RESEARCH ARTICLE

Optimal design for a psychosocial intervention on severely acute malnourished children in humanitarian settings: results of an expert survey [version 1; peer review: awaiting peer review]

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Abstract

Background: Common psychosocial interventions focus on feeding, stimulation, emotional responsiveness and childcare and parenting. Inclusion of such a component in the outpatient management of severe acute malnutrition (SAM) children is recommended. However, clinical assessment of such interventions is tedious in humanitarian settings and modalities evidence on the impact of psychosocial interventions alongside nutrition protocol for SAM is scarce. This survey aimed to gather expert opinions on the optimal design of a combined psychosocial and nutrition intervention feasible in humanitarian settings.

Methods: From March to May 2018, an online survey was emailed to international experts in nutrition and mental health and psychosocial support, mainly from academia and international non-governmental organisations (INGOs). It included multiple choice questions on the key components of an optimal combined intervention.

Results: Of the 76 experts targeted, 20 responded. 11 (55%) belonged to INGOs, 2 (10%) to academia, and 4 (20%) to international organizations and donors. For most respondents, a combined intervention should be provided in weekly 45-minutes counselling sessions, provided individually (rather than in a group) and at home (rather than at a health center). None of the proposed ideal duration (two, four or six months) gained the majority of votes. Experts thought that 35% staff training should be in "Active listening for psychosocial support", and 30% in "Early child development", 25% in "Maternal depression" and 9% in "Anthropometric measurements". They estimated that a combined intervention could improve SAM recovery rate by 10% (min-max: 0-19%) vs. the nutritional protocol alone. Qualitative results highlighted the importance of tailoring the intervention to the individual, the population and the settings; as well as considering feasibility and scalability at the design stage.

Conclusion: These findings could guide further research on the impact of psychosocial interventions on SAM children's health and development, and help designing innovative approaches to treat undernutrition.

Keywords

Expert survey, severe acute malnutrition, psychosocial intervention, children

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Introduction

Since child undernutrition is a major public health concern worldwide, the community management of acute malnutrition (CMAM) approach^{1–3} has constantly evolved to improve prevention and treatment of severe acute malnutrition (SAM) children treated in outpatient clinics and followed up by community health workers. While health information systems exist, robust evidence on the effectiveness of the CMAM approach in terms of children's recovery, death and defaulter rates, coverage and quality of services, are sparse.⁴ Most of the reviews on SAM treatment effectiveness indicate the need for more high-quality research to improve the performance of such approaches across contexts.^{5–7}

Since 1999, the World Health Organization (WHO) has been recommending that, when feasible, the in-patient management of SAM children should include a psychosocial component.⁸ This recommendation was reinforced in 2013 by Ruel *et al* who suggested that a combined intervention could be cost-saving and enhance benefits on both nutrition and development outcomes.⁹ Since early childhood is being recognized as a critical time for growth, appropriate psychosocial interventions during this window of opportunity are highly relevant wherever counselling in early child development (ECD), hygiene promotion, breastfeeding and appropriate feeding practices could be embedded with health and nutrition objectives. However, a systematic review found that only two non-randomized control trials have formally tested the effectiveness of approach in SAM children development, and only one, implemented in a hospital Nutritional Rehabilitation Unit, included nutrition outcomes.¹⁰

Indeed, several challenges are foreseen. First, implementation of the out-patient nutrition protocols has resulted in less contact time between the patient and the health care staff. This poses the question of the modality and duration of the psychosocial interventions. Secondly, the available psychosocial support is likely to be implemented in the health centers without additional staff or equipment, by staff without any additional training, which represent feasibility and economic obstacles. Thirdly, research shows that the psychosocial component might improve nutrition treatment programs but applicability of those interventions at a large scale even further precludes buy-in of stakeholders.

In order to facilitate the implementation of psychosocial interventions in areas with limited resources, this study aims to collect expert opinions and recommendations, from both nutrition and psychosocial fields, on the optimal modalities for designing a combined psychosocial intervention among SAM children in humanitarian settings.

