Insight Report

'Eat more, Eat better'
Rajasthan, India

Prepared by Eva Monterrosa, PhD
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To the women and their families in Udaipur, Baran, Pali, Tonk, and Barmer, thank you for taking time to speak with us and for sharing your eating culture.

This report was written by Dr. Eva Monterrosa, *Sight and Life*, the lead researcher for this project.

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Executive Summary

The Problem. Pregnant and lactating women (PLW) have higher calorie, protein and micronutrient needs. To improve dietary intakes among PLW, one might rely on a cash-based transfer (CBT), but the cash creates other challenges, such as ensuring that the cash is used for food rather than on other expenses and knowing which foods to buy and how much food should be consumed.

The issue. The 'Eat more, Eat better project' addressed two key issues related to the problem of increasing the caloric and nutrient intake of PLW. First, ensure that money is diverted for food for the PLW. Second, PLW and her influencers know why she must eat more, what and how much food she must consume. In summary, we are dealing with food access for women, motivations, and benefits of eating more. Our research sought to examine these factors in more detail because some of these challenges may be addressed through a well-designed communication strategy.

The research offered the following key findings, which served as organizing principles for the communication strategy and creative content

- Draw on accepted social roles of care and responsibility, because gatekeepers improve food access and sanction eating more for PLW.
- Use the spousal bond to support and further encourage care for PLW. Husbands want to be involved in the medical care of their wives, in part because they seek to prevent expensive medical expenditures. Nutrition (food and advice) must be seen as offering the preventative care husbands and other seek.
- Consider the exchange value – what will it take women to eat more food in light of the eating norms that include, eating down, feeling hungry and that pregnancy is a normal phase of life? Make the child the relevant factor, beginning right at the first trimester, show how the fetus develops, and explain why mothers need to eat more. These factors improve motivation and self-efficacy for behavior change.
- Frame the advice as relevant, actionable, informative, aspirational so PLW eat more.
- Promote food that do not require cooking, can be consumed in small portions, and are readily available in the home. Meals and meal-based dietary advice is a non-efficient pathway for improving maternal nutrition, particularly in multi-family homes.

The core elements for the communication strategy are:

Primary Target: Husband, age: 18-25 years, whose is establishing his family.

Rationale: the husband is the principle manager of financial resources. According to IIHMR data, 50% of the households are single-family homes. The husband the common stakeholder across all homes in Rajasthan. Infuse a sense of responsibility into the husband (of the mother-to-be) to take care of her enhanced nutritional needs, so that the baby grows to become a 'champion'. A champion is someone (boy or girl) with all-round growth - physical and mental - so that he/she excels in life.

Secondary audience – Wife and mother-in-law (MIL).

Core creative concepts

Item	Description	Intended Purpose (at time of design)
3-minute Video	Bhuvan, hears from all the people who shape his thinking - his mother, the village elder, the ASHA, the doctor - make him aware of his new-found responsibility, his wife's nutritional needs, so that his baby can grow up to become a champion.	A moral story that sets expectations for role/responsibility of the husband in pregnancy.
SD card with video	A memory card with useful content. Our video as well as other dietary advice from key influencers.	Digital format so the entire family receives the message of the importance of enhanced nutrition for the PLW.
Treat Box	A handy box to stock dry snacks.	PLW to store food away from kitchen, to eat when convenient for her. An intimate exchange between husband and wife.
Champion's Passbook	A formal record of the PLW's, and later the infant's progress. Signed by both parents.	Responsibility/pledging through signature. Dispense information about nutrition and diet and serve as shared monitoring tool.

The food recommendations that were acceptable and agreeable, even if without a cash transfer

- 1 glass of milk
- 1 glass of your favorite Lassi
- 1 glass of rabdi
- A handful of channa: roasted or boiled, lightly salted or with jaggery.
- 1 Fruit (fresh)
- 1 small handful of ground nuts
- 1 tea with biscuits or rusk or roti

The key messages focused on *brain/heart, eat two meals + snacks, eat because baby is hungry* are motivational, and the action-efficacy of the advice depends on the creatives.

In these communities, eating practices and foods are gendered, so meal-based dietary advice, such as green leafy vegetables or dal in multi-family homes, has low action-efficacy. Interventions that will receive less resistance from family are those that target low-cost items that are not shared at meals. Women may choose every day at least 2 foods from the list above.

The food recommendations are low price, low status items. When the foods are placed in a lovely painted, wooden gift box, they suddenly gain importance. The presentation and quality of the box is critical to enhance the perception that these foods are important.

Awareness and sensitization of key opinion leaders (KOL) in communities will be necessary, especially to sanction eating more food, which carries negative connotations for women, such as overindulgence, pampering, and lethargy. Additionally, these KOL may become 'champions' of the campaign, helping to counsel gatekeepers, such as MIL.

Our research found that the overall strategy was acceptable and agreeable to husbands, PLW, and MIL. The front-line worker welcomed the non-meal advice, treat box, and passbook, as practical solutions to barriers of eating more.

The issue and research design

Pregnant and lactating women (PLW) have higher calorie, protein and micronutrient needs in pregnancy. According to the dietary intake data collected by IIHMR, calorie intake is 40% lower than what is recommended by the Indian Medical Council for Research. Inadequate food intakes during pregnancy affect both the maternal and fetal nutritional status and in lactation, inadequate intakes may influence the macro- and micronutrient content of breast milk. Public health interventions that prioritize and support improved intake of food, supplements or both are needed to address maternal and child malnutrition in India.

To improve dietary intakes among PLW, the current intervention of choice is a weekly take home ration (THR) through the Anganwadi centers. This food-based transfer is intended for women, but it suffers from low acceptability (due to poor taste and packaging) and when it is used, it is served as a fried snack to be shared with all members of the household or given to livestock. A cash-based transfer (CBT) might replace a food-based transfer but it creates other challenges, such as ensuring that the cash is used for food rather than on other expenses and knowing which foods to buy and how much food should be consumed. Some of these challenges may be addressed through a well-designed communication campaign.

Experts agree that the foods needed during pregnancy and lactation are those that provide sufficient energy, adequate protein and are dense in nutrients. Not one food will meet all these criteria, so women are encouraged to "each a variety of foods and to eat more often than they normally would". While this seems like simple advice to follow, in practice this phrase is non-actionable because it lacks concrete ideas for how to achieve this goal. Moreover, nutritional advice, such as the one transmitted by health professionals, often comes in a manner that is not understandable to the recipient—it includes jargon, it is directive (or commanding) rather than engaging, and focuses on health rationality, rather than the emotional drivers of the primary caregivers for children.

In the 'Eat more, eat better' project we address two complementary issues. First, the need to divert money for buying foods for PLW. Second, that PLW and her influencers knows what and how much food she must consume. To examine these issues, we undertook a systematic analysis of the factors that affect food access for women as well as the motivations, and the tangible and intangible benefits that food/nutrition/eating more conveys to PLW and her influencers.

