BKM Public Health & Community Medicine
Berita Kedokteran Masyarakat

Volume 40 **Number** 7, 2024, **Pages** e14137
DOI: 10.22146/bkm.v40i07.14137

Behavioral change communication strategy options to improve under five-year children's nutrition: a scoping review

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Submitted:
June, 20th 2024
Accepted:
July, 9th 2024
Published:
July, 12th 2024

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Abstract

Purpose: This study aims to identify some evidence-based strategies as lessons learned for Indonesia to improve behavioral change communication (BCC) nutrition-related strategies in the future of children under five years of age. **Methods:** A literature review was conducted using two public databases: PUBMED and PLOS ONE, and grey literature, focusing on randomized controlled studies addressing BCC related to children under five years of age nutrition. **Results:** BCC strategies encompass various topics, mainly focusing on child feeding and enhancing the capacities of delivery actors. These strategies aim to improve knowledge and other aspects of behavior change theory, such as perceived benefits and barriers, cues to action, and self-efficacy. Various media, with different frequencies and intensities, were used, targeting different beneficiaries and involving diverse delivery actors **Conclusion:** Evidence-based strategies provide valuable lessons for future BCC implementation related to child nutrition in Indonesia. It is recommended to use multiple media channels, address various beneficiaries, and involve diverse delivery actors to enhance knowledge, attitudes, and self-efficacy in performing recommended behaviors.

Keywords: behavioral change communication (BCC); children under 5 years of age; nutrition

INTRODUCTION

The latest stunting prevalence among children under five years of age remains high and is still considered a public health problem in Indonesia [1-2]. It challenges Indonesia's development as stunting indicates that children undergo problems to achieve their growth and development potential fully [3]. Various actions have been conducted to prevent stunting. However, the key indicators stating intermediate outcomes (reflecting behavior determinants), such as exclusive breastfeeding and dietary diversity, still have not met the expectations. According to Indonesia's 2023 Health Survey (Survey Kesehatan Indonesia), only 68.6% of children aged 0-5 months were exclusively breastfed, 60.9% of children aged 6-23 months consumed a diverse diet, 60.9% had an appropriate minimum meal frequency (MMF), 39.7% had a minimum acceptable diet (MAD), and 78.4% consumed animal-source food. These achievements are considered unsatisfactory, considering these behavioral determinants are crucial to prevent stunting [4-9].

These behavioral determinants can be promoted by effective behavioral change communication/BCC [10-13]. Some studies have shown that BCC can

improve knowledge (for example, knowledge related to infant and young children nutrition) that could last not only for a short time but possibly later than that, raise awareness, affect perceptions, and also improve individual practices, thus effecting better behavior for its beneficiaries to implement recommended actions, and at the end resulted in improvement/achievement in optimal children under 5 years of age's nutritional status [10-13]. BCC remains a challenge in stunting prevention in Indonesia, considering the strong influence of socio-cultural factors that underlay the behaviors (like parents/caregivers' behaviors on feeding the children), levels of exposure that have to be conducted so it can successfully affect beneficiaries' behaviors towards the recommended actions, various beneficiaries with various backgrounds that need to be targeted, also strategies of approaches that need to be implemented; specific to each context [11,14,15].

Efforts to conduct Behavior Change Communication (BCC) have been made, but they still need strengthening. Identifying evidence-based strategies from governmental and non-governmental sources and their collaborations to improve BCC, especially in promoting infant and young child nutrition, is crucial. While many studies have examined the effectiveness of specific BCC strategies for improving the nutrition of children under five, no comprehensive review exists on various BCC strategies. This study aims to identify evidence-based strategies to enhance BCC for improving the nutrition of children under five by addressing these questions: "What are the essential components of effective BCC?" and "What are the recommended approaches for implementing BCC?". The results are expected to provide valuable recommendations for government and non-government entities to enhance BCC strategies for improving the nutrition of children under five in Indonesia.

METHODS

This research is a literature review consisting of at least six steps, including formulating the research questions, searching the literature, screening the found studies by inclusion and exclusion criteria, assessing the quality of the studies, extracting the key findings from the chosen studies, and analyzing those findings [16]. These research questions are related to substances and approaches that could be considered when designing BCC strategies to improve nutrition in children under 5. We used two public domains: PUBMED and PLOS ONE, and grey literature. Several keywords were used, such as "behavioral change communication," "children under 5 years", and "nutrition." We used "AND" when combining keywords. The search was focused on randomized controlled trial studies (and similar terms of studies: experimental study and implementation study) conducted in the ten years from scholarly journals. Studies that were only abstracts available, paid full text, and contained topics specifically related to medical conditions were excluded.

