



What works to improve nutrition and food security in the Sahel?

The food security and nutrition situation in the Sahel continues to deteriorate, with over 24 million people in need of emergency food assistance. Droughts and conflicts have left the region chronically food insecure, particularly during the lean season, when reliance on food aid increases. Acute malnutrition in the Sahel affects an estimated 6 million children under the age of five, and approximately 1.4 million of these children require treatment for severe acute malnutrition.

There is significant evidence available on the effectiveness of interventions in treating moderate acute malnutrition (MAM); however, the relationship between prevention and treatment remains largely understudied.

Highlights

- The evidence base for linkages between programmes preventing and treating MAM has large gaps.
- The four impact evaluations included in this synthesis reported varying effects on MAM incidence, depending on the context and combination of programmes implemented.
- None of the four studies used experimental methods, thereby highlighting the relevance of quasi-experimental and qualitative methods in humanitarian settings.
- The appropriate bundling of various forms of food assistance, tailored to the context, can be effective in supporting vulnerable populations within a nutrition-sensitive programming framework.
- Geographic proximity to health centres and food distribution centres and high-level awareness among potential beneficiaries and communities can increase programme uptake.
- The poor quality and lack of monitoring and evaluation data are problematic in all four contexts due to limited synergies among humanitarian agencies collecting similar data.

Moderate acute malnutrition, also known as moderate wasting, leads to rapid weight loss or a failure to gain weight. If left untreated, it can lead to severe acute malnutrition and possible death. Children suffering from this type of malnutrition are also at greater risk of impaired physical and mental development and disease.

The International Initiative for Impact Evaluation (3ie) has synthesised the findings and lessons from four 3ie-supported impact evaluations on nutrition and food security interventions in four Sahelian countries: Chad, Mali, Niger and Sudan. These evaluations examined different aspects of the World Food

Programme's (WFP) interventions for food security and the treatment and prevention of MAM, as well as their impact on nutrition and food security outcomes. The synthesis provides lessons for improving programme effectiveness to achieve core WFP objectives in food security and nutrition.



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Programmes to prevent and treat malnutrition

Sahel has high rates of poverty coupled with fast population growth, effects of climate change, recurrent food and nutrition crises, and violence due to armed conflicts. In light of this context, WFP uses a multicausal framework, focused on the first 1,000 days following conception as a critical window for a child's survival and development, as part of its food security and nutrition-related Protracted Relief and Recovery Operations (PRROs) in the Sahel region.

WFP has several ongoing, context-specific interventions aimed at preventing and treating MAM and overall food insecurity in the Sahel region, which build on the evidence base for the multicausal nature of malnutrition. Under the broad umbrella of humanitarian assistance, WFP implements food-based interventions: Blanket Supplementary Feeding (BSF) and Targeted Supplementary Feeding (TSF)

programmes which are intended to support the prevention and treatment of MAM in food-insecure households through various forms of assistance tailored to the local context. This includes Targeted Food Assistance (TFA), school feeding, Food Assistance for Assets (FFA) and general food distribution efforts, all of which aim to contribute to improving nutrition outcomes.

The impact evaluations

3ie supported four impact evaluations of WFP programmes in Chad, Mali, Niger and Sudan. Table 1 presents an overview of the main evaluation questions, the evaluation design and the key outcomes assessed in the four studies. The synthesis offers key lessons on implementing evaluations in humanitarian contexts, particularly when aid cannot be randomised. The studies used various types of data and employed a range of methodologies, including quasi-experimental and qualitative methods.

The evaluations in **Chad** and **Niger** focused on different components of PRROs, such as MAM treatment through TSF and prevention of acute malnutrition through BSF, TFA and FFA. In Chad, participation in community awareness-raising sessions was encouraged, particularly among pregnant women and mothers of young children. WFP activities in Niger peaked in the lean season, when children and households are most vulnerable.

