Preventing diarrhoea and growth delay through community-level complementary-food safety and hygiene and nutrition intervention in Mali: Formative research data for intervention adaptation

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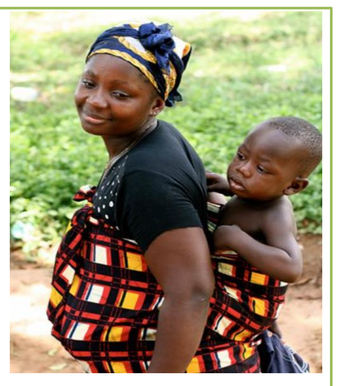
Background and Problem



- Diarrhoea and malnutrition are the leading cause of death in children, especially 6-24 months when complementary feeding occurs[1].
- Interventions to improve complementary-food safety, reduce geophagy, and improve nutritional intake would ensure better diarrhoea control, improve growth and developmental outcomes, but there is little evidence for low-cost population level interventions that can be scaled up[2,3]
- Globally, Mali has one of the highest rates of acute malnutrition and severe acute malnutrition[4], despite several nutritional interventions from both government and non-governmental organisations. In addition, there is evidence that controlling the risk of geophagy among this age group could reduce enteric pathogens, thus reduce diarrhoea[5]

- Most of these already implemented interventions were either not low cost to implement and/or were not culturally sensitive to sustain behaviour change.

Solution

- We developed a low cost community empowerment and culturally engendered method of food-hygiene behaviour change in families through targeting mothers of young children (a 30 cluster RCT in the Gambia, The MaaChampion Study)[3]
- However, such interventions need to be somewhat adapted to new community or country settings. We present the evidence gathered in Mali for the adaptation, scaling of the Gambia intervention and the expansion of the issues addressed to include hygienic play and adequate nutrition behaviour change.
- To adapt the MaaChampion intervention, the present formative research aimed:
  - To explore the current behaviours related to food safety/hygiene and environmental and nutrition among mothers with children 6-24 months in Mali.
  - To observe mothers' daily activities and environment to identify critical control points of food contamination while preparing, handling, and storing food, and feeding the child at home.
  - To identify motivational drivers and methods of communication for complementary food safety/hygiene behaviour change of mothers.
  - To observe and explore child play and food/drink frequency and content to identify modifiable behaviours to ensure safer/hygienic play and better nutritional outcomes as complementary behaviours to food safety/hygiene.

Methods for gathering evidence for adaptation of interventions

Study design and setting:

- Concurrent mixed method study design using surveys, observation and focus group discussions (FGD)
- The study was carried out in both urban and rural areas in Mali, West Africa. In the urban setting, the surveys were conducted in Bamako in the neighbourhoods (low socio-economic syatus) of Banconi and Sabalibougou; in Sikasso and Segou. In rural areas, the participating villages were Dialakoroba, Zantiguila, and Tienfala, all in the Koulikoro region.

Clusters and Participants:

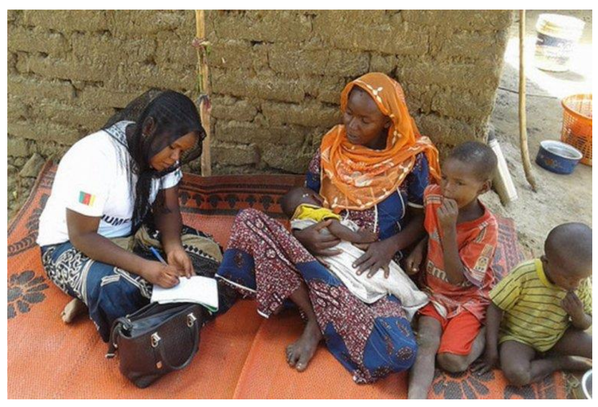
- 4 Urban low socio-economic status Bamako communities and 3 rural villages between Bamako and Sego/Sikasso areas in Mali, West Africa.
- Inclusion criteria for home visit observation and surveys: women with a child aged 6 to 36 months from 42 households participated (7 per community)
- Inclusion criteria for Focus Group Discussions (FGDs)- FGDs were conducted in each community, with mothers, grandmothers, fathers and elders separately. An average of 6 participants participated in each FGD.

Data collection:

- Observations- mothers in each household were observed from early morning to late afternoon (6-8 hours). Observations included activities before and during food preparation, food storage and reheating, feeding of the child and hygienic child play

Data collection

Household questionnaires with mothers



FGDs held separately with mothers, fathers, elders and grand mothers

Observations of hygienic cooking, play and the environment

Results

The findings were relatively similar in both rural and urban areas.

- Average age of mothers 27 years, and 35 mothers had no education, not completed primary education and could not read at all.
- Food poisoning and contamination was attributed to germs or dirty hands, poor storage, not properly cooking food, mixing food with other foods to eat and eating cold foods.
- When observed, most mothers did not wash their hands before carrying out critical tasks such as cooking, feeding the baby or eating themselves. Table 1 shows handwashing practice before feeding the child.

Table 1: Observations before feeding the baby

Activity observed	Rural (N=18)	Urban (N=24)
Hands not washed before feeding baby	8	11
Washing hands with water before feeding baby	9	12
Washed with soap before feeding baby	1	1

- The main barrier to food diversity and eating fruit and vegetables was access and costs. Some complementary foods were associated with taboos. *"A child who hasn't spoken yet, they said not to give him eggs or he'll go a long time without speaking" (Grandmother, Rural)*.
- When observed, children sat or played on the soil/ground outside the house. One child was observed playing outside the house on a cover. When mothers were away or busy, other family members or neighbors looked after the child.
- Children eating soil was mostly accepted. *"We say that if the child eats banco [soil] and drinks breast milk that it doesn't do anything to him" (Father, urban)*
- Frequently, animals were kept in the yard and animal droppings were observed close to children played. In some instances, the children playing on the ground/dirt were observed mouthing sand/soil or animal droppings.

Applying evidence to solution development

- The findings are being used to adapt the Gambia intervention to the context of Mali and with prioritised key behaviours including nutrition and Child play components
- 7 key priority behaviours were identified and included in the Mali intervention
  - ✓ Breastfeeding children up to 2 years of age
  - ✓ Give children at least two snacks in addition to the main 3 meals
  - ✓ Think about food diversification when buying ingredients
  - ✓ Heat preserved/stored/leftover food and street food to high temperatures
  - ✓ Wash toddler and mother's hands cleanly with soap and clean water before feeding baby
  - ✓ Boil drinking water and children's milk and keep in a clean covered container
  - ✓ Control children's play space to prevent ingestion of soil and dirt
- The role of the larger family and the community was found to be very important for supporting mothers to change their behaviours.
- Motivational drivers for mothers to change their behaviours were similar in rural and urban and were similar to Gambia, MaaChampion intervention: nurture, purity, attraction, status, affiliation, and disgust.
- In brief, the MaaChampion intervention using 4 campaign days (day 1, 2, 17 and 25) and 1 reminder campaign day at 6 months. Each campaign day involved traditional songs, dances, drama, storytelling to empower mothers and the whole community[2].
- Building on these campaign days using the data from this formative research, we are developing a low cost community-level motivational behaviour change intervention called MaaCiwara project in Mali.

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