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Periodic Research

Effect of Garden Cress Supplimentation Under Anemic Condition On Prepubertal Girls

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Abstract

Anemia is most common in all the groups of adolescent girls. Preparing them for sound health and accepting the challenges of health problems in their future life, their diet is tobe supplemented with traditional Iron rich food. So attempts were made to assess the effect of Garden cress supplementation on the iron deficiency anemia in pre-pubertal girls. 240 pre-pubertal girls were selected with the help of equal interval method of randomization ratio. To study the effect of dietary supplementation four different types of treatment were considered. Difference in terms of improvement in Anthropometric measurements and hemoglobin were indicative under observation. Majority of(69.16%) respondents had their Hblevel in between 8 to9.8 mg/dl which was greatly influenced by dietary iron and vitamin C. The quantity of daily iron intake in between 11 to 14 mg/ dlindicated the positive and effective supplementation on nthropometric status and Hb level in MSG followed by MEG and LIG respectively.

Keywords: Puberty, Anemia, Anthropometric status, Supplementation, LIG, MEG, MSG.

Introduction

Anemia is most commonin all the groups of adolescent girls to the tune of 20-25 percent irrespective of all social class. Off the various causes of anemia, in different age groups, in general and pre-pubertal girls particularly centered on nutritional aspect fed to them. Preparing them for sound health and accepting the challenges of health problems likely to be experienced in their future life, their diet is supplemented with traditional foods like, dates, garden cress, kharik, black raisins and pomegranatejuice,and fenugreek seeds etc. However the study was undertaken with specific objectives to assess the effect ofGarden cress supplementation in improving anemic condition of the pre-pubertal girls.

Objective:

1. To screen anemic condition of pre pubertal girls
2. To focus personal, socio–economic profile of pre-pubertal girls.
3. To understand the Nutritional status in terms of dietary pattern of anemic girls.
4. To examine consequential effect attributed to anemic condition of the respondent girls.
5. To assess the effect of supplementation in improving anemic condition of the respondent girls.

Methodology

The present study was undertaken at Akola situated in eastern part of Vidharbha region in the state of Maharashtra. Sample of pre-pubertal girls (age8 to 12 years) with anemic condition (below normal hemoglobin level) were selected. Amongst 560 girls universe 240 pre-pubertal girls were selected with the help of"stratified proportionate random sampling. These samples were initially placed into two categories based on their economic background. Pre tested scheduled was developed for collecting the information through personal interview. Data was collected with the help of schedule so finalized. In the present study an attempt is made to assess the effect of supplementation in improving anemic condition. The respondent girl before & after subjected to appropriate type of supplementation was ascertained. Their effective performance of role to a great extent depends upon their knowledge about the issue, type of attitude towards the same &adoption of recommended practices for the same. For assessing knowledge, attitude & adoption of practice to overcome anemic condition, different scale was developed.

Table No.1
Scorer Assigned to the Response Sought in A Scale Developed.

Sr. No.	Nature of response on the Statement	Score Assigned
A.	For knowledge Scale	
	High Knowledge	3
	Medium Knowledge	2
	Low Knowledge	1
B.	For attitude Scale	
	Strongly Agree	3
	Agree	2
	Disagree	1
C.	For Adoption Scale	
	High Adoption Scale	3
	High Adoption	2
	Medium Adoption	1

To study the effect of dietary supplementation on pre-pubertal anemic girls, four different types of treatments were considered.

The girls in the control group were not provided any dietary supplementation & more so were left to their own choice for dietary consumption during the entire span of experiment. Supplementation of garden cress a tradition food jaggery, coconut 15 gm/head were fed for 100 days to low income group respondents, garden cress, sugar, coconut, raisins (15gm)burfi were fed to middle income groups for 100 days. 4thcategory (high income group) were treated with medicinal supplementation (Dexorange). Two tablet in single dose were given per day for 100 days with consultation of medical experts. The respondent girls were de-warmed 10 days before supplementation to avoid warm infestation.

In order to work out efficacy to these treatments anthropometric measurement and Hb-level were recorded before and after treatment. Difference in terms of improvement in anthropometric measurement and hemoglobin was indicative of anemic condition of the respondent under observation.

