level of hemoglobin after administration of nutrient grain ball in experimental group and control group.

4) To compare the pre test hemoglobin levels with different age groups and dietary pattern.

HYPOTHESIS

H0: There is no significant increase in level of hemoglobin after administration of nutrient grain ball.

H1: There is significant increase in level of hemoglobin after administration of nutrient grain ball.

ETHICAL CONSIDERATIONS:

Research proposal with data collection tool was presented in front of the ethical committee for approval. After approval from the ethics committee permission from the concerned authority of selected schools was taken. Written informed consent were taken from each parents and adolescent girls. Confidentiality maintained by giving code numbers to data collection tool.

Review of LITERATURE:

WHO defines an adolescent as any person in the age group of 10 and 19 years.[3] Anemia is one of the most common health related problem in India.[4]

According to NFHS 2017 globally ,anemia affects 1.62% billion people which correspond to 24.8% of population according to national family health survey (NFHS) more than half   (55%) of women in India have anemia. Among them 39% have mild anemia, 15% have moderate anemia and 2% of severe anemia.

World health organization, 2013 the level of blood is supposed to be 12 g / dl for teenager girls. WHO has set a hemoglobin levels from 11-11.9g/dl   minor level of hemoglobin{anemia}, 8-10.9g/dl   modest level of hemoglobin {anemia} < 8g/dl cruel level of hemoglobin {anemia}.(iron deficiency anemia).[5]

Sarikas, 2013 conducted a research to establish the incidence report of anemia among adolescent girlsin the age group of (12-15years) in a village school and to identify the incidence report of iron insufficiency in low hemoglobin level and normal hemoglobin level of school teenager girls in a village school at Maharashtra.[6]A sample of 100 girls were taken for the study[7].the result shown that 63 out of 100 adolescent girl students had hemoglobin level less than 12gm% anemia less than 12gm % was present 63% (63 out of 100 girls) 63 girls who were anemic and the prevalence of iron deficiency anemia was 50% the study concluded that iron deficiency is the major cause of anemia and most common nutritional disorder in our country and remains a formidable health challenge[8].

Gupta, A et al 2012 in this research study was descriptive survey in selected schools of Shimla. 1596 teenager girls were involved in this study. The study was completed from 2011 to 2012.[9] data analysis was done. the result showed the incidence of anemia was create to be 21.4% . it was seen that among the anemic teenager girls 77.3% had mild level of hemoglobin , 21.9% had moderate level of hemoglobin   and 0.5% had severe level of hemoglobin[10].

Reaserch Methodology:

This research project was undertaken to evaluate the effect of nutrient grain ball on level of haemoglobin among anaemic adolescent girls. Quasi Experimental pre test-post test design was used. In this study, the independent variable is nutrient grain balls Dependent variable in this study is the level of hemoglobin. Adolescent girls thosehemoglobin level from 7-10 mg/dl.Iron deficiency anemia. Having history of menorrhagia. Adolescent girls who are consuming iron supplement were excluded from the study. Sample size was 60 (30 experimental and 30 control) .Calculated by using Statistical formula is 30 cases and 30 control group, where alpha =1% and beta = 10%. Non probability purposive sampling technique was used.Blood haemoglobin was estimated by "Standard Digital hemometer. (Hemoglobin monitoring system) after selecting the samples based on inclusion criteriasupplementation was provided for those girls with nutrient grain ball and haemoglobin estimations were determined before and after supplementation toobserve the impact of supplementation on the health of adolescent girls.The nutrient grain ball (100 gm/ball) is prepared with the Soyabean 20gm, Jawar 10gm, Greengram 10gm, Peanuts 10 gm, jaggery 50 gm in grain powder, ghee as per the need.

Data is obtained by interviewing the subjects with demographic data and through their biochemical assessment to find outHb. levels from selected schools. The haemoglobin levels of the anaemic adolescent girls in experimental and control group were compared for change in before and after supplementation.

RESULT AND DISCUSSION:

Information regarding age and dietary pattern was collected and analyzed.

