

GAIN AND MINISTRY OF HEALTH INDONESIA

**Maternal, Infant and Young Child
Nutrition Formative Research in
Sidoarjo, May 2013**

Summary of Findings



1. Background

The Global Alliance for Improved Nutrition (GAIN) in collaboration with the Directorate of Community Nutrition, Ministry of Health Indonesia is engaged in a project to catalyse sustainable improvement of maternal, infant and young child nutrition (MIYCN) in East Java, Indonesia. The project aims to reduce maternal and child malnutrition, notably reduce stunting and iron-deficient anemia. The project will integrate nutrition-specific and nutrition-sensitive interventions with focus on (1) improving infant feeding practices, as well as infant and maternal care practices (including hygiene); (2) strengthening health services at the community level, particularly nutrition interventions and (3) improving the availability and accessibility of high quality nutritious products for young children and mothers. As part of the work around the improvement of infant feeding practices and as a preliminary step to inform the behavior change communication strategy, GAIN conducted a formative research to understand the motivations and barriers for mothers' choices in relation with infant feeding practices in Sidoarjo, East Java. The project has since been dubbed the "Baduta Project"¹.

The behaviour change intervention (BCI) to be implemented in East Java aims to improve the nutritional intake of children between ages 0 and 24 months old from low income families, by 1) delaying and reducing the use of industrial milks, and by doing so, support mothers to exclusively breastfeed till 6 months and continue breastfeeding until 24 months of age, and 2) improving appropriate complementary feeding practices and filling in the nutrient gap by increasing appropriate use of affordable nutritious complementary foods;

The province of East Java was chosen as the sample area because it is among the top three provinces with large numbers of nutrition problems among children². The Basic Health Research 2007 (Riskesmas 2007), published by the Indonesian Ministry of Health in 2008, shows that Sidoarjo's stunting, wasting and underweight rates – 40.4%, 9.3% and 15.5% respectively – are all higher than the provincial rates, while its access to food, health care and information is presumably better than other districts in the rural areas of East Java. These factors make Sidoarjo a prospective location to introduce nutrition interventions,

hence its selection as the location of this research.

Formative research was carried out in Sidoarjo to investigate current *baduta* feeding practices, including identification of factors constraining or facilitating healthier practices and to support the development of feasible and scalable behaviour change interventions for the promotion of target behaviours.

GAIN appointed the London School of Hygiene and Tropical Medicine (LSHTM) to conduct the formative research and two of the School's behaviour change experts led the data collection in Sidoarjo. GAIN also appointed PT Santulita Vikasa (SAVICA), a privately held Public Health Advisory and Communication Consultancy firm based in Jakarta, Indonesia, to undertake the required preparatory measures and take part in the formative research and data processing, with guidance from LSHTM. LSHTM and SAVICA researchers worked in tandem for the duration of the fieldwork that took place in Sidoarjo in May, 2013³.

2. Existing Infant and Young Child Feeding (IYCF) Practices and Central Hypothesis for Future Behaviour Change Programmes

Prior to the Sidoarjo field research, the research team examined existing research on nutrition and feeding habits of infants and young children in Indonesia⁴ and discerned that the actual habits were far from ideal. Among the findings, is the high prevalence of industrial (formula) milk in a *baduta's* diet.

Based on the preliminary findings, the research team reached a central hypothesis that standard healthy feeding recommendations for children under-two years old are simply not being followed by a large segment of the local population. The pervasiveness of formula milk in a young child's diet, particularly from a child's first year of life, usually sets off a negative chain of nutritional events that are detrimental to a child's health and development. One negative event triggered by high consumption of formula milk is that it disrupts mother's breast milk production and, in turn, the child's breast milk consumption.

¹ Baduta is an Indonesian abbreviation widely used to refer to children under two years-old.

² USAID Nutrition Assessment 2010

³ Permission to conduct the research in Sidoarjo was obtained from the Sidoarjo Health Office while ethical clearance to conduct this research was also granted by the London School of Hygiene and Tropical Medicine's Ethics Committee.

⁴ Among the research examined: Hatma's (2013) reanalysis of the Riskesdas data on consumption among Indonesian *baduta*. NHSS 2000, Savica's Real Life Study (2012), Hellen Keller International (2002), Hardinsyah (2011).

