

THE BADUTA PROGRAMME IN EAST JAVA, INDONESIA

WHAT WORKS IN COMMUNICATING FOR BETTER NUTRITION?



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The Global Alliance for Improved Nutrition (GAIN) is a Swiss-based foundation launched at the UN in 2002 to tackle the human suffering caused by malnutrition. Working with governments, businesses and civil society, we aim to transform food systems so that they deliver more nutritious food for all people, especially the most vulnerable.

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SUMMARY

This paper describes an innovative behaviour change communication programme, implemented as part of the Baduta programme, including rationale and early impacts. Baduta was a multi-component programme developed by the Global Alliance for Improved Nutrition (GAIN), together with partners, to improve maternal and infant nutrition. It was piloted in two districts of East Java Province, Indonesia from 2013 to 2017.

Baduta's behaviour change component was developed using the Behaviour Centred Design approach. It used multiple entry points, including mass media campaigns and interactive demonstrations for caregivers of young children and expectant mothers that were designed to tap into emotions, known as emotional demonstrations or "emo demos". This approach was complemented with several health systems strengthening activities including the revival of the Baby Friendly Hospital Initiative. The formal evaluation of Baduta found significant positive effects on several infant and young child feeding practices, such as exclusive breastfeeding and diversification of children's diets. The emo demos were a popular component of the programme and proved feasible and highly acceptable. Drawing on this evidence, phase two of Baduta is scaling up the emo demos approach to be implemented in the five most populous districts of East Java.

Behaviour change approaches that appeal to emotions to motivate change proved effective in Baduta. Such approaches are scalable and replicable in Indonesia and beyond and have potential to contribute to ending malnutrition.

KEY MESSAGES

- Baduta combined behaviour change interventions with other strategies to strengthen health systems and improve water, sanitation, and hygiene practices.
- GAIN Indonesia and its partners developed a package of behaviour change interventions that incorporate emotive, interactive, and surprising ways of improving infant and child feeding. These were rolled out in East Java, Indonesia.
- While Baduta showed no measurable impact on primary outcomes of stunting or anaemia, evidence of significant effects at endline were found for some secondary outcomes related to infant and young child feeding.
- Baduta led to a large and significant increase in the rate of exclusive breastfeeding of infants less than 6 months of age. After two years, the rate was about 14 percentage points higher in the intervention than in the comparison group.
- Other indicators for children aged 6 to 23 months showed significant improvement in the intervention group relative to the comparison group: the proportion consuming iron-rich foods (12 percentage points higher) and the proportion consuming a minimum number of food groups (13 percentage points higher).
- Considerable scope exists for replication and expansion of innovative behaviour change techniques, like those used in Baduta, across Indonesia and beyond.

BACKGROUND AND OBJECTIVE

WHAT'S THE PROBLEM?

Robust evidence has shown that adequate nutrition during pregnancy and the first two years of life is critical for survival, health, growth, and development. This is now reflected in global guidance including: regular consumption of iron-rich foods during pregnancy; initiation of breastfeeding within one hour of birth; exclusive breastfeeding for the first six months of life; and consumption of diverse micronutrient-rich foods for children over six months old, together with continued breastfeeding up to age two years or beyond (1).

In Indonesia, many caregivers are neither aware of nor practicing these recommended behaviours. Rates of malnutrition are high: in 2018, 31% of the country's children under five were stunted, while 49% of pregnant women were anaemic.¹ This persistent malnutrition is partly driven by inadequate complementary feeding practices and lack of access to diverse nutritious foods, owing to poor availability and affordability.

WHAT IS THE BADUTA PROGRAMME?

In 2013, Indonesia's Ministry of Health requested that the Global Alliance for Improved Nutrition (GAIN) support the district governments of Malang and Sidoarjo in East Java Province to reduce stunting by improving maternal and infant nutrition. Subsequently, GAIN, with funding from the Ministry of Foreign Affairs of the Netherlands and the Bill & Melinda Gates Foundation and in collaboration with Save the Children, Paramitra Foundation, and PT Holland for Water (Nazava), initiated the first phase of the Baduta programme.² The experience and recommendations generated through the first phase of the programme were meant to inform efforts to scale-up the programme nationally in Indonesia. Therefore, GAIN and the University of Sydney, in collaboration with the Centre for Health Research, Universitas Indonesia (CHR-UI), SEAMEO-RECFON, and the London School of Hygiene & Tropical Medicine (LSHTM) conducted a comprehensive evaluation designed to generate evidence of programme outcomes and impact and to glean lessons learned related to delivery and potential for further scale up.