Sr.No	Category to Respondents	Number of respond	Treatment Covered	Treatment Ingredients	Quantity Fed
1.	Control	60	-	-	-
2.	Low Income Group	60	Dietary supplementation	Garden cress Jiggery coconut	15 gm per day per head.
3.	Medium Income Group	60	Dietary supplementation	Garden Sugar Coconut raisins	15 gm per day per head.
4.	Medicinal Supplementation	60	Medicinal supplementation	Dexorange capsules	2 tablets per day per head.

Table No 2.Ingredients of supplementation treatments along with category of respondents

Result &Discussion:

Study is systematically assessed Hb level of pre-pubertal girls as a result of administering supplementation suitable to their economic conditions. Result emerged have been briefly summarized below.

Personal, Socio- economic & Psycho – situational profile

Majority (77%) of the respondent girls belongs in between nine to ten years & studyingin sixth standard, followed by fifth standard order who had second birth order.135 respondent girls come from nuclear type of family. Most of them participated in various type of activities voluntarily.80 percent of the respondent girls were maintaining friendly relationship with friend relatives& neighbors.50 percent respondents belonged to income group upto RS10,000/month, followed by those who reported their income in between Rs 10,000 to20,000/month.And only 12 percent reporting their income above 30,000/month. Majority of the girls expressed their favorable attitude toward health & its importance in academic excellence, success, sports games & attaining social status.

Anthropometric Measurements

Anthropometric Measurements indicates health status so measured &recorded revealed that out of 240 respondents, 109 girls the average weight was found to be 25 kg, ht 127 cm-138 cm, chest circumference 18-22cm, arms circumference 173 cm and hip circumference 136 cm.

Table No. 3
Distribution of Respondent Girls According To Their Physical Parameters

Sr. No	Anthropometric Profile Category	Respondent Reporting	
		No. (N = 240)	Percent
A.	WIGHT		
	Up to 25 kg.	109	45.41
	26 to 32 kg.	97	40. 41
	33 to 40 kg.	27	11.25
	Above 40 kg	07	2.91
B.	Height		
	Up to 126 cm.	47	19.58
	127 to 138 cm.	115	47.91
	139 to 150 cm.	64	26.66
	Above 150cm.	14	5.83

C.	Chest Circumference		
	Up to 60 cm.	110	45.83
	61 to 68 cm.	95	39.58
	69 to 76 cm.	30	12.5
	.Above 76 cm.	05	2.08
D.	Arm circumference		
	Up to 17 cm.	58	24.16
	18 to 22 cm.	173	72.08
	Above 22 cm.	09	3. 75
E.	Hip circumference		
	Up to 64 cm.	61	25.41
	65 to 74 cm.	136	56.66
	75 to 84 cm.	35	14.58
	Above 84 cm.	08	3. 33

Nutritional status

Hemoglobin level to a great extent influenced by dietary iron and vitamin C.It was necessary to examine daily average iron intake and vitamin C by the respondent girls through their daily diet .It was revealed that the quantity of average daily iron intake for the girls belonging to control LIG, MEG and MSG worked out to 12.386, 9.849, 14.386 &11.386mgrespectively. Corresponding figures for intake of vitamin C was found to be 26 – 32, 20, 61, 29.78 & 20.34 respectively. Overall food and nutrient intake was found inadequate in all the respondent pre- pubertal girls.

Effect of supplementation

Special emphasis was led on assessing the effect of supplementation on health, prominent parameter namely Hemoglobin level. Majority 69.16 percent of the respondent girls had their hemoglobin level in the range of 8to 9.8 g/dl followed by those who had their hemoglobin level in between 10-11.8 g/dl. None of the girls had their hemoglobin level above 11.8 g/dl.

Table no 4:
Distribution of Respondent girls according to their hemoglobin level before supplementation.

Sr. No	Hemoglobin level category	Respondent reporting	
		No. (N = 240)	Reporting
1.	Up to 7.8 g/dl.	04	1.66
2.	8to 9.8 g/ dl	166	69.16
3.	10to 11.8 g/ dl	70	29.16
4.	Above 11.8g/dl	-	-

	Health Status Category	Respondent Reporting	
		Frequency	percent
1.	Control Group		
	Best (above 23)	05	08.33
	Satisfactory (20-23)	39	65.00
	Unsatisfactory (below 20)	16	26.66
2.	LIG		
	Best (above 23)	05	8.33
	Satisfactory (20- 23)	36	60.00
	Unsatisfactory (below 20)	19	31.66
3.	MEG		
	Best (above 23)	21	35.00
	Satisfactory (20- 23)	33	55.00
	Unsatisfactory (below 20)	06	10.00
4.	MSG		
	Best (above 23)	14	23.33
	Satisfactory (20- 23)	39	65.00
	Unsatisfactory (below 20)	07	11.66

Distribution of Mother Respondents according to Health status.