3. The “Evo-Eco” Theoretical Framework

With this central hypothesis in mind, the LSHTM team applied the “Evo-Eco” theoretical model for Behaviour Change to analyse and identify the elements necessary to design an effective BCC campaign for the Baduta Project. This theoretical model is called “Evo-Eco” because of its intellectual roots in evolutionary biology and ecological psychology and is based on the inference that brains evolved to provide adaptive behavioural responses to rapidly changing or complex environmental conditions.

From this foundation, a model with the following three basic components was developed: *the environment*, which presents some challenges or opportunities to the individual, the brain, which produces potential responses to that challenge, and the body, which engages in interactions with the environment (i.e., produces behaviour) that changes that environment. The *behaviours* of interest to behaviour change professionals typically occur in particular settings, which can be seen as a context within which these basic components of brain, body and environment, interact. The Evo-Eco approach has been used to develop public health programs, notably on handwashing with soap, as well as to make novel predictions about behavioural causes (i.e., placement of new target behaviours within a routine), which have proved to bring an impact on the ability to change behaviour⁵.

4. Overview of Sidoarjo

Sidoarjo is one of 38 districts in East Java province. According to the publication “Sidoarjo in Numbers 2012” (*Sidoarjo Dalam Angka 2012*), Sidoarjo has a population of 1,984,486, of whom 68,457 are within the age range of 0-3 years (3.45%). There are 597,609 households residing in its 18 sub-districts, with 26 health centres and 56 supporting health centres. Basic life need expenses are set at Rp. 1,100,218 (or US\$110) per month⁶.

Sidoarjo district is a peri-urban area located close to the city of Surabaya, the capital of East Java province and one of Indonesia’s largest cities. Sidoarjo is only 23 kilometres from Surabaya, making it an ideal location for many factories looking to supply the city of Surabaya or to manufacture products for shipment to other locations. In fact, according to the “Sidoarjo in Numbers” publication, the manufacturing industry employs 332,114 people, a

much higher number than the trade (247,690) and finance (211,376) sectors.

More than a quarter of Sidoarjo residents are high school graduates. Islam has the largest number of followers in the district, with other religions making up less than 5% of the population. The population density is estimated at 2778.45 per square kilometres and 3 persons per household, with some variation between sub-districts.

According to the Expenditure for Consumption of Indonesia by Province (Statistics Indonesia, 2012) food expenditure in East Java is about 44% of total urban household expenditure. The biggest portion of urban household food expenditure is used to purchase ready-to-eat foods (28%), with grains (15%) a distant second, suggesting a trend of moving away from home-cooked meals. Non-food expenditure is made up of housing and household facilities (33%), goods and services (36%) and other expenditures.

5. Methods and Tools

Peri-urban households were chosen as the target of this research, instead of a more rural setting, because commercial product distribution, a key channel of future potential nutrition campaigns, does not reach all rural areas in Indonesia. Furthermore, members of the C and D socio-economic demographic group⁷, defined as households with a monthly expense range of Rp. 600.000 and Rp. 1.750.000, are the target population segment because it represents 60% of the Indonesian population and is the largest segment at risk of suffering from child nutritional problems.

A representative sample of 42 informants were selected with cooperation from the District Health Office. All informants were identified from local public health registers, which are considered as the most accessible and reliable database available. The main criterion of participants is being parents of a child between 0 and 24 months old, with varying numbers of family members. Specific sub-samples demanded other criteria, for example: parents with a child diagnosed as under-nourished or pregnant women. The resulting sample encompassed families living in five villages, in three Sidoarjo sub-districts.

⁵ Anger and Curtis (in press) ‘The Evo-Eco approach to behaviour change’. *Applied Evolutionary Anthropology*, ed. by David Lawson and Mhairi Gibson. Springer.

⁶ Based on 2011 figures.

⁷ Based on AC Nielsen 2003, as published in Food Exporter’s Guide to Indonesia prepared for the Australian Government Department of Agriculture, Fisheries and Forestry by INSTATE Pty Ltd.

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Some informants came from households structured as an independent nuclear family with *baduta*, or embedded in a larger family unit, usually matri-local. Some informants were migrant labourers representing a substantial subgroup of independent households, who usually live in *kos-kosan* (cramped rental rooms). The migrant workers had smaller social networks, were sometimes different ethnically and often had to pay for childcare.

Data collection methods included:

- 16 full-day video recordings,
- 15 deep dives,
- 8 case studies,
- 3 focus group discussions,
- 1 baby 'Masterchef' event,
- 4 key informant interviews as well as
- neighbourhood, shop and facility visits.