THE BADUTA PROGRAMME THEORY OF CHANGE

The aim of the Baduta programme was to improve child growth outcomes through improved nutritional status during pregnancy, improved nutrient adequacy of diets for children under two years of age (i.e., infants and young children, IYC), and reduced prevalence of infectious diseases. Baduta had four pathways that were intended to jointly contribute to achieving these outcomes (Figure 1). These pathways were implemented through three programme arms: A health-systems strengthening component that focussed on the Baby Friendly Hospital Initiative and improving the quality of care and individual counselling, a water component through facilitated access to clear water filters, and a behaviour change component that used an innovative approach for motivating change in infant and young child feeding practices.

¹ According to 2018 Indonesia Basic Health Research (RISKESDAS) survey data.

² Baduta is an acronym for *Bawah dua tahun* – child under two.

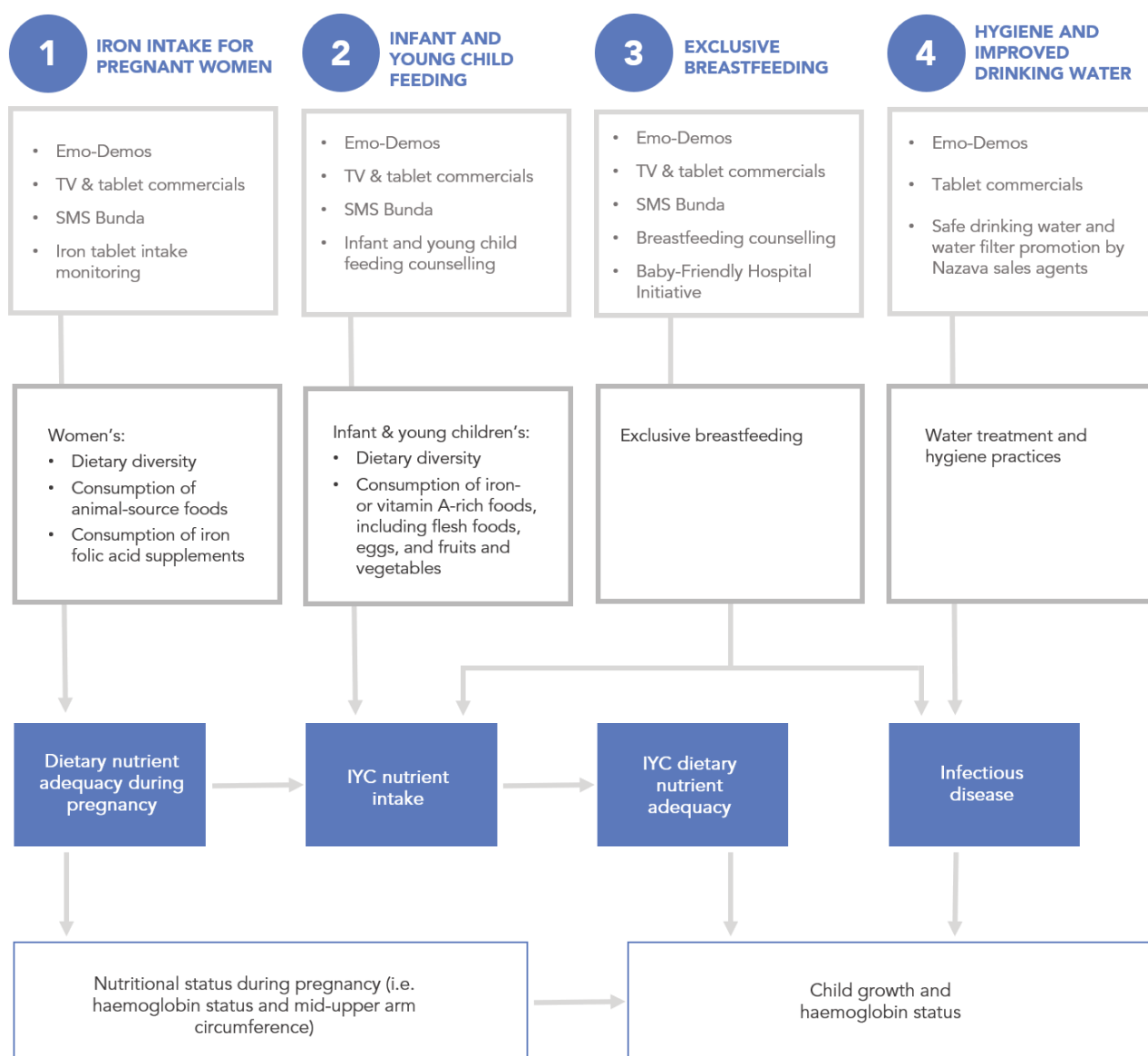


Figure 1: The four Baduta programme intervention pathways

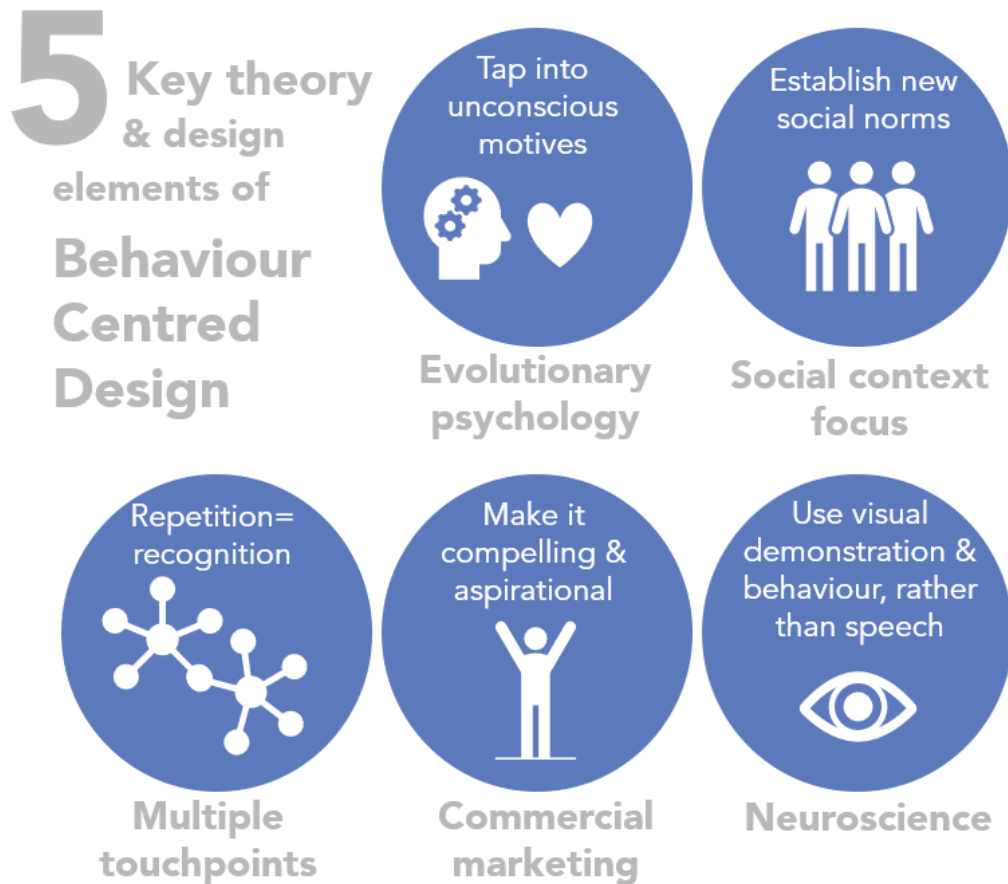
Note: SMS Bunda is a text-message service for pregnant women and new mothers; it aims to reduce maternal and infant mortality.

WHAT'S NEW ABOUT THE BADUTA BEHAVIOUR CHANGE APPROACH?

