

## Effect of following a strategy evolved for prevention and management of Anaemia in a rural area of Jammu J&K

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### Abstract

**Introduction:** Anaemia is a major public health problem among all age groups in India. The incidence is highest among women of childbearing age and young children. It causes a significant impairment of maximal work capacity, both physical & mental.

**Aims and Objectives:** A. To determine the Prevalence of Anaemia among people in a rural area in Jammu.

B. Correction of Anaemia following a strategy evolved for prevention and management of Anaemia.

**Materials and Methods:** The study was conducted in village Kharian of rural field practice area of the department of community medicine of Government Medical College, Jammu. Whole of the population of this village was included in the study involving a door to door house hold survey. All the members of household were included and were administered a pretested questionnaire collecting data on the various variables. De worming of all the people under study with Albendazole was done and Iron folic acid in appropriate doses were administered daily to all diagnosed as anaemic after doing the haemoglobin estimation. Repeat haemoglobin estimation of the same persons was carried out after three months of treatment following all the strategies of anaemia control.

**Results:** Following the strategies adopted, there was a steady rise in haemoglobin level and it continued rising till completion of three months of follow up showing mean rise of 2.350 GMS% in haemoglobin levels.

**Conclusions:** It was seen that after three months of iron supplementation to the Anaemic cases the haemoglobin level continued rising till completion of three months follow up period and these strategies can be adopted for anaemia control.

### Introduction

Anaemia is a major public health problem among all age groups and both the sexes in India. The incidence is highest among women of childbearing age and young children varying between 60 to 70 percent.

Anaemia, even when mild, causes a significant impairment of maximal work capacity both physical & mental. The more severe Anaemia, more is the reduction in work performance and thereby productivity. The cellular response and immune functions are also impaired due to it, thereby predisposing the individual to repeated infections. Hence, it is responsible for significant morbidity & even to mortality. Nutritional Anaemia is highly prevalent in the state of J&K and is largely preventable. Much stress has been laid on the study of Anaemia in women of reproductive age group and at the same time the problem of Anaemia in other age groups & males has not been studied much. Thus, this study was designed & conducted in all the age groups & both the sexes, to get a panoramic view of the problem of Anaemia & to evolve the strategies to combat the same in the population as a whole.

### Aims and Objectives

A. To determine the Prevalence of Anaemia among people in a rural area in Jammu.

B. Correction of Anaemia following a strategy evolved for prevention and management of Anaemia.

### Materials and Methods

The study was conducted in the Block RS Pura, the rural field practice Area of the department Of Community Medicine of government Medical College, Jammu. This block is distributed in 9 zones (areas) including R.S. Pura town catered to by CHC RS Pura itself, 5 Primary Health Centre (PHC) Areas and 3 Allopathic Dispensary (AD) Areas catered to by their respective health institutions. One population cluster was decided to be selected for whole population coverage and Village Kharian was selected for the conduct of this part of study, following Simple Random Sampling Technique. A draw of lots was used to select one village out of 194 villages. This is a sub centre Village located at a distance of 14 KMs from Government Medical College, Jammu. Whole of the population of this village was included in the study that involved a door to door household survey as follows: First of all, a research team was composed. It comprised of the team leader i.e., a specialist doctor (MD of Community Medicine), a Public health assistant & a laboratory assistant under supervision of a faculty member of the department of Community Medicine to conduct on the spot sample collection during house to house survey till all the households in the study area were covered.

### Meeting with Village Head & leaders

Three meetings, one in beginning and two during the course of study were conducted with the Sarpanch and the Panchayat members of the area apprising them of the purpose of the study and to seek their cooperation. In the

first public meeting they introduced the research team to the public, seeking their full cooperation and full participation, keeping in view the invasive nature of the investigations which included the haemoglobin estimation.

The health care workers of Sub centre Kharian, ASHA, Anganwari worker and teachers of the local school were also involved to get on spot help where ever necessary. They also attended the public meetings.

### Procedure of the study

On entering each household, after introducing itself to the head of the family or any other responsible person present, the team member/leader explained the purpose of visit and then after getting consent of the respondent, collected the introductory data regarding family composition, family type, caste, socio economic status, residence, education and occupation etc. from him/her. Thereafter, all the members of household were included in the study and were administered a pretested questionnaire collecting data on the various variables including age, education, practice of walking bare foot, history of passing worms, history of deworming, intake of any iron and dietary supplements, etc. along with age at menarche\*, menstrual history\*, obstetric history\*, (\*only from females in reproductive age group). In addition, weight and height were also recorded. Persons under study who were not available for the first time in their homes were paid a second visit after determining the feasibility with the other family members. The households locked for the first time were visited once again after determining the feasible time in consultation with the neighbours. The persons not available for the second time were treated as non-respondents and the households found locked on the second visit also were excluded from the study.

