

Nutritional Study of Anaemic Girls Amravati City

P.M. Band and J. P. Band
Sarswati Nagar, Amravati

Abstract: Iron deficiency anaemia is the major nutritional disorder of public health significance in today's developing world with grave health hazards in young children girls and women of reproductive age. Hence, the study was conducted to determine the prevalence of anaemia, food habits, food and nutrient intake amongst 220 college going. It was found that 45.56 per cent respondents were anaemic as per WHO (2001). The maximum 54 per cent anaemic respondents were having mild form of anaemia, 44 per cent moderate and only 2 per cent were severely anaemic. None of the respondents in both anaemic and non anaemic group met out the RDA for food stuffs and nutrients. The per cent adequacy of nutrients like protein, iron, calcium, vitamin 'C', folic acid and vitamin B12 was found to be less than RDA. It was concluded that dietary modifications and nutrition counselling is essential to prevent anaemia in girls, would be mothers of the nation.

Keywords: Amravati, Anaemic Girls, Nutrition

Introduction:

World interest in health issues has grown dramatically in the past decade beginning with the International year of Youth in 1985 and the World Health Assembly in 1989 when discussions were focused on the health of group. The adolescents constitute a vulnerable group, particularly in developing countries where they are traditionally married at an early age and exposed to a greater risk of reproductive morbidity patterns. Iron deficiency precedes anaemia becomes clinically apparent. In infants and young children, these consequences, include impaired coordination; impaired scholastic achievements, reduced physical activity and behavioural effects such as lack of concentration and fatigue, work capacity. Iron is an essential nutrient for skeletal growth so iron deficiency maybe a limiting factor for growth during adolescence. Apart from deficiency of iron in the diet relative to requirements, dietary iron

customary diets in Asia is of low bioavailability. Iron requirements during adolescence is greater.

Methodology

A total 220 girls (16-18 years) were selected by purposive random sampling technique from different Junior colleges. The selected girls were interviewed for 3 consecutive days for daily consumption of foodstuffs by 24 hrs. recall method. The daily nutrient intake was calculated on the basis of daily consumption.

The mean haemoglobin level under mild, moderate and severe condition, were 10.07 ± 0.02 , 9.04 ± 0.07 and 6.25 ± 0.25 g/dl, respectively. The severe anaemic girls were only 2 with haemoglobin concentration of 6.0 and 6.5 g/dl. The percent prevalence of mild and moderate anaemic girls was 54 and 44 per cent respectively. The percentage of mild anaemic condition were more in college going girls which can be restored easily by suggesting proper nutrition and iron rich diet.

Food habits:

Table 3: Percent prevalence of anaemia in college going adolescent girls according to Food habits.

Sr. No.	Characteristics	Non Anaemic	Per cent	Anaemic	Per cent	Total	Per cent	χ^2
1	Vegetarian	79	65.83	56	56.00	135	61.37	2.218 ^{NS}
2	Mixed	41	34.17	44	44.00	85	38.63	
	Total	120	100.00	100	100.00	220	100.00	

It was observed that 61.37 per cent girls showed their liking for vegetarian foods and 38.63 per cent preferred occasionally non-vegetarian food, hence their liking was of mixed type food habits. The 65.83 per cent out of total non anaemic girls were having for vegetarian food whereas 34.17 per cent takes mixed diet. Under anaemic group 56 per cent girls were vegetarian and 44 per cent were having mixed type of food habit. However, the χ^2 analysis indicated non significant association between food habits and prevalence of anaemia of foodstuffs and compared with RDA and the percent adequacy was also calculated. The haemoglobin level was estimated and classified according to WHO (2001) to know the prevalence and severity. The data collected was subjected to tabular analysis, percentage, Chi-square analysis, "F" test and correlation to draw the conclusion of the study.

Results

Prevalence of Anaemia

Table 1: Distribution of College going girls according to prevalence of Anaemia.

Sr. No.	Prevalence of anaemia	No. of respondents	Per cent	Mean Haemoglobin value gm/dl
1	Anaemic (Hb<11 gm/dl)	100	45.46	9.56 ± 0.055
2	Non anaemic (Hb>11 gm/dl)	120	54.54	11.79 ± 0.078
	Total	220	100.00	

It was found that out of 220 respondents 45.46 per cent were anaemic and 54.54 per cent were found to be non anaemic. It was revealed that about 50 per cent college going girls were anaemic. A Blood haemoglobin level of the respondents indicates capability of work to do or the vigour of the girls at age as it carries oxygen to every tissue for normal physiological functions. Lower haemoglobin level also indicates the health status of the subject and working capacity.

Severity of Anaemia

Table 2: Distribution of College going girls according to severity of anaemia.