Changing infant and young child feeding practices – often strongly rooted in culture and traditions – is complex, and evidence shows that knowledge transfer alone is often insufficient to motivate such changes. Baduta used messaging that aimed to tap into people's emotions and create opportunities for interaction in society that can spark changes in social norms. This innovative approach, pioneered by LSHTM, is known as Behaviour-Centred Design (BCD), which is explained further in Box 1. Messaging created with BCD relies on surprise, fun, reinforcement, and emotional responses. Prior to Baduta, BCD had been applied mainly to the promotion of hand washing.

BOX 1. BEHAVIOUR-CENTRED DESIGN (BCD)

BCD is rooted in evolutionary theory, psychology, and commercial marketing. It entails designing innovative, imaginative, and provocative behaviour change interventions that tap into less evolved, more reflexive motivations: bodily drives like fear, hunger, disgust, comfort, and lust; emotional responses including hoarding, creating, nurture, and love; and the brain-centred interests of curiosity and play (for a characterisation of human motives along an evolutionary pathway, see (4)). Five key theory and design elements of BCD are outlined below:



Sources: (2); (3); (4).

WHAT HAPPENED IN PHASE I?

Baduta's first phase began in 2013 with several activities to inform programme design. Formative research was conducted to identify delivery platforms, create communication strategies, frame messages, and develop communication materials (5). Subsequently, a behaviour change strategy was developed based on the principles of BCD. A brand identity for the strategy was also established: *Rumpi Sehat* – Healthy Gossip – which became Baduta's uniting theme, recognising that social status and reputation are strong drivers of parenting behaviour amongst the target population. Implementation took place over 24 months, from February 2015 to January 2017.³ It covered 113 villages in two districts of East Java and a total

³ Implementation was done by GAIN, in partnership with East Java provincial and district health authorities (including the Directorate of Community Nutrition), Save the Children (Netherlands), NAZAVA Water Filters (PT Holland For Water), and Paramitra (a local NGO).

population of about 660,000. This included 46,000 children under five, of which 18,500 were under age two, and 11,600 pregnant women.

The behaviour change messaging focused on four key behaviours, with simple messages for each (See Figure 2; translations of the text from Bahasa into English are shown above the figure):

1. Exclusive breastfeeding of infants less than 6 months of age: Don't give formula – breastfeeding alone is sufficient.
2. Complementary feeding: Feed your child a more diverse, colourful plate and less white rice.
3. Healthy snacks: Give your child only healthy snacks and not close to mealtimes.
4. Nutrient-rich diets for expectant mothers: Eat one portion of “strengthening foods”—either liver, egg, or fish—every day.



Figure 2: Baduta behaviour change messages in poster format

Source: Baduta project, GAIN

The behaviour change campaign was disseminated through social media, text messages, interpersonal communication, and four advertisements for national television (Table 1). Novel community activities in the form of ‘emotional demonstrations’ or *emo demos* were also created. These were interactive sessions focusing on the four target behaviours, which intend to work to associate feelings with habits – aiming to generate strong emotional responses and therefore high recall.

Table 1: Description of Baduta TV spots

TV spot	Description
Nutrition during pregnancy	
Ati, Telur, Ikan – “Atika” (Liver, Eggs, Fish)	A man preparing for work tells a gossipy neighbour that the vegetables his wife has packed for his lunch are enough for him but that his pregnant wife needs different food. The gossipy neighbour says she only ate fruits and vegetables while pregnant. The mother-in-law comes back from the market with chicken liver for her pregnant daughter-in-law and tells the gossipy neighbour that during pregnancy, especially the first three months, a woman needs to eat at least one portion of chicken liver, egg, or fish a day to remain strong and energetic during pregnancy. This spot promotes incorporating animal-source foods, specifically liver, eggs, and fish, into a pregnant woman’s diet.
Breastfeeding	
Exclusive breastfeeding	A father and shopkeeper are complaining about the hassle and cost of preparing formula milk. His friend says that his wife is exclusively breastfeeding, which is sufficient for the baby. The wife, mother-in-law, and baby arrive, and the mother-in-law throws the baby bottle in the rubbish bin, saying, “If you bottle feed, you produce less breastmilk. The more your baby is breastfed, the more you produce breastmilk.” This spot emphasises that mothers produce enough breastmilk and that breastmilk is all babies need for the first six months of life.
Complementary feeding	
Complementary foods	A mother is feeding her baby a meal with equal portions of rice porridge, vegetables, and meat. The gossipy neighbour says that this child’s stomach will not be full with so little rice. A health worker interjects to correct her, saying that the mother is right, a balanced meal is more important and a child’s needs are different from those of adults. This spot promotes giving a range of foods to ensure optimal growth and development.
Healthy snacking	A gossipy neighbour tries to give unhealthy fried snacks to a toddler. The grandmother stops the neighbour’s hand by saying that crisps have no nutrients and will spoil the baby’s appetite. The baby’s mother comes out with a bowl of fruit, explaining that one should not give snacks just before a meal and that snacks should be healthy, like fruit. This spot promotes providing healthy snacks and not junk food to children.