### Haemoglobin estimation

All the persons under study were made to undergo Haemoglobin estimation by Cyanmethaemoglobin method<sup>1</sup>. The cut off levels for determining anaemia and its severity i.e. mild, moderate and severe were taken as those recommended by the WHO.<sup>(2)</sup>

Those having severe anaemia were excluded from the study and referred to CHC /GMC Jammu for further management/hospitalization.

### Administration of Medicines

a. **De worming** with Tablet/Syrup Albendazole 400 mg for all age groups except in children below 2 years (who received 200 mg of the same drug) as a single dose at bed time were advised in all the persons under study and the same were provided

during the household visit. It was repeated after 2 weeks.

- b. **Iron folic acid tablets** containing Elemental Iron 100 mg and folic acid 500µg. were provided to all the adults and adolescent persons diagnosed as Anemic after doing the haemoglobin estimation and they were advised to take the same regularly, stressing the need for the same. To the children between 6 months and 6 years.
- c. **Syrup containing Iron and folic acid** was given in a dosage of 20 mg of iron and 100 mcgs. of folic acid. The children between 6-10 years of age, found anaemic were administered 1 tablet of iron folic acid (Iron small) containing 20 mg. of Iron and 100 µg of folic acid per day, in case the anaemia was mild and 2 tablets per day in case of moderate anaemia. Low daily dose of iron folic acid was administered to children to avoid gastric intolerance and to ensure compliance. Similarly, the women with mild anaemia were administered 1 tablet of iron (large) once a day and 2 tablets per day in case the anaemia was moderate. No iron supplementation was given to children less than 6 months of age and they were not included in the study.

**Follow up:** visits were conducted on every 15<sup>th</sup> day ensuring the regular intake of the Iron tablets by the persons diagnosed Anaemic. An initial stock of supplements was given for one month for every anaemic person and were replenished after collecting the empty blisters on follow up visits. Persons not continuing the Iron intake were enquired for the difficulty encountered, which were properly addressed with counselling and other appropriate measures. Persons who took iron supplements for less than half of the required duration were excluded from the study. Contact telephone numbers of the members of the research team were provided to all the heads of the family, so that they could contact in case such a need arose, to ensure the compliance.

Repeat haemoglobin estimation of the persons diagnosed as Anaemic, on the initial contact and having received the interventions was carried out after three months of treatment following all the strategies of Anaemia control.

### Results

The prevalence of Anaemia in general population was found to be 81.73% (n=546). It was found to be higher among females and difference was statistically highly significant (p value.002).

**Table 1: Relation of Anaemia with Sex**

DIAGNOSIS				
S.No.	Sex	Anemic	Non Anemic	Row Total
1	Males	208(76.19)	65(23.81)	273
2	Females	338(85.56)	57(14.44)	395
	Columns Total	546 (81.73)	122(18.27)	668

Majority (81.73%, n=546) of the participants in the study were found Anemic. Degree of Anaemia was found to be inversely proportional to socioeconomic status i.e., lowest prevalence in upper class (70.37%) and that too was significantly high.

**Table 2: Relation of Anaemia with Socio-economic status**

DIAGNOSIS				
S.No.	S/E Status	Anemic	Non Anemic	Row Total
1	Upper	57 (70.37)	24 (29.63)	81
2	Higher Middle	150 (82.87)	31 (17.13)	181
3	Middle	215 (88.47)	28 (11.53)	243
4	Lower Middle	124 (76.07)	39 (23.93)	163
	Columns Total	546 (81.73)	122 (18.27)	668

No significant difference in prevalence of Anaemia was seen associated with religion.

The prevalence of Anaemia was found to be higher among nuclear families but it was not statistically significant. (P value >.05 ,Not significant).

No significant association of Anaemia with marital status was found.

Anaemia was seen maximum among house wives and unemployed followed by agriculturists, students, self-employed and those in service. However, no statistical significance was seen. P value >0.05 Relation of Anaemia with History of walking barefoot, passing worms, history of de worming, history of iron intake in past, BMI, Blood groups, food preferences was found to be statistically insignificant.

**Table 3: Relation of Anaemia with Occupation**

DIAGNOSIS				
S.No.	Occupation	Anemic	Non Anemic	Row Total
1	Agriculture	14 (82.35)	3 (17.65)	17
2	Service	47 (72.30)	18 (27.70)	65
3	Hw	198 (85.34)	34 (14.66)	232
4	Self Employed	26 (74.28)	9 (23.72)	35
5	Student	186 (80.51)	45 (19.49)	231
6	Unemployed	75 (85.22)	13 (14.78)	88
	Columns Total	546 (81.73)	122 (18.27)	668

Prevalence of anaemia was found maximum among the illiterate and least among graduates thereby displaying significant inverse relationship with educational status.

