

Exploring Reasons for Poor Improvement in the Hemoglobin (Hb) Levels among Adolescent Girls in Koppal Taluka

Findings from a qualitative study, Sphoorthi Project



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Exploring Reasons for Poor Improvement in the Hemoglobin (Hb) Levels among Adolescent Girls in Koppal Taluka: A qualitative study

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Levels among Adolescent Girls in Koppal Taluka

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Background

Karnataka Health Promotion Trust (KHPT) has been implementing the Azim Premji Philanthropic Initiatives (APPI) funded Sphoorthi role model girl's intervention in Koppal district since 2015. The intervention aims to improve the quality of life of adolescent girls by enhancing their education, health, and nutritional status. The Sphoorthi team has been working in 51 selected villages in Koppal taluk of Koppal district and currently works with 640 Role Model Adolescent Girls (RMAGs), their parents and about 3,600 peer girls. The program involves girls aged between 13-16 years, their parents, community and boys. It focuses on strengthening adolescent girls' self-esteem and awareness of their role as change makers and influencers to empower them to make informed choices and collectively confront and overcome the issues they face.

The monitoring data of the Sphoorthi Program shows some shifts in the RMAGs' hemoglobin (Hb) levels during the year-long intervention period. Findings from the data suggest that, in comparison to the baseline, about 11 percent RMAGs reported deterioration in Hb levels, 29 percent girls had no changes in their Hb levels and 28 percent demonstrated increase in their Hb levels at the end of the first year of intervention. These changes were observed prior to distributing the ready to cook Fortified Blended Food (FBF), a nutrition supplement. We carried out this exploratory study to identify and understand the different components in the ecosystem of adolescent girls and their corresponding influence on improved and decreased Hb levels during the intervention period.



Methods

This qualitative exploration was carried out by an intervention team consisting of two program coordinators of Sphoorthi. About 17 RMAGs and 18 caregivers (16 mothers and 2 elder sisters) of RMAGs were randomly selected for this study. The 17 RMAGs considered for this study include:

- Seven RMAGs who reported more than 10 grams per decilitre (g/dL) Hb at baseline but reported a decline after one year (Group A);
- Five RMAGs who reported less than 10 g/dL Hb at baseline and reported no change after one year (Group B); and finally,
- Five RMAGs who had more than 10 g/dL Hb at baseline and reported an increase after one year (Group C).

A probing guide was used during the informal conversations with girls to elicit their views, perspectives, knowledge, and experiences on the following:

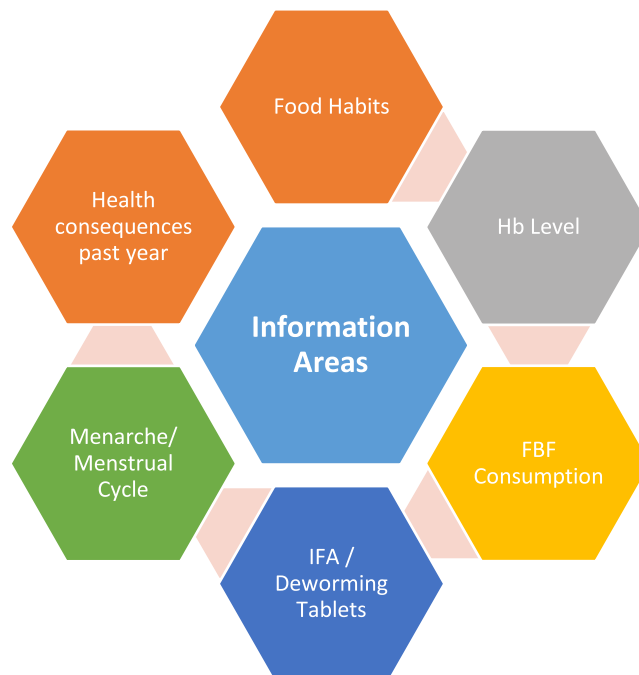


Fig 1: Information areas explored during interviews

The study team conducted interviews and discussions with the girls to explore RMAGs' views and experiences on the topics mentioned above. Prior permission was sought from the participants to electronically record the discussions and conversations. These recordings have been used in conjunction with the discussant's notes, solely for analysis purposes and without disclosing any personal information of the interviewee. The data, thus gathered has been analyzed using the qualitative matrix analysis approach.

