

Behaviour-change communication on health related issues (part one)

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Question¹

What does the literature show about the effectiveness of behaviour-change communication (BCC) approaches and tools that have been used to influence health- and nutrition-related behaviour in socially-conservative settings?

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¹ This report is the first of four related queries.

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1. Overview

The literature uncovered by this rapid review regarding the effectiveness of behaviour-change communication (BCC) states that certain approaches and tools can and do succeed in improving maternal dietary practices, breastfeeding, as well as complementary feeding when used in health and nutrition programmes. These approaches also influence maternal and child health behaviours in socially-conservative settings which denote an attitude favouring beliefs seen as traditional in regard to social affairs².

Use of BCC in recent health- and nutrition- research is included for the following socially-conservative settings: Bangladesh, Burkina Faso, Egypt, Kenya, Nigeria, the Philippines, Somali Region of Ethiopia, Senegal, southern Thailand, and Yemen. Results are taken from countries or regions with Islam as the dominant religion, with therefore similar conservative Islamic views on health and nutrition. Key findings are as follows:

- The field of social and behaviour change communication (SBCC) is a collection of approaches and tools informed by behavioural theories and used to design public health interventions (USAID, 2014).
- The change in terminology from BCC to SBCC is a recent milestone in health communication that reflects renewed emphasis on improving health outcomes through more healthful individual and group behaviours, as well as strengthening the social context, systems and processes that underpin health. However, practitioners now use BCC and SBCC interchangeably (The Manoff Group Inc., 2012: 1).

Examples of SBCC strategies include:

- **Interpersonal communication (IPC)** which is the most commonly accepted method of BCC in health settings is through: face-to-face education - either in individual (e.g. one-to-one counselling in the home) or small group sessions, group teaching, and other techniques designed to influence the behaviour of participants (USAID, 2014; Hornik et al, 2015; Canavati et al., 2016). However, results taken from these health settings are not taken specifically from socially-conservative groups.
- **Mass media campaigns** can play an important role in achieving population-wide health behaviour change. However, they are best supported with other strategies (Wakefield et al., 2010). Data from the 'Measurement, Learning & Evaluation' project for the Urban Reproductive Health Initiative (URHI) showed that African men who participated in URHI-led community events had four times higher odds of reporting use of modern contraceptive methods (aOR: 3.70; $p < 0.05$). The targeted marketing programmes activities included exposure to family planning (FP) messages via mass media (radio and television), print media, IPC, and community events (Okigbo et al., 2015).
- **Intense messaging** is defined as "multiple exposures through multiple channels, maintained over time" (Hornick et al., 2015: 16). These could be via radio, television, mobile phone technology or other channels. The target audience should be exposed to messages several times a week, from a variety of sources, for an extended period timed to match periods when the audience is making decisions about the behaviour.

² For this report, 'socially-conservative settings' applies to Muslim countries which are socially and morally conservative due to their interpretation of Islamic law also known as Shariah.

- **Dose-response relationships** (more exposure associated with more positive outcomes) have also been reported in the evaluations of several mass media campaigns in the areas of tobacco, HIV, family planning, and diarrhoea (Hornick et al., 2015: 16). BCC can be substantially more effective if IPC efforts are complemented with mediated communication reaching the population **repeatedly** and guided by systematic feedback (Hornick et al, 2015: v & xii).
- Several **Behavioural Control theories (BCTs)** use a **person-centred and autonomy supportive counselling approach**, which seem important in order to maintain behaviour over time (Samdal et al, 2017). Other research concludes that BCT providing **instruction** on how to perform the behaviour is associated with improved diet outcomes (Dombrowski et al., 2012).

