



Psychosocial stimulation for children suffering from severe acute malnutrition in Koutiala, Mali. Contextual adaptation and assessment of the feasibility and acceptability of an intervention. 2022-2023. Phase 2: Participatory adaptation phase

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List of abbreviations

ACF	Action Contre la Faim
CSCOM	Community Health Centre
FUSAM	Follow-Up of Severe Acute Malnourished children
GSAN	Nutrition Activity Support Groups
IEC	Information Education and Communication
SAM	Severe acute malnutrition
MSF	Médecins sans Frontières - Doctors Without Borders
PDSEC	Economic, social and cultural development plan
PAR	Participatory Action Research
StimNut	Psychosocial stimulation for nutrition

Summary

The StimNut participatory action research (PAR) aimed to adapt the FUSAM (Follow-Up of Severe Acute Malnourished children) intervention, a psychosocial stimulation protocol for children with severe acute malnutrition (SAM) initially developed by Action contre la faim (ACF) as part of a randomised controlled trial in Nepal. This adaptation was carried out using a PAR approach engaging stakeholders involved in the management of SAM in young children in Koutiala, Mali. PAR is a collective, self-reflexive research method that enables research activities to be initiated, designed, conducted, analysed and acted upon. It is a collaborative process that leverages the strengths, expertise, skills and resources of all participants, including the researchers' theoretical knowledge, to drive concrete action, change or improvement in the research subject. The objective of the StimNut study was to develop an intervention that was feasible, relevant and culturally appropriate.

The PAR process consisted of a series of seven workshops conducted between October and December 2022, involving both face-to-face and online participants. These workshops were independently moderated by our partner AMEDD, and documented by Epicentre. Participants, all of whom provided written informed consent, were organized into three distinct committees. The Advisory committee, comprising six representatives from administrative, political and health authorities as well as non-governmental organisations, including MSF, ensured the political and institutional support of the StimNut project. The Extended committee included around forty participants, including local authorities and decision-makers, technical services representatives, health project managers, health staff involved in SAM child care (including MSF staff working in the selected CSCOMs/hospitals), adult primary caregivers of SAM children, key informants from the community, and study co-investigators. Finally, the Select committee bringing together 12 representatives from all stakeholders, nominated by their peers from the Extended committee, along with five study co-investigators.

The process began with two workshops - one with the Advisory committee and the other with the Extended committee - to present and discuss the StimNut study and the FUSAM Nepal experience. These sessions aimed to share the results of the exploratory phase and to introduce the objectives, principles, and challenges of the PAR approach. The research team proposed to set up a Select committee from the Extended committee with a smaller number of participants for its implementation, which was accepted. The adaptation of the FUSAM manual was then carried out by the Select committee over the course of four workshops. The first two workshops focused on organizing the PAR process for the adaptation, covering all aspects and modalities related to planning activities, defining actions to be undertaken, reflecting on those actions, and evaluating them collaboratively. Members of the Select committee were invited to reflect critically on

current perceptions, representations and management practices of SAM and encouraged to make practical recommendations on how FUSAM should be adapted. The final two workshops focused on the actual adaptation of the FUSAM protocol, session by session. The process was rooted in the principles and practices of scientific research and made use of a variety of exercises and activities derived from learning techniques, and practised individually, in sub-groups and collectively. The committee members were also invited to submit an anonymous written evaluation of the organisation, process and results of the PAR. The recommendations for adapting the FUSAM manual were presented to the Advisory and Extended committees at the last workshop for review, revision and validation. During this workshop, the implementation needs and requirements of the adapted protocol were discussed to ensure stakeholder commitment and ownership of the intervention.

Overall, the StimNut PAR successfully achieved its objectives. Members of the Select committee identified a number of structural challenges affecting access to and availability of healthcare services, as well as socio-cultural challenges related to the family and social context of mothers - the main principal caretakers in this community. These challenges included, in particular their heavy workload, limited decision-making power over their child's health, and the lack of involvement of fathers. Nevertheless, committee members also recognized existing opportunities that could facilitate the implementation of the adapted psychosocial intervention, noting its alignment with national guidelines and its potential to address certain gaps in service delivery. In addition, the intervention was consistent with current childcare and nutrition practices and could complement existing community nutrition-related activities. The committee's recommendations therefore aimed to capitalise on these elements, address the barriers and propose adaptations that met three essential criteria: they had to be rooted in the psychosocial field, be considered important/relevant in terms of public health and remain easy to implement, realistic, feasible and acceptable.

Apart from a few suggested elements, such as incorporating local customs and ancestral childcare traditions, no major changes were recommended to the content of the sessions. However, several proposals were made to create favourable family, social, health and institutional conditions for the successful implementation of the intervention. These included adopting a community-based approach to raise awareness among members of the community, particularly heads of family and other household decision-makers, to support and assist mothers or principal caretakers; strengthening health facilities by providing trained human resources, dedicated space and necessary equipment; offering the intervention free of charge in both group and individual formats within these facilities; and integrating it into existing care for SAM children to facilitate referrals. During the presentation of the adapted intervention to the Extended committee, these

recommendations were discussed, revised and validated, with priority elements for their implementation being clearly defined. All the participants pledged to support and promote the intervention and expressed their wish for its rapid scaling-up in the district at the end of phase 3, provided the results were conclusive. Finally, the organisation, process and results of the PAR were evaluated positively by the vast majority of participants, particularly in terms of moderation, individual participation, collaboration between members, feedback and achievement of objectives. The PCR process for adapting the FUSAM manual was therefore deemed a success, facilitating the intervention's acceptance by participants, the MSF project and the health authorities.

