



Prevention and control of Anemia in pregnant women and adolescent girls in Rural Areas of Haryana, India

Anemia is one of the most commonly observed nutritional deficiency diseases in the world. Anaemia in adolescents limits their development, learning ability, reduces concentration in daily tasks, increases their vulnerability to infection, reduces physical fitness and work productivity. Anaemia in females during pregnancy is associated with intrauterine growth retardation, premature births, low birth weight, and peri-natal and maternal mortality. The main causes of anemia include nutritional deficiencies, hookworm infestations, malaria, and chronic bleeding. The effects of anemia on maternal and perinatal morbidity and mortality can be reduced with appropriate and timely treatment and counselling. In India, National Anemia Control Programme distributes iron and folic tablets to pregnant women.

An operational study was conducted by SWACH Foundation in a community development block of district Yamunanagar in Haryana to find out the prevalence and knowledge of anemia in pregnant women and adolescent girls.

Objectives of the study were to assess the prevalence of anemia and its causes in pregnant women and adolescent girls in a rural population, to improve the awareness of the causes, consequences and treatment of anemia among different levels of health functionaries, pregnant women and adolescent girls, to improve the coverage and compliance of iron-folate supplements by pregnant women using a combination of IEC strategies and preferred choices of types of iron supplements, to improve the detection of anemia in pregnant women at different levels of health care by examining the validity of currently recommended screening tools and to reduce the prevalence of anemia in pregnant women through counselling and improved iron supplement.

Situational analysis was done based on the observations of SWACH Foundation staff and on discussion with staff from the health and other departments, village volunteers and leaders in the community. Existing pertinent records were also utilised. It was found that while access to iron pills was good, compliance with their intake was poor. Health workers lacked full awareness of the benefits of these tablets, resulting in inadequate advice on their regular consumption.

On the basis of situational analysis, methodology of the study was planned. The study consisted of three phases, with the first phase being the preparatory phase. During this phase, a baseline survey was conducted to understand the knowledge and practices of healthcare providers and the community regarding anemia. Information on knowledge, attitude and practice (KAP) regarding anemia was collected from pregnant women (360), lactating women (122), adolescent girls (224), school teachers (60), and Anganwadi workers (60) through surveys. Focused group discussions were also conducted with pregnant women (360), lactating women (4), Mahila Swasthya Sangh members (5), and Traditional Birth Attendants (3). In addition, focused ethnographic studies were conducted through in-depth interviews with key informants, pregnant women (10), and lactating women (21). The aim of these activities was to gain insights into the strengths and weaknesses of the system and the community's behaviour related to anemia recognition, causes, prevention, and treatment.



Second phase was intervention phase. During the preparatory phase of the project, assessments were conducted to identify the training needs of different levels of healthcare providers. Training materials were then developed to address these needs.

Table 1: Various materials developed for training

S. No.	Material	Target audience	Number	Contents
1	Trainer's Manual	Female Health Worker	30	Causes, signs and symptoms of anemia, Hb estimation methods, prevention and control of anemia
2	Learner's Manual	Female Health Worker	30	Causes, signs and symptoms of anemia, Hb estimation methods, assessment of pallor, treatment of anemia
3	Flip Book	Basic Health Worker	500	Causes and ill effects of anemia. Prevention and control of anemia
4	Leaflet	General Community including adolescent girls	5000	Signs and symptoms, causes, ill effects of anemia, its control and prevention.

Medical officers (7), Auxiliary Nurse Midwives (17), Anganwadi Workers (190), Traditional Birth Attendants (166), and Mahila Swasthya Sangh members (310) were included in the training sessions. The trainings were carried out by the medical officers and trained staff of SWACH Foundation using various methods like clinical demonstration, role plays, group discussions, drills, storytelling and problem solving.

To improve compliance with iron therapy, orientation sessions were conducted for school teachers and adolescent girls in 8 government high schools. Additionally, the involvement of school-going girls in providing Personally Observed Treatment (POT) to anemic pregnant women was attempted. These girls were educated about preventive and promotive aspects of anemia control and assigned a moderately anemic pregnant women living nearby their home to whom they would provide IFA tablets daily and mark it in the card provided to them. After three months of regular consumption, the hemoglobin levels of those pregnant women were rechecked to assess the effectiveness of the treatment.

During the evaluation phase, several factors were assessed to measure the effectiveness of the intervention in addressing anemia. These factors included changes in registration schedule, behavioural changes among school teachers and Anganwadi Workers (AWWs), compliance with iron-folate supplements, social marketing strategies, and the prevalence of anemia. Changes in the registration schedule were observed, with pregnant women registering earlier in their pregnancy, after the intervention. This indicated a shift towards early registrations, which could contribute to earlier detection and management of anemia. There was a notable behavioural change among school teachers, who identified anemia as a major problem in adolescent girls, unlike during the baseline survey. AWWs also demonstrated improved awareness by recognizing signs of anemia and understanding the duration of iron-folate tablet consumption. School teachers were more knowledgeable about iron-rich foods compared to the baseline. Compliance with iron-folate supplements, measured through Personally Observed Treatment (POT), was found to be low (only 10%). Lack of knowledge was identified as the main reason for non-compliance. However, it was observed that better counselling, spreading knowledge, and addressing side effects could improve compliance. A social marketing strategy was implemented in 20 villages in each primary health centre to promote the intake of iron-folate supplements. This strategy involved counselling and offering a basket containing syrup, capsules, and iron-folate options. After the intervention, a majority



of respondents opted for iron-folate tablets, leading to a shift from syrups and capsules. Women with moderate anemia showed increase in their hemoglobin levels when offered the basket. Evaluation data showed a marginal decline (from 84% to 78.4%) in the overall incidence of anemia in pregnant women, with a significant decline in severe anemia (20.5% vs 2.6%) and a pattern shift towards moderate anemia. Similar trends were observed in lactating women, with a decrease in severe anemia (from 21% to 8.35%) and an increase in moderate anemia (from 54% to 96%). There was a decline in the number of severely anemic girls and moderately anemic girls after the intervention among both school-going (77.6% to 70.2% and 3.2% to 0.9%) and non-school-going (11.7% to 3.2% and 78.5% to 71.2%) girls. Overall, the evaluation results suggest positive changes in knowledge, behaviour, compliance, and anemia prevalence after the intervention, indicating the effectiveness of the implemented strategies.

The project focused on the prevention and control of anemia, particularly among maternal and child health and family welfare. It utilized existing voluntary groups within villages and placed importance on involving adolescent girls. The project aimed to raise awareness about anemia among adolescent girls and pregnant women in rural communities. It also helped to identify dietary and other factors (biomedical and behavioural) responsible for anemia. After the interventions, significant changes were observed. Health volunteers, pregnant women, and adolescent girls became aware of the problem of anemia and learned to recognize its signs. They also gained knowledge about iron-rich foods and those that enhance iron absorption. The females ultimately shifted from syrups and capsules to Iron Folic Acid tablets. Increase in the haemoglobin levels of women were observed after offering them the basket. Significant reduction in severe anemia, with most cases shifting to moderate anemia among females and adolescent girls was observed.