Methods

An online expert consultation was conducted. We selected experts from the authors' contact lists with known expertise in the fields of mental health and psychosocial support (MHPSS), and nutrition working in academia, non-governmental organizations (NGOs), United Nations (UN) organizations, the World Bank, the Organisation for Economic Co-operation and Development (OECD), institutional donors, and foundations. We created a questionnaire on the modalities to tailor an intervention targeting children aged 6-23 months who had received a standard outpatient SAM treatment in humanitarian settings. It included 14 multiple answer questions in English on the characteristics of an optimal psychosocial intervention implemented within a SAM treatment program: frequency, duration and modalities of the counselling sessions, and component of the psychosocial workers training prior to implementation. Most multiple choices answers could be completed by comments and the last question encouraged open commentary and information sharing on the subject of the enquiry. The survey questions can be found in [Table 1](#) and the *Underlying Data*. The questionnaire was e-mailed in March 2018 and once again (without any changes compared to its first launch) April 2018 and closed on May 2018 after several weeks without new responses.

The online survey software SurveyMonkey® (SurveyMonkey, Palo Alto, Calif., USA) was used for the questionnaire, the data collection and the quantitative analysis. Qualitative responses of the participants were de-identified and reported in their integrity without alteration and complete raw data of the participant responses can be found in the *Underlying Data*.¹¹ A thematic content analysis was performed on the qualitative data provided by the open-ended comments, using word recurrence, and key-words-in-contexts techniques to identify and extrapolate themes and concepts. The textual analysis was also enriched by the analysis of technical and practical references cited by the authors. Due to the nature of the questions, it was considered that researchers characteristics (women researchers working in an NGO) were unlikely to influence the results. Nevertheless, researchers engaged in reflexivity notably by reporting raw qualitative responses without editing them. Triangulation was ensured by targeting participants with different backgrounds, fields of work, and institutions. Furthermore, the integration of the theoretical and practical references of the respondents was also an element of triangulation. Standards for Reporting Qualitative Research¹² was followed to report our results.

Ethics approval and consent to participate

Since we followed the reference methodology for the processing of personal data in the context of research not involving the individual, for studies and evaluations in the field of health [MR 0004](#) defined by the French National Commission on

Table 1. Quantitative results of the expert survey.

Questions	Number of responses (overall %)
What is your initial background?	
Nutrition	8 (40%)
Public health	3 (15%)
Psychosocial/Mental health	6 (30%)
Other	3 (15%)
In which field are you currently working?	
Nutrition & Health	13 (65%)
Psychosocial/Mental health	6 (30%)
Other	1 (5%)
What is the type of your current organization?	
Academia	2 (10%)
NGO	11 (55%)
UN bodies, World Bank, OECD	2 (10%)
Institutional donors, Foundations	2 (10%)
Other	3 (15%)
What should be the adequate duration of the psychosocial intervention in order to have a significant impact on the child recovery rate?	
2 months	2 (10%)
4 months	5 (25%)
6 months	3 (15%)
No opinion	1 (5%)
Other	9 (45%)
In order for the impact to be significant on recovery, how often do you think those psychosocial counseling sessions should take place as part of the SAM treatment?	
Weekly	9 (45%)
Bimonthly	6 (30%)
Monthly	0 (0%)
No opinion	0 (0%)
Other	5 (25%)
What would be the appropriate duration of each psychosocial sessions to observe a significant impact on the recovery rate?	
<15 min	0 (0%)
15-30 min	5 (25%)
45 min	10 (50%)
No opinion	0 (0%)
Other	5 (25%)
Do you think that this psychosocial intervention would be more effective if provided rather in group than individually (only mother + baby)?	
Yes	3 (19%)
No	8 (50%)
No opinion	5 (31%)
Do you think this psychosocial intervention would be more effective in the child's home compared to the health center?	
Yes	8 (44%)
No	4 (22%)
No opinion	6 (33%)

Table 1. *Continued*

Questions	Number of responses (overall %)	
For a successful implementation of the intervention, what proportion of the psychosocial worker training should be dedicated to (several possible answers to sum to 100%):		
	Number of responses	Average number
Taking anthropometric measurements?	19	9%
The development of the child from 0 to 6 years?	19	30%
Maternal depression?	19	25%
Active listening for psychosocial support?	19	35%
Based on unpublished data from ACF programs, the recovery rate of SAM (defined as Z-score weight-for-height ≥ 2 and/or MUAC ≥ 125 mm) of standard outpatient nutrition treatment (OTP), without intercurrent hospital care, is around 60%. According to you, what would be the expected recovery rate of combining a standard SAM treatment (nutrition) with an optimal psychosocial intervention (psychosocial) as described above (expressed in %)?		
	Number of responses	Average number
Expected recovery rate of a Nutrition + Psychosocial intervention in %	18	70%
Min value of the expected recovery rate in %	16	55%
Max value of the expected recovery rate in %	16	79%

SAM: severe acute malnutrition; ACF: action contre la faim; MUAC: mid upper arm circumference; OTP: out-patient therapeutic feeding programs; mm: millimetre.