Chosen studies were reviewed by extracting the data into a table (consists of information related to its purpose, study methodologies in brief, more detailed behavioral change communication strategies used, results, discussions, and conclusions, followed by a note column to help us identify the key findings). We later added one more column to the table for follow-up analysis by constructing the ideas coming from the findings to answer thematic aspects (that coming from research questions which were related to substance and approach of BCCs, including substances, aspects of behavior change theory applied, beneficiaries, media, frequency and intensity, and delivery actors).

RESULTS

From 190 studies found in the public domains, ten studies were selected to be reviewed in **Figure 1**. Six primary themes, including classified results of literature review: a) substances, b) aspects of behavior change theory applied, c) beneficiaries, d) media, e) frequency and intensity, and d) delivery actors. A summarization of BCC options adopted in reviewed studies can be seen in **Table 1**.

Substances

Most studies reviewed addressed child feeding practices in their behavioral communication strategies [17,18,20-24,26]. Some specific messages related to child feeding include complementary feeding practices (right time to start introducing complementary foods, specific foods to be offered/avoided and not to offer them to the child, meal frequencies, amount of foods to be fed to infants at different ages while continuing breastfeeding), dietary preferences for children (offering a variety of foods from different food groups, animal source foods), practice responsive feeding, practice good hygiene, and continue in feeding the child during and after illness [17,18,23,24].