Results

1. Food Habits and Dietary Patterns

All Groups

All adolescent girls stated that they eat vegetables and lentils like cucumber, cabbage, potato, brinjal and sprouts with regularity, while a few mentioned consumption of non-vegetarian food like chicken. According to the interviewed mothers, children ate vegetables such as ridge gourd, bitter gourd, brinjal and potato as well as legumes like cluster beans and green gram. Additionally, children occasionally ate fruits like apple, sapota, grapes, dates and pomegranate. The RMAGs however, mentioned a dislike for certain fruits like bananas due to their smell and oranges because of their sour taste. Caregivers, along with the girls pointed out the latter's preference for animal based products like chicken, in households that consumed non vegetarian

foods. According to both girls and their caregivers, the regular staple is whole wheat flat bread (roti), rice, and sambhar.

With regard to food habits at home, all the girls reported that they consume three meals in a day which mostly includes roti, curry, rice, and pulses (sambhar) while intermittently eating sweets that are prepared at home on some occasions. Interaction with caregivers revealed that most of them eat vegetarian food with regularity while occasionally consuming non-vegetarian food (about two to four times in a week). One of them mentioned that the girls ate more non-vegetarian food than vegetarian food items. Roti, rice, cereals (all types), pulses and vegetables, (especially green vegetables) were cited to be common across all households, with three to four meals being a common practice in a day. While these consumption practices were recounted by most caregivers, often the quantity of consumption and quality of food items varied across households leading to a difference in Hb levels in the girls. All caregivers however, mentioned buying vegetables from the market once every week.

Group A

None of the girls whose Hb levels were on a decreased mentioned any consumption of green leafy vegetables. In fact, they mentioned avoiding vegetables like brinjal, cluster beans, bitter gourd, chilly, ridge gourd and leafy vegetables for their smell and bitterness. This was in contradiction to the information shared by mothers about the RMAGs' eating habits. These girls reportedly missed one meal in the day especially during their monthly periods because of menstrual cramps. One girl stated missing one meal every Saturday as her family prepares a heavy breakfast of idli (rice and lentil dumplings), dosa (fermented rice and lentil pancakes) or paddu (sauteed rice and lentil dumplings) which causes her to skip lunch. Another girl reported missing morning meals frequently in order to reach her school on time.

“ Earlier she used to have enough food but nowadays she eats something (biscuits, some snacks) during the evening. When we call her to have dinner, she says that she is not hungry. It has become a daily routine for her.” (Mother of Shanti, 37 years)

”

Group B

Discussions with girls whose Hb levels remained the same revealed that they too do not directly consume foods like chilly, onions, ladies finger and leafy vegetables and prefer to only have those items when made into pachadis (spicy vegetable salad). Within this group, one girl stated a dislike for non-vegetarian food, while another mentioned an avoidance of pulses like urad dal. This was due to the lack of cleanliness followed during the cereal cultivation process by her family.

Group C

The girls whose haemoglobin has improved mentioned to have more consistent food pattern with has better proportion of green vegetable on their regular platter. Also one of their caregiver mentioned that their girl is eating fruit, while two girls mentioned that they consume vegetable grown in their own fields.

Key points to remember

- Whole wheat flat breads (roti) and pulses are a staple in the girls' diet.
- According to the RMAGs, they regularly consume their share of green vegetables.
- Girls from non-vegetarian households prefer chicken and fish over vegetables but consume the former only occasionally.
- Fruits are rarely consumed by the girls.
- Girls whose Hb levels have improved miss one meal a day for various reasons.

2. Restriction and Discrimination in Eating Habits

Restrictions

As reported by most of the girls and their caregivers, there is not much difference in food restrictions between girls whose Hb levels have increased and girls whose levels have decreased. All girls did state some amount restriction on food choices during their menses. Further, another restriction which stemmed from the older generation's superstitious beliefs, preventing the consumption of food during evenings, was reported.

“

In my home, they don't encourage eating after evening. This is the time when our ancestors (Karkarmandaru) have food so we should not eat, otherwise they won't get food.” (Purnima, RMAG, age 15)

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It was mentioned that non-compliance with this rule would result in the girls getting reprimanded by the elders of the family. Caregivers explained this further to be a restriction on oily foods and snacks, barring one household where eating of non-vegetarian food was also not allowed. Further, existence of some restriction based on the alleged effect of certain foods was shared by a caregiver.