1 Introduction

To implement the StimNut study in the MSF-supported nutrition programme in Koutiala (Mali), a participatory action research (PAR) approach was used to adapt the FUSAM (Follow-Up of Severe Acute Malnourished children) manual, originally developed by Action Contre la Faim (ACF). This manual outlines a psychosocial intervention designed to enhance the care of children with severe acute malnutrition (SAM). Its objective is to improve their nutritional status, survival, growth and development, while also strengthening the caregiving and mental health practices of the person providing it. The goal of the PAR approach was to adapt this intervention to ensure its relevance and cultural appropriateness within the Koutiala context. This was achieved by actively involving stakeholders engaged in or affected by the management of SAM in young children throughout the research process. Their knowledge, perspectives and expectations were integrated to enrich and refine the intervention. This report provides a comprehensive overview of the organisation, key stages and results of the adaptation process, as well as an evaluation of the process by the participants.

PAR is defined as a collective, self-reflexive approach that encompasses a set of principles and practices for initiating, designing, conducting, analysing and acting on research activities. It is collaborative, drawing on the strengths, expertise, skills and resources of all participants, ideally on an equal basis. It emphasises the local relevance (cultural and contextual) of the health issue or problem, and perspectives that take account of the multiple determinants of health. Finally, it is intended to lead to concrete action, a change or improvement of the issue and/or practical knowledge being researched. [1,2]. PAR is intended to equip those working in the field with the means to improve their practices through their knowledge and experience and the theoretical knowledge of researchers [3]. In the health field, it is commonly used for needs assessment and for planning and evaluating health services and interventions [4-12]. For all these reasons, the PAR approach was deemed relevant to the adaptation of the FUSAM manual. By guiding its

implementation, it aimed to strengthen stakeholder ownership and satisfaction, ensure the fidelity of the intervention during its application, and improve its results.

2 General organisation of the StimNut PAR

The PAR STIMUT approach was designed as a series of workshops organised by the research team, bringing together face-to-face and online participants grouped in Advisory, Extended and Select committees. The Advisory committee brought together local decision-makers and was intended to monitor the study project and support the political and institutional backing for the StimNut project. In addition to the decision-makers, the Extended committee was made up of other project stakeholders, including actors and beneficiaries. The Select committee comprised members of the extended committee who had been nominated by their peers to form a representative sub-committee, but with a limited number of participants.

The adaptation of the FUSAM manual was carried out by the Select committee, and the results were then presented to the Advisory and Extended committees for review and validation. Table 1 describes the organisation of these workshops and the objectives they achieved.

All the necessary resources (space, time, means, practical support) to conduct the PAR in an acceptable and favourable manner for the participants were made available by the MSF project. The organisers made every effort to take into account the constraints, responsibilities and workload of those involved, to offer a suitable meeting place with refreshments, and as far as possible, at convenient times, as well as reimbursement of transport costs.

3 Participants

Workshop participants were identified from among organisational and individual stakeholders following discussions with members of the MSF project in Koutiala, representatives of the Ministry of Health, and local partners. The participants were selected on the basis of their roles, responsibilities, skills, knowledge, expertise, experience and/or interest in the management of SAM, with a concern for gender parity, and included:

- a. The political, administrative and health authorities of the Koutiala district and surrounding rural communities, for their support and contributions to the implementation of the study.
- b. Healthcare workers, including nurses, doctors, therapists, traditional healers and community outreach workers, the future implementers or promoters of the intervention, whose roles, knowledge, values and perspectives on patients' needs affect their experiences and practices in caring for children with SAM.
- c. Principal caretakers of SAM children, who, as beneficiaries, are directly affected by the intervention. It was therefore essential to take their needs, suggestions and preferences into account.
- d. Nutritional programme managers and staff responsible for nutritional support and mental healthcare (i.e. MSF, World Vision and other local organisations) with expertise in the operational imperatives and programmatic aspects (resources and organisation) of implementing StimNut.
- e. Community members with a position or social status (e.g. village chiefs, religious leaders, media representatives) influencing opinions, and who, as key informants, have in-depth knowledge of community practices, norms and values.
- f. Representatives and focal points from technical departments and governing services (e.g. fisheries, agriculture) with an interest in nutrition and mental health.
- g. Study researchers and investigators (unit managers, project and study coordinators, mental health referents, psychologists and epidemiologists from MSF, Epicentre, ACF, AMEDD) with in-depth knowledge of the intervention and the issues involved in setting it up in the MSF project in Koutiala, and with scientific research skills.

