An Imam being interviewed by Dr Hawa Diarra as a part of the pilot study, Nara. Mali, 2022

Optimising 'Family MUAC':
Findings from a pilot study in Mali

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What we know:

The use of mid-upper arm circumference (MUAC) tapes by trained family members ('Family MUAC') is increasingly used as the screening programme of choice by international organisations and many governments. A previous article (Lopez et al, 2022) investigated barriers to Family MUAC uptake and then prototyped a package of interventions to increase its use.

What this adds:

This follow-up pilot study sought to answer how the package performed in real-world conditions. All participant groups found the intervention to be supportive in screening children for malnutrition, with particular emphasis on the success of both a video testimonial and group screenings during local meetings.

The problem

Worldwide, only 20% of an estimated 50 million children afflicted by severe wasting receive life-saving treatment each year. The biggest gap to treatment coverage is identification of cases and referrals to treatment.

IRC Mali programmatic data has shown that caregivers are able to accurately use MUAC tapes. This has the potential to increase the cadre of screeners for wasting in children, which should lead to greater numbers of referrals for treatment. However, in the Nara region of Mali (where 90% of women were trained on MUAC use) only 20% of treatment admissions were referred by families.

In 2021–2022, we applied a user-centred, behavioural science-informed, problem-solving approach to understand drivers of low Family MUAC uptake in the Nara region of Mali, with the aim of developing a set of proposed solutions that are both desirable to caregivers and feasible to implement.

Identifying barriers and solutions

Identification of barriers

Our first objective was to identify barriers to MUAC utilisation. We aimed to map what was preventing caregivers from screening their children for malnutrition using the MUAC tape monthly. We first did an a priori barrier mapping, where we listed all potential barriers. We then validated those barriers with users of the tape (caregivers), and finally prioritised the barriers. This was done through interviews, focus group discussions, and observations of women using the MUAC tape.

A key behavioural barrier we identified was that women were challenged by having many household responsibilities for which they were accountable to their husbands and mothers-in-law. Routine MUAC screening was not one of these tasks, so these other chores took priority. Behavioural drivers of regular screening included that women wanted regular reminders to conduct screening and that men expressed an interest in playing a role in malnutrition prevention.

Identification of solutions

Once the key barriers were identified, we developed potential solutions to each key barrier and sought caregiver feedback on their preferences to refine the solutions we had drafted. We used different interactive activities with caregivers, such as prototyping and picture card sorting, to allow individuals to express their preferences

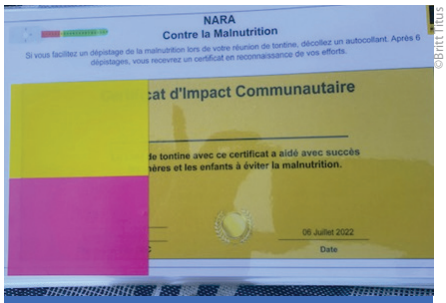
for solutions – such as what type of screening reminder they wanted. We tested the desirability and feasibility of each programmatic solution individually.

The five programme elements we identified through repeated refinement and testing with community members were:

Women's savings group meetings, or 'tontines', already occurred once per month (the same frequency needed for MUAC screenings), so 'tontine leaders' were asked to remind women to use the tape and facilitate group screenings within these meetings.

A behavioural science-informed video training was created for women, husbands, and imams (religious leaders). This included a real testimony by a local woman about how MUAC tapes benefitted her family, as well as components (such as a goal setting prompt) to encourage follow-through.

Husbands were asked to gently remind their wives to use the tape (a new role supported by both men and women).



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Interactice certificate used as part of the package of interventions, Nara. Mali, 2022

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A screenshot from the behaviourally informed video training, Nara. Mali, 2021

Imams were asked to remind community members, especially men, about MUAC screening during religious meetings to facilitate change at the community level.

A colourful image was tested as a physical screening reminder in the home.

After testing and prototyping these components, we removed the physical reminder in homes, as women said they quickly stopped noticing it within a few days.

We also learned that tontine leaders needed motivation to play their role. We therefore added an interactive certificate as the fifth component, where leaders could peel off a sticker every time they led a group screening, with each month revealing another panel of a final certificate of leadership.