Examples of BCC from specific countries:

Health

- Lessons on SBCC in maternal, infant and young child feeding practice can also be learnt from more developed contexts with similar conservative Islamic views on health and nutrition: The SMART approach in Egypt, which was in a state of religious conservatism for most of the maternal and child health programme, offers a promising strategy to fill gaps in health education and counseling, as well as strengthen support for behaviour change through a **community-based participatory approach (CBPA)** (Brasington et al., 2016).
- Results from a qualitative study in rural Bangladesh showed that 'Improving Maternal, Neonatal and Child Survival' (IMNCS) BCC interventions using **IPC and community health workers** are well accepted by the community (Rahman et al., 2016).
- In Bangladesh, enactment of maternal, neonatal and child health (MNCH) narratives and traditional musical performances in **entertainment education (EE)** improved memorisation of the messages (Rahman et al., 2016).
- In Yemen, the 'Search for Common Ground' project to improve children's health, is currently being finalised. It will encourage dialogue on sensitive children's health issues, and achieves its impact through communication initiatives geared towards Yemeni parents and community leaders, who in turn encourage societal change with respect to healthcare. The initiative is a **multi-layered outreach campaign**, including door-to-door house visits, mobile cinema events, radio programmes, and joint community meetings at bazaars. The campaign has already managed to reach wide audiences in rural areas in both governorates, and the use of radio has been particularly successful (SFCG, 2017).
- The culturally-sensitive maternity care needs of Muslim mothers in a rural community of the southernmost province in Thailand revealed that **community-based participatory research (CBPR)** can be effective in generating new knowledge, and identifying factors associated with intervention success, and determining actions that will aid social and behavioural change in order to eliminate health disparity (Adulyarat et al., 2016: 354).

Nutrition

- In Burkina Faso, where the population is approximately 60 percent Muslim, a 2-year integrated agriculture and nutrition programme targeted to mothers of young children

reduced underweight among mothers, and increased their empowerment using BCC implemented by older female leaders or by health committee members (Olney et al., 2016).

- A cross-sectional study in the Shabelle zone, Somali Region of Eastern Ethiopia, used BCC interventions strategies appropriate for the pastoralist and agro-pastoralist community targeting culture, beliefs and practices related to infant and young child feeding (IYCF). Results confirmed that in order to be effective BCC needs to be performed using **religious leaders, teachers, students, youth associations, female associations, health professionals, frontline health actors, and developmental armies** to bridge the gap between knowledge and practice (Guled et al., 2016).
- The 'Alive & Thrive' (A&T) initiative in Bangladesh improved IYCF through **1) a national mass media (MM) campaign, 2) social mobilisation, and 3) IPC delivered by health workers from BRAC**, Continued breastfeeding, already high in 2010 (baseline), remained as high in both groups at endline (2014). Stunting decreased in both A&T-MM and those receiving all three interventions (A&T-3) over this period (Menon et al., 2015).
- In rural Bangladesh where Muslim mothers are in the majority, Hoddinott et al. (2017) constructed measures capturing mothers' knowledge of infant and young child nutrition (IYCN) and measures of food consumption by children aged 6-24 months. Results showed that having a **neighbouring** mother participate in a BCC nutrition intervention increased non-participant mothers' IYCN knowledge by 0.17 SD (translating to 0.3 more correct answers). Their children were 11.9 percentage points more likely to meet WHO guidelines for minimum acceptable diet. Therefore, BCC can also have a beneficial effect *indirectly*.

The body of literature focussing on the effectiveness of SBCC to improve women's dietary practices during pregnancy and lactation is small, but indicates that SBCC approaches can and do succeed in improving uptake of the behaviours promoted. The greatest gap in the literature was in evidence of the effectiveness of SBCC in improving rest and workload during pregnancy. In socially-conservative settings, IPC approaches were appreciated, and positive outcomes were associated with interventions that included media-based SBCC approaches. The evidence found is gender blind. However, there is a tendency for BCC projects to focus more on women as the primary party responsible for feeding and caring for family members.

2. Effectiveness of BCC approaches and tools

Terminology

Behaviour change communication (BCC) is widely recognised as one of the main health promotion strategies. It is an interactive process of working with individuals and communities to develop communication strategies to promote positive behaviours, as well as create a supportive environment to enable them to adopt and sustain positive behaviours (Canavati et al., 2016).