For influencing weight, height, chest, arm & hip circumferences before and after supplementation for control LIG, MEC, MSG was given in

Table No.6:
Effect of supplementation in Influencing selected parameters of Health of Respondent Girls.

Sr. no.	Name of Group	Weight (Ave.)(kg) Before| After	Height (Ave.) (cm) Before| After	Head circumference (Ave.) Before| Aftre
1.	Control	25.61| 26.61	133.31 | 135.13	50.85 | 52.24
2.	LIG	25.38 | 27.5	133.83 | 136.85	50.76 | 51.55
3.	MEG	28.8 | 29.73	136.33 | 139.91	51.08 | 52.36
4.	MSG	25.35| 27. 01	13.75 | 135.65	50.98 | 52.96

Table no. 5:

Frequency distribution of the girl respondents indicated that 67.91 percent of the girl respondents were placed into satisfactory category of healthstatus followed by those (45) who were placed into unsatisfactory category of health status.Present study has been planned and directed to ascertain efficacy of various type of supplementation on Hb level.

Sr. no	Name of Group	Chest circumference (Ave.) (cm)		Arm circumference (Ave.) (cm)		Hip circumference (Ave.) (cm)	
		B	A	B	A	B	A
1.	Control	61.85	64.13	18.56.	19.15	68.01	71.1
2.	LIG	61.95	64.25	18.93	19.45	67.81	71.43
3.	MEG	63.46	66.3	18.76	19.83	72.21	75.41
4.	MSG	62.08	64.25	18.76	18.95	67.91	70.75

	Name of Group	Hemoglobin level (Ave.) (mg/ dl.)	
		Before	After
1.	Control	9.38	9.68
2.	LIG	9.70	10.88
3.	MEG	9.18	11.56
4.	MSG	8.71	11.76

It is observed that there is positive effect of supplementation on height, weight, chest, arm & hip circumference. Hb level of the respondent girls estimated before and after intervention as indicator to evaluate the impact of iron supplementation. Hb level was found to be considerably increased in experimental groups. LIG, MEG, ESG, similar, findings was observed by Devi& Uma (2005), Beinner,Lamounies. Et al (2005)Tiwari (2004).

It was essential to ascertain effect of supplementation on different groups LIG, MEG, MSG, ANOVA was considered as an appropriate therefore data were subjected to F test.

Table No.7:
Difference attributed to supplementation treatments between groups under Investigation

Sr.no.	statistics	D.F	S.S	M.S.S	F. Value
1.	Rows	3	320.734	106.91913	1257.471*
2.	Error	236	20.0658	8.5024	
3.	Total	239	340.7998		
Sr. no	**Statistics**	**Control**	**LIG**	**MEG**	**MSG**
1.	Treatment mean	0.1866	2.02	2.630	3.29
2.	S.E.	3.7644(M)	5.3236		
3.	C.D.	0.1117			
4.	C.V.	14.3522			

Results emerged clearly brought out significant difference between the groups as attributed to the effect of supplementation. Calculated value of "F" is (1257.417) greater than table value (3.03) at 5 percent probability. After studying the difference in the treatments mean with respect to critical difference value (0.1117) which indicated that MSG is found to be more effective and followed by MEG and LIG.

Conclusion:

Majority of mother are not awareabout maintaining hemoglobin level. In real sense they do not know what exactly Hb is? What are their levels, which are the locally available or traditional major food sources to fulfill their nutritional requirement. This necessitated organization of orientation for providing technical knowhow by the experts to the extent of their satisfaction. Mothers of the respondents suggested that girls need to be guided by experts in the schools frequently and there is a provision of supplementation instead of routine regular diet to the girl.

Hemoglobin level to a great extent influenced by dietary iron and order to improve anemic condition there should be careful to feed supplementation prepared suiting to their financial resources.

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