**Table 4: Relation of Anaemia with Educational Status**

DIAGNOSIS				
S. No.	Education	Anaemia	Non Anaemia	Row Total
1	Graduate	31(75.60)	10(24.40)	41
2	Illiterate	180(83.33)	36(16.67)	216
3	Intermediate	51(77.27)	15(22.73)	66
4	Matriculation	129(83.76)	25(16.24)	154
5	Middle	60(70.58)	25(29.42)	85
6	Primary	95(89.62)	11(10.38)	106

Columns Total	546(81,73)	122(18.27)	668
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Relation of duration of treatment with rise in haemoglobin level.

Haemoglobin estimation was conducted every fortnightly and it was seen that following the strategies adopted, there was a steady rise in haemoglobin level and it continued rising till completion of three months follow up period as shown in the table.

**Table 5: Relation of Duration of treatment with rise in Mean Hb level**

S No	Duration of treatment (months)	Rise in mean haemoglobin level	Standard deviation
1	0.5	0.25	0.750
2	1.0	0.885	0.881
3	1.5	0.903	0.929
4	2.0	1.510	1.230
5	2.5	2.118	0.820
6	3.0	2.353	0.903
Total mean rise in Hb (gms %)		2.350	

## Discussion

In our study the prevalence of Anaemia in general population was found to be 81.73% (n=546). It was less by 17.14% as compared to results of study conducted by S Mehnaz, et al on prevalence of Anaemia among non-pregnant women in Aligarh in 2004. In our study the females constituted 85.56% (n=338) which was again far less than that study.<sup>(4)</sup>

It was seen that, following the strategies adopted, there was a steady rise in haemoglobin level and it continued rising till completion of three months follow up. Similar were the findings of a study conducted by S Mehnaz, et al in Aligarh in 2004 which showed that after supplementation of Iron and Folic acid to one group and iron, folic acid and ascorbic acid to other group for 100 days the proportion of moderate (Hb% 7-10gm%) and severe Anaemia (Hb% <7gm%) decreased from 72% (126) to 36% (63) and 13% (23) to 10.28% (18) respectively and proportion of mild Anaemia (Hb% 10-11.9gm%) increased from 14.8% (26) to 29.14% (51), while that of 43 (24.57%) cases attained normal range of haemoglobin after the interventions. In another study conducted by Bobby Joseph<sup>(1)</sup> and Naveen Ramesh Involving sixteen weekly doses of Iron-Folate Supplementation with Vitamin-C in the workplace could raise the mean haemoglobin level by 0.8 gm/dl and prevent Anaemia among 515 women employees of garments factories in Bangalore city of Karnataka, thereby substantiating the use of iron, folic acid and ascorbic acid on a longer duration.<sup>(3,5)</sup>

## Conclusions

On analysis of the data collected it was found that

1. The strategies devised and strictly followed by the research team yielded significant results in

correcting Anaemia among the beneficiaries of the study areas.

2. Also, it was seen that after three months of iron supplementation to the Anaemic cases the haemoglobin level continued rising till completion of three months follow up period.

## Recommendations

Healthcare functionaries in the field practice area were directed to follow the strategies followed in the study in dealing with cases of anaemia in the field practice area of Block RS Pura. Also, the same recommendations were made to follow these strategies in other areas under state Health Services, as standard methods of Anaemia control.

## References

1. Azim W, Parveen S, Parveen SJ: Ayub Med Coll Abbottabad Comparison of photometric cyanmethaemoglobin and automated methods for haemoglobin estimation; 2002 Jul-Sep;14(3):22-3.
2. Haemoglobin estimation for the diagnosis of Anaemia and assessment of severity; WHO/NMH/NHD/MNM/11.1.
3. Impact of Iron, Folate & Vitamin C Supplementation on The Prevalence of Iron; Indian Journal of Community Medicine Vol. 31, No. 3, July - September, 2006.
4. S Mehnaz, S. Afzal, S. Khalil, Z. Khan: Iron deficiency Anaemia In Non-pregnant Females of Peri Urban Areas of Aligarh; Indian Journal of Community Medicine Vol. 31, No. 3, July - September, 2006.
5. Bobby Joseph and Naveen Ramesh: Weekly dose of Iron-Folate Supplementation with Vitamin-C in the workplace can prevent Anaemia in women employees; Pak J Med Sci. 2013 Jan-Mar;29(1):47-52.