The field of **social and behaviour change communication (SBCC)** is a collection of approaches and tools informed by behavioural theories and used to design public health interventions (USAID, 2014). The change in terminology from BCC to SBCC is a recent milestone in health communication that reflects renewed emphasis on improving health outcomes through more healthful individual and group behaviours, as well as strengthening the

social context, systems and processes that underpin health. However, practitioners now use BCC and SBCC interchangeably (The Manoff Group Inc., 2012: 1).

BCC strategies

Communication interventions can also reduce under-nutrition because they can (1) influence the adoption of nutrition-specific behaviours, or (2) advocate for programming or policy decisions taken in other sectors which have implications for nutritional status (nutrition-sensitive interventions). Some successful health communication interventions already address nutrition-related behaviours. For example, there is evidence for positive effects of BCC on breastfeeding, on continued feeding during diarrheal episodes, and on introducing complementary feeding once exclusive breastfeeding is no longer appropriate (USAID, 2014; Hornik et al, 2015: xii).

While the literature is good at defining priority audiences (pregnant and lactating women; children under 5), desirable goals (reduced stunting and reduced iron-deficiency anaemia), and behavioural categories (more iron-rich foods, increased dietary diversity), there is less consensus on promising behaviours (Hornik et al, 2015).

A systematic review by SPRING³ on use of SBCC in preventing and reducing stunting and anaemia indicates that **SBCC approaches can and do succeed in improving uptake of those practices** (USAID, 2014). The body of literature on the effectiveness of SBCC approaches in improving breastfeeding practices is strong and broad (62 peer-reviewed studies met the inclusion criteria); evidence of the effect of SBCC on complementary feeding practices is quite broad, and clearly indicates that SBCC interventions can improve a wide range of complementary feeding practices (ibid). While the literature may reflect a bias to publish positive results, it also underscores the important role of SBCC approaches in improving nutrition practices – practices which have been shown to have an impact on nutritional status of women, infants, and children (USAID, 2014).

Amongst the available BCC strategies to induce voluntary behaviour change, without economic or legal intervention, there are currently two options: interpersonal and mass communication (Canavati et al., 2016).

Interpersonal communication

The most commonly accepted method of BCC in health settings is **interpersonal communication (IPC)** through: face-to-face education - either in individual (e.g. one-to-one counselling in the home) or small group sessions, group teaching, and other techniques designed to influence the behaviour of participants (USAID, 2014; Hornik et al, 2015; Canavati et al., 2016). However, results taken from these health settings are not taken specifically from socially-conservative groups. SPRING research found that IPC was also the only SBCC approach used without other communication interventions such as media and community/social mobilisation (USAID, 2014). A meta-analysis conducted by Ota et al. (2012) on antenatal dietary

³ 'Strengthening Partnerships, Results, and Innovations in Nutrition Globally' – funded by USAID under a five-year cooperative agreement. The implementation team consists of experts from JSI Research & Training Institute, Inc., Helen Keller International, The International Food Policy Research Institute, Save the Children, and The Manoff Group.

advice, which included several studies involving IPC approaches during pregnancy and lactation, found a statistically significant increase in women's protein intake as a result of individual counselling and group education (pooled mean difference of 6.99g per day), but no increase in energy intake.

In complementary feeding studies, IPC was also the most prevalent SBCC approach used in and researched, as it was consistently effective at improving complementary feeding practices (USAID, 2014).

Media

The application of BCC involving **mass media** in the context of the food system to reach poor rural audiences at scale is not well understood (Hornik et al., 2015: vii). However, success is dependent on skill (or reliance on partners with the skill) in the choice of behaviours, the development of persuasive messages, the development of a strategy for getting exposure to those messages, and the construction of a research and feedback system able to support the programme (ibid).

Mass media campaigns can play an important role in achieving population-wide health behaviour change. However, they are best supported with other strategies e.g. policies, services, products (Wakefield et al., 2010). In the SPRING review, six primary research studies reported positive outcomes associated with interventions that included media-based SBCC approaches. One study reported positive outcomes related to protein/energy consumption, three reported positive outcomes related to enhanced quality of diet, two reported positive outcomes related to iron intake, and one reported a positive effect on workload during pregnancy (USAID, 2014).