The research approach

We sought deeper insights on the food access and food consumption habits of PLW using a three-phase research approach. In the first phase, we conducted a situational analysis, which included preliminary discussions with target audience, a review of the literature (peer reviewed and project reports), and a workshop, where key stakeholders/agencies involved in maternal nutrition shared their knowledge on drivers of food choices for Indian women. The situation analysis confirmed that further insights were needed on the social norms and actors, motivations, and cognitive factors that enable or restrict food access and consumption for PLW.

In the second phase, the formative research, the aims were to:

1. Identify the benefits / outcomes that are most valued by women during pregnancy and breastfeeding

2. Discover the most appropriate vocabulary to describe these benefits / outcomes
3. Understand important barriers to healthy eating during pregnancy
4. Identify how key social influencers shape PLW's decisions on what and when to eat

In-depth interviews with PLW in rural (Baran and Tonk) and urban (Udaipur and Pali) districts. In these same communities, we conducted home observations with PLW, focus group discussions (FDG) with MIL, husbands, and FLW (see appendix B for summary). Transcripts were translated to English and underwent content analysis by TNS, the Delhi-based research agency hired for the formative research, as well as in-depth text analysis on factors that affect food access and eating norms by an independent consultant, PhD from Mumbai, based at the University of South Carolina.

The formative research yielded significant insights that were shared in an internal workshop with project partners. These insights were used to shape strategic choices for our communication strategy (i.e., target audience, key motivational drivers, behavior objectives, behavior outcomes).

In the third phase, validation research, the aim was to examine the acceptability, appealingness, feasibility (actionability) of the creative concepts, in three districts: Udaipur, Baran, and Barmer. The insight from the validation phase will be used to develop the final creative material and the drafting of the final communication strategy and implementation plan.

We followed an emergent approach to the research, where new lines of inquiry were pursued from the interviews and observations. De-briefing calls were held with project partners to hear insights from the field team and discuss whether any adjustments to content of discussion guides or data collection methods were required for the subsequent field site.

The remaining report chapters are organized as follows. The insight brief draws primarily on the formative research phase, but some of these ideas were also shared by participants during the validation phase. The creative brief outlines the strategic choices for problem to be addressed, target audience, behavior objectives and outcomes. The findings from the validation phase are discussed in detail in the chapters on Creatives and dietary advice.

Examples of the creatives are found in Appendix A. The description of study participants is found in Appendix B. The macro and micronutrient contributions of the foods, modeled as scenarios, are found in Appendix C.

Insight brief

Insight A. Improving food intake is feasible through non-meal occasions

Typically, dietary advice primarily focuses on foods used in meals. In Rajasthan, the calorie and nutrient gap between current and recommended intake is quite large, ranging from 500 to 700 calories. To examine the viability of meal-based dietary advice, we explored eating patterns, meal patterns and eating norms.

Evidence from research.

The typical eating patterns for these communities consisted of two meals, one late morning and the other between 6-7 pm, and a tea taken at home, early in the morning. Morning teas (prepared with milk) could be taken alone, or with rusk, biscuit, or left-over roti from the previous evening meal. Other eating occasions, which were variable in their practice, were an afternoon tea, or drinking milk, buttermilk/lassi, or eating a fruit at mid-morning or sometime in the afternoon. PLW with greater opportunities for non-meal occasions were those who were a) home-maker; b) had a young child, because she ate the treats or fruit bought for the children; c) lived in single-family home.

Eating norms revolve around shared meals and shared foods. Eating food by oneself or for oneself is a selfish, unacceptable behavior. "*It does not look good also that only I sit & eat. I will cut one apple & give her [sister-in-law] half & have half myself"*. PLW did not consider normal or appropriate to eat more than others at meals, especially because it challenged her notion of good wife, a good DIL, and a good mother. Thus, dietary advice given to the women would be acted upon by all household members. For example, if PLW is advise 4 small meals per day, this advice is a financial impossibility, as noted by a husband, "i*f she is eating four times then the rest of them [family] are also eating four times. So for that you have to earn a lot*".

From a social cultural perspective, food access is determined by the position in the home and autonomy to leave the house and make food purchases. Because of their earning power and freedoms to travel independently, husbands buy food and their food preferences often influence what is prepared at meal times. PLW cook the food and may recommend what to buy when food stocks are low, but normally she is not responsible for food purchases. The MIL, as the manager of food resources, decides what to prepare, when, and who prepares the meals. She may occasionally buy the food.

Thus, PLW has the lowest access to food. PLW longed for the freedoms of their maternal home, where they could consume whatever they wanted. In contrast, they felt confined/restricted in their husband's home. "*No, but at maternal home, I used to have [fruits] daily and there was no tension. Here, there was irritation"*. Women with the lowest autonomy would be newlywed, 17-25-year-old, primipara living in multi-family household.

When financial resources were scarce, PLW prioritized others' needs over her own. *"If everything is okay at home then I will take for myself but if there is need at home then I will use it for my house"* . In multi-family homes, competition for food resources was evident. "*Sometimes apples come home for me, as the doctor has told me to have them. But my sister-in-law will snatch it saying 'I do all the hard work and she [PLW] gets to eat apple'."*

While it seems that meal-based dietary advice is largely non-actionable, non-meal occasions might be an untapped pathway for dietary intervention, give than they align with existing norms and eating practices for women. First, most non-meal foods do not require a stove/fire, so PLW do not need direct permission from the MIL for preparation or eating. Also, 'not having to cook' means that one does not take time away from other chores to prepare and eat these foods. Second, foods consumed outside of meals are often 'snack size', a small, single-serve portion, which aligns with the belief that to avoid lethargy women are must consume small amounts of food. Third, foods that are prepared or bought and then stored for family consumption, such as fruit, lassi or rabdi – butter milk with cereal (corn or pearl millet) – may alleviate guilty sentiments of having scarce resources diverted to her and not to others.

Implications for programs. In this context, meals are a low efficiency pathway for achieving the objective of improving dietary intake among women. A more efficient pathway for dietary intervention would be to use non-meal occasions. Advice with higher action-efficacy would be foods that do not require cooking, can deliver calorie and nutrient density in a relatively small portion, and are readily available in the home.

Insight B. Women need permission to eat more during pregnancy and lactation.

Given the limited autonomy of low-income Rajasthani women, food sharing practices, and financial possibilities of families, women require permission from gatekeepers to act on dietary advice. We examined the permissiveness of husbands and MIL for granting food access.

Findings from formative research.

There are certain cases when women are granted permission to consume foods only for them. One such case, is when the doctor prescribes foods to treat specific conditions. For example, when pregnant women were diagnosed with anemia they will be advised to eat fruit or take supplements or if they show inadequate weight gain, the doctor's prescription may include protein powder to be taken with milk. Another case is when pregnant woman 'craves' a particular sweet treat or fried food. In both cases, it is the husbands who buys and sanction such foods, within the limitations of the household finances. Husbands are the provider, protector and a medium to the outside world. Our data show that he is, at times, warm, appreciative, and does things to gain her affection - though on the sly, satisfying their cravings or buying treats like kachori or pakora. Husbands are balancing the demands of the patriarchy with being more emotionally available to their wives.