Table No. 1 Frequency And Percentage Distribution Of Demographic Variable.
       N=60

	EXPERIMENTAL GROUP		CONTROL GROUP	
VARIABLES	**N=30**	**(%)**	**N=30**	**(%)**
AGE IN YEARS				
13	10	33.3	10	33.3

14	10	33.3	10	33.3
15	7	23.3	8	26.6
16	3	10	2	6.6
DIETARY PATTERN				
VEGETARIAN	7	23.3	4	13.3
MIXED	23	76.6	26	86.6

Table no 1 shows frequency and percentage distribution of variables according to age in years reveals that out of 60 variable 20 (33.3%) belongs to age group of 13yrs and 14yrs, followed by 15 (25%) in 15 yrs in both the experimental and control group.

When dietary pattern was assessed it shows that, there is 49 (81.7%) of students takes mixed diet in both the experimental and control group.

Table No.2 Comparison between the pre test level of hemoglobin in experimental group and control group.

N=60

GROUP	MEAN	SD	t value	p value	Result
EXPERIMENTAL(n=30)	8.56	0.76	0.089	0.929	*
CONTROL (n=30)	8.58	0.69			

*- not significant

The findings of the above table no. 2 shows, there is no significant difference in mean HB levels of experimental and control groups before giving nutrient grain balls.

Table No.3 Comparison between the Post Test Level of Hemoglobin in Experimental Group and Control Group.

N=60

GROUP	MEAN	SD	t value	p value	Result
EXPERIMENTAL(n=30)	8.76	0.76	1.307	0.196	*
CONTROL (n=30)	8.51	0.71			

*- not significant

The findings of above tableno.3 shows that, there is no statistical significant difference in mean HB levels of experimental and control group after giving nutrient grain ball, but mean HB levels of experimental group is greater than control group.

Hence, H0 hypothesis is accepted and H1 hypothesis is rejected as nutrient grain ball is effective in increasing the level of Hb.

Even though the result of the study is not significant, but the sign and symptoms of anemia are reduced in the adolescent girls i.e. headache,backache,weakness, lethargic and fatigue.

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Table No: 4 Comparisons of Hb Levels In Pre Test And Post Test of Experimental Group As Well As Control Group.

N=60

	EXPERIMENTAL GROUP (n=30)	CONTROL GROUP (n=30)

	PRE TEST	POST TEST	PRE TEST	POST TEST
MEAN	8.56	8.76	8.58	8.51
Std deviation	0.76	0.76	0.69	0.71
Std error mean	0.14	0.14	0.13	0.13
Paired t	5.069		1.761	
P value	0.000		0.089	

The findings from above table no.4 shows that, for experimental group , there is statistical significant increase in mean HB levels after giving nutrient grain balls and for control group there is no statistical significant difference in mean HB levels after giving nutrient grain balls.

Table No:5 Comparison Between Pre Test Hb Levels In Different Age Groups And Diet Patterns

N=60

AGE	MEAN ±SD	SD ERROR	95% CONFIDENCE INTERVAL FOR MEAN	SIGNIFICANCE
13 (n=20)	8.47±0.85	0.19	(8.07,8.87)	
14 (n=20)	8.62±0.69	0.15	(8.30,8.94)	F=0.18 P=0.91
15 (n=15)	8.61±0.59	0.15	(8.29,8.94)	
16 (n=5)	8.62±0.82	0.37	(7.60,9.64)	

The findings in table no 5 shows that there is no statistically significant difference in mean HB levels at different age groups.

Table No 6: Comparison Between Pre Test Hb Levels In Different Age Groups And Diet Patterns.

N=60

DIATERY PATERN	N	Mean	SD	Std. Error Mean	Significance
MIXED	49	8.459	0.6377	0.0911	t = -2.117, p = 0.055
VEGITARIAN	11	9.055	0.8825	0.2661	

The findings in table no 6 shows that there is no statistically significant difference in mean Hb levels of mixed and vegetarian dietary pattern people.

CONCLUSION

The study findings concluded that nutrient grain ball which is very effective on hemoglobin level among adolescent girls with anemia which is denoted by not significant level of anemia after the intervention there had been a slightly significant increase in level of hemoglobin even though the result of the study is not significant but the sign and symptoms of anemia are reduced in the adolescents girls i.e. headache , backache , weakness ,lethargic and fatigue   The selected samples became familiar and found themselves comfortable and also expressed satisfaction.

Conflict of interest: Nil

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