Multiple SBCC approaches

Evidence suggests that using multiple SBCC approaches and channels to change behaviours is more effective than using one, but this is not tested in the literature (USAID, 2014). The SPRING review found that, as with complementary feeding studies, none of these media-based pregnancy and lactation interventions were delivered in isolation. All included some form of IPC: one included both IPC and community/social mobilisation approaches, and the independent effect of media-based approaches was not assessed. It is therefore difficult to derive conclusions regarding the independent, net effective of these media-based approaches. No evidence related to intake of micronutrients other than iron was identified (USAID, 2014).

However, comparisons of multiple approaches are not well-tested in the literature: no complementary feeding studies compared the effectiveness between different approaches or between one versus multiple SBCC channels or specific activities (USAID, 2014). This may be due to the difficult and cost of implementing multiple arms of a study or disaggregating the contribution of single channels or specific activities within a multi-channel intervention (ibid).

Exposure to communications

Intense messaging is defined as “multiple exposures through multiple channels, maintained over time” (Hornick et al., 2015: 16). These could be via radio, television, mobile phone technology or other channels. Research shows that the target audience should be exposed to messages several times a week, from a variety of sources, for an extended period timed to match periods when the audience is making decisions about the behaviour. Dose-response

relationships (more exposure associated with more positive outcomes) have been reported in the evaluations of several mass media campaigns in the areas of tobacco, HIV, family planning (FP), and diarrhoea (ibid).

BCC can be substantially more effective if IPC efforts are complemented with mediated communication reaching the population **repeatedly** and guided by systematic feedback (Hornick et al, 2015: v & xii).

Targeting multiple contacts has a greater effect than targeting only the woman herself, and more visits or contacts results in greater change (USAID, 2014). Evidence from several studies strongly suggests that **increasing the number of contacts** increases the positive effect of SBCC on breastfeeding practices. Little is mentioned regarding the timing of communications in complementary feeding. In the SPRING review the intensity of communications ranged from one to 24 visits or sessions, conducted weekly or monthly for various lengths of time. None of the studies compared the effect of timing or intensity of communications (ibid).

Theory based interventions

A behaviour control theory (BCT) is defined as the smallest “active ingredient” of an intervention (Michie et al., 2013). The evidence that theory based interventions leads to better outcomes is inconsistent (Samdal et al., 2017). However, using a number of BCTs congruent with Control Theory, have been associated with increased intervention effects, e.g. through combining self-monitoring of behaviour with goal setting, providing feedback on performance, and review of behaviour goals (ibid).

The results from a recent systematic review and meta-regression analyses support the use of goal setting and self-monitoring of behaviour when counselling overweight and obese adults; several other BCTs use a **person-centred and autonomy supportive counselling approach**, which seem important in order to maintain behaviour over time (Samdal et al, 2017). Other research concludes that BCT providing **instruction** on how to perform the behaviour is associated with improved diet outcomes (Dombrowski et al., 2012).

3. Examples of BCC in health-related studies in socially-conservative settings

With few exceptions, Muslim majority countries (MMCs) still trail behind non-MMCs' health indices (Razzak, 2011: 657). Reproductive health topics are not easily broached in socially-conservative cultures found in Muslim nations: Kouyate et al. (2015) identified differences in eight behavioural determinants in postpartum women regarding FP methods in Bangladesh alone. However, these challenges to health have been overcome by using a variety of SBCC approaches, as explained below:

Maternal and child health

Egypt

The United States Agency for International Development (USAID)/Egypt has supported Ministry of Health (MOH) maternal and child health programmes in Egypt over the past 30 years, contributing to the notable decline in child and maternal mortality in the last two decades, and improvements in several key maternal and child health indicators.