To analyse the data the researchers employed the following research tools: daily scripting, feeding history decision trees, food attribute ranking, motives elicitation, social change histories, food life histories and video analysis. A summary of the methods used in this formative research appear as Annex I. Method Summary.

6. Main Results of Formative Research

The informants' "food universe" is divided into *drinks*, *meals and snacks*. Meals are further divided into: *nasi* (rice, the defining feature of a meal), *ikan* (protein/meat), *sayur* (vegetables) and *kuah* (sauce or broth). Meals are "scripted" in the sense that there are supposed to be three meals in a day, namely in the morning, afternoon and night. Recipes for dishes are mostly scripts handed down from relatives.

a. Feeding Practices

In the context of *baduta* feeding patterns the mother is mainly in charge, as she is the meal planner, shopper, default feeder, and supervisor. She is responsible for a child's growth and development and organizes the family life around child's needs. However, mother's role changes as a child becomes more independent. Fathers are also involved in *baduta* feeding by paying for the food, doing some house chores (washing, sweeping and shopping) to support mother, entertains child and extends moral support to the mother. Formula milk is a prominent feature in the majority of baby diets, with the exception of a minority of those who cannot afford it, or when the baby refuses formula; these mothers stick to exclusive breastfeeding until their baby's sixth month.

Informants also indicated that it is important for baby to have regular sleeping patterns to make daily life efficient and food is an integral element to establish this since food is given to make baby fall asleep. A baby is expected to sleep through the night and in the afternoons; hence it is breastfed or given formula milk before its expected sleeping times.

Baduta feeding practices can be broken down chronologically as detailed below. .

Feeding Timelines.

At Birth

Baby's first feed is often formula because it is considered hard to tolerate waiting until milk comes in. Formula feeding is even more prevalent for babies born through Caesarean section because they are separated for days from their mothers and therefore are fed formula milk.

Age 0-6 Months

Almost all mothers breastfeed on demand, but give formula milk from early on. The majority of mothers fed their *baduta* some complementary food (fortified *bubur instan* or homemade complementary food) once baby reaches 4 months old. Biscuits are given from age 5 months. Babies are usually given water to drink after being fed food. Only a minority feed their babies scraped banana from the start and banana rice from age 2 months old or fruit from age 4 months.

Age 6-12 Months

Almost all mothers feed their baby formula milk 1-8 times a day. Breast milk tends to be used to comfort a child and get it to sleep, rather than as food. *Bubur instan* is introduced between 5-9 months old as a transition food and at baby's 9 month baby begins to receive softened home food, which is heavy on rice (e.g., *nasi tim*: steamed rice with chicken feet and liver and vegetable broth). Children are now offered snacks (biscuits, jelly, fruit, etc.) to their liking.

Age 12-24 months

Family foods (mushed *nasi +ikan* at first) is introduced to the child at 12 months and a full transition to family foods is usually accomplished by a child's fourteenth month. At this phase, instant foods are no longer given to child, while formula milk is given until age 24 months and children's milk beyond then. By this phase, provision of breastmilk begins to decline and most mothers stop breastfeeding once baby has reached 18 months. Child can freely reach for and eat biscuits, jelly, fruits and fried snacks at will. Yet, many informants state that their child has a low appetite for family meals.

Poverty

Although poverty colours the decision making process of all sample respondents, albeit in a situational manner, most of this research's participants had a reasonable ability to afford food. However, some were unable to buy protein-rich and fatty foods and the malnourished children in this sample were all from the poorest demographic category. In this context, breastmilk is the only cheap source of protein and/or fat, so poor women breastfeed, often until baby reaches 2 years of age but as these breast feeding mothers were malnourished, their babies were malnourished too.

b. Main Insights

Institutions:

Health Sector: Hospitals and the *Posyandu*

Some hospital practices may have an unintended impact on mother's and baby's wellbeing. Hospitals are known to separate babies born through Caesarean section from their mothers for days, thus pushing the need for early introduction of formula milk in a baby's first days of life. Hospitals are also known to sell patient data to formula milk manufacturers.

Although mothers routinely bring their babies to the local health posts (*posyandu*), the health post cadres do not take responsibility for maternal and young child nutrition beyond growth monitoring and provision of supplemental food for malnourished children. Based on observation, they also do not carry out activities to promote children's growth.