Informatics and Liberty, no ethical approval was needed. Procedures were carried out in accordance with [the decree 2017-884: Article 2 du code de la santé publique R.1121-1.-I3°](#): “For the purposes of this title, research involving the human person is not research having a purpose of public interest research, study or evaluation in the field of health carried out exclusively from the exploitation of treatment of personal data mentioned in I of article 54 of the amended law n° 78-17 of 6 January 1978 relating to data processing, files and freedoms and which fall under the competence of the expert committee for research, studies and evaluations provided for in 2° of II of the same article.” (Translation by the authors.)

As it was an online-administered survey, participants were contacted via email, which included a brief summary of the project, contact details of the researchers implementing the survey for any future enquires and the link to the online questionnaire. The email included a statement that participants' responses would only be used for research purpose. According to the European Data Protection Regulation (DPR), the consent of the person whose data is stored in a file is not required when the data is collected for a legitimate interest as stated in the General Data Protection Regulation, May 23, 2018, CHAPTER II - Principles, Article 6 - Legality of treatment. Following the European DPR, it was considered that respondents were consenting by completing the survey and a separate form was not necessary. The name of the respondent was not collected as part of the survey, but the respondent could state their name if they wanted to be mentioned in the acknowledgment section of the publication relating the result of the survey.

Results

Quantitative results

Results of the expert consultation can be found in [Table 1](#). Among the 76 international experts targeted, 20 responded to the online questionnaire that was available between March 2nd and May 26th (response rate = 26.3%). The background of respondents was nutrition (40%), public health (15%) and MHPSS (30%). They worked either in nutrition (65%) or MHPSS (30%) fields. 10% belonged to an academia, 55% to NGOs and 20% to various bodies (UN, World Bank and OECD, institutional donors, foundations).

Most respondents believed that the counselling sessions should be taking place weekly, with a 45 minutes duration, provided individually rather than in a group and at the children's home rather than at the outpatient nutrition treatment (OTP). None of the proposed ideal durations (two, four or six months) appeared more favourable. Indeed, 45% respondent chose the 'Other' option and the 'four months' option came second with 25%. The respondents thought that 35% of the time spent for the training of the health care workers should focus on 'Active listening for psychosocial support', 30% on 'The development of the child from 0 to 6 years', 25% on 'Maternal depression' and 9% on 'How to take anthropometric measurements'.

The respondents estimated that SAM recovery would be improved by 10% with a psychosocial intervention in order to attain a child recovery rate of 70% (min: 55 % max: 79%), considering SAM definition as Z-score weight-for-height ≥ -2 and/or middle upper arm circumference ≥ 125 mm, within a standard outpatient nutrition treatment, without any hospital visits.

Qualitative results

Among the 20 respondents, 15 gave qualitative statements to justify or complete their answers and commented the overall enquiry (see the *Underlying Data*).

Importance of tailoring the intervention

On question 4 on the intensity duration of the intervention, longer treatment period above the maximum 6 months proposed by the authors were also recommended with a maximum at 18 months. For question 4, 5 and 6, 11 respondents stated that the design of the intervention should depend on the context. It was stated multiple times that the intervention should be tailored to the individual, the child's age, his/her culture, his/her diagnosis, nutritional status, his/her caregiver, the population and the settings.

Respondent 5 on question 4, 5 and 6: *'Depend on the culture, people, primary vulnerabilities, the patient and his/her path as some of them need time to unfold themselves.'*

No consensus on one-fits-all solution on the modalities of the intervention

Across question 5, 6 and 7, three respondents stated that the intervention modalities should not necessarily be fixed throughout the protocol. One respondent proposed that session be longer at first and then shorter, occurring weekly and then less frequently.

Regarding question 7 on the delivery of the intervention in group rather than with the mother and baby only, respondents mentioned feasibility, scalability and cost-effectiveness in favour of group session, while the need for privacy, the mental state of the mother and the capacity of the health care worker to facilitate a group intervention were cited as potential reasons for individual sessions. However, three respondents proposed a combination of individual and group intervention.

Regarding question 8 on the location of the psychosocial intervention, respondents heavily mentioned the home environment and atmosphere, the risk of inhibitions and the opportunity for the mother to have a safe space as important factors to decide for or against providing the intervention at home.

Two experts proposed that the intervention starts at the OTP, while other recommended to follow the will of the mother and to adapt to family context to have the best results.