The SMART Programme⁴ was a 2.5-year initiative under MCHIP (Maternal and Child Health Integrated Programme) that was implemented in six governorates in Egypt (December 2011-December 2013). For most of the programme duration, Egypt was in a state of religious conservatism. Approximately 149,000 women and their families received health messages as part of group counselling sessions and monthly home visits. This resulted in increased knowledge and use of key MNCH⁵-FP-Nutrition behaviours by both women and men. A **community-based participatory approach (CBPA)** was used to deliver health and nutrition messaging. A quasi-experimental design was used to evaluate the programme with questions about women's knowledge and behaviours related to maternal and newborn care and child nutrition and, at the end-line, exposure to SMART activities (Brasington et al, 2016). Findings suggest a significant dose-response relationship between exposure to SMART activities and certain knowledge and behavioural indicators, especially in Upper Egypt. Therefore, the SMART approach offers a promising strategy to fill gaps in health education and counselling, as well as strengthen community support for behaviour change.

Bangladesh

Rahman et al. (2016) explored community perceptions of the components of the recent BCC intervention of the BRAC 'Improving Maternal, Neonatal and Child Survival' (IMNCS) programme in rural Bangladesh. Results from the qualitative study showed that IMNCS BCC interventions are well accepted by the community, who were mainly Muslim. **IPC** is considered an essential aspect of everyday life and community members appreciated personal interaction with the BRAC community health workers. The **mass media approach** to MNCH BCC included folk songs (locally termed as jaarigan) and street theatre (naatak) performed by local teams. The folk song and street theatre initiative deliver messages specifically on antenatal care, safe delivery, postpartum care, FP, infant and child health. Enactment of MNCH narratives and traditional musical performances in **entertainment education (EE)** helped to give deep insight into life's challenges, and the decision making that is inherent in pregnancy, childbirth and childcare. EE also improved memorisation of the messages.

Reproductive Health

Family Planning (FP)

Thailand

The fertility rate of Muslim mothers in southern Thailand is higher than that of non-Muslim mothers. Religion and region are associated with the attitude and behaviours of Muslims in fertility and contraceptive use (Adulyarat et al., 2016: 352). Therefore, a culturally-based care model using BCC was implemented in harmony with religious practices, meeting cultural needs

⁴ The SMART Programme: 'Community-based Initiatives for a Healthy Life. The programme worked with community development associations to encourage better household decision-making by training community health workers to disseminate information and encourage healthy practices during home visits, group sessions, and community activities with pregnant women, mothers of young children, and their families (Brasington et al, 2016).

⁵ Maternal, Newborn and Child Health.

in order to improve FP in the rural community by including **community partnerships and networks**.

Philippines

Together with national and local partners, the USAID Health Promotion and Communication Project (HealthPRO) assisted the Philippine Department of Health (DOH), and local government units (LGUs) in developing and implementing a **marketing strategy** to develop FP and safe motherhood campaigns for the DOH of the Autonomous Region in Muslim Mindanao (URC, 2014). Through the Strengthening the Social Acceptance of Family Planning (TSAP-FP) project, FHI 360 helped initiate a process of broad dialogue among imams in the region with counterparts in other countries. In 2004, these local religious leaders issued a fatwa, or a religious ruling, endorsing the use of modern contraceptives in couples. Advertising was the major strategy to create widespread awareness and acceptance of the repositioned FP message (FHI 360, 2017). C-Change, the initiative by FHI 360 and partners, also develops FP materials and messages for **radio, television, billboards, brochures, edutainment, and text messaging** (FHI 360, 2016: 4).

Kenya, Nigeria, and Senegal

The role of men in influencing contraceptive behaviours of women and couples is also important. One recent study explored the association between exposure to the Urban Reproductive Health Initiative (URHI) programme multi-strategy activities, and men's reported use of modern contraceptive methods in select urban sites of three African countries (Kenya, Nigeria, and Senegal) (Okigbo et al., 2015). The targeted marketing ('demand-generation') activities included exposure to FP messages via **mass media (radio and television), print media, IPC, and community events**. The highest proportion of men who were Muslim was found in Senegal (95 percent) followed by Nigeria (53 percent), and then Kenya (35 percent – however, in Kenya, the men surveyed were from Mombasa, a city that is more Muslim than most cities in Kenya). Two-year midterm evaluation data from the 'Measurement, Learning & Evaluation' project for URHI showed that those who participated in URHI-led community events had four times higher odds of reporting use of modern contraceptive methods (aOR: 3.70; $p < 0.05$).