“

“If the person ate onion they will be not good...may show more interest in sexual act... so, I tell my daughter not to eat onion.” (Mother of RMAG, age 42)

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Discrimination

Many RMAGs stated that their father is the first person to eat in the household, except when he is absent from meal times. In such cases the rest of the family members sit together and have their food at the same time.

“

“First my father eats and then we all sit together and eat.”
(Kavya, RMAG, age 13)

”

Serving food first to the male members of the family is not seen as discrimination by the interviewed girls. Further, more than half of the girls whose Hb levels have declined (Group A), strongly feel that male members should have their meals before the rest of the family as they are the familial bread earners and care takers.

“

“First mummy and papa, then I eat.” (Shruti, RMAG, age 15)

”

Girls whose Hb levels have shown an increase stated that either entire families have their meals together or whoever feels most hungry has their food first. Caregivers too reported no discrimination at meal times and some remarked that the children in fact, eat first.

Key points to remember

- Restriction on non-vegetarian food exists as it is not culturally approved.
- A restriction on certain food items for menstruating girls is also present.
- At meal time, male members eat first and before the rest of the family in a considerable number of households.

3. Understanding of Nutritious Food

All the girls interviewed claimed to be aware of what constitutes nutritious food. Eggs, milk products, sprouts, fruits, leafy vegetables and non-vegetarian food items were cited as examples of food which is nutritious and provides energy, strength, proteins and vitamins to the body and helps increase the hemoglobin levels in blood. Caregivers, on the other hand were unsure of what exactly is meant by nutritious food but expressed an understanding that sea food, green vegetables, rice and pulses are nutritious to the body. This understanding remained constant across the entire sample size and did not fluctuate in relation to the Hb levels of the RMAGs.

Key points to remember

- A uniform understanding of nutritious food exists within girls and their families across the entire sample population.
- Most girls have both a theoretical and practical understanding of nutritious food, while caregivers lack the scientific understanding of the term but can inherently identify nutritious foods to an extent.

4. Nutritious Food Supplement- FBF

Most of the individuals interviewed reported that they consume the nutritious food supplement given by KHPT as a cereal malt mix. They also mentioned mixing it with flour, hot milk or water and adding salt, sugar or jaggery to it for consumption.

“First I didn't like the smell, so after the community organizer asked us to add milk and jaggery, I started liking the nutritious food supplement. I will continue to eat it till it is given to me.” (Kamini, RMAG, age13)

Girls who consume FBF reported being happy with the increase in their weight and also getting good support from their families. One of the participants mentioned not having received the food supplement and therefore sharing it with her younger sister who receives it. According to her, the supplement has had a positive effect on her younger sister who appears to have grown stronger than her. Most of the girls who consume FBF believe that it assists them in gaining weight and improving the hemoglobin levels, thereby providing more energy and helping them become sharper and healthier. They also revealed having shared their positive experiences with their friends and recommended the food supplement to them.

Within Group A participants (decline in Hb levels reported after a year) more than half of the girls do not consume FBF. This is because while some of them did not receive the supplement or left the Sphoorthi program, others have found issues with its usage, suspected side effects and taste. Some girls are of the opinion that FBF is only for those who look short, thin and anemic.

“I didn't take the powder (FBF) because my Hb level is good but I have given it to my other friends because that powder is meant for girls who are anaemic and look thin and short.” (Shanta, RMAG, age 14)

One of the major complaints regarding FBF, is it being tasteless. Another major reason cited by girls for not consuming FBF is its smell which gives them nausea post consumption.

“

“The taste is a challenge. I am not able to drink it.”
(Sumedha, RMAG, age 15)

”

One girl who does not consume the supplement regularly due a general dislike for it and takes it only two to three days a week stated that her mother believes it to be a tonic and therefore does not give its consumption too much importance. Fear of gaining too much weight was also found to be a major concern amongst Group A participants.

“

“Earlier I used to eat it but I experienced an increase in my weight. It doesn't look good to me and looks like fat, so, I stopped consuming it.”
(Geeta, RMAG, age 14)

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One girl who does not consume the supplement regularly due a general dislike for it and takes it only two to three days a week stated that her mother believes it to be a tonic and therefore does not give its consumption too much importance. Fear of gaining too much weight was also found to be a major concern amongst Group A participants.

Most of the caregivers reported having little to no information of FBF and only two of them reported having any knowledge of their daughters' consumption of FBF. One mother recalled her daughter having tried the supplement for 15 days and quitting after not noticing any increase in weight.