The Advisory committee included representatives from the Koutiala prefecture and council, the health district, the Malian research community and two non-governmental organisations, including MSF, working in the field of malnutrition. The Extended committee was made up of political, health and administrative authorities, health personnel involved in the care and management of SAM children, members of technical services and departments, principal caretakers of SAM children, health project managers, key informants from the community, and the co-investigators of the study. The Select committee was formed from the extended committee and included nominated representatives from each of the above categories, as well as all the researchers from the co-investigator group. All participants provided written informed consent before taking part in the workshops.

Table 1 Organisation of the StimNut PAR

Participants	Participants	Date	Objectives achieved
Advisory Committee (7 participants)	Representatives of the prefecture and council of Koutiala, the health district, the Malian research community, and two non-governmental organisations, including MSF, involved in malnutrition.	18/10/2022	<ul style="list-style-type: none"> • Demonstrate the benefits of the StimNut study • Define the role of the committee and its functions • Facilitate the buy-in of key stakeholders towards the intervention
Extended Committee (36 participants)	Political, health and administrative authorities, health personnel involved in the care and management of SAM children, members of technical services and governing departments, principal caretakers of SAM children, health project managers, key informants from the community, and co-investigators of the study.	26/10/2022	<ul style="list-style-type: none"> • Present the StimNut study • Present the results of the exploratory phase (Phase 1) • Explain the PAR approach • Set up the Select committee
Select Committee (12 participants)	Nominated representatives of the entities and groups on the extended committee (12) with members of the research team (5)	2/11/2022	<ul style="list-style-type: none"> • Understand the principles and criteria for PAR • Establish the rationale for PAR, determine and/or confirm its objectives, principles and expected results • Establish a collaborative approach <ul style="list-style-type: none"> ○ The organisation and processes of PAR ○ The role and responsibilities of Select Committee members
		14/11/2022	<ul style="list-style-type: none"> • Review and discuss the activities of the 1st workshop • Finalise the organisation and planning of PAR work for StimNut <ul style="list-style-type: none"> ○ Practical details ○ A provisional diary • Present and discuss the FUSAM protocol
		21/11/2022	<ul style="list-style-type: none"> • Review and discuss the activities of the 2nd workshop • Present and discuss the StimNut phase 1 results • Work on the sessions in the FUSAM manual (Sessions 1 to 3)
		09/12/2022	<ul style="list-style-type: none"> • Review and discuss the activities of the 3rd workshop • Work on the sessions in the FUSAM manual (Sessions 4 and 5) • Synthesise and review the propositions for the full adaptation of the FUSAM manual • Prepare the presentation of the PAR StimNut work to the Extended committee
Extended Committee (40 participants)	Political, health and administrative authorities, health personnel involved in the care and management of SAM children, members of technical services and governing departments, principal caretakers of SAM children, health project managers, key informants from the community, and co-investigators of the study.	14/12/2022	<ul style="list-style-type: none"> • Present the work process and recommendations for adapting the FUSAM manual to the Extended committee. • Present the considerations arising from the training of psychosocial agents • Reflect on the implications of recommendations and considerations • Discuss the commitment of participants in their professional capacity/ status in the community to support StimNut

4 Workshop schedule

The workshops brought together both face-to-face and online participants which included members of the research team, the scientific committee and MSF head office staff.

4.1 Workshop with the Advisory Committee

Beforehand, Advisory committee members received an "Information Note" summarising the rationale, objectives, methodology, stages, expected results and provisional timetable for the study. The workshop focused on the presentation of the StimNut study and the role and functions of the committee, followed by a discussion to obtain feedback from participants and plan the implementation of the study. The workshop succeeded in demonstrating that psychosocial stimulation was an innovative initiative that could be integrated into the management of SAM in order to reduce the long- and short-term complications of malnutrition in children, have a positive impact on their rehabilitation and encourage positive parenting. The committee members' political and institutional support of StimNut was obtained, and a focal point was designated to participate in the next stages of the process. In addition, the institutional and political levers that could facilitate the adaptation and feasibility of the project were identified and mobilised.

4.2 Workshops with the Extended committee

The first workshop with the Extended committee provided an opportunity to review the scope and challenges of malnutrition in Koutiala, justify the integration of a psychosocial stimulation intervention into nutritional care, and introduce the StimNut study and the PAR process to the participants. Through subsequent discussions, the objectives and methods of the study were further clarified, allowing participants to explore the relevance, potential challenges and possible approaches for implementing the intervention. Additionally, results of the exploratory phase (phase 1) were also presented. Members of the Extended committee all expressed their support for the intervention, and emphasized the importance of addressing malnutrition within their communities. They also expressed their appreciation of the PAR approach, recognizing it as an opportunity for various stakeholders to be involved in a tangible, meaningful and substantial way. At the end of the workshop, representatives were appointed to form the Select committee.