Niger

In Niger, when asked to describe his experience with a pilot project on improving FP, a religious leader replied: [They ...] "came and made good promises because they said they would help children and women." [Afterwards ...] "They asked us to approve what they wanted, that is to say that Islam does not forbid a woman to take pills to not get pregnant quickly" (Médecins du Monde, 2010). Thus, one lesson learned was to *introduce objectives* of the project in more detail and with more transparency using **IPC and community-based approaches** (Alvesson & Mulder-Sibanda, 2013:28).

Antenatal and postnatal care

Thailand

A study to better understand the culturally-sensitive maternity care needs of Muslim mothers in a rural community of the southernmost province in Thailand revealed that, as in Egypt, **community-based participatory research (CBPR)** was effective in generating new knowledge,

identifying factors associated with intervention success, and determining actions aiding social and behavioural change in order to eliminate health disparity (Adulyarat et al., 2016: 354).

Child Health

Yemen

In Yemen, the second phase of the not-for-profit NGO 'Search for Common Ground' project is currently being finalised. This 18-month UNICEF partnership project in the governorates of Taiz and Al-Hodeidah aims to improve children's health. It will encourage dialogue on sensitive children's health issues, and achieves its impact through communication initiatives geared towards Yemeni parents and community leaders, who in turn encourage societal change with respect to healthcare. The initiative is a **multi-layered outreach campaign**, including door-to-door house visits, mobile cinema events, radio programmes, and joint community meetings at bazaars. The campaign has already managed to reach wide audiences in rural areas in both governorates, and the use of radio has been particularly successful (SFCG, 2017).

4. Examples of nutrition-related behaviour in socially-conservative settings

Maternal, infant and young child feeding practice interventions

Maternal nutrition

Burkina Faso

In Burkina Faso, where the population is approximately 60 percent Muslim, a 2-year integrated agriculture and nutrition programme targeted to mothers of young children reduced underweight among mothers and increased their empowerment using BCC implemented by **older female leaders or by health committee members** (Olney et al., 2016). The Helen Keller International E-HFP⁶ programme also positively affected mothers' overall empowerment score (DID⁷ = 3.13 points out of 37 possible points; $P < 0.01$) and 3 components of empowerment: meeting with women (DID = 1.21 points out of 5 possible points; $P < 0.01$), purchasing decisions (DID = 0.86 points out of 8 possible points; $P = 0.01$), and health care decisions (DID = 0.24 points out of 2 possible points; $P = 0.05$). These positive impacts benefit the mothers themselves, and may also improve their ability to feed and care for their children (ibid).

⁶ Enhanced Homestead Food Production – the programme aims improve the nutritional status of infants, young children and mothers through improved access to nutritious foods year round and the adoption of optimal nutritional practices.

⁷ Difference-in-differences (DID) estimates to assess impacts.

Child nutrition

Ethiopia

A cross-sectional study in the Shabelle zone, Somali Region of Eastern Ethiopia, used BCC interventions strategies appropriate for the pastoralist and agro-pastoralist community targeting on culture, beliefs and practices related to infant and young child feeding (IYCF). Results confirmed that in order to be effective BCC needs to be performed using **religious leaders, teachers, students, youth associations, female associations, health professionals, frontline health actors, and developmental armies** to bridge the gap between knowledge and practice (Guled et al., 2016).

Niger

One objective of a pilot in Niger was to inform families (with children 6 to 36 months old, and pregnant and breastfeeding women), administrative and traditional authorities (mayors, chiefs of clans, village chiefs, and religious leaders) through BCC strategies on child feeding practices. Community health workers were also offered training. **Culturally tailored messages** on birth spacing, exclusive breastfeeding, maternal health during pregnancy, and child feeding practices were developed based on the initial formative research. **Community-based** rehabilitation of moderately malnourished children 6 to 36 months was initiated. Local produce was used in the rehabilitation process — something that was not normally done in Niger (Souley, 2011).