Respondent 20 on question 8 commented: *'Individual sessions may be delivered at home or at the health centre. Mothers are more comfortable in home; however, in extended families, they feel inhibited.'*

Challenges

The open qualitative comments on question 11 mainly addressed potential challenges related to the field implementation of the psychosocial intervention or its impact assessment.

Respondent 1 on question 11 emphasized that *'The psychosocial intervention will do more than just offering a development component, it will provide a contact moment between the caregiver and project/health system. A clean evaluation of the value of this component would mean that a comparison group gets the same frequency of visits without the specific psychosocial intervention. Rather than assessing the impact of psychosocial interventions on recovery rate, it is important to assess the impact it has on development in the SAM subgroup. The potential impact is expected to be much larger than in a general child population.'*

The experts highlighted the necessity to arbitrate between the desire to have a comprehensive and effective psychosocial care and the feasibility constraints of humanitarian settings. The needs for the psychosocial intervention to be extensive, tailored, intensive and managed by highly trained staff were balanced with more pragmatic considerations that suggest shorter sessions at the OTP, for a period matching that of the nutrition protocol, in order to ensure feasibility, cost-effectiveness, and scalability of the proposed combined intervention.

One respondent mentioned the risk of performance bias when comparing the two approaches. Four respondents discussed the difficulty to select an outcome that would best summarise the impact of the combined intervention on child health. They suggested that child growth, SAM relapse rate, ECD and neurodevelopment outcomes could also, or even better, encompass the impact of a combined psychosocial and nutrition intervention.

Respondent 16 on question 11: *'I think the plus value of a psycho-social intervention in SAM would more be on middle or long term (i.e. after the recovery, on child development, child health, etc.).'*

On respondent proposed to add a training component on how to help caregivers stimulate their children through massage, play, talk, reading, telling stories, etc., and mentioned education of WASH as a topic that could also be included. The other resources cited by experts for designing an optimal combined intervention included looking at the implementation science literature in the ECD field for recommendations on intensity of exposure to psychosocial activities, the use of WHO validated tools for mental health and development and the elaboration of an 'intervention guidance' building of existing resources for non-MHPSS staff like nutrition field workers.

Discussion

Through this expert consultation, the proposed model of a combined nutrition and psychosocial intervention that could be implemented in emergency settings includes a 45-minute weekly psychosocial session, delivered individually rather than in a group and at the child's home or a combination of both.

No consensus on optimal duration of the overall intervention has emerged from the survey as it was mainly believed to be dependent of the individual and its context. For further considerations, our results should be put in regards with WHO recommendations of 15–30 minutes of psychosocial stimulation per day for inpatient SAM children¹³ where close and direct access to the children could enable session of this duration. As shown in few other studies, the feasibility of delivery of those interventions remains a challenge^{10,14} and this confirms the qualitative responses from our expert's panel that also emphasized the need for optimal design features to be balanced with pragmatic considerations of SAM treatment.

Regarding the trainings of health practitioners, the respondents recommended training in topics related to child development and active listening in order to perform this intervention optimally. The need to address capacity building and retention strategies in view of the current global shortage of skilled health workers has been recently highlighted as one of the top-ranked research questions in the ECD field.¹⁵ Indeed, high staff turnover and low level of qualification in psychosocial skills are common examples of the implementation challenges that could hamper the integration into the nutritional treatment of malnourished children.¹⁶ However, an introduction to child development could be proposed for various nutrition and health professionals and community health workers who would, among other benefits, facilitate the integration of psychosocial approach to the SAM outpatient treatment.^{15,17}

This intervention, if optimally implemented, was thought by the expert panel to improve recovery rate by 10% compared to the nutrition treatment alone, but assessing the impact of a combined intervention and notably on the outcome that would best capture this impact remains a challenge. However, providing further evidence on this requires multidisciplinary teams and designing experimental studies sufficiently powered to detect an impact on each outcome deemed relevant.