The second workshop marked the conclusion of the phase 2 of the StimNut study. It consisted of several presentations, including an overview of the Select committee's work process, its key findings and recommendations for adapting FUSAM intervention to the Koutiala context. Additionally, the results of the Select Committee members' evaluation of the PAR organisation, process, and results were presented. Members of the Extended

committee were also provided with a presentation on the experiences of the psychosocial agents responsible for implementing the intervention and their recommendations for adapting the various sessions. Participants were then invited to ask clarifying questions and share their observations and suggestions for improvement. Following these discussions, the adapted manual was reviewed and validated by the entire Extended committee. The workshop concluded with a group exercise aimed at encouraging committee members to take ownership of the intervention and formulate their support and commitment to the StimNut intervention within their respective professional role, responsibilities, and community positions. The three groups, representing health workers, decision-makers and general community members, presented the results of their discussions. Finally, the next steps were outlined in detail, focusing on the dissemination of study results within the community and the scaling up of the intervention.

4.3 Workshops with the Select Committee

The Select committee workshops enabled the FUSAM manual and its five sessions (communication and play; breastfeeding and feeding practices; massage; bathing; sleep and relaxation; family sharing) to be effectively adapted to the Koutiala context. These workshops consisted of planning, action, reflection, and evaluation activities which characterize the PAR process [13]. The process followed an iterative and cyclical pattern, and remained rooted in the principles and practices of scientific research, with the use and critical examination of existing data and evidence, and the implementation of quality control methods such as member checking. A variety of exercises and activities derived from learning techniques and practised individually, in sub-groups or collectively were also included. Although planned in advance, the workshop agenda remained flexible in order to adapt to group dynamics and to respond to requests for clarification and more in-depth exchanges. All the workshops were recorded and documented in writing to ensure the rigour and transparency of the process.

A total of four workshops were held, lasting between 4 and 6 hours, including breaks. The first two, were preparatory, and focused on planning the activities around key questions (see Appendix 1), adapted from a practical PAR guide [13]. After a reminder of the concept and principles of PAR, discussions were held to reach agreement on the work to be carried out, its objectives and usefulness, the resources and information required, the procedures and key stages of the work, the actions to be implemented, the potential results, and the format for reporting them. These were accompanied by various exercises designed to encourage interactions and rapport building between the committee members. The processes and procedures for conducting the PAR, including decision-making processes and the fair management of divergent opinions, were designed collectively and aimed at promoting participation and the involvement of all participants

equally. Rules of engagement and communication were formulated by the participants to encourage a positive group dynamic, such as mutual recognition of each person's experience, expertise and skills, consideration of all points of view, and respect for the right of expression. Lastly, some practical aspects were addressed, such as the roles and responsibilities of the Select committee members, the identification of moderators and rapporteurs. Organisational aspects were also clarified, including the duration, frequency, and location of the workshops. A written document on the ethics of scientific research and the responsibilities and obligations of committee members was shared and its study was strongly encouraged.

The implementation of the activities, in particular the review and adaptation of the sessions of the manual, took place during the 3rd and 4th workshops. The adaptation of the FUSAM manual was carried out gradually, with a general introduction, then an in-depth review of each of the five sessions aimed at their contextual adaptation, and finally the validation of the conclusions in plenary sessions. Several documents were used by the members during the process, including the FUSAM manual, district statistics and the national protocol for the management of malnutrition. At the final workshop, a summary of these adaptations was drawn up in preparation for its presentation to the Extended committee, after which the members were invited to respond to an anonymous written evaluation of the PAR activities, processes, and results.

5 Workshop results

5.1 Challenges in addressing SAM in Koutiala

According to the committee members and results from phase 1, the factors contributing to SAM in Koutiala were either structural, affecting access to and availability of health services, or socio-cultural, deeply rooted in the family and social context of mothers of SAM children, their main principal caretakers in the community. In terms of access to healthcare, the main challenges were : insecurity of goods and people, distance from healthcare facilities, the inadequacy of healthcare facilities in terms of space and layout, and the lack of financial incentives for healthcare staff, impacting motivation and service quality. With regard to the socio-cultural context of SAM, the main factors affecting principal caretakers of SAM children were : food insecurity, illiteracy and lack of awareness about malnutrition, neglect, limited availability of time due to excessive workload, the presence of other health conditions (co-morbidities) in children , mothers' lack of autonomy and decision-making power, and the absence of support and involvement from male partners in child care. They stated that it was essential to address these factors, as best as possible, to support the prevention and timely management of SAM.

5.2 Facilitators and barriers to the implementation of the StimNut intervention in Koutiala

The Select committee members agreed that the adaptation of the FUSAM manual should also capitalise on the levers already in place to address the obstacles to its implementation. A summary of these discussions is shown in Table 2. Overall, the StimNut intervention was considered in line with national guidelines, since psychosocial management is mentioned in the national protocol for the management of malnutrition; however, its curriculum had not been developed and its application for SAM management had not been standardised. The members recognized that the implementation of StimNut required not only the commitment of nutrition management staff, but also the recruitment and training of psychosocial agents, as well as the availability of dedicated spaces and equipment, such as toys, for its activities. Participants suggested that the intervention could also be promoted through the community activities of existing Nutrition Activity Support Groups (GSAN), but that they needed to be revitalised by decision-makers. In addition to relaxation and communication, participants felt that the intervention was also consistent with childcare practices in the community, where exclusive breastfeeding is common. Nevertheless, although suitable foods were available locally, they noted that the diet of weaned children was often inadequate and not diversified. Lastly, despite the presence of extensive family networks with many relatives who could help mothers with childcare, the participants noted that mothers often had little support, even more rarely from their partners, and were overworked. They asserted that mothers had little to no decision-making power over the healthcare practices for their SAM children. In addition, available information, education and communication (IEC) resources on nutrition-related topics did not sufficiently raise awareness of malnutrition, and did not target the concomitant involvement of both parents.