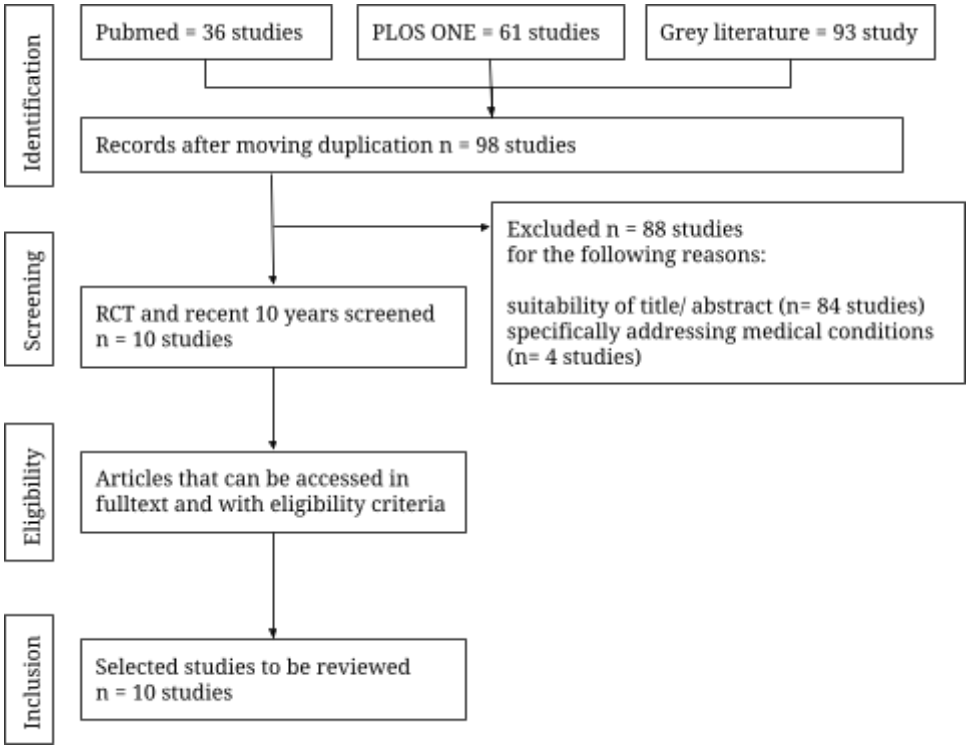

Figure 1. Process of selecting the reviewed studies

Table 1. Summarization of BCC options adapted in reviewed studies

Aspects of BCC	Strategies applied in reviewed studies
Substance	1. Child feeding practices (breastfeeding, complementary feeding practices and dietary preferences for children, feeding during special cases) [13,14,16-22] 2. Improvement in capacity to give counseling to caregivers [14,19,21] 3. Water, sanitation, and hygiene (WASH) [17,19] 4. Delivered using local language [14] 5. Using local food [14] 6. Vaccination [17] 7. Identifying signs of serious illness and seeking care [17] 8. Recognition, treatment, and prevention of acute malnutrition [17] 9. Maximizing health and nutrition for all household members [17]
Aspects of Behavior Change Theory Applied	1. Addressing perceived susceptibility, perceived benefits and barriers, cues to action, and building self-efficacy [13-15,18,20] 2. Addressing traditional norms [13,14] 3. Involvement of role models [14,20] 4. Targeting families as supportive environments for behavior change in mothers [14,20] 5. Knowledge & awareness [13]
Beneficiaries	1. Mothers/primary caregivers [13-15,21] 2. Families/secondary caregivers [14,15,20] 3. Women Development Army (WDA) or community health workers (CHW) [14,19] 4. Health providers [21]
Media	1. Visual/audio/digital media (such as posters, text messages, audio messages, teaching videos, songs and chants) [14,15,17,18,20,22] 2. Participatory activities (such as self-help groups, collective cooking, feeding demos, participatory discussions, and role-play [13,14,20,22] 3. Home visits, individual counseling & and support [13,14,16] 4. Training to delivery actors [14,16,21] 5. Community mobilization, combined with individual structural interventions [13] 6. Self-help group [13] 7. Collective cooking [13] 8. Feeding demonstration [13]
Frequency and Intensity	1. Multiple actions, serial of activities [13-15,17] 2. Routine [15,17]
Delivery Actors	1. Community-based health providers (such as village organizers, WDA, community health workers (CHW) [13,14,16,18,19] 2. Mothers [13] 3. Facility-based health providers [16]

Substance given can also focus on other aspects to improve children under 5 years of age's nutrition, such as vaccination, water, sanitation, and hygiene (WASH), identifying signs of serious illness and seeking care behavior, recognition, treatment, and prevention of acute malnutrition, maximizing health and nutrition for all household members, and women's status and relationships with influential family members [21,26].

Besides, BCC, conducted in several studies, also targeted delivery actors' capacities in delivering behavioral communication strategies to its beneficiaries [18,20,23,25]. The substance targeting these delivery actors includes identifying problems faced by mothers/other caregivers that help delivery actors address oriented knowledge, attitude, and behavior that is personalized/specific to problems faced by the caregiver (may include using variety of locally available foods, giving support to mothers to implement recommended actions like breastfeeding techniques for optimal breastfeeding process and prevent problems, or other topics), communication skills (including negotiating with the caregiver about recommended possible solutions), and how to conduct home visit [18,20,23,25].

Aspects of behavior change theory applied

BCC strategies applied in several studies addressed aspects of behavior change theory, including using a human-centered design approach to improve knowledge and awareness, perceived susceptibility, perceived benefits, and barriers (that lead to a change in norms and beliefs following the recommended practices), cues to action, and self-efficacy [17-19,22-24].

Involving role models and targeting families as supportive environments for behavior changes are also applied in some studies [18,24].

Beneficiaries

Beneficiaries of BCCs conducted in reviewed studies were varied. However, they can be categorized into three primary groups: mothers (seen as the most possible primary caregivers), families such as fathers and grandmothers (seen as supportive environments), and delivery actors (seen as crucial actors in delivering behavioral change communication to mothers and families) [17-26].

Media

Community mobilization is a famous approach to delivering BCCs, as shown in some reviewed studies [17,18,20,23,24,26]. Activities were varied, with combinations between individual and structural interventions enhanced [17]. Options of activities included as media to deliver BCCs to beneficiaries were creating self-help groups consisting of mothers, other group meetings (like consisting of fathers), participatory discussions, home visits (where delivery actors can either follow up previous BCCs that have been conducted, identifying concerns/challenges that caregivers have to implement recommended actions, or giving personalized recommendations as part of BCC itself), community events where showcasing, sharing sessions, and demonstrations (cooking and feeding demo) can be held, recognition and reward ceremony (as sharing sessions and addressing role models), individual counseling and support, presentations, question and answer, interactive call and answer, songs and chants, and role-playing [17,24,26].

Besides, several studies examined other media options using local language, including text messages (such as modified daily reminders for caregivers), audio messages that consist of drama and reinforcing messages, posters, and teaching videos [19,21-24]; these options can be supplements/strategies conducted, especially in tackling unique challenges, like when community health workers (as delivery actors) are scarce [22].