Sources: Adapted from video clips of the TV spots. Watch at: <https://www.youtube.com/watch?v=CHvBS1kgLZU> ; <https://www.youtube.com/watch?v=LcTrhAxClIU> ; <https://www.youtube.com/watch?v=CHvBS1kgLZU> ; <https://www.youtube.com/watch?v=ER7hbgnDDkQ>

Emo demos aim to create habits – triggering people to remember or to associate emotions or interests with desirable or undesirable behaviours.

Ethnographic research in Baduta’s preparatory phase allowed the LSHTM and GAIN team to better understand determinants of behaviours. For instance, by accompanying a mother on a food shopping trip and asking her to classify and describe attributes of different foods from least to most natural, the team was able to learn that although mothers know breastmilk is best, formula milk is believed to be fully equivalent.

The team used this research to invent twelve emo demos to cater to mothers and caregivers of infants who visit community health outposts (*posyandus*) for monthly check-ups.⁴ The emo demos were pre-tested for 90 days to ensure they encouraged best practices related to breastfeeding, young child complementary feeding, and pregnant women’s diets. Table 2 describes motives and purposes behind a sample of the emo demos, while Figure 3 shows three examples of emo demo how-to-sheets.

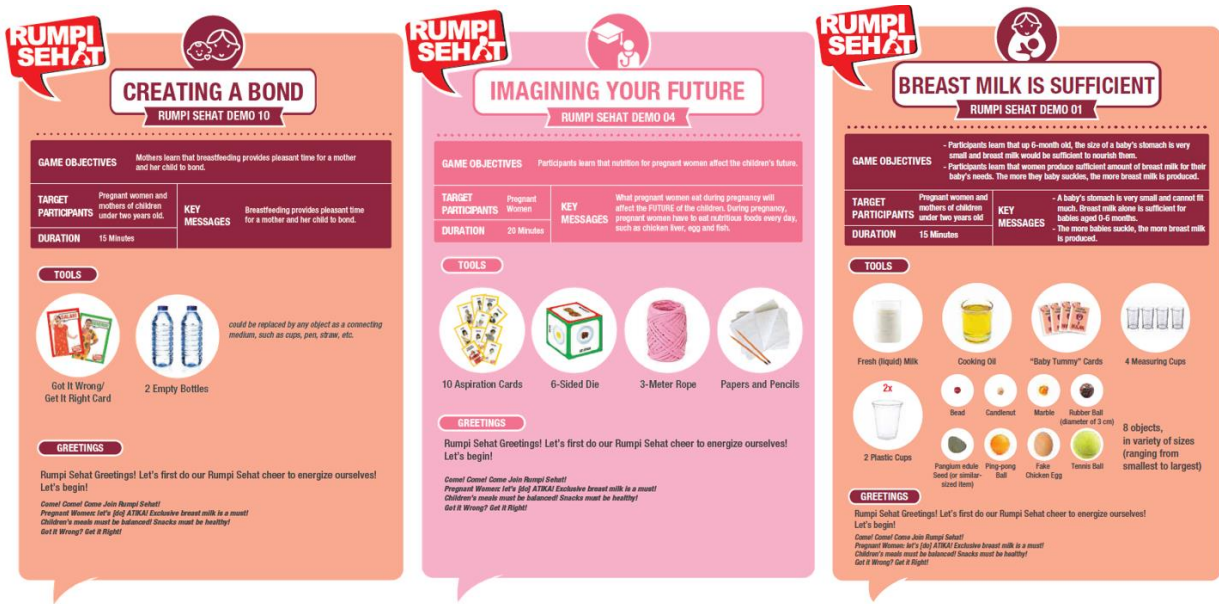


Figure 3: Emo demo visuals

Note: Front and back visuals of the emo demo modules are available in English and Indonesian language on request to gainindonesia@gainhealth.org or info@gainhealth.org