Testing the package of solutions through a pilot study

Pilot study methods

After the prototyping phase, it became essential to test the whole package in real-world conditions to measure how adherence and stakeholder perceptions might change over time and to assess the desirability, feasibility, and viability of implementation.

The package of five solutions was implemented during a two-month period in five communities in Mali. One community was a Peulh community[1], which required a slightly modified approach as these women were not involved in tontine groups. This community was included to learn how to scale our approach in a variety of community models. We worked through community relays to train tontine-attending women ('tontine women'), men, and imams in all communities using the training and testimonial video.

In this pilot, we collected data five different ways:

Pre-pilot survey of tontine women, non-tontine women, men, and imams to understand existing behaviours and perceptions (n=368).

Observations of relays as they train women, men, and imams to capture how the trainings were conducted and how trainees responded.

Observations of tontine groups during the pilot to appreciate how the tontine leader facilitated the group screening or reminded members about screening and how women responded.

Post-pilot focus group discussions with tontine women and tontine leaders, non-tontine women, men, and imams. A focus group discussion was held separately in each of the five villages for women, their husbands, and imams for a total of 15 discussions.

Post-pilot survey of all groups. Post-test participants were not necessarily the same as pre-test ones, allowing us a more real-world assessment of the community-based approach. We had 387 participants across five villages included in the post-tests: 12 tontine leaders, 231 mothers of children aged six months to five years, 129 husbands of those mothers, nine relays, and six imams.

Pilot study questions

Based on a behavioural theory of change, research questions for the pilot study were centred around women's, tontine leaders', husbands', and imams' capabilities, motivations, and opportunities to play their role in the intervention.

Capability

We first aimed to understand whether the caregivers could do the desired activity, by asking questions such as "What were the caregivers' perceived benefits and challenges of doing the group screenings?"

Motivation

To assess the motivation, we aimed to grasp what outcome people believed would happen if they did or did not do the screenings, for example by asking "What are their reasons and motivations for screening?"

Opportunity

We thought it was important to all assess whether the environment and context made it easy to do the desired activity, for example by asking questions like "Did the group MUAC screening feel like it took too long, too short, or was it just right?"

Pilot study results

The intervention built confidence

The implementation of our package of solutions resulted in women having more confidence to implement screening with MUAC.

The comparison between pre- and post-pilot surveys showed that, within two months, there was a 33% increase in women feeling "confident" in their ability to use the MUAC tape independently and an 11% increase in women feeling "very motivated" to use the tape regularly.

Women who wanted to use the tape regularly after participating in the pilot intervention cited reasons such as "preventing diseases in children", "avoiding malnutrition in children", "knowing on a daily basis if the child is malnourished or not", and "to take better care of children".

It is worth noting that comparable interventions[2] have previously failed to demonstrate any shifts in caregiver motivation to screen their children with the Family MUAC (Mbungua et al, 2022).

All women we spoke to in tontine groups agreed that the frequency of screenings had increased during the pilot period, because they were screening together in groups.

Video testimony resonated most

The video testimony was the most commonly and positively mentioned element of

[1] The Peulh people are an ethnic group in Sahara, Sahel, and West Africa, widely dispersed across the region.

[2] https://admin.concern.org.uk/sites/default/files/documents/2022-10/IGHN%20Kenya%20Family%20MUAC_IGHN%20Final%2010.10.22_0.pdf

the intervention. The video effectively communicated the importance of screening and the technique for doing it, while emotionally resonating with all groups involved. It was described as "touching" and "moving" and served to highlight the consequences of not screening. Tontine leaders believed this emotional effect was one of the main reasons that the training was successful.

Tontine leaders and community relays echoed this sentiment and stated that training was clearer than others they had been a part of. They shared that being able to both see and hear instructions through the video was more effective than just being told them.

Regular reminders were crucial

Out of all reminders offered, women found the group tontine meeting reminders to be the most helpful, as they received support from the tontine leader and other women in the group. Women described both highly respecting and trusting the tontine leader.

Most women preferred screening together in a group, but still liked that the tontine leader reminded women to do so at home as well, since they couldn't always bring all of their children with them.