In contrast to the husband, the MIL tends towards restricting food access. The MIL, for example, are concerned about a 'smooth delivery' and avoiding the need for C-section, so they encourage eating down in the last trimester and avoiding sticky foods (bhindi, banana, ghee, okra). MIL was adamant that pregnant women remain physically active (continue doing housework or field work) to ensure easy delivery. MIL with more 'traditional view' thought that today's pregnant women were too delicate and 'required' too many luxuries, such as special food (protein powder and milk) and rest.

Implications for programs. Dietary advice given only to women has a very low likelihood of having an impact on PLW's dietary intake. This advice must be understood and sanctioned by key gatekeepers. Because husbands manage finances and are the wife's access to food resources and the outside world, they are also the most likely route for improving food access. Moreover, husbands offer an

avenue for emotional support and care to PLW, but may be reluctant to do so if it means openly defying his mother's authority in food and household management.

Insight C. Actionable dietary advice is one that is relevant, specific, and aspirational.

PLW discussed they type of diet advice received by FLW, and FLW shared the advice they provide to the women and sometimes the MIL. The current advice centers on meal-based foods (dahl, green leafy vegetables, 4 small meals), milk, and fruits.

We found no specific dietary advice for lactating women. After giving birth and during the first 40 days post-delivery, women take rest from household or field work and consume a special diet consisting of ladoos (macaroons made with ghee, almonds, dried fruit). During this time, the PLW is often isolated from the rest of the family and remains under the care of the MIL, who supervises the foods consumed by the PLW.

Insights from formative research

Perceived Relevance of the advice. It should be noted that pregnancy is perceived as a normal-state of womanhood. "*All women get pregnant, why should any it be considered special?*" This translates to relatively no measurable increase in dietary intake between pregnant and non-pregnant state. "*I will eat as much as I can, what's the point of extra eating?"* Moreover, the main preoccupation for a pregnant woman is to deliver her child alive and 'healthy', so dietary changes are motivated by avoiding miscarriage, still birth, complications at delivery, and maternal death. The food taboos common among PLW are related to these fears. When asked about eating larger portions, women did not perceive to eat small portions. Thus, framing of pregnancy from loss prevention to potential gains would address the relevancy of eating more.

In lactation, the key driver is boosting milk production and recovering strength post-delivery. During the 40-day rest period, women generally consume 1 meal per day: roti with ghee alone or roti & green veggies, and dal is consumed frequently, 2-3 times a week. In between meals, lactating women consume significant amount of ladoos and some may consume halwa or dalia. Lactating women avoid heavy foods and sour foods (butter milk, curd) to prevent colic in the baby.

We found that the MIL readily referenced practices to prevent loss in pregnancy and as well as the food restrictions during lactation. These ideas represent the traditional view. PLW living in rural areas and PLW with less education are more likely to exhibit loss aversion behaviors. PLW are fearful when they (or a close relative) have had a previous experience with miscarriage or other complications in pregnancy.

Aspirational. Women's expressed a desire to be more independent, contribute to the family income, and the betterment of their children. These aspirations also reflect their wish to learn new things. *"I feel I have also studied till the 10th [grade]. Maybe now I could have studied further… If you study more your GK [general knowledge] increases you become more aware… I could probably have brought up my children in a better way."*. The need for self-actualization, self-improvement, and family betterment are powerful motivators for changing behaviors.

Specific. In the formative research, we tested various concepts framed as loss (weak child, weak milk) or gains (strong child, strong milk, good diet). The concepts that were perceived to be most

relevant were the ones with a tangible *positive* benefit (gain) for the child, along with learning new information. The ideas that resonated well were:

- Childs brain, blood, bone and eye development mostly happens around **three months before birth.**
- Those who do not eat the doctor recommended food will have **weak milk** which impacts the health and development of the child
- Doctor recommended food helps the **woman stay healthy and strong**. This helps her take better care of her family and child

When faced with generic dietary advice, PLW justified their current food choices by citing the importance of eating-down, food taboos, or scarce food resources.

Implications for programs. Dietary advice has higher action efficacy among better educated women. However, the demand for technical, useful/relevant information, especially for women who could not continue their schooling, coupled to emotions of better development of their child, triggered a tangible benefit for dietary suggestions. It was not about eating more for the sake of consuming more food, but eating more became a means to achieve the image of a self-improved women who supports her family's needs.

Creative Brief

Background. The strategy was conceived at a workshop in Delhi, April 4-5, 2017, where formative research and OptiFoods data were presented to workshop participants (Sight and Life, TNS, IPE Global, CIFF, Cartwheel). Special invitees from GAIN and Mr. P shared their experiences in social marketing. The communication ideas proposed in this workshop were further elaborated by Cartwheel, with significant input from Sight and Life and CIFF, and refined through validation research. The proposed elements for a communication campaign are presented in this brief.

The formative research offered the following key findings, which served as organizing principles for the communication and creative content

- Draw on accepted social roles of care and responsibility, because gatekeepers improve food access and sanction eating more for PLW.
- Use the spousal bond to support and further encourage care for PLW, given that only 50% of home are multi-family homes. Husbands want to be involved in the medical care of their wives, in part because they seek to prevent expensive medical expenditures. Nutrition (food and advice) must be seen as offering the preventative care husbands and other seek.
- Consider the exchange value – what will it take women to eat more food in light of the eating norms that include, eating down, feeling hungry and that pregnancy is a normal phase of life? Make the child the relevant factor, beginning right at the first trimester, show how the fetus develops, and explain why mothers need to eat more. These factors improve motivation and self-efficacy for behavior change.
- Frame the advice as relevant, actionable, informative, aspirational so PLW eat more.
- Promote food that do not require cooking, can be consumed in small portions, and are readily available in the home. Meals and meal-based dietary advice is a non-efficient pathway for improving maternal nutrition, particularly in multi-family homes.

Problem addressed via a communication strategy

A communication strategy will be leveraged to ensure that a cash-based transfer is used to purchase foods that will be consumed by PLW. The foods purchased are addition to current intake of PLW (women are eating more).

Target audience

Primary Target: Husband

Age: 18-25 years. A young man, whose is establishing his family. He is a first- or second-time father.

Rationale: the husband is the principle manager of financial resources. According to IIHMR data, 50% of the households are single-family homes; the husband the common influencer across all homes in Rajasthan.

Behavioral characteristics (existing or aspirational): The Quiet Supporters. They are still the provider, protector and a medium to the outside world. They are balancing the demands of the patriarchy with being more emotionally available to their wives. He does not outright defy his mother but shows support for his wife. He is at times warm, appreciative, does things to gain her affection - though on the sly. We want young husbands to find their voice, to feel like they are doing the right thing, moving from being a “Quiet Supporter” to an “Open supporter”.

