

ANEMIA PREVENTION IN PREGNANT AND ADOLESCENT GIRLS THROUGH THE USE OF IRON UTENSILS AND PROMOTION OF KITCHEN GARDEN

Abstract

This initiative, led by Prof. Dr. Piyush Singh, aims to address the common issue of iron deficiency anemia among pregnant and adolescent girls in Bayad 1 & 2 Blocks, Aravalli District, Gujarat. Aligned with national and provincial health efforts, the project takes a complete strategy, that involve the use of iron cookware and promoting kitchen gardens to improve nutrition and hemoglobin levels. The campaign has enlisted 4152 adolescent girls and 1908 pregnant women with goals of obtaining acceptable hemoglobin levels, avoiding underweight babies, promoting optimal eating habits, and increasing green leafy vegetable consumption. The project, which is being implemented in 20 Anganwadi Centres, includes anemia screening, iron utensil distribution, kitchen garden improvement, and the distribution of nutrition kits. Following-up visits demonstrated considerable improvements in hemoglobin levels, weight increase, and eating habits.

Keywords: Anemia, prevention, pregnant, adolescent, nutrition

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I. INTRODUCTION

Pregnant and adolescent girls are most vulnerable group for most common nutrition deficiency disorder that is iron deficiency anemia. In India prevalence of anemia ranges from 33% to 89% among pregnant women and is more than 60% among adolescent girls. More than half (53.1 percent) of women (15–49years) in India are anemic, which has long lasting effects on future pregnancies, and is also one of the causes for the high rate of low-birth weight babies. The situation worsens when infants are fed inadequate diets. According to the World Health Organization (WHO), an unbalanced diet and lack of food (other than mother's milk), is directly linked to high rates of stunting, excessive weight, and death in children under five years of age.

Gujarat is one of the developed and leading states of India having largest urban population and facing huge challenges in dealing with malnutrition and anemia. Especially adolescent girls are vulnerable to poor nutritional status, early marriage and childbearing, affecting their ability to live empowered, healthy lives, which in-turn affects the next generation. (NFHS 5) Iron deficiency is caused by poor dietary intake, poor iron and other nutrient intake, poor bioavailability of dietary iron in phytate fiber rich, Indian diet and/or blood loss (for example; hookworm infection, repeated Child birth or heavy menstruation which leads to loss of iron). The main causes of Anemia among girls and women in India are poor diets with low bio available iron combined with worm infestation. Iron supplementation to adolescent girls will improve their mental and physical capacity as well as pre pregnancy hemoglobin status. It will also reduce incidence of low birth weight and maternal mortality. Under National Health Mission, several steps are taken to tackle the situation of anemia like Anemia Mukta Bharat (AMB), Weekly Iron and Folic Acid Supplementation (WIFS) Program me, reporting and tracking system for anemic and severe anemic pregnant women, Iron folic acid supplementation in antenatal and postnatal period, de-worming, providing long lasting insecticides treated bed nets (LLINs), IEC, BCC activities but still 62.6% pregnant women having HB level <11% 3.

Integrated Child Development Services (ICDS) scheme is the largest national program me for the mother and child health. The beneficiaries include children below 6 years, pregnant and lactating mothers, and other women in the age group of 15 to 44 years. The package of services provided by the ICDS scheme includes supplementary nutrition, immunization, health check-up, referral services, nutrition and health education, and pre- school education and distribution of iron and folic acid tablets to prevent iron deficiency anemia.

In Gujarat, Hon. Chief Minister recently launched a scheme of Central Government 'Gujarat Poshan Abhiyan 2020-22' to eradicate malnutrition. In which one of the target is reduce the prevalence of Anemia among Women and Adolescent girls in the age group of 15-49 years with target of reduction by 9% (@ 3% per annum) in next three years.⁴ As a part of this Abhiyan, ICDS department Govt. of Gujarat has one intervention project of providing iron utensils to pregnant women and promotion of kitchen garden at anganwadi center. The introduction of iron pots or improving their use in communities in developing countries for the preparation of food maybe a promising innovative intervention for reducing iron deficiency and iron deficiency anemia.⁵ Community kitchen garden provides fresh chemical free fruits and vegetables to children, pregnant and lactating women.

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It can play an important role in enhancing national food security and dietary diversity to combat malnutrition. Fruits and vegetables from the kitchen gardens are good source of micronutrients especially in the poor households. Rural areas have ample space and establishing a kitchen garden is far simpler as farm for families are involved in agriculture. With this background, the present study project is conducted.

II. AIM AND OBJECTIVES

Aim

To increase the nutrition and HB status of ANC and Adolescent girls through the use of iron utensils and promotion of kitchen garden.

Objectives

1. To achieve optimum HB levels in ANC and Adolescent girls.
2. iron fortifies iodized To decrease the number of underweight births
3. To promote the optimal feeding practices and consumption of iron and folate rich foods and use of salts along with cooking in iron utensils
4. To intake the increase of green leafy vegetables through promotion of kitchen garden

III. METHODOLOGY

Aravalli is one of district of Gujarat in India. There are 6 Talukas, 676 villages and 2 towns in Aravalli district. I have used data collection method.