⁴ One for each month of the year. *Posyandu* (community village health outpost) meetings are held monthly. Caregivers bring children to be measured, receive iron supplements, and have their health checked. Since large numbers of caregivers attend each clinic (100 to 300), there are long waiting times. Emo demos can be readily implemented during these periods, as they are games that both health workers and the audience can enjoy.

Table 2. Underlying motive and purpose of selected Baduta emo demos

Name of emo demo	Motive	Purpose
Creating a bond	Nurture	Demonstration that breastfeeding develops bonds between mothers and infants, creating a time for studying and memorising each other's faces, speaking or singing to babies, and developing trust and nonverbal communication.
Unhealthy snacks	Disgust	To make certain snack foods appear disgusting, while breastmilk appears pure.
Breastmilk is sufficient	Curiosity & surprise	To demonstrate that feeding formula reduces a mother's milk supply, making it harder to breastfeed.
Child's plate	Shame & curiosity	To distinguish between current complementary feeding practices and healthy, diverse feeding practices. To help caregivers become familiar with what portion sizes are suitable for their children.

Sources: (2); (4).

As part of the Baduta Programme, Save the Children initiated implementation of the Baby-Friendly Hospital Initiative (BFHI) (Box 2) (6). Save the Children also trained village midwives, health workers, and *posyandu* cadres using the Indonesian Ministry of Health adaptation of the WHO/UNICEF Community IYC Feeding Counselling Package (7).

BOX 2. THE BABY-FRIENDLY HOSPITAL INITIATIVE

The baby-friendly hospital initiative (BFHI), launched by WHO/UNICEF in 1991/92, was developed to protect, promote, and support breastfeeding in hospital settings as well as through interactions with health workers and peers in health classes. At its core are ten steps to successful breastfeeding:

Critical management procedures

- 1a. Comply fully with the International Code of Marketing of Breastmilk Substitutes and relevant World Health Assembly resolutions.
- 1b. Have a written infant feeding policy that is routinely communicated to staff and parents.
- 1c. Establish ongoing monitoring and data-management systems.

2. Ensure that staff have sufficient knowledge, competence, and skills to support breastfeeding.



–Key clinical practices

3. Discuss the importance and management of breastfeeding with pregnant women and their families.
4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.
5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.
6. Do not provide breastfed new-borns any food or fluids other than breastmilk, unless medically indicated.
7. Enable mothers and their infants to remain together and to practise rooming-in (whereby the baby's crib is kept beside the mother's bed) 24 hours a day.
8. Support mothers to recognise and respond to their infants' cues for feeding.
9. Counsel mothers on the use and risks of feeding bottles, teats, and pacifiers.
10. Coordinate discharge so that parents and their infants have timely access to ongoing support and care.

Sources: (6); (8).

SUMMARY OF BADUTA'S RESULTS

WHAT DID THE EVALUATION FIND?

The formal external evaluation of Baduta (unpublished evaluation report) found several positive effects of the programme on indicators of infant and young child feeding (Figure 4) and mothers' knowledge of feeding practices. There were no statistically significant differences between the intervention and comparison groups in terms of child growth or the prevalence of anaemia. Positive results attributable to the programme⁵ interventions span the three primary focus areas for the behaviour change strategy:

Related to breastfeeding:

- A large increase in the rate of exclusive breastfeeding (amongst infants less than 6 months). After two years, the rate was about 14 percentage points higher in the intervention group than in the comparison group – 65.5% as opposed to 51.1%.
- A reduction in use of pre-lacteal foods (liquids or foods other than breastmilk given to a baby in the first three days of life). At endline, this practice was done by 34% of those in the intervention group, 15 percentage points lower than in the comparison group.