Behavior objective: the husband openly demonstrates his support by ensuring that his wife has access to food resources to meet her dietary intake needs for pregnancy and lactation.

Behavior outcomes: Signs passbook when weight of his wife or child has been taken, shows material from SD card to wife, buys foods on shopping list, fills treat box.

Other audiences

Wife – A young woman, < 25 years old. She is a first or second-time mother. She wants to encourage her husband to fulfill her food wishes. She is also motivated to take care of herself for the sake of the child she nurtures in her womb or at the breast. The wife is the primary audience of the dietary messages, so she knows what foods to request and how often to eat the food.

Behavior objective: PLW act on the dietary advice, reminds her husbands of the food she wants to eat.

Behavior outcomes: consume the foods recommended, at least two each day. Tells husband that the treat box needs to be filled. Reminds husband of foods to be purchased and amount of food needed.

MIL – The MIL is a strong supporter of her son and she will help him step into his responsibilities of a father. MIL also want their DIL to stay active and healthy, so MIL support measures that assist in this objective.

Behavior objective: the MIL supports her son to take care of his wife, such as buying food and being present at antenatal care (ANC). She supports her DIL to eat more.

Behavior outcome: remind son to purchase food and to go to ANC; grants her DIL the permission to eat foods at meals, tea, and between meals.

The Creatives

The creatives were tested in validation research via 12 FGD with husbands, PLW, MIL, and FLW. Testing was completed in Udaipur (urban), Baran (rural), Barmer (rural). The creatives tested in the validation phase were creative concepts rather than final creative material that would appear in a communication strategy.

Core idea

Infuse a sense of responsibility into the husband (of the mother-to-be) to take care of her enhanced nutritional needs, so that the baby grows to become a 'champion'. A champion is someone (boy or girl) with all-round growth - physical and mental - so that he/she excels in life. Champion word was not translated to Hindi.

Visual – Husband and wife in loving embrace, with husband offering his pregnant wife something to eat.

Key insights from FGD:

- **Strong acceptability** among all groups to husband taking care of his wife
- Husbands **connected the idea** 'a mother's nutrition' to 'having a champion'
- More **educated and urban** PLW understand concept of champion; MIL had problems pronouncing the word.
- Husbands – idea of champion linked to intelligent, strong, successful
- Art, Royal Dress and jewelry were very well liked.

Caveats – Eat more – means eating more at meals (Barmer), or eat the recommended items such as fruit or iron tablets (Baran)

The Story of Bhuvan and Sarita

[A 3-minute video] A moral story that sets expectations for role/responsibility of the husband in pregnancy. Bhuvan, a not so responsible young man, hears about his wife's pregnancy. All the people who shape his thinking - his mother, the village elder, the ASHA, the doctor - make him aware of his new-found responsibility, which is to take care of his wife's nutritional needs, so that the baby can grow up to become a champion.

Key insights from FGD:

- **The video showcased new learnings for husband**– the role of a man in pregnancy is not only to take wife to hospital and attend to complications. Husbands - listen carefully, **smiled** while listening, with an **applause** at end
- **Husbands - said their mothers and their fathers** need to see the video. Young husbands also felt that **their mothers** must **sanction** their buying foods for their wives, **taking care of wife**
- High **appreciation** of the advice shared by key influencers, such as **school teacher, doctor**
- **Positive change** in Bhuvan is appealing
- MIL - Our sons waste a lot of time with friends. They liked that the boy listens to his mother.

Welcome Kit

The purpose of the welcome kit is to on-board the couple/parents to taking care of the mother's nutrition. In the kit, there is a box for storing food and tactics to transmit the ideas of eating more.

Table 2. Description of Welcome Kit

Item	Description	Intended Purpose (at time of design)
Treat Box	A handy box to stock dry snacks.	Allows the PLW to store food away from kitchen, so she might eat anytime that's convenient to her. Allows for an intimate exchange between husband and wife.
SD card with video	A memory card with useful content. Our video as well as other dietary advice from key influencers.	Digital format so the entire family receives the message of the importance of enhanced nutrition for the PLW.
Champion's Passbook	A formal record of the PLW's, and later the infant's progress. Signed by both parents.	To dispense information about nutrition and diet and serve as shared monitoring tool. Responsibility/pledging through signature

Key insights from FGD:

Passbook and SD card

- The passbook was associated with bank passbook – a place to keep **track of important information.** Due to low literacy, the MIL was the least interested in passbook.
- **Signatures in passbook –** highly acceptable by all stakeholders
  - Husband: No one had ever asked them for their signature. They would **be involved with the care** of the wife. They will know about their wives said **she cannot hide** anything from them.
  - FLW: signature means **husband** must come **to ANC**, which was very **acceptable**
- PLW: if husbands are well counselled they will accompany them to hospitals and take interest.
- SD cards are male – women own simple mobile phones. Some women did not know what the card was for. The FLW were concerned about the men formatting cards, selling them, and eliminating the messages.

Treat box:

- Requires explanation of its purpose. It is not evident that it should be used for food.
- Perceived as a **gift**. The last time they had received gifts was at the wedding.
- Husbands - excited about filling treat box. "*This a nice gift for our wives"*
  - A senior member of the community should explain the purpose of the box to their mothers, so **MIL sanctions purchases** and **treat box**.
- MIL - the treat box can be kept by their DIL and she can eat something whenever she feels hungry.

- **What would they fill the box with**? Fruit (apple/ grapes), channa, jagery, Parle-G biscuits; other options: dried fruit (munakka) and almonds sent by mothers; dried coconut; dhaani (roasted barley).
- **Where would they keep the box?** Udaipur - treat box would be kept in PLW rooms away from others and children. Baran – less personal space where they would keep the box? Potential for sharing food in treat box.

Suggestions from the field

- Husbands suggested that his wife record in passbook the fruits she had eaten.
- PLW said passbook should include messages related to what they should eat; how to handle nausea; how to increase blood (Kaise khoon badhaye); how much they should rest; religious songs about childhood Krishna.
- FLW suggested that husbands to keep receipts of purchases. Additional videos are needed to address social taboos, such as weighing women in pregnancy.
- Use wall paintings to amplify the campaign visual (husband feeding his wife)

Key Learnings

Husbands want to be involved. They had positive reactions to being informed of the right foods to buy, recording their signature, and learning how the wife's pregnancy is evolving. The welcome kit was a source of information for husband and opportunity for involvement, especially at ANC. Also, we found a strong desire for prevention.

> *"they do not tell us such advice, and then when things go wrong, we need to spend"*.

> *"They keep us out saying it is womanly thing, our mothers ask us not to interfere. But they said that the MIL is asking the boy to take care of her food, is a good and new advise. They said they meet such elders in village but they only ask them to ensure that women are taking rest. They said doctors give very generic advises which even their mothers are aware about."*

We learned that the treat box serves additional purposes to the ones we had originally proposed. It elevates low status foods (see next section) and reminds PLW to eat more foods. The box, with its compartments, makes the choices manageable and the advice actionable. By granting women access to food, this box might be empowering. For women who would not have access to the box, such as those working in fields, a pouch that can be stitched to the inside of the saree might be an option for carrying dried food.