List of Talukas with population of Arvalli district

Taluka	Population 2011	Male	Female	Households
BAYAD	206391	106364	100027	41774
Bhiloda	239216	121018	118198	48234
Dhansura	106733	55408	51325	21278
Modasa	222625	114577	108048	45143
Malpur	97838	50032	47806	18950
Meghajr	167115	84987	82128	31360

Anganwadi Services is a centrally sponsored scheme under umbrella Integrated Child Development Services (ICDS) Scheme implemented by the governments of State and UT administration. There are 1450 sanctioned Anganwadi Centers (AWCs) in Arvalli, and all the AWCs are operational. Out of which Bayad taluka has 260 functional AWCs as on 2019.

This project was conducted in 2 blocks of bayad taluka of Arvalli District. Total 20 anganwadis were selected from 1 taluka and 2 block.

Sr. No	Taluka Unit	No. of AWC
1	BAYAD-1	10
2	BAYAD-2	10

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Screening for Anemia and Distribution of Iron Utensils: The beneficiaries included in this project are pregnant women and adolescent girls. Total 4152 adolescent girls and 1908 pregnant women are enrolled in the study. HB was estimated of all adolescent girls and pregnant women (those enrolled in study) to screen anemia. HB was estimated by standardized method with active support from health department (FHWs). Treatment was started to those having anemia (HB <11gm %) (As per Anemia Mukht Bharat Operational Guideline) and iron utensils were also distributed to all female having anemia.

Development of Kitchen Garden: 20 AWCs were selected (1 from each Taluka) for development of kitchen garden. (Also called “Poshan Vatika) Beneficiaries were also provided seeds for development of kitchen garden at their house backyards if space is available.

Detail of vegetables grown on this kitchen garden	A detail of the fruit trees grown on this kitchen garden
Bottle Gourd	Amla
Drumstick	Chickoo
Brinjal	Papaiya
Tomato	Guava
Ladyfinger	Lemon
Cluster Beans	Pomegranate
Pigeon pea	Mango tree
Chilli	Jamun
Luffa	Sitafal
Colocasia Leaves	
Green onion	
Green Garlic	
Cauliflower	
Potato	
Fenugreek	
Spinach	
Radish	
Broad/Butter Beans	
Coriander	

Provision of Nutrition Kit: After screening for anemia adolescent girls were provided nutritional kit for 3 months. The kit includes black dates, Jaggery, ragi flour, pulses like chana, tuver, mung and fruits. Out of total 1450 anganwadi centers (AWCs), 20 centers were selected for this innovation project in September 2020. Kitchen gardens were prepared in 260 AWCs. Hemoglobin was estimated of 1153 adolescent girls enrolled in selected AWCs and 0 antenatal women were screened for anemia.

All antenatal women (1908) and adolescent girls (4152) were provided nutrition kit in January 2021 and iron utensils were distributed in July 2020.

In March 2021, follow up of all beneficiaries were conducted in which HB was estimated again and they were interviewed using pre structured questionnaires. During follow up visit

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all pregnant women were not tracked due to either they delivered or shift to their parents home.

IV. TARGET BENEFICIARIES

- Adolescents Girls
- Pregnant Mothers
- Children (0-6 year)

SN	Type of Beneficiaries	HB Test (Yes/No)	Nutrition Kit (Yes/No)
1	Adolescents Girls	Yes	Yes
2	Pregnant Mothers	No	Yes

SN	Type of Beneficiaries	Bayad-1 (Total Beneficiaries)	Bayad-2 (Total Beneficiaries)
1	Adolescents Girls	2452	1700
2	Pregnant Mothers	1024	904

V. EVALUATION

In 20 anganwadi centers kitchen garden was developed. Hemoglobin was estimated of 1153 adolescent girls enrolled in selected AWCs out of which 80 were anemic and were screened and no one antenatal women was anemic.

Distribution of Beneficiaries

Block	No. of Adolescent Girls
BAYAD-1	56
BAYAD-2	39
Total	95

Age Wise Distribution of Adolescent Girls

Age	No. of Adolescent Girls
2	2
13	6
14	3
15	18
16	17
17	28
18	21
Total	95

BMI Status among Adolescent Girls and Antenatal Women

BMI (adolescent girls)		Before	After
<18.5	Underweight	50	37
18.5-24.9	Normal weight	42	34
25.0-29.9	Pre obesity	3	3
30.0- 34.9	Obesity	0	0
Total		95	73

Hemoglobin Status among Adolescent Girls

Adolescent Girls	Avg.HB
Before intervention	7.0
After intervention	8.9

VI. CONCLUSION

This study has been laid out in the district to increase the nutrition and HB status of ANC and adolescent girls through the use of iron utensils and promotion of kitchen garden. Total 4152 (1153 adolescent girls screened) (11-18 years) and 1928 pregnant women are enrolled in the project from 260 Anganwadi Centers of Bayad taluka Arvalli district. In this intervention project all beneficiaries were visited twice to check the effect of intervention like nutrition kit, iron fortified salt, kitchen garden, home visit, counseling etc. BMI was calculated based on weight & height of all beneficiaries in project. Weight gain shown in follow up visit of all beneficiaries and the difference was statistically significant among adolescent girls. While no statistically significant changes in BMI after intervention. In follow up visit Hb was estimated and the intervention has positive impact on Hb level.

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