In addition, the experts that we surveyed highlighted the need to tailor it to the context and its target population, which would allow building a tailored intervention with improved effectiveness, quality and sustainability.¹⁸ Indeed, understanding complex contextual factors and pathways happening in a given situation is crucial before implementation of new actions or modification of current ones.¹⁹ An extensive formative evaluation or a pilot phase involving relevant nutrition and MHPSS actors to assess current resources, barriers and capacities as well as the intervention acceptability by both staff and beneficiaries might be a way to: 1) ensure cultural and contextual sensitivity of the intervention modalities via qualitative assessments, 2) propose a combined intervention that really meets the target population's needs and 3) identify, overcome or adapt to field constraints.²⁰

We found that the expert responses highlight the importance of feasibility considerations. It includes practicality regarding resources, time, and commitment. Budget needed to implement a psychosocial intervention varies according to the setting, the availability of local resources, the amount of staff training required. Budget impact analysis needs to be performed in the context of scaling up. This represents significant short-term expenses which might be difficult in low resources settings, but efforts in ECD are known to turn great societal benefits in the long term.²¹ Time and commitment are also required from the key actors of the program (including health personnel, community health workers, district health authorities, traditional leaders, families and others).

Environmental factors such as seasonal aspects and long distance to reach the households might prevent patients to receive a proper intervention. Moreover, family decision making process and social representations might hinder the capacities of the caregivers to access and benefit from this intervention. Therefore, the cultural adaptation, level of appropriateness, gender sensitivity considerations known to be crucial to intervention acceptability and sustainability need to be considered in the elaboration of the design.¹⁷

We believe that integration is necessary for scaling up psychosocial intervention. It refers to the level of system change needed in a system to integrate a new intervention into an existing infrastructure.²² Both the nutrition and MHPSS sectors develop scaling up strategies like WHO Mental Health Gap Action Programme²³ aims at scaling up services for mental disorders for countries especially with low- and middle-income economies. Any additional intervention that could benefit to the child's health and maximize cost-effectiveness of SAM treatment is of consideration, and more research is needed to draw lessons learned in terms of implementation and efficiency. Joint discussions and actions, among representatives of international agencies, research institutes and donors in the both nutrition and MHPSS sectors would facilitate integration and investment. Indeed, several findings show that engagement of all stakeholders (community representatives, policy makers, nutrition and MHPSS local experts and other implicated staff) is a determinant step at an earlier stage of the intervention testing and help with research uptake.^{24,25}

Our study has several limitations. Firstly, our questionnaire was in English language only, sent via e-mail to the author's contacts. Consequently, our results might not be representative of all experts on this subject, which limits their generalizability. Secondly, the proposed combined intervention model was not tested. Furthermore, its acceptability by field workers and beneficiaries was not addressed by the present study. However, information gathered are relevant for future research and humanitarian programmes.

Cost-effectiveness and efficiency of an optimal combined intervention should then be assessed to provide decision-making support. Indeed, economic evaluations before issuing new or modified policies are required by donors, implementers and health decision makers.^{26,27} A psychosocial intervention effectively combined to nutrition treatment is unlikely to increase substantially structural costs (i.e. building and administrative costs). Main expenses would more likely consist in training, time allocation and equipment of the staff. Location of the intervention at the OTP or at the children's home will presumably have an impact on global intervention cost and scalability. Beneficiary transport and opportunity costs would be lesser if the intervention occurred at home, but logistics and staff time cost would increase. A balance should be found to ensure an optimized effectiveness with the lowest possible intervention and beneficiaries' costs. Once efficacy and cost-effectiveness evidence will be established, implementation studies will collect information on how to adapt those combined interventions to context and to make them sustainable in real-life conditions.²⁷ Then, a robust and real-time monitoring and evaluation system should be in place to track the changes due to the implementation and adaptations required for a successful integrated intervention. Indeed, this would enable to 1) effectively plan for staff training, and adequate psychosocial activities duration, and resources, and 2) document advocacy activities to ensure sustained funding. Only in this manner could a combined psychosocial and nutrition intervention be sustainably scalable.¹⁷

Conclusion

While most of the experts ranked this specific intervention as important, responses on how to implement it were not always consensual. This underlines again the need to have further debates with representatives of academia, NGOs and donors from both nutrition and MHPSS sectors. These results could guide further research on the impact of psychosocial interventions on SAM children's health and development, and help designing innovative approaches to treat undernutrition.

Data availability

Underlying data

OSF: Dieynaba N'Diaye, Cécile Salpéteur, Cécile Bizouerne, and Karine Le Roch. RawData_ExpertSurvey ParticipantResponse_Deidentified.xlsx (Version: 1). <http://doi.org/10.17605/OSF.IO/HA4T7>.¹¹

This project contains the following underlying data:

- Raw data of the responses of the twenty participants approached for our fourteen-question online survey on the optimal design for a psychosocial intervention on severely acute malnourished children in humanitarian settings.

Data are available under the terms of the [Creative Commons Zero "No rights reserved" data waiver](#) (CC0 1.0 Public domain dedication).

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