Related to complementary feeding:

- A large increase in the proportion of children aged 6 to 23 months consuming iron-rich foods – 51% in the intervention group compared to 39% in the comparison group.
- A marked increase in the proportion of children aged 6 to 23 months consuming an adequate number of food groups (13 percentage points higher in the intervention group at endline).

Related to mothers' knowledge:

- 84% of mothers in the intervention group correctly identified six months as the recommended duration of exclusive breastfeeding, compared to 69% of mothers in the comparison group.
- 80% of mothers in the intervention group reported two years as the recommended duration of breastfeeding, compared to 68% in the comparison group.

Qualitative research on the acceptance and utilisation of the programme revealed that the response to the emo demos was overwhelmingly positive among both health workers and caregivers. Emo demos revitalised monthly growth monitoring sessions attended by caregivers and babies, while attendance at antenatal care sessions also increased. Television commercials were widely watched and were memorable due to the 'healthy gossip' framing (unpublished evaluation report).

⁵ The impact evaluation was undertaken by a consortium led by the University of Sydney and used a quasi-experimental design whereby intervention and comparison districts were randomly allocated from within the regions prioritised for the programme. The mass media component of the behaviour change components, however, were delivered in both intervention and comparison districts, creating a differential specifically related to the emo demos and health systems strengthening components.