Table 2 Facilitators and barriers to the implementation of a psychosocial intervention in Koutiala

Strengths/what works	Challenges/what's missing
<ul style="list-style-type: none"> ○ Existing psychosocial component in the national protocol for the management of malnutrition 	<ul style="list-style-type: none"> ○ Psychosocial intervention is not detailed nor developed in the national protocol, and applications are not integrated nor standardised
<ul style="list-style-type: none"> ○ Nutrition management staff are part of the health system 	<ul style="list-style-type: none"> ○ No human resources (psychosocial agents) trained in psychosocial stimulation
<ul style="list-style-type: none"> ○ Existing healthcare structures 	<ul style="list-style-type: none"> ○ No dedicated space or equipment (toys) for activities
<ul style="list-style-type: none"> ○ GSAN trained in community-based approach to preventing malnutrition 	<ul style="list-style-type: none"> ○ Willingness and commitment of decision-makers to revitalise GSANs
<ul style="list-style-type: none"> ○ Routine childcare practices (feeding, bathing and massage, play) 	<ul style="list-style-type: none"> ○ Relaxation and games/communication not included in existing protocols
<ul style="list-style-type: none"> ○ Exclusive breastfeeding and recommended weaning food available 	<ul style="list-style-type: none"> ○ Inadequate and non-diversified feeding practices for weaned children
<ul style="list-style-type: none"> ○ Extended family network (concession) with opportunities to involve relatives 	<ul style="list-style-type: none"> ○ Too much work for mothers and no decision-making power
<ul style="list-style-type: none"> ○ Existing availability and provision of IEC materials on nutrition-related themes 	<ul style="list-style-type: none"> ○ Community not aware of malnutrition, in particular the need to communicate and guide both parents

5.3 Recommendations for adapting the FUSAM manual

The stated aim of the members of the Select committee was to develop a psychosocial care intervention for SAM children that would be appropriate, relevant, and feasible in Koutiala, taking into account its context, socio-cultural conditions and local reality. The members also agreed that the recommendations for adaptation should be:

- a) Rooted in the psychosocial field;
- b) Important/relevant in terms of public health;
- c) Easy to implement, realistic, feasible and acceptable.

A PowerPoint presentation presenting the main recommendations was developed with the support of members of the research team, and two members of the Select committee were nominated to present it to the Extended committee. The specific adaptation recommendations for each session of the FUSAM manual are summarised in Table 3. **Overall, the committee members did not propose any major changes to the content of the sessions, but mainly highlighted elements to be added or enhanced**, such as the use of local customs (respectful greetings and consideration of family totems) and ancestral childcare traditions, while recommending that it was important to reinforce good practices and to allow sufficient time during the sessions for dialogue and exchange. In addition, the Select committee members advised for particular attention to concerns that could have a negative effect on the well-being of the mother/caretaker and/or her child (for example, a child's co-morbidity or the need for family planning), even if they did not fall within the psychosocial realm, and that referrals be proposed.

Table 3 StimNut PAR recommendations for adapting the FUSAM manual, by session

FUSAM Sessions	Participants	Specific recommendations
1. Family welcome	Mothers/principal caretakers + Family member (recommended)	<ul style="list-style-type: none"> • Use of formulas of respect and consideration of family totems • Use active listening to assess knowledge, share ideas for the child's future, understand fears and expectations • Explain the objectives and benefits of psychosocial stimulation and nutritional management for child rehabilitation • Present and explain the activities, schedule appointments.
2. Communication and Games	Mothers/principal caretakers	<ul style="list-style-type: none"> • Explain that play stimulates and awakens children's awareness • Include physical games and traditional practices, stories/tales, songs, touch, dance • Show how to find/make games with everyday objects available at home or locally.
3. Nutrition and breastfeeding	Mothers/principal caretakers	<ul style="list-style-type: none"> • Tackle prejudices about foods that are considered "taboo" for children and raising awareness about balanced nutrition • Explain that you need to take the time to feed your child (dedicated time) • Advise on breastfeeding and nutrition, and refer to the nutrition management staff if more information/support is needed.
4. Relaxation and sleep	Mothers/principal caretakers	<ul style="list-style-type: none"> • Listen to their lived experience, praise good practice, avoid making mothers feel guilty • Explain how to recognise signs of sleep or tiredness in the child and how to select an appropriate place to sleep and adopt a comfortable position • Suggest breastfeeding during/for relaxation, use of gestures and caresses during feeds to soothe the child, or an object to entertain the child • Evoke and encourage ancestral practices for child relaxation • Encourage monitoring the child while he is asleep, avoiding disturbing him and paying more attention to him • Recommend bath and massage when necessary, but take into account the climate (cold season), with recommendations for a minimum number of baths.
5. Family Sharing	Mothers/principal caretakers + Family members (Recommended)	<ul style="list-style-type: none"> • Gather perceptions and suggestions on the different sessions, as well as lessons learnt and difficulties encountered, and self-assessment on changes in practices and behaviour • Give priority to sharing lessons learned with the family, giving advice on how to avoid harmful practices, raising awareness and making the family more responsible • Give advice to avoid relapses, reminding mothers/caretakers and family members of the causes of malnutrition and the importance of early consultations • Suggest ways of showcasing the skills acquired and putting lessons into practice with peers • Confirm the availability of psychosocial support at the health centre to provide advice and listen to concerns that could have a negative effect on the mother's and/or her child's well-being, for referral purposes .