Bidan's Advice on Formula Milk

Many *Bidans* (midwives) give formula samples and bottles to mothers at their practices. They advise mothers to exclusively breastfeed during baby's first six months, while saying at the same time that formula is always available should breast milk not be enough, thus planting seeds of doubt among mothers about the sufficiency of their breast milk. All *Bidans* and nutritionists advise mothers to eat well while lactating, for example by stressing the need to eat five meals a day. Mothers who feel that they are unable to do so tend to think that their breast milk lacks in nutrition. Mothers are also discouraged from breastfeeding while taking medication because they are told that medication may spoil breast milk.

Some *bidans* promote and sell pregnancy milks and vitamins to expectant mothers. Most mothers cannot afford to purchase these items thus they feel that their breastmilk may not be enough. Most *bidans* and other health professionals advise the use of formula milk as a supplement from 6 month onwards. All *Bidans* and other

sources of health promotion continue to underline the general importance of milk in everyone's diet, ever since the launch of the "4 is good; 5 healthy" campaign in the mid-1950s. In sum, these practices have instilled a sense of doubt among mothers about the high nutritional quality of their own breast milk and heightened their perceived need for formula milk.

Milk Manufacturers

Formula milk producers state that they believe they are providing products with economic value, nutritional benefits, convenience and sensorial pleasures. They contend that their production and marketing practices, including labelling and packaging, and not targeting under 6-month-olds, are within the legal framework established by the Indonesian Government. The C and D demographic categories are perhaps their most important consumers, with affordability being a major constraint.

However, there is evidence of unscrupulous practices such as formula companies obtaining hospitals' patient data. Informants in this formative research recalled receiving calls from formula milk companies asking about their baby by name, whether it is getting enough food, and whether mother intends to return to work after the 3 months of official maternity leave and hence might need formula. Informants received birthday wishes for their child, even up to age 7, that comes along with promotional messages for children's milk formulations.

Insights on Baduta Foods and Feeding Tendencies

Views on Breast Milk

Breast milk is nearly universally seen as the best food for babies. Yet mothers lack confidence that their own breast milk is of adequate quality and quantity and they have a tendency to interpret signs made by baby as expressions of hunger. The lack of confidence also stems from an inability to see the exact amount of milk their baby consumes, a perception that the breast milk looks thin and that mother herself is poorly nourished because of economic constraints to obtaining nutritious food in sufficient quantities. Moreover, mothers think their breast milk is limited.

Views on Formula Milk

Formula milk (*sufor*) is seen as a supplement to and not as a substitute of breast milk. It is considered natural and almost as good as breast milk. Apart from its high cost, mothers see no reason not to incorporate formula milk into baby's diet as long as it is within their financial means. Informants have a low appreciation of the dangers of poor hygiene, hence bottle cleaning and sterilization is not considered a hindrance to formula feeding. Informants

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are also unaware that their breastmilk production will decline due to the introduction of formula. There is a perception that mothers who do not give at least some infant formula are poor and mothers report that they are embarrassed if they cannot give infant formula because their peers will think they cannot afford it. Formula milk is like a meal, prepared at specific times, to a script, which in practice is more like a folk recipe than what is stipulated in the instructions guide.

Views on Family Food

In Sidoarjo, like in many other areas in Indonesia, rice (*nasi*) is the staple food and is consumed at every meal with limited substitutions (i.e. noodles). Diet is typically high in carbohydrates, mainly due to the quantity of rice consumed. There is a broad understanding that it is important to add special ingredients to *baduta*'s food such as chicken broth or chicken feet and the need to leave out others such as spices. Mothers buy ingredients early in the morning usually from vendor or traditional market and makes food for everyone. *Nasi* made in a steamer fresh each day, chicken or fish or soy based *ikan* and vegetables (*sayur*) in broth (*kuah*). After the first meal of day, the remainder is put in cupboard to eat later. Evening meals may be more of the same as earlier meals or bought from a vendor.

Views on Fortified Instant Porridge

Fortified instant porridge (*bubur instan*) has a less favourable position compared to formula milk. Its usage is low and short, and only serves as a transition food to help a baby adjust from exclusive breastfeeding to family foods introduced between the ages of 6-12 months or even for a shorter period between 6-9 months. Health professionals' do not promote the use of fortified *bubur instan* and the general perception is that *bubur instan* contains preservatives, which makes an undesirable ally of this product, often utilized as the last option and only when necessary.

Views on Snacks

Snacks are given in-between meals and are often used to comfort and distract a *baduta*, especially *badutas* aged 6 months or older. Parents think that snacks make a child happy, hence they are a token of nurture. Snacks are also appealing because they are in a small unit size that usually does not generate waste and mothers do not need to pursue their child to have it eat a snack since a *baduta* is capable of reaching and feeding itself a snack.