Champion idea is as key motivator for men and they could easily find synonyms to describe a champion. In Barmer we learned that it is taboo to talk about future of baby until it is born healthy. Pregnant and MIL seem to be motivated much more by 'delivery of healthy baby'. The champion idea might be motivational for women once the baby is born.

Because elements of the welcome kit require explanation, the distribution of this kit provides an important contact point for discussing with husbands the purpose of cash transfer and his role in taking care of his wife, and in her eating more locally available foods to improve her nutrition.

Dietary advice

Background. The data from 24-h recall show that the gap between current and recommended intake is about 500-700 calories per day. We used Optifoods recommendations and selected affordable non-meal items that were good sources of protein. Foods were eliminated if they were specific to a season (i.e., green garbanzos), too expensive (custards, etc.) or customary (ladoos at lactation) because women would receive these items regardless of the dietary advice. The portion sizes for lassi, butter milk, and biscuits, were adjusted to reflect current eating practices, rather than Optifood serving size.

The validation research was used to identify other foods that would be acceptable to PLW, but which are not typically suggested in dietary advice.

There were various elements to the dietary advice which were refined through the validation research:

- occasion-based advice – a diet wheel and posters
- food recommendations
- shopping list
- dietary messages – one motivational message for each group were scripted for Udaipur and Baran, while in Barmer we layered short and simple key messages using posters.

Occasion-based dietary advice

Initially, we positioned the food recommendations as occasion-based (5 snacking opportunities – 2 tea-times, and 3 snack-times) advice, which were shown on a poster or a diet wheel to PLW and FLW in Udaipur and Baran. However, both the wheel and posters were confusing to both groups in both districts.

The non-meal occasions were not feasible or acceptable to women, with most stating that they would be eating all day. Moreover, it was customary for women to feel hungry between meals. Eating after the evening meal was not allowed because the kitchen was closed after last evening meal. However, we did find that the concept of 'anytime foods' resonated better with the women. We confirmed that the afternoon tea is variable even for those stay-at-home mothers, and for women working in the fields afternoon tea did not take place. The phrase 'eating between meals' (snacking) does not exist in Hindi, making it difficult to discuss non-meal occasion. For these reasons, after Baran, advice was no longer framed as non-meal occasion.

Food recommendations

To test the acceptability of the recommended items, PLW and FLW were shown actual food. In Udaipur and Baran, halwa, pohe, daliya, mung beans, doodah patti (chai tea with significant amount of milk) were included because Optifoods had suggested these foods. But these items were not common across the districts and for some, such as pohe, daliya, mung beans (used in dal), cooking was required. The food list that was acceptable to all was:

- 1 glass of milk (200 ml)
- 1 glass of your favorite Lassi (200 ml)
- 1 glass of rabdi (buttermilk with grain – pear millet or corn) (200 ml)
- A handful of channa: roasted or boiled, lightly salted or with jaggery (30 g).

- 1 Fruit (fresh) (100 g)
- 1 small handful of ground nuts (30 g)
- 1 tea with biscuits or rusk or roti (15-20 g)

Key learnings from FDG

- food advice was **acceptable and doable**, except for women who work outside the home
- major fears were **storage**, and **others eating it**, such as small children, father-in-law
- due to daily chores, snacking at mid-morning and mid-afternoon was **difficult to remember**
- *eating more* was associated with **being lethargic**
- **dry food** was found **more feasible and doable**. Channa was a food item unlikely to be eaten by others in the home.
- **dried fruit** was suggested in Udaipur and Baran
- ladoos and daliya are already given to lactating women
- PLW suggested SMS reminders to eat foods

Shopping list

A shopping list was tested with Husbands and MIL. The original list consisted of 11 items. The following 7 items were those that most husbands and MIL found to be acceptable and readily available across all districts.

1- channa/green mung beans; 2- milk (cows, buffalo, other); 3- fruits; 4 - dry fruits (badam); 5- groundnuts; 6-biscuits or rusk (dried toast); 7 - jaggery

Dietary messages

The motivational messages below were tested only in Udaipur and Baran. These messages were *scripted* by the FGD moderator when the recommended foods were shown to participants in the FGD.

Motivational message

Pregnancy. Your champion is growing inside you - growing its brain, bones, heart. To support the champion's growth, the mother of champions must eat more foods. In addition to taking meals, you must take food whenever it is possible. Here are some options.

Lactation. Over the next six months, your champion bones will get stronger, grow more muscle, brain will get bigger, and strong blood will be needed. Your champion depends on your milk to grow; strong milk can be achieved by eating more food. Here are some options.

In both districts PLW and FLW found the messages to be clear and acceptable but they did not elicit stimulating responses we had anticipated.

Short messages

Drawing on the learnings from Udaipur and Baran, a different approach was used for Barmer, where shorter, simpler messages, with poster images (rather than actual food) were tested.

The shorter messages were explanatory phrases. PLW, FLW and MIL were shown these food messages as posters (see appendix). The three most acceptable messages were:

1. Now, you have to eat more to make your champion have a better brain and heart
2. Think of eating more as two times (two meals) food is for you and the rest of the food you eat is for your champion
3. When you feel hungry think that your child is hungry, that is why everyday eat more and make the new baby a champion

Key insights from FGD

PLW

- any other **food taken outside meal** was for the **baby**
- women never **thought that baby is also hungry**
- no woman wants their child to be hungry. If feeling hungry meant their child would be hungry – then **unanimous agreement they would eat outside meals**.
- did not know **they could eat something (fruit) with tea**. They can carry channa or any dry foods
- they can **take time out from chores** to eat other food

The MIL

- the idea that the **baby was hungry in womb** was new
- they could relate to the idea of children needing small meals, so it was clear how the small meals were needed by PLW

The FLW

- all messages were **very acceptable**; appreciated the **new, simple messages**
- until now, only meal-based foods had been recommended, but all **non-meal recommendations were doable**
- greater exposure to messages would get women to eat more food. Sharing of food items can be solved with some counselling

Key learnings for dietary advice

While showing the food (rather than imagining the food) was necessary to elicit a credible response, these women were shocked to see or think about so much food. The layering of 3 messages using posters simplified complex ideas and took the emphasis away from food, so a thoughtful discussion on the *eat more ideas* could unfold. In these communities, scripting without visuals was not an effective strategy to test motivation of the message.

The short messages of *brain/heart, eat two meals + snacks, eat when hungry because baby is hungry*, draw on good principles of scripting, where the behavior (what) is flanked by a key benefit (why). These messages can be used in interpersonal communication for continual reinforcement of behaviors. Similar messages for lactation are needed.

The short messages may standalone, but the action-efficacy of the advice will be improved with the welcome kit and creatives. In the Optifood exercise, when PLW were asked about how easy it would be to eat the recommended foods, most women reported that rabdi, milk, channa, groundnuts were actionable, even without additional cash.