Some studies also conducted training for delivery actors, which enhanced in activities to raise their knowledge and understanding, but also capacities by several practices (like talks, group discussions, group work exercises, demonstrations, role plays, storytelling, simulation, case studies, problem-solving, and conducting real home visit), then followed by supervising and giving feedback to the delivery actors for future improvements [18,20,23,25].

Frequency and intensity

From reviewed studies, frequency and intensity in delivering BCCs to beneficiaries varied depending on the approach, where more frequent, intensive, and serial activities are recommended [17-19,21]. For example, a study conducted training for delivery actors twice (which lasts for three days each] and for mothers nine times (once a month, which lasts for three days each) [18]. Another study that used text messages was sending daily reminder text messages to its beneficiaries [19]. Another study used audio messages to deliver the media to its beneficiaries twice weekly (every Friday and Sunday) [21].

Delivery actors

Primer delivery actors were community-based health providers (including community-based health workers and health workers) [20,22,23]. Besides, beneficiaries themselves can be their delivery actors,

for example, the mothers who were the members of self-help groups or fathers) [17,24].

DISCUSSION

Based on the results, the substances of BCCs are not only related to the change of behavior that wants to be addressed through the BCC itself but also topics to increase the delivery actors' capacities in conducting the BCC to their beneficiaries. This is essential, considering the importance of delivery actors' role as agents to interact and give BCC to the beneficiaries through delivering education, navigation, or support [27]. This is in line with challenges regarding delivery actors in conducting the BCCs to their beneficiaries, where a study in Aceh found that cadres/community health workers (as delivery actors) enhanced caregivers' (as beneficiaries) knowledge. However, the enhanced knowledge was not translated into credible guidance [28]. Thus, investment in improving the delivery actors' capacities is crucial [28].

Reviewed studies involved various aspects of behavior change theory. This finding is in line with another study which stated interventions that applied behavior change theory resulted in significant improvements related to children under five years of age's nutrition and interventions that included more than two behavior change functions (persuasion, incentivization, environmental restructuring) were seen as the most effective approach [13]. BCCs that address not only the improvement of knowledge but also other aspects such as one's motivation, capacity, and self-efficacy (like found in reviewed studies) are essential, considering that one's behavior is affected by several aspects, including reflective motivation, automatic motivation, social opportunity, physical opportunity, psychological capability, and physical capability [13].

BCC beneficiaries consist of mothers (seen as common primary caregivers), other family members (like fathers and grandparents, especially grandmothers), and delivery actors like community health workers. This was in line with some studies stating that other family members were crucial in creating supportive environments for optimum children's nutrition [29,30]. Delivery actors were also essential because they could deliver effective BCCs [27].

Various media involved as BCCs strategies. Various approaches may improve opportunities to address more aspects of behavior change theories, as one previous study mentioned that interventions addressing several aspects like persuasion and environmental structuring were more effective than others [13]. Moreover, several strategies like using video that may be beneficial in limited delivery actors, using local language, and engaging community mobilization where bonds between the community are potentially strong and promising, considering that context-specific adaptation, besides interactive delivery, is considered crucial factors [31].

BCC strategies delivered more frequently and intensively are recommended, as these approaches can support building and maintaining beneficiaries' knowledge, motivation, and other aspects of behavior change [11,13]. One supporting reason is a study that found little improvement in knowledge after one month of BCC and no improvement/difference in knowledge one month later [11,13].

This study has limitations. It is important to note that this study is restricted to reviewed studies, using specific search methods and inclusive and exclusive criteria. Certain aspects of BCCs were not accounted for, particularly in various contexts, such as beneficiaries' characteristics, which are essential for addressing effective strategies. The effectiveness of BCCs is also limited to the timeframe of reviewed studies, making it possible that more unique results have not been captured. This supports the ongoing challenges of conducting BCCs suitable for various contexts.

Despite this study's limitations, the information resulting from this study called for the government and non-government to consider a more holistic approach when developing future BCCs to improve the nutrition of children under five years of age in Indonesia, taking substances, aspects of behavior change theory applied, beneficiaries, media, frequency and intensity, and delivery actors into consideration.

CONCLUSION

Various evidence-based strategies can be used as lessons learned for future implementation of BCCs related to nutrition in Indonesia for children under five years of age. It is recommended that various media be used, various beneficiaries be addressed, and various delivery actors be involved in targeting as many aspects of behavior change theory as possible (like improvement in knowledge and attitude and beneficiaries' self-efficacy to do recommended behaviors). The strategies of BCCs need to be suitable for specific contexts, and pondering different contexts may require a different approach to change someone's behaviors effectively.

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