Mothers select snacks based on the perceived absence

of negative health impact of the snack, such as coughing, allergy, or upset stomach. Mothers are also more reluctant to allow their kids to eat snacks that they think contain preservatives.

Snacks appeal to children because they provide instant satisfaction in the face of hunger or thirst, are marketed in visually appealing packaging, with a variety of tastes and are child hand sized for easy consumption. After 1 year, the children can ask for the snacks that they want, or can already walk to the *warung* to get the snacks they want for themselves.

Mothers felt little guilt over their lack of control and supervision in their children's *ad libitum* snacking behaviour, which was not seen as detrimental to their children's well-being. Women do not have a clear understanding of the nutritional value of the snacks their children eat – e.g., fruit jelly is considered to be in the same class as real fruit and sweet flavoured milkshakes as regular milk. They also accept claims by certain brands of biscuits that they contain significant amounts of milk and vitamins. Mothers do not seem to pay attention to the sequence of feeding. They allow consumption of snacks close to meal time, which may decrease children's appetite for more nutritious foods.

Tendency of Child-led Feeding: "In the past we obeyed our parents, now we obey our children" (statement made by mother of malnourished child during an FGD)

One important finding of the formative research is that to a very large extent, a child chooses what it will eat and that it cannot be fed what it does not like. Informants are unfamiliar with the concept of letting their child become hungry enough, so it will ultimately want to eat what is given to them. Thus parents' common mind-set is that a child must be given what it likes or wants immediately. It is in this context that children are allowed to go to the nearest *warung* to buy its own snacks and that in some households biscuits and crackers are always available to a *baduta* so it can feed itself in its own time. Due to the easy availability of snacks, children are fed on demand and often during mealtimes mothers chase their children around the house and neighbourhood in an effort to feed them. Because of a child's resistance to being fed food that it may find unappealing, feeding tends to take a long time, often more than half an hour. Mothers may put some children in slings during feeding time to gain some control. Parents say they do not like this situation, but feel powerless to change it.

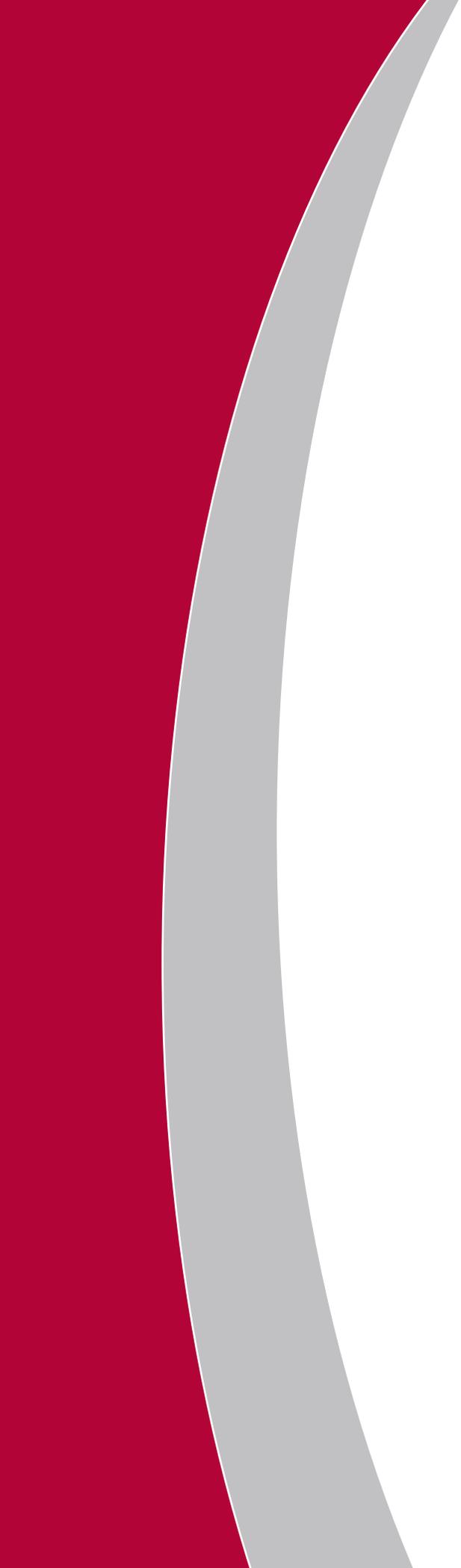
Sequence analysis

The apparently hungry child and mothers' lack of confidence in breast milk lead to the early adoption of the 'second-best' solution: *formula as a supplement-not substituting or replacing-breast milk*. Too early on there is also pressure to supplement with semi-solid foods, from the *bidan*, and community. The result is that many *badutas* are consuming semi-solid (commercial or home-made) foods by 4-5 months of age.