Sr. No.	Severity of anaemia	No. of respondents	Per cent	Mean Haemoglobin value gm/dl
1	Mild (10- 10.9 g/dl)	54	54.00	10.07 ± 0.02
2	Moderate (7 - 9.9 g/dl)	44	44.00	9.04 ± 0.07
3	Severe (below 7 g/dl)	02	02.00	6.25 ± 0.25
	Total	100	100.00	

S.No.	Food stuffs	RDA	Intake			
			Non anaemic	*• adequacy	Anaemic	Per cent adequacy
1	Cereals (g)	300				
		Mean	198.84	66.28	160.37	53.45
		S.D.	±8.56		±7.93	
		Range	120.37-240.2		100.64-250.97	
2	Pulses (g)	60				
		Mean	32.62	54.36	24.34	40.05
		S.D.	±7.86	r	±4.67	
		Range	30.78-64.73		15.43-30.77	
3	Green leafy vegetables'	100				
		Mean	35.84	35.84	25.59	25.59
		S.D.	±5.57		±6.03	

S.No.	Food stuffs (g)	RDA	Ivlean Intake			
			Non anaemic	*/* adequacy	Anaemic	Per cent adequacy
		Range	30.78-64.73		18.68-40.79	
4	Other vegetables (g)	100				
		Mean	45.37	45.37	40.08	40.08
		S.D.	±6.38		±4.78	
		Range	25.84-58.87		28.48 - 50.89	
5	Roots and tubers (g)	100				
		Mean	40.66	40.66	38.80	38.80
		S.D.	± 6.67		±4.91	
		Range	30.07-69.34		24.28-50.0	
6	Fruits (g)	100				
		Mean	60.78	60.78	40.38	40.38
		S.D	±12.35		±6.88	
		Range	40.76-50.33		30.04-75.96	
7	Milk and Milk products (ml)	500				
		Mean	153.04	30.608	130.75	26.15
		S.D.	±19.38		±10.18	
		Range	50.76-200.89		20.08-180.37	
8	Fats and oils (g)	25				
		Mean	16.25	65	12.36	49.44
		S.D.	±1.59		±2.02	
		Range	10.20-22.00		8.50-18.76	
9	Sugar and jaggery (g)	30				
		Mean	25.76	85.80	15.76	52.50
		S.D.	±1.17		±2.07	
		Range	15.08-28.70		12.34-20.05	

It was observed that, the diet consumed by the girls was deficient in all the food stuffs. The diet was mainly cereals based specially wheat; however, the other cereals consumed were wheat, rice and Jowar. The percent adequacy of pulses was 54.36 per cent in non anaemic group and 40 per cent adequate among anaemic girls. The per cent adequacy of green leafy vegetables was found to be 35.84 per cent in non anaemic and 25.59 per cent in anaemic girls. It was observed that the consumption of GLV is very less and between the range of 30.78 to 64.73 g/d in non anaemic and between 18.68 to 40.29 g/d in anaemic girls, both the groups were less than RDA. The consumption of *m.* milk and milk products was found to be only 153.04 g/d with 30.6 per cent adequacy in • non anaemic and 130.75 g/d with 26.15 g adequacy in anaemic girls

Table 5: Mean daily consumption of various nutrients

S.N.	Nutrients	RDA (ICMR)	Mean Intake			
			Non anaemic	Per cent adequacy	Anaemic	Per cent adequacy
1	Energy (Kcal)	2060				
		Mean	1680	81.55	1406	68.25
		S.D.	±40.78		± 60.53	
		Range	1208-1710		100.64-250.97	
2	Protein (g)	63				
		Mean	34.63	54.0%	28.76	45.65
		S.D.	±1.28		± 0.53	
		Range	15.30-55.8		• 12.550.4	
3	Fat (g)	22				
		Mean	20.04	91.02	15.87	68.18
		S.D.	±2.82		±3.14	
		Range	112.7-308.5		108.5-280.6	
4	Calcium (mg)	500				
		Mean	250.88	50.76	202.24	40.44
		S.D.	±14.8		± 18.25	
		Range	112.7-308.5		108.5-280.6	
5	Iron (mg)	30				–
		S.D.	±1.82		±0.22	
		Range	9.8-26.3		7.6-24.4	
6	Vitamin C (mg)	40				
		Mean	23.42	58.55	21.77	54.425
		S.D.	±0.98		± 0.46	
		Range	12.7-385		18.3-25.8	
7	Folicacid(ug)	100				
		Mean	50.71	50.76	42.33	42.30
		S.D.	±1.82		±0.60	
		Range	15.28-42.63		10.36-38.58	

S.N.	Nutrients	RDA (ICMR)	Mean Intake			
			Non anaemic	Per cent adequacy	Anaemic	Per cent adequacy
8	P carotene (ug)	2400				
		Mean	1648	68.66	* 1276	53.16
		S.D.	±88.2		±62.4	
		Range	806.56-2268.08		735.88-2069.11	
9	Vitamin B ₁₂ (ug)	0.2-1.0				
		Mean	0.58	58.00	0.16	• 16.00
		S.D.	±0.04		±0.02	
		Range	0.06-0.98		0.02-0.66	

The mean daily intake of calories were 1680 Kcal /d in non anaemic with 8 L5 5 per cent adequacy whereas, in anaemic grls, it was 1406 Kcal/d with 68.25 per cent adequacy. The adequacy of protein was 54.96 g /d in non anaemic girls and 45.65 per cent in anaemic girls.

Table 6: Cor relation among haemoglobin and protein, iron, Vitamin C and folic acid.

Characters	Correlation	SE	t value	Regression
Hb. Protein	0.7709	0.02	18.06**	6.43
Hb.Fe	0.5519	0.04	9.77**	7.68
Hb. Vit. C	0.6823	0.03	13.80**	7.98
Hb. Folic acid	0.6189	0.04	11.71**	6.33

The value indicates that there was significant (p<0.01) correlation between the haemoglobin level and protein, iron, vitamin C and folic acid intake.

Conclusion:

The prevalence of anaemia was predominant in college going adolescent girls. It was found that nearly, 50 per cent population is deficient in the dietary intake including haemoprotic nutrients which have adversely affected their haemoglobin

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