Awareness and sensitization of key opinion leaders (KOL) in communities will be necessary, especially to sanction eating more food, which carries negative connotations of overindulgence, pampering, and lethargy. The type of sensitization activities might include problem-based group discussions, where the problem of eating more is presented and KOL are asked to offer tangible solutions. Additionally, these KOL may become 'champions' of the campaign, helping to spread awareness to gatekeepers, such as MIL and husbands.

Next steps for dietary advice

Interpersonal communication is necessary to engage with PLW and her key influencers, given that some of these ideas require more explanation, not easily conveyed in a poster or a short phrase. Other tactics, such as apps and films, can be used as educational tools and job aids. Figure 1 includes potential topics for FLW.

Auxiliary Nurse Midwife – Topics: why do women need to eat more – mother-belly-baby axis; mother-breast milk-baby axis. Explain how food supports the baby's development of his/her heart, brain, bones. Explain to mom/husband/MIL a mother's weight gain is linked to how well the baby is growing.

ASHA worker – Topics: reinforce messages and links to development outcomes for baby. The ASHA will need to provide local options and tailor food needs to what might be available for each family. For example, she might offer suitable substitutions for the recommended foods

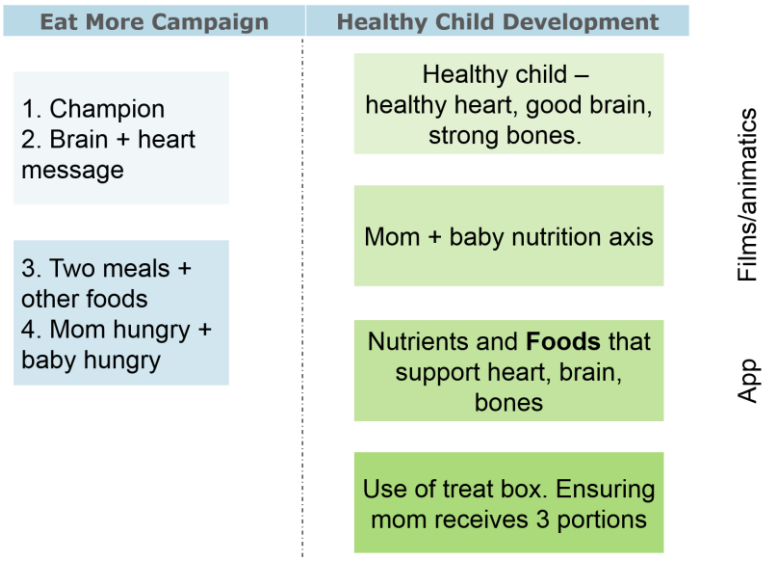


Figure 1. Front-line workers can amplify and expand your campaign messages

Summary

In summary,

- ❑ The communication tactics are coherent and target audience comprehends their purpose.
- ❑ Participants offered suggestions for further linkages among the tactics, which suggests that for the husbands, PLW, and MIL the tactics are acceptable and appropriate to address the issue of eating more.
- ❑ The front-line worker welcomed the non-meal advice, treat box, and passbook, as practical solutions to family barriers of eating more. The focus on the husband was appreciated.
- ❑ In these communities, eating practices and foods are gendered. Interventions that target low-cost items, readily available at home, requiring no cooking will receive less resistance from family.
- ❑ The foods suggested are low-price, low-status items. When they are placed in a lovely painted, wooden gift box, they suddenly gain importance. The presentation and quality of the box is critical to enhance the perception that these foods are important.
- ❑ Layering of messages is necessary for women (PLW, MIL) to understand the champion idea as well as the need to *eat more*.
- ❑ Interpersonal communication will be needed to expand and support the ideas presented in the communication strategy. Community events – VHND, religious festivals can reinforce the normative idea of eating more.

Implementation Pilot

An implementation pilot is planned in October, led by IPE Global, to address the feasibility of communication strategy (see table 2). Additionally, the implementation pilot can be used to examine

- Acceptability and adherence to recommended each day: 2,3, or 4 foods. This is needed to estimate the nutrient needs met through the recommended foods. We have modeled scenarios drawing on our findings from the validation phase (Appendix C)
- Different treat box designs: with/without compartments, wooden vs. light-weight to address the utilization and action-efficacy of the treat box
- New messages tailored to needs of lactating women
- A video episode that address eating norms: eat more, eating between meals, not being lethargic, showing pregnant women being weighed
- Options for distribution of welcome kit – should it occur 1:1 at ANC or ASHA at home or via group format at community events, including VHND?

Table 2. Implementation domains addressed in validation phase and implementation pilot

	Validation Phase	Implementation Pilot
Acceptability	**Target audience found it to be agreeable**	✓
Adoption		
Appropriateness	**Address the issue of eating more**	
Feasibility		
Implementation cost		✓
Coverage		**Not applicable**
Fidelity		✓
Utilization or adherence		✓

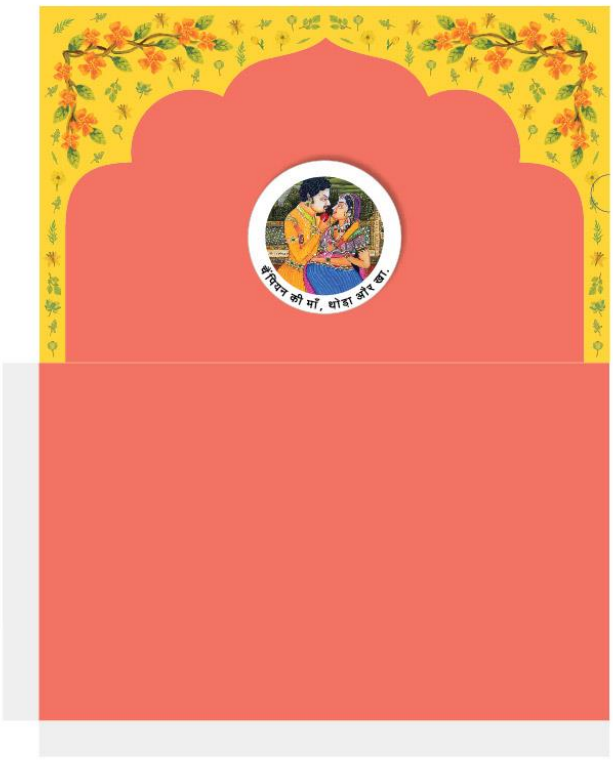
Table 3. Implementation Phase – proposed exposure to tactics

Target audience	Food (related) Behaviors	Content/tactic	Format
Wife	Choose X of Y recommended foods everyday. Remind husband to fill treat box and buy foods.	Key messages Champion idea Welcome Kit	Passbook Diet chart/app SIM/video format Treat box Posters, etc.
Husband	Buy foods on shopping list (see below)	Husband role in taking care of champion Welcome Kit *Purchase* message in story form Pregnancy/lactation **shopping** list	SMS, SIM card, posters
MIL	Reinforce food on shopping list See that additional food is taken at tea and snacks	Champion idea Welcome kit showed by DIL or FLW	SIM/video Posters
FLW	[ANM] Reinforce the behavior to eat little more at meals and to take her food between meals. Make sure weight recorded in passbook. [ASHA] Deliver messages + more nutritional information about the different foods, if required	Champion idea Welcome Kit Dietary Messages	Diet chart/app Video Poster