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Key points to remember

- Most of the people were aware of FBF and reported consuming it once but not necessarily regularly.
- Parents and girls understand the importance of consuming FBF given its health benefits but mistakenly think it improves Hb levels.
- RMAGs who reported an increase in Hb levels regularly consumed FBF and are satisfied with the resulting weight gain.
- RMAGs who reported a decline in Hb levels reported not consuming FBF.
- A lot of dissatisfaction with the taste and smell of the supplement exists which has resulted in a few dropouts from the program.
- Participants who continue to consume it usually add flour, milk, water, sugar or jaggery to improve the supplement's taste.
- It was also observed that if someone is not actively participating in the Sphoorthi Program, they are not as adequately provided with the supplement as the participants.

5. Menstruation

All girls attained menarche between 11 and 14 years of age. Menstrual cramps and joint pains were reported by all the RMAGs during their monthly menses. A few girls who reported a decline in hemoglobin levels have irregular periods spaced two to three months apart and report heavy bleeding during their periods. One of these girl's parents also consulted a doctor but failed to follow up with the treatment due to its high cost. The remaining girls get regular periods every month lasting five to six days with only one reporting an eight-day long bleeding period. One of the RMAGs did report having heavy bleeding but her caregivers believe it will get better with time by itself.

As mentioned above, nearly half of the girls reported having food restrictions while menstruating and not being allowed to eat onion, sesame seeds, chicken, radish, banana, biscuit, coconut, curd and mouth fresheners, as these food items are believed to lead to heat generation in the body which in turn causes heavy bleeding and bad smell. A few of these girls however acknowledged consuming these items without their parent's knowledge.

“We should not eat banana or onion during menstruation because it may cause foul smell. This is being practiced for generations.”
(Pallavi, RMAG, age 13)

Key points to remember

- Most girls attained menarche between 11-14 years.
- Irregular periods with heavy bleeding were reported in girls who experienced a decline in Hb levels.
- Five to six day long, regular periods were reported in girls with no change in hemoglobin levels.
- Half of the respondents mentioned facing food restrictions during their periods.

Of the girls whose Hb levels have declined, two had piles and heavy blood discharge while another girl suffered from ENT related issues and speech impairment. One girl mentioned that her mother was not aware of her health condition because of their absence during KHPT's visit to her house.

All the RMAGs had their Hb levels tested at least two times during the study period. Majority of girls identified Hb test as blood test of Red Blood Cells, White Blood Cells and blood level in the body. They also mentioned that a low Hb level in blood is associated with dizziness and tingling in hand and legs. Of the four girls who were unaware of hemoglobin levels, three reported a decline in their Hb levels. A majority of the girls, however were not aware of the healthy range of hemoglobin level in blood. Only those girls whose Hb levels had not declined were aware that a Hb value below 12 g/dL is considered anaemic, but girls whose Hb levels have declined incorrectly reported that a value of 8 g/dL was enough.

Skipping meals, not having the right food, the stress of studies was seen in girls whose Hb levels have decreased or remained the same. Half of the girls whose Hb levels have declined were not aware of examples of iron-rich food items, while girls whose Hb levels increased mentioned that

they should consume all kinds of vegetables especially green leafy vegetables, fresh fruits and sprouts. Awareness of caregivers regarding hemoglobin levels was found to be nearly negligible with all but one mother stating that they did not know what hemoglobin level is.

Consumption of IFA tablets was sparse among those whose Hb level has increased as they mentioned that they were receiving it in primary school but not in high school. All but one girl in this group stated that their parents knew about IFA tablets and encouraged the girls to consume them but faced availability issues. While all girls recounted consuming IFA tablets at some point, only one girl whose HB has declined reported not consuming the tablets fearing similar side effects like stomach aches and headaches, that were experienced by her friends. Rest of the girls in this group affirmed having consumed the tablets, although not necessarily continuously.

One girl across each of the three groups, mentioned having side-effects from consuming IFA tablets like vomiting and headache, which led to their parents discontinuing their tablet consumption. One girl from Group A (decreased Hb levels), reported that she consumes the tablets as the school teacher makes sure the children take them and does not allow them to throw the tablets away. Only a few of the caregivers were aware that their girls receive the IFA tablets from school and one among them mentioned that they received the tablets only once a week. Another person mentioned that her daughter used to receive them before from the school and now they have stopped, while the rest were unaware of the status of IFA tablets. Caregivers had the wrong notion about the utility of IFA tablets as one mother said the IFA tablet is for deworming and also mentioned that it makes her daughter feel dizzy. Half of the mothers mentioned that they believe their daughter should take IFA tablets, while rest were unaware of the utility.