In **Sudan**, the evaluation focused on the community-based nutrition integrated programme, which is part of a PRRO and includes components for MAM treatment, malnutrition prevention, home-based food fortification, and social and behaviour change communication. The **Mali** evaluation examined various types of WFP food assistance activities in emergency operations, as well as PRROs implemented in the five years following the 2012 conflict.

Table 1: Study designs, evaluation questions and main outcomes

Country	Primary evaluation question(s)	Methodology	Main outcomes
Chad	What impact do interventions preventing MAM have on its incidence and prevalence in children under two years with varying levels of access to MAM treatment?	<ul style="list-style-type: none"> ■ Analysis of covariates and propensity score matching ■ Use of qualitative data to inform and interpret results 	Nutrition status of children under two years
Mali	What are the impacts of conflict and food assistance on child malnutrition and other development outcomes?	<ul style="list-style-type: none"> ■ Use of qualitative and quantitative data to characterise exposure to conflict and humanitarian assistance ■ Natural experiment, difference-in-differences and propensity score matching 	Nutrition status of children under five years
Niger	What are the impacts on the nutrition outcomes of various combinations of programme components in WFP's PPRO?	<ul style="list-style-type: none"> ■ Difference-in-differences ■ Instrumental variables ■ Qualitative analysis 	Nutrition status of children under five years
Sudan	What are the impacts of various MAM treatment and prevention interventions on the incidence and prevalence of MAM and severe acute malnutrition in children under five and in pregnant and lactating women?	<ul style="list-style-type: none"> ■ Stepped-wedge cluster controlled trial design ■ Qualitative analysis 	Nutrition status of children under five years and pregnant and lactating women



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Main findings

The four evaluations reported varying effects on incidence, depending on the context and the combination of programmes being implemented.

Key evaluation results

In **Chad**, the evaluation found that the BSF-based prevention programme had a positive effect on MAM incidence during the lean season. When looking at the interaction between the BSF and TSF programmes, BSF had a larger positive impact on MAM incidence amongst households with lower access to the TSF-based treatment programme and households with seasonal livelihoods, such as agriculture and livestock. The percentage of MAM cases at endline (14%) was half of the baseline result (28%). These changes were observed for both sexes.

The **Mali** evaluation found that households receiving at least two forms of assistance – particularly general food distribution and school feeding – registered statistically positive effects on nutrition outcomes. The effects were not significant for households that received only one form of aid. Data disaggregated by degree of exposure to conflict revealed that impacts on nutrition outcomes for children were concentrated mostly in areas outside the immediate vicinity of a conflict, which could be partly due to lower household access to aid.

The **Niger** evaluation concluded that continued provision of FFA in combination with MAM treatment and/or prevention programmes significantly reduced MAM incidence

and served as a nutrition-sensitive form of assistance; however, there was no evidence of positive impact of the treatment and/or prevention programmes alone. Agriculturally sensitive programming had a large positive impact on a child's probability of recovering from MAM.

In **Sudan**, researchers found that the addition of MAM prevention components to MAM treatment programmes had no effect on the incidence or prevalence of global acute malnutrition, MAM, or severe acute malnutrition in children under five years or pregnant and lactating women. However, the evaluation found a significant reduction in the prevalence of children at risk of malnutrition where food-based MAM prevention was added to the TSF-based treatment programme. There were no changes in feeding behaviours and practices attributable to the social and behaviour change communication intervention.

Targeting and uptake

All four evaluations highlighted that geographic proximity to health centres and food distribution centres, as well as high-level awareness among potential beneficiaries and communities, are necessary to improve access and increase programme uptake.

All studies highlighted several barriers that must be addressed to improve coverage of the nutrition programmes. Limited routine community-based screening, heavy workloads for staff in implementing agencies (including WFP, partner agencies and the government), poorly

maintained case data and ineffective case-finding were cited as key challenges in these contexts.