Appendix A. Creative Material

[Please note that these are not the final creative materials]

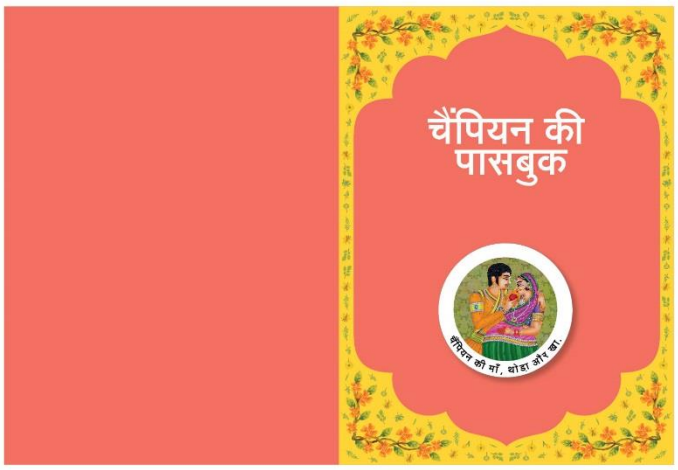
Welcome Kit. SD card



SD Card Cover

SD Card

Passbook



Health Facility Name

District

Village

General Information

Name

Family Name

Registration No Maternal Age DOB

Education Paternal Age DOB

Occupation of the father

Address

Nearest Landmark Phone
(Mobile and Landline)

Past Medical History

Obstetric History: Gravida Parity

Maternal height: Paternal height:

Present Pregnancy

Last menstrual period (LMP)

Expected Date of delivery (EDD)

Issues following dietary advice

(Does the mother have any difficulties following dietary advice? Please note)

Nausea, vomiting

Aversion to Specific Foods

Avoidance/taboo

Cost

Social dynamics in home

Birth Planning

Chosen Place of delivery

Details of Nearest PHC and ASHA

Name of PHC

Address

Phone Number Mobile Number

ASHA's Number Name of Doctor

General Information

Child Name Family Name

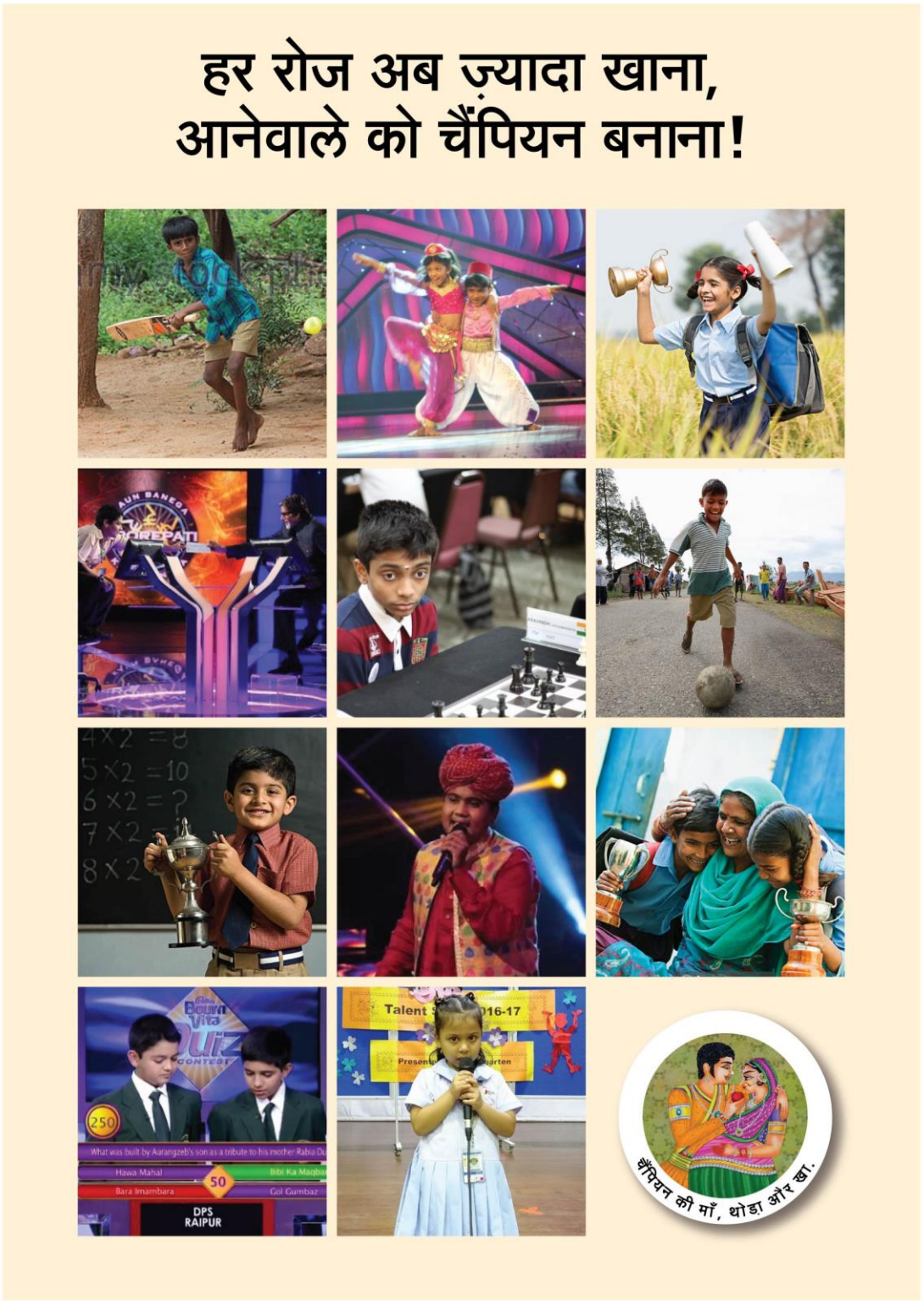
Registration No DOB

Birth information

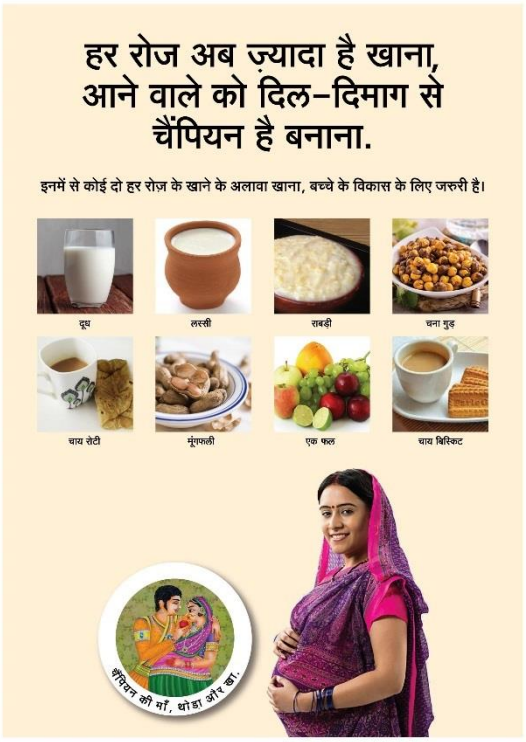
Duration of gestation Birth Weight

Treat box – showing dried non-perishable foods (almonds, groundnuts, channa, biscuits) in box. Notice the key visual and slogan on the cover.