Key points to remember

- Among girls whose Hb levels have declined, except two, nobody suffers from major health problems.
- All girls had been tested for Hb levels two times and most of them had an understanding of what Hb levels were.
- Although they were aware of the symptoms of low Hb level, most of them were not aware of the normal range of Hb level especially those whose Hb levels have declined.
- Skipping meals, not having the right food, stress of studies could be seen girls whose Hb level has not improved.
- Half of the girls whose Hb level has not improved were not aware of iron-rich edible items.
- Caregivers' awareness about Hb levels is almost negligible.
- Few of the caregivers were aware that their girls receive the IFA tablets and rest were unaware of the treatment status of IFA tablets of their children.
- Consumption of IFA tablets was not universal as many respondents cited its current unavailability at school.
- Among those whose Hb level has declined, only one girl reported not consuming the tablets as she was worried about the resulting side-effects.
- Side-effects like stomach-ache, dizziness and head-ache were mentioned by the respondents.

Discussion

1. Major reasons for poor improvement in hemoglobin levels

- Some families, due to their large size, do not adequately care for the girl child. In one case, the mother did not regularly prepare food and believed that whoever wanted food could prepare it themselves. This led to the daughter skipping meals as she did not know how to cook.
- Family separation and sibling health-related issues seem to be major challenges preventing improved nutrition as well.
- Father's alcoholism, mothers being the breadwinners and as a result, no one available at home to take care of the food of the daughter is another significant constraint.
- Ignorance of the caregivers and a casual attitude towards diet and nutrition, affect girls' nutrition level. Health issues of girls like piles and lack of treatment, family superstitious belief are other major hindrance to girls' health.
- Lack of information about what can be considered nutritious food and help in increasing Hb levels is another reason for a negligible positive change in the health of RMAGs.
- To some girls, junk food and drinks are easily accessible, because of which, they skip their nutritious meals.
- Some girls also missed one major meal in the day, especially dinner due to the stress of studies and board exams.
- Some level of discrimination based on gender exists at home in providing food, which along with other restrictions like not being allowed to eat in the evening may have also caused the poor improvement.
- Irregular consumption of FBF due to its assumed side effects, its poor taste and smell is another major hindrance towards better nutrition levels in girls.
- Irregular menstruation cycles leading to high volume of bleeding and other issues with periods also hinder improvements in Hb levels.
- Skipping of consumption of IFA tablets either due to inaccessibility at school or side-effects also lead to a deficiency of iron supplements in the body.
- In totality, it can be understood that the parents of those girls whose Hb levels have declined are much less active in the overall intervention exposures and have a much lower level of awareness about their girls' needs and conditions.

2. Suggestion for program intervention to improve Hb level

Intervention should focus directly on girls with the objective to improve their awareness levels on the importance of nutrition, with the caregivers to raise their awareness and change their perceptions about norms and taboos, and at the school and peer-level to build a supportive environment for the girls to have care for their health, specifically to improve their Hb levels .

Individual level:

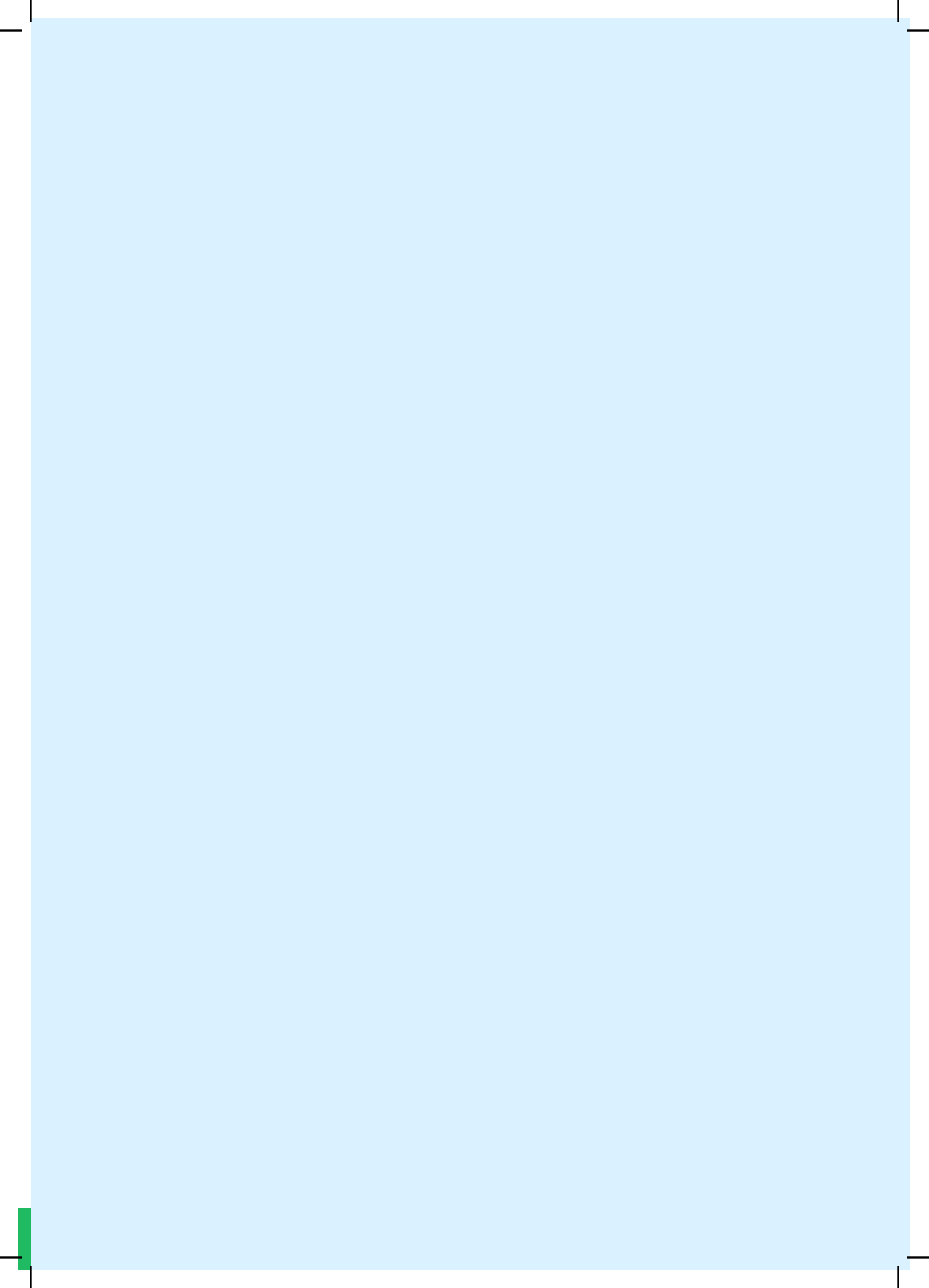
- Increase awareness about hemoglobin levels, anemia, and importance of consumption of IFA tablets.
- Encourage and motivate girls to consume nutritious and iron rich food consistently within homes.
- Monitor their food habits, consumption of IFA tablets and FBF by the adolescent girls.

Family level:

- Make parents more aware of anemia and its effects, nutritious food and its importance as well as the importance of IFA tablets.
- Intervention needs to pay special attention to girls whose family support is not strong, as it is found that there is a relationship between weaker attention from caregivers and lack of improvement in Hb levels.
- Improve parent-daughter communication so that they are more aware of the child's needs and health status.
- Breaking their superstitions and taboos regarding food restrictions during menstruation and discrimination of distribution of food in the house.
- Encourage kitchen gardens for each household or a group of households for sustainable supply of healthy local grown raw material.
- Encourage equitable relationships between brothers and sisters within homes, so that the boys within household are sensitive to and oppose any kind of discrimination against the girls.

Support group level:

- Create platforms within schools like support groups of girls at school to increase their awareness about Hb levels, anemia, nutritious food and IFA tablet consumption.
- Develop awareness to reduce superstition and taboos regarding menarche, regular menstruation, and restriction on food habits.
- Monitor the availability and regular supply of IFA tablets to girls at school.
- IEC material for developing awareness regarding nutritious food, hemoglobin, and anemia.
- Actions to be taken for improvement in the smell and taste of the KHPT FBF supplement.



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