These recommendations were formulated with a view to helping the mother/caregiver create and/or strengthen the bond with their child. They were therefore aimed not only at adapting the individual sessions in the FUSAM manual, but also at creating favourable family, social, health and institutional conditions. In particular, these recommendations were intended to address the barriers to the implementation of the intervention that had previously been identified, notably the overwork and lack of support for mothers/principal caretakers, the distance to the place of care, and the inadequacies of the healthcare system and structures.

Firstly, the committee members insisted that the intervention should be introduced and accompanied by a community approach, such as a launch ceremony, in order to raise awareness and involve community leaders, fathers/heads of concession and other family decision-makers whose support for the mother/ principal caretaker was essential for the intervention to be adopted.

As far as the sessions were concerned, in order to limit the barriers associated with distance and the need for mothers/principal caretakers to travel to the health centres, it was important that they were planned around scheduled medical consultations. These sessions could be conducted collectively or individually, depending on the workload of the psychosocial agents in charge of setting up the intervention and the condition and progress of the child and the mothers/principal caretakers. For example, individual sessions could be more beneficial for mothers/principal caretakers experiencing difficulties, whereas group sessions, with a recommended maximum of 10 people per session, would have the advantage of encouraging co-learning and experience sharing, and optimising the mobilisation of limited human resources. It is also important to adapt facilities to create safe, appropriate spaces that guaranteed confidentiality, and to equip them with games, toys and floor mats.

Finally, the members of the Select committee emphasized the importance of integrating the StimNut approach into existing SAM management practices to facilitate referrals to specialized services, particularly to nutrition management staff. They highlighted the need for advocacy efforts targeting decision-makers and health system authorities to support the scaling up of the intervention and its incorporating into the package of interventions against child malnutrition. This should include the recruitment, training and remuneration of psychosocial agents, ensuring the provision of free services, as well as exploring opportunities for community-based implementation of the intervention. For example, by revitalising and developing the Nutrition Activity Support Groups (GSANs), who are already integrated within the child healthcare system, by equipping them to conduct home visits and follow-up to help sustain StimNut activities in the long term. Finally, they stressed the importance of considering the self-sufficiency of children and their families as a core component of this approach.

Other comments and suggestions:

The committee members also recommended:

- to summarise the recommendations in the local language (Bambara) in order to disseminate the results of the study, which would allow community leaders to better understand and convey the information and ensure stronger appropriation and ownership.
- to involve other NGOs in the field of nutrition to encourage the scale-up of the intervention, and to define the criteria for choosing the implementation site (i.e., attendance rate for cases of malnutrition, accessibility, safety).
- to raise awareness of other childhood pathologies and referral systems for child healthcare services and family planning.

5.4 Stakeholder needs for the implementation of the StimNut intervention

When the results were presented to the Extended committee, the main stakeholders (community, healthcare staff, decision-makers) worked in sub-groups to summarise the priority elements to be put in place for its implementation.

- The community members mentioned awareness-raising and information activities on the study and the importance of intervention for the recovery and development of SAM children, the revision of representations and perceptions of malnutrition, the destigmatising of mothers/principal caretakers of SAM children and the reduction of their workload, the involvement of heads of family/fathers in the care of SAM children, and the timely declaration of children's birth dates.
- The health workers called for the health system's capacities to be strengthened, including the availability of qualified human resources and financial motivation, the provision of suitable locales and equipment for setting up the study, and the consolidation of collaboration with the nutrition services. In particular, the MSF project could raise awareness among its patients about child malnutrition and communicate about the intervention.
- Finally, the decision-makers, authorities and technical departments expressed their clear willingness to support the implementation of the study and to monitor and evaluate it.

The decision-makers and local authorities have also committed to ensuring the sustainability of the intervention once the study has been completed, by guaranteeing and implementing an implementation budget for free care, recruiting, training and motivating staff, enhancing the value of the GSANs, conducting awareness campaigns and integrating the StimNut intervention into the health protocol, economic, social and cultural development plans (PDSEC) and school curricula.

6 Evaluation of the PAR process

At the start of each session, the members of the Select committee shared their feelings on their participation, collaboration, relations with the other members and their well-being during the previous session. Overall, the feedback was positive, improving with each session. In addition, at the last workshop of the Select committee, the 17 members of the committee (including the 5 members of the research team) were asked to anonymously evaluate in writing their degree of satisfaction with the organisation, the process and the results obtained from the PAR (Appendix 2).