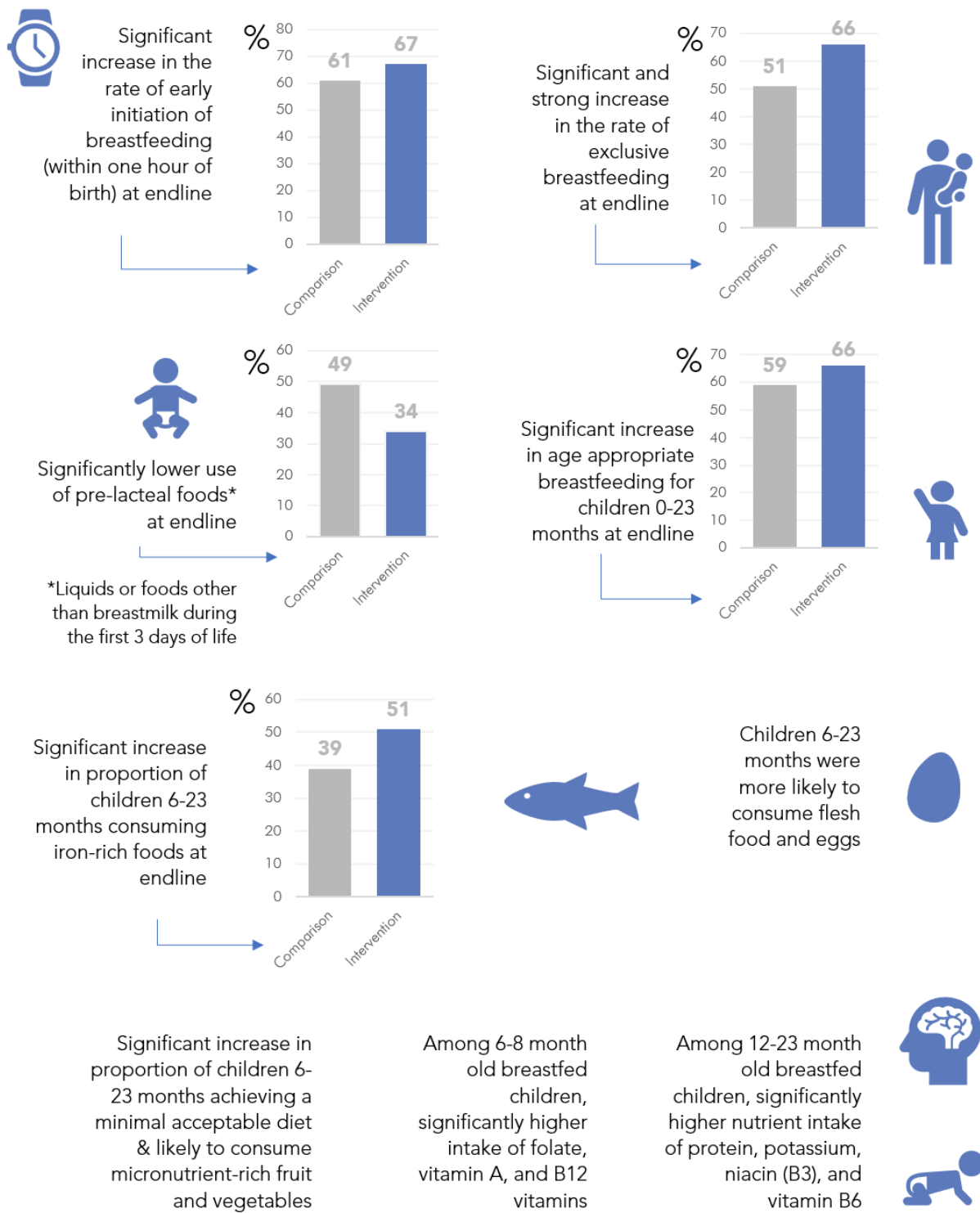


Figure 4: Positive changes in infant and young child feeding owing to Baduta

Source: GAIN Report, unpublished. Note: All outcomes depicted were statistically significant (p-values < 0.05).

WHAT WAS LEARNT ABOUT BADUTA FROM MONITORING ITS IMPLEMENTATION?

Baduta staff also sought to understand the programme's effects by documenting stories of change: qualitative vignettes identified and told by members of the participating communities. Twenty-three stories highlighting positive changes that could be linked to the programme in the face of strong social norms have been formally documented, 15 of which relate to the emo demo interventions.⁶ These stories were also showcased on a dedicated programme, "Rumpi Sehat," broadcast by a local TV station. The programme experienced an increase in viewership over the course of Baduta. Three examples of stories of change —

- A dedicated health worker supported a young new mother to overcome local Javanese superstitions held by the baby's grandfather. The grandfather believed that a mother with cracked nipples feeding her baby would harm or kill the baby. The mother was encouraged to persist in breastfeeding, the baby thrived, and the grandfather changed his mind.
- Parents who volunteered as health workers convinced other parents attending an early childhood education centre to replace the unhealthy snacks generally offered to the children (low in vitamins and minerals and high in salt and sugar) with healthier, more diverse options that the children reportedly preferred.
- A vendor selling snacks high in salt, sugar, and fat from a small roadside kiosk stopped selling the unhealthy snacks to children after attending an emo demo session that impressed her.

CONCLUSIONS AND NEXT STEPS

Baduta is one of several behaviour change programmes in recent years that have shown that long-standing infant and young child feeding practices can be improved by innovative and scalable behaviour change interventions. The lack of measurable impact of Baduta on stunting is similar to findings from other behaviour change interventions (9) and is not surprising, as stunting has been shown to be indicator minimally responsive to nutrition interventions in the short term (10).

The next phase of Baduta (2018 – 2021) is currently scaling up the emo demo component of the programme to ten times the pilot reach – a target of 250,000 caregivers of children under five. In this second phase, GAIN and partners are working in the five most populous districts of East Java, reaching 521 villages, including 4,494 *Posyandu*, with a population of around five million people.

Both Baduta's early successes and its behaviour change methodologies have been shared widely in Indonesia, with government and other interested stakeholders. This includes 15 universities that are integrating emo demos into their nutrition curricula. The interest from stakeholders in other provinces has also been strong. There is real potential for Baduta's emo demos to be integrated into national health programming. In a country where the under-five

⁶ Baduta Videos Homepage: https://www.youtube.com/channel/UC_OOM7PP6PLKfMpHGfKxTkA/videos

population exceeds 24 million (UN DESA, 2018 estimate), where social norms favour suboptimal child feeding practises, and where much progress remains to be made in improving the nutritional status of children and mothers, this is a very encouraging prospect. Emo demos for nutrition are also now being used beyond Indonesia, in Mozambique and Bangladesh. Integrated, innovative, and behaviour-centred programmes like Baduta have strong potential to contribute to ending hunger and malnutrition.

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