Male engagement was important

In a context where wives are often tasked with overwhelming responsibilities by their husbands and mothers-in-law, we were concerned that MUAC screening might lead to more conflict in the family. However, when asked how the reminders were given, women said they were offered kindly and without violence or coercion. For tontine women, these complemented the reminders they were also getting at meetings – something they appreciated.

Husbands felt that their new role was important, not difficult, and echoed points made in the video regarding how early malnutrition detection can save both money and lives. In some cases, men reported doing the screenings themselves when their wives were busy or otherwise unable.

> ***"It's good that the men were involved, that way they will understand that it's not only the women who have to take care of the children and especially the children's health, everyone must be concerned"***
>
> – A tontine leader, summarising male involvement in the intervention

Imams appreciated the training and the testimony story. Most of the imams were able to provide reminders and they could observe and understand the link between their work and protecting their communities from malnutrition. One imam even commented that he started seeing more women in his own family screening children during the pilot period – something he hadn't seen them doing before.

Tontine leaders felt positive and did not feel that their new role was burdensome. They appreciated the certificate of recognition they were given and agreed that they had used it every meeting.

Unexpected results

> ***"During the two months, the support increased a lot, on the family side, the tontine members, and the men too. Everyone started doing it."***
>
> – A woman participating in the pilot

Qualitative results found that even women outside of the savings groups learned about screening through their networks and started attending meetings to screen children. This was not seen as problematic, but it did necessitate re-training the groups to upskill those women who joined later. Most women were therefore shown the video multiple times, which was not part of the original intervention design. This may have served as an additional type of 'reminder' for the groups.

Challenges and lessons learned

Some of the biggest challenges in the pilot study involved running the intervention in the Peulh community, as we could not utilise tontine groups as an entry point. Many women in the Peulh community did not have MUAC tapes to begin with, which undermined their ability to follow through with the screenings. While tontines were a desired setting for most women to convene and screen their children, we have yet to find a comparable structure to utilise in the Peulh community.

Women in the Peulh community were less motivated and less confident carrying out screening than women in the tontine groups. One woman stated that she did not feel ready to screen her own child after the video training. Instead, whenever she received a screening reminder, she would take her child to the community relay to conduct this for her.

In the other four communities, one health relay reported that he felt overwhelmed by non-tontine women who brought their children to him for testing. Some women also brought their children to be screened by the tontine leader. While positive spillover provides opportunities for network effects, this aspect was sometimes disruptive. In some cases, even tontine women who viewed the training video relied on the tontine leader to screen their children, rather than doing this themselves.

Screening children, seen as analogous to the responsibilities of health relays, led some tontine leaders to request compensation from the project for continuing this work. Women's confidence to carry out screening themselves, thus allowing leaders to solely facilitate, will need to be increased in future iterations of the programme.

Looking forward

Overall, all groups of participants found that the intervention supported malnutrition screening –with particular emphasis on the success of the training video with testimony and the group screenings at tontine meetings. Ensuring that all women have MUAC tapes and are confident enough to conduct screenings themselves will be addressed in future iterations of the programme.

The uniqueness of this Family MUAC approach is the degree to which its elements were developed alongside members of the community and in response to their preferences. Each intervention has been tested individually and, with the recent completion of the pilot study, tested as a package within the local system over a two-month period in real-world settings.

Immediate next steps include making changes to the programme design based on the insights from the pilot study. We will also conduct further research with a larger population.

Questions yet to be answered include:

How can we increase women's confidence in their ability to use the tapes at home, especially in the absence of a relay or tontine leader?

How can we best support women who are not part of the original training, but who come to the tontine meetings to screen their children?

How can we sustain these new roles and activities over time?

What is the impact of this programme on family referrals for treatment? And how does that compare to other Family MUAC Training programmes, in terms of cost-effectiveness?

A longer pilot, focused on maintaining motivation over time, will determine to what degree Family MUAC is a viable approach to increase wasting screening coverage. Other considerations, such as linkage to care and whether treatment services meet caregiver expectations, are also important mitigating factors.

For more information, please contact Britt Titus at **britt.titus@rescue.org**

References

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