Differential effects due to sex and age

The study in **Chad** found no difference between boys and girls regarding the effect of BSF on MAM incidence and no difference in MAM admission trends or outcomes for boys and girls in **Sudan**. The number of pregnant or lactating women who were at risk of malnutrition decreased, versus those with global acute malnutrition. A lack of anthropometric data on women in **Niger** hindered the team's ability to report on core outcomes. However, the study found that female-headed houses exhibited significantly better nutritional status than male-headed households. In **Mali**, the closure of health centres due to conflict and staff unavailability impacted health services for women and children, with the suspension of antenatal care for women also exposing children to higher risk of infection and morbidity. Malnutrition in children and in pregnant or lactating women also increased considerably.

Cost-effectiveness

Not all evaluations conducted full cost-effectiveness analyses, mainly due to difficulties in compiling disaggregated information on programme costs. An important lesson was the need to perform cost-effectiveness analysis on outcomes apart from malnutrition, such as reduction in micronutrient deficiencies and their consequences, and improved household resilience.

Implications for nutrition programmes and policies

- Greater attention to the timing, sequencing and roll-out schedule of a package of interventions is likely to result in enhanced effectiveness. In Chad, TFA and BSF distributions should begin before the lean season in order to be effective in treating MAM. Bundling various types of food assistance into general food distribution in Mali can support vulnerable populations. Given the positive effects of FFA on MAM indicators in Niger, this can be sustained through the joint provision of FFA and prevention programming. In Sudan, a sustained package of MAM treatment and prevention programming can potentially lead to intended effects on incidence and prevalence.
- Closer partnerships and coordination can support more effective, timely and efficient delivery. This includes operational synergies among the various implementing actors for better programme planning and implementation. These synergies should also translate into improving cost data collection – in particular, separating costs for various components and funding from various donors.
- Barriers to achieving better coverage and access include infrastructure deficits. Awareness of the availability of high-quality services is also important to improve coverage and targeting. Proximity to health and distribution centres was seen as a key challenge in most studies. Even when health centre coverage was reasonably adequate, local sensitisation and routine screening could be enhanced.

Implications for research

- The poor quality and lack of monitoring and evaluation data are problematic. This lesson was observed in all impact evaluations. In Sudan, for example, better monitoring and evaluation training and support to implementing partners could ensure better availability and integrity of collected data. In Niger, initial investments in baseline data collection did not lead to optimal monitoring and evaluation due to poor design and follow-up. These activities could be aligned with the collection of panel data to follow up on all households, including those in the baseline data. Linkages and data cross-sharing were found to be lacking in the Niger study, where many agencies were collecting data in parallel for similar indicators.
- Humanitarian agencies should consider developing protocols for sharing data among agencies and studies with the view of maximising available data sets and minimising duplication of effort in mutually exclusive studies on the same subject. This can inform development of longitudinal data to support more in-depth analyses and assessments.
- A key challenge was the lack of cost-effectiveness analysis in the impact evaluations. This could be improved through better programme cost data collection and segregation for various components, which can also improve programme implementation in real time.
- A high level of uncertainty in humanitarian contexts should be considered when designing impact evaluations. This includes the importance of designing the sampling frame and ensuring that studies are adequately powered in the statistical analyses to account for sudden onset of emergencies.



About this brief

This brief is based on *Synthesis of impact evaluations of the World Food Programme's nutrition interventions in humanitarian settings in the Sahel*, 3ie Working Paper 31, by Tara Kaul, Safiya Husain, Tony Tyrell and Marie Gaarder. The synthesis paper is part of 3ie's Humanitarian Assistance Evidence Programme that is supporting seven rigorous impact evaluations in Chad, Democratic Republic of Congo, Mali, Niger, Pakistan, Sudan and Uganda. These impact evaluations examine important questions related to effectiveness, ethics, gender-responsive equity, targeting, sustainability and efficiency across various sectors, including nutrition and food security; multi-sectoral humanitarian programming; and water, sanitation and hygiene.



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