In terms of general organisation, approximately 90% of participants rated the venue, frequency, duration, moderation and speakers at the PAR as satisfactory or very satisfactory, despite a few comments about the lack of punctuality on the part of some participants, the limited duration of the sessions, and problems with the unstable internet connection.

"The StimNut PAR was well organised, with effective participation, respect for and sharing of ideas, and motivated moderators" Member of the Select Committee

However, some members of the research team, the majority of whom took part online, regretted not having been able to follow and take part in the discussions more effectively because of the limited connectivity.

"Even if the hybrid mode was effective, it does not replace the richness of [face-to-face] interactions for this type of exercise..." Member of the committee

More than 90% of the participants were satisfied or very satisfied with the collaborative work, the participation of all, the collaboration between committee members, the documents and data provided, the activities, the feedback and the documentation of the PAR process.

"The process was excellent thanks to everyone's participation and, above all, the sharing of experiences and relaxation (games, songs, funny stories)". Member of the Select Committee

"Nothing was demanded, all ideas were taken into account ... it was participative" Member of the Select Committee

"The documents were available to us and the work was interesting, everyone took part" Member of the Select Committee

The participants reported that they particularly appreciated the "impeccable" support and moderation of the sessions, the discussions and exchanges without constraints, the limited number of participants, the collaborative work and reflections, and the feedback as the activities progressed.

"The working process was interesting. Everyone was as involved as they wanted to be. There was also a sense of conviviality, of being part of a family during the process"
Member of the Select Committee

"The collaboration has always been fluid, with equal participation from all groups and at all times during the study". Member of the Select Committee

Nevertheless, the translation of the discussions into Bambara was considered insufficient, and some of the terms used during the discussions, particularly medical terms, were considered too technical by some members of the committee.

"The team was not homogeneous (medical and non-medical people), so [there was the] use of terms that sometimes didn't make it easy to understand." Member of the Select Committee

In addition, some participants revealed that it was difficult for them to understand the differences between psychosocial activities and nutrition activities, particularly in the session "Feeding and breastfeeding" and to distinguish between activities that were part of the intervention and those that were not.

However, all the participants (100%) said they were satisfied or very satisfied with the objectives achieved, the quality of the results, the way the evidence, existing data, experience and knowledge of the participants and the realities of Koutiala were taken into account.

"I'm really pleased with the FUSAM adaptation exercise, which will help to improve my experience, because I learnt a lot during these sessions, and I'd like to thank the whole team." Member of the Select Committee

The participants emphasised that involving the community through a PAR process had helped to generate interest in the intervention, and that taking into account the priorities and experiences of parents, principal caretakers, managers, decision-makers and researchers had made it possible to devise effective propositions, address the obstacles to the implementation of StimNut, encourage the acceptance and ownership of the intervention, contribute to the improvement of the care of SAM children, monitoring them and reducing cases of severe malnutrition, while supporting the well-being of their principal caretaker.

"I think the success of StimNut is strongly linked to PAR because participants have taken ownership of the intervention through this." Member of the Select Committee

7 Conclusions

The StimNut PAR was a successful approach to adapting the FUSAM intervention for children with SAM to the local reality of Koutiala, Mali. Through a series of collaborative workshops, stakeholder participants actively worked together to design a practical, culturally appropriate and relevant intervention. The process facilitated the identification of structural and socio-cultural challenges affecting the care of children suffering from SAM, while highlighting existing levers for the implementation of an adapted psychosocial intervention. The recommendations emphasised the relevance of the intervention, its alignment with national guidelines, and the need for community awareness-raising and capacity-building in health facilities. These recommendations were validated by the participants, who all committed to support the rapid scaling-up of the intervention in the district, stressing the importance of coherent integration with existing care practices.

By leveraging the strengths and expertise of all stakeholders, the PAR approach successfully addressed the structural and socio-cultural challenges associated with the management of SAM. The success of the StimNut PAR highlights the importance of fostering community involvement from the intervention development phase and throughout the process to ensure cultural appropriateness and local ownership within a public health context. Involving stakeholders at every stage not only provided a deeper understanding of local needs but also helped to strengthen collaboration between the various actors. The commitment and enthusiasm demonstrated by participants in supporting the intervention served as key indicator of its success. Overall, the StimNut PAR demonstrated its effectiveness in fostering ownership, and encouraging the use of innovative health interventions to combat child malnutrition in Mali, while highlighting the importance of capitalising on local strengths and resources to ensure the intervention sustainability and long-term impact.