However, use of instant (fortified) porridge is limited and does not last long. Nasi tim is a route to adult food, so *baduta* are eating some form of rice by age 8-9 months. But unlimited snacking and prevalent bottle-feeding reduce *baduta's* appetite. From there, it is straight to adult foods in adult proportions by one year. However, these 'meals' are typically low in fat and protein, thus leading to malnutrition. At this stage, formula-milk is still a major component of *baduta's* diet and snacking may still be frequent.

7. Conclusions: What do these insights from Sidoarjo mean for behaviour change interventions?

- There is a lack of understanding at all levels that a full baby is not necessarily a nutritiously fed one. Existing social behaviours reward quiet children (most often with a snack). In mothers' minds, feeding behaviour is not about nutrition. Rather it is about keeping a child quiet and happy, using a 'script' that is in the mother's head and a routine that she has optimised to fit her day
- The Sidoarjo research shows that mothers have relatively good knowledge on how to properly feed their children, though there is some lack of understanding on spacing, quantities and interference between formula consumption and breast milk production or between snacking before meals and meal consumption.
- Mothers almost universally know and believe that breast milk is the best food for *baduta*, but the confidence gap in their own ability to produce the right quality and quantity of breast milk and the institutions around them, instil that formula milk is a close second best for baby. Hence, inadvertently, breast milk promotion also supports the marketing of formula milk.
- Most mothers are unaware that decreased breast milk production is linked to consumption of formula by their child.
- The perception of the majority is that the older the baby, the less priority to breastfeed the baby, the more limited the breastmilk supply becomes, and the higher the baby's need for *sufor*. Furthermore, this perception has created multiple routes that lead mothers to *sufor*, with almost no information or perception of the downsides of *sufor*, except for its price.
- Breastfeeding no longer becomes a priority after the baby turns 6 months. It is only for comfort and sleep time.
- Most parents and midwives share similar views that *sufor* is a universal supplement, that is *not* in opposition to breastmilk, therefore mothers cannot afford not to use it for their children (unless there are financial limitations).
- In terms of feeding their children, mothers know the "script" because most of them have the basic information about the right things to do. Yet, they feel it does not suit 'their child'. Problems arise when what mothers know as right for their *baduta* is not in line with what the *baduta* wants.
- Mothers tend to give the food that children desire and will not allow them to be hungry by regularly giving in-between food as snacks, *sufor* (mostly in excessive frequency), and meals. The *baduta* is in charge.
- Mothers know how important it is to give different types of foods such as fruit, vegetables, meat, etc . What lacks is the understanding that the child needs nutrients from these foods in higher proportions than the adults. Because of their small stomachs and their high requirements for rapid growth and development, they need a diet that is much more nutrient-dense than adults
- Mothers also aim to get the *badutas* into a routine and onto family meals as soon as possible. *Bubur instan* is used by most mothers as a common introductory meal for the baby, and so are biscuits and fruits as introductory snacks. Semi-solid (fortified) commercial products are useful as a short-term bridge before the baby is given home-cooked family foods, which is very heavy on rice (carbohydrates) and insufficient nutrient-dense.
- The child-centered parenting style has resulted in an uncontrolled snacking habit for *baduta's*. Snacks are sometimes used as a substitution for meals when *badutas* are reluctant or refuse to eat meals. Snacks are also used to comfort cranky or restless *badutas*.
- Moreover, *baduta* feeding appears to depend heavily on large-scale environmental factors. In fact, the institutions around the mother have a strong influence on her (lack of) confidence: markets (poverty), family roles (particularly parent-child), household structure, and advice through primary health care services.



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ABOUT GAIN

Driven by a vision of a world without malnutrition, GAIN was created in 2002 at a Special Session of the U.N. General Assembly on Children. GAIN supports public-private partnerships to increase access to the missing nutrients in diets necessary for people, communities and economies to be stronger and healthier. With a reach of over 750 million people in more than 30 countries, GAIN's goal is to improve the lives of one billion people by 2015 within the most vulnerable populations around the world through access to sustainable nutrition solutions.