Poster - communicating the idea of champion.



Posters - various ways to communicate the idea to why to eat more, what to eat and visual.



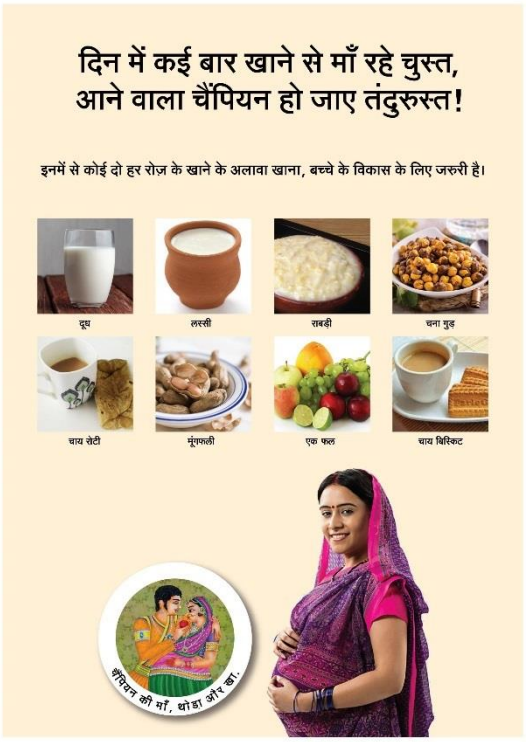


Table B1: Data description based on region and type of respondent in formative research

Type of Qualitative Data	**District**				**Total**
	Udaipur (urban)	Baran (rural)	Pali (urban)	Tonk (rural)	
Interviews (PLW)	4	6	6	6	22
Observations (PLW)	1	2	2	2	7
Focus Group Discussions					
Husband	1	1	1	1	4
Mother-in-law	1	1	1	1	4
Frontline Workers (ASHA/ AWW/ ANM)	1	1	1	1	4
	8	**11**	**11**	**11**	**41**

Table B2: Sociodemographic characteristics by location in formative research

Location	**Mean Age of PLW (years), (SD)**	**Mean Years of Schooling (years), SD**
Udaipur	25.71 (2.56)	9.71 (2.98)
Baran	22.75 (2.12)	9.38 (3.29)
Pali	24.89 (3.62)	8.11 (3.26)
Tonk	24.25 (3.20)	9.62 (1.63)
Overall Mean	**23.55 (2.99)**	**8.83 (2.97)**

Table B3. **Sociodemographic characteristics by location in validation research**

Location	**Mean Age of PLW (years), (SD)**	**Mean age of schooling (years), SD**
Udaipur	20 (2.16)	10.4(1.64)
Baran	21.12 (2.30)	6.55 (2.70)
Barmer	19.72(2.24)	4.45 (3.01)
Overall Mean (SD)	**20.28 (2.23)**	**7.13 (2.45)**

Appendix C. Contributions of recommended foods on dietary intake

We drew from the validation research to construct a week-long scenario consisting of 3 non-meal occasions (Table C1). Some days include more affordable items, such as dried roti, channa and groundnuts, while other days we opted for more socially desirable foods, such as milk and fruit. While there are potentially dozens of permutations, our aim is to describe on average contributions of the recommended foods.

Table C1. Description of eating scenarios and contributions to macro and micronutrient intakes

	Lactation	**Pregnancy**					
Occasion	**Day X**	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Morning tea	biscuit	biscuit	biscuit	rusk	rusk	grapes	dried roti	dried roti
Morning snack	banana	sapota	sapota	channa	channa	groundnuts	raisins	warm milk
Afternoon snack	ladoo	lassi	warm milk	grapes	warm milk	rabdi	groundnuts	coconut
Cost (Ruppes)	11.73	9.08	12.16	11.8	12.98	14.88	8.11	10.03
Calories (kcal)	430.16	293.0	286.46	250.90	340.52	275.46	286.40	341.59
Fat (g)	12.53	8.70	11.60	4.05	12.72	14.81	12.31	21.96
Protein (g)	7.28	6.01	8.85	9.24	14.99	10.48	10.20	10.56
Calcium (mg)	46.86	155.42	263.44	32.47	257.31	87.10	35.56	251.40
Iron (mg)	3.36	2.06	1.52	3.01	3.07	2.10	2.45	1.50
Zinc (mg)	1.94	0.90	1.21	1.54	2.15	1.36	1.40	1.34
Vitamin A (µg)	86.32	125.69	187.29	35.73	110.96	32.92	0.849	106.00
Vitamin C (mg)	4.77	23.17	25.05	17.10	4.08	19.00	0.37	4.08

Portion sizes: fruits 100g; channa and groundnuts, 30 g; mil, lassi, rabdi ,200 ml; raisin and coconuts, 20 g; roti, 15 g; biscuits/rusk: ~20 g.

The weekly scenario for pregnant women (above) would provide on average 5 servings of fruit and 4 servings of animal source foods and legumes, respectively. As expected, and given the calorie gap of 700 kcal/day, these snacks cover about 35% of the protein and calorie needs, and barely cover the gap for dietary fat (Table C2). Micrantrient contributions are much lower, ranging from 12-25%, except for vitamin C. Ladoos in lactation, though a calorie dense food, on their own, do not cover the nutrient gap for lactation women (data not shown).

In summary, these data indicate that given the low caloric intakes, the habit of eating small portions, the nutrient density of the diet must be improved to cover the macro and micronutrient gap. Improving nutrient density can be achieved by fortified food supplements or through greater provision of macro-nutrient dense foods, such as animal source foods and oils.

Table C2. Estimated weekly contribution of snacks towards closing the nutrient gaps in pregnant women

	Weekly averages	**IIHMR gaps (Pregnant 6-9 mo)**	% gap covered
Cost	11.29	-	-
Calories (kcal)	254.95	708	36%
Fat (g)	12.31	62	20%
Protein (g)	10.05	31	32%
Calcium (mg)	154.67	841	18%
Iron (mg)	2.24	18	12%
Zinc (mg)	1.41	5.7	25%
Vitamin A (µg)	85.63	544	16%
Vitamin C (mg)	13.26	33	40%