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Appendix 1: Key questions addressed during the StimNut PAR

Planning	Action	Reflection	Evaluation
<ul style="list-style-type: none"> • What is the task/work to be done? • Why do this work? What is its value and usefulness? • What actions are needed to carry out this task/work effectively? • What are the key tasks or stages? • What other sources of information or research are needed? • What result should be achieved? • How can we ensure that observations, current thinking, plans, actions and results are documented? • How will the result of the work be presented or delivered? • Who will be affected by this research? • Who needs to be involved? • Who will do what, when? • Who will moderate/lead the activities? • Who/how will the activities be supervised/supported? • When/how to think about and reflect on processes and actions? 	<ul style="list-style-type: none"> • How can we work together and get everyone involved? • How to develop/strengthen skills? • How do I obtain the necessary information/data? • How can other potential stakeholders be involved/associated if they have been identified? • How can research be implemented? • How do you collect data? • How do you analyse data collaboratively? • How can we work together to draw conclusions and implications and find common ground? • How can we work together to plan future actions and impacts? • What strategies/support can be used to ensure that discussions, ideas and decisions are documented and maintained throughout the process? • How can research results be presented and disseminated? 	<ul style="list-style-type: none"> • What are the work/collective activities like? • How do you evaluate work relationships and processes? • Do participation and collaboration work? Why do they work? • How is the research question/task approached? How can we proceed differently? • What was the collaboration like in terms of activity design, data collection, analysis, results and conclusions? • What are the potential risks of research? • What are the potential benefits of research and how can they be maximised? • How do you manage differing opinions and ensure that disagreements are resolved? • How can a consensus be reached? • How can privacy and confidentiality (where applicable) of shared and documented information be ensured? • How can we ensure the integrity, ethics, transparency, responsibility and accountability of research? 	<ul style="list-style-type: none"> • What are the results of the process/research? What is the evidence? • Is there an answer to the research question/has the task been completed? If so, how? If not, why not? • What worked? Why did it work? What is obvious? • What didn't work? Why didn't it work? What's obvious? • What can be understood better or differently? What is obvious? • To what extent has the process enabled real participation? • Do you need any other advice or feedback? • What was particularly difficult to achieve or understand? • Do the results and conclusions (documentation) take account of all parts of the process and the lessons learned? • What should be incorporated into current practice? • What new questions have been raised by the results of this survey? What is the evidence?

Adapted from: Pain, R., Whitman, G. and Milledge, D. (2019) Participatory Action Research Toolkit: An Introduction to Using PAR as an Approach to Learning, Research and Action. Practice Guide. Durham University.

Appendix 2: STIMUT Participatory Action Research (PAR) evaluation form for the Select Committee

Please tick if or the answer of your choice and add your comments in the spaces provided.

Organisation and work processes:	
1.	How satisfied are you with the overall organisation of the PAR STIMNUT workshops?
	<ul style="list-style-type: none"> • Location <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Frequency and duration <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Course <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Moderation <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Speakers <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	Comments on the organisation of PAR STIMNUT:
2.	How satisfied are you with the PAR process?
	<ul style="list-style-type: none"> • Working together and relationships between participants <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Collaboration between participants <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Participation by all <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	Comments on the PAR STIMNUT work process:
3.	How satisfied are you with the conduct of PAR work?
	<ul style="list-style-type: none"> • Documents and data available <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Group and sub-group activities and discussions <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	<ul style="list-style-type: none"> • Feedback and documentation of activities and reflections <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer
	Comments on the conduct of PAR STIMNUT work:
4.	What do you think worked well?
5.	What do you think went wrong?

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Results of the work:	
6.	<p>How satisfied are you with the results of the PAR work in terms of:</p> <ul style="list-style-type: none"> • Achieving work objectives <input type="checkbox"/>Very satisfied <input type="checkbox"/>Somewhat satisfied <input type="checkbox"/>Not very satisfied <input type="checkbox"/>Not at all satisfied <input type="checkbox"/>Prefer not to answer • Quality of the results obtained <input type="checkbox"/>Very satisfied <input type="checkbox"/>Somewhat satisfied <input type="checkbox"/>Not very satisfied <input type="checkbox"/>Not at all satisfied <input type="checkbox"/>Prefer not to answer • Taking account of existing evidence and data <input type="checkbox"/>Very satisfied <input type="checkbox"/>Somewhat satisfied <input type="checkbox"/>Not very satisfied <input type="checkbox"/>Not at all satisfied <input type="checkbox"/>Prefer not to answer • Taking into account everyone's experience and knowledge <input type="checkbox"/>Very satisfied <input type="checkbox"/>Somewhat satisfied <input type="checkbox"/>Not very satisfied <input type="checkbox"/>Not at all satisfied <input type="checkbox"/>Prefer not to answer • Taking account of the realities of Koutiala <input type="checkbox"/>Very satisfied <input type="checkbox"/>Somewhat satisfied <input type="checkbox"/>Not very satisfied <input type="checkbox"/>Not at all satisfied <input type="checkbox"/>Prefer not to answer <p>Comments on the results of the PAR STIMNUT work:</p>
7.	<p>In your opinion, to what extent has PAR STIMNUT's work complied with the principles of ethics and transparency?</p> <input type="checkbox"/> Very satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Not very satisfied <input type="checkbox"/> Not at all satisfied <input type="checkbox"/> Prefer not to answer <p>Comments on the inclusion of the principles of ethics and transparency in the STIMNUT PAR:</p>
8.	<p>In your opinion, what was the most difficult thing to understand?</p>
9.	<p>In your opinion, what was the most difficult thing to achieve?</p>
10.	<p>Additional comments on PAR STIMNUT:</p>



Epicentre

14-34 av Jean Jaurès, 75019 Paris, France
Association loi 1901

+33(0)1 40 21 55 55

epimail@epicentre.msf.org
www.epicentre.msf.org