Bangladesh

An **intensive intervention** package (including intensive IPC, mass media campaign, and community mobilisation) that was aimed at improving IYCF at scale through the 'Alive & Thrive' large scale initiative in Bangladesh found that developmental advancement at 6–23.9 months was partially explained through improved minimum dietary diversity, and the consumption of iron-rich food (Frongillo et al., 2016).

Maternal and young child nutrition

Bangladesh

The 'Alive & Thrive' (A&T) initiative⁸ in Bangladesh improved IYCF through **1) a national mass media (MM) campaign, 2) social mobilisation and 3) IPC delivered by health workers from BRAC**, and implemented at scale in 50 sub-districts. Large, significant impacts were seen on seven WHO IYCF indicators: early breastfeeding (BF) initiation (63.5 → 94.5 in A&T-3, $p < 0.001$ for cluster-adjusted double-difference estimates [DDE]), exclusive BF (48.5 → 86.0 in A&T-3, $p < 0.001$), timely introduction of complementary feeding (45.9 → 97.5 in A&T-3, $p < 0.05$), minimum dietary diversity (32.1 → 61.7 in A&T-3, $p < 0.01$), minimum meal frequency (42.1 → 72.3 in A&T-3, $p < 0.001$), minimum acceptable diet (16.0 → 49.3 in A&T-3, $p < 0.001$), and intake of iron-rich foods (39.5 → 78.6 in A&T-3, $p < 0.001$). Continued BF, already high in 2010 (baseline), remained as high in both groups at endline (2014) (DDE n.s.). Stunting decreased in both A&T-3 and A&T-MM over this period (DDE n.s.) (Menon et al., 2015).

⁸ A&T focusses on improving breastfeeding, complementary feeding and maternal nutrition in countries with socially conservative communities, such as Bangladesh, Burkina Faso, Ethiopia, India, and Nigeria.

BCC can also have a beneficial effect *indirectly*. In rural Bangladesh where Muslim mothers are in the majority, Hoddinott et al. (2017) constructed measures capturing mothers' knowledge of infant and young child nutrition (IYCN) and measures of food consumption by children aged 6-24 months. Results showed that being a **neighbour** of a BCC participant raises the z score⁹ on IYCF knowledge by 0.17SD (translating to 0.3 more correct answers). This effect is small but statistically significant (P = 0.04). Also, they were 14.1 percentage points more likely to feed their 6-24-month-old children legumes and nuts; 11.6 percentage points more likely to feed these children vitamin A rich fruits and vegetables; and 10.0 percentage points more likely to feed these children eggs.

Children of non-participant mothers who had a neighbouring mother participate in a nutrition BCC intervention were 13.8 percentage points more likely to meet World Health Organisation (WHO) guidelines for minimum diet diversity, 11.9 percentage points more likely to meet WHO guidelines for minimum acceptable diet, and 10.3 percentage points more likely to meet WHO guidelines for minimum meal frequency for children who continue to be breastfed after age 6 months. Children aged 0-6 months of non-participant mothers who are neighbours of mothers receiving BCC were 7.1 percentage points less likely to have ever consumed water-based liquids (ibid).

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⁹ A 'z score' was created to capture mothers' knowledge of IYCF; based on 7 questions assessing mothers' knowledge of optimal breastfeeding practices and an additional seven questions on knowledge of complementary foods, foods important for micronutrient intake, and hygiene. To construct this z score, for each mother, the number of correct answers given is summed, and the difference between this sum and the mean number of correct answers in this sample calculated. This difference is divided by the standard deviation (SD) for this score.

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Key websites

- USAID/GAIN/SPRING Expert Working Group documents: <https://www.spring-nutrition.org/events/designing-future-nutrition-social-and-behavior-change-communication-how-achieve-impact-scale>
- World Bank- Nutrition Toolkit Tool #9 - Using Communication to Improve Nutrition: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTNUTRITION/0,,contentMDK:20205536~menuPK:282580~pagePK:148956~piPK:216618~theSitePK:282575,00.html>

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