# Strengthening Psychosocial Stimulation in the Management of Children With Severe Acute Malnutrition: Experience From a Nutrition Rehabilitation Center

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Severe acute malnutrition (SAM) not only increases risk of mortality, but it also increases the risk of impaired motor, cognitive, and psychosocial development. Across the globe, 43% of all children younger than five years of age are at risk of not achieving their developmental potential. The World Health Organization management guidelines for SAM has included the integration of early childhood development (ECD) directed sensory and psychosocial stimulation and structured play therapy in the medico-nutritional care process. Despite this, management still largely focuses on nutrition rehabilitation, while these interventions take a backseat. Most countries are moving towards home-based management of uncomplicated SAM children. Hence, it is equally important to have a strong ECD component in the community-based management programs. Strengthening the support of sensory and psychosocial stimulation and structured play support in both facility and community-based care of SAM children will not only help them to survive, but also thrive and transform. With this background, we briefly describe the experiences of a pilot study aiming at strengthening of these interventions support in 10 nutritional rehabilitation centers across India.

**Keywords**: *Early childhood development, Play therapy, Sensory stimulation, Outcome*.

Undernutrition, which encompasses wasting and stunting, is a significant public health problem in India and many low- and middle-income countries (LMICs). Undernutrition is a critical determinant of mortality and morbidity in young children worldwide. It is associated with 45% of all deaths in children under five years of age [1-3]. The burden of undernutrition across the world is very high, and progress in reducing childhood stunting and wasting remains unacceptably slow. According to the 2020 Global Nutrition Report, 150.8 million children under-5 years are stunted, 50.5 million children U5 are wasted, and 20 million babies are born low birth weight, annually [4]. In India, the National Family Health Survey-4 (2015-2016) revealed that 7.5% (9.5 million) of children under-5 years had severe acute malnutrition (SAM), 21% were wasted and 38% were stunted [5].

Children suffering from undernutrition begin their life with a significant disadvantage. Besides the increased risk of morbidity and mortality, undernutrition leads to growth failure and irreversible changes in brain growth, leading to poor motor skills, social skills, and cognitive decline, that adversely affects their learning capacity in future [6]. An estimated 250 million (43%) children U5 in LMICs do not reach their developmental potential, largely due to poverty, chronic undernutrition, micronutrient deficiencies, and lack of early stimulation [7]. This vulnerable group if left untreated, enter late childhood and adolescence in a state of undernutrition, thereby affecting growth potential, schooling, unfavorable future employment opportunities, and subsequently, poor productivity outcomes [8,9]. The 2007 Lancet series on child development in LMICs reported that integrated programs that included combi-nations of health, nutrition, and psychosocial stimulation were successful in promoting early childhood development (ECD) in LMICs [10].

Apathy, lack of interest and poor interaction with the external environment, which are commonly seen in SAM, may result in compromised care and attention from their mothers and other caregivers. Since most of them belong to families from socio-economically disadvantaged strata, the situation may be further compounded by multiple adverse psychosocial factors like limited finances, stimulation-deprived home environments, and impaired health status of the mother.

## SENSORY STIMULATION AND STRUCTURED PLAY THERAPY DURING REHABILITATION

The benefits of nutritional rehabilitation are well known in improving the outcomes of children with SAM [11]. It has also been observed that emotional and physical stimulation

can substantially reduce the risk of permanent developmental retardation and emotional impairment in children with SAM [11], and the recovery is also faster [11]. Combined nutritional and stimulation programs that emphasize appropriate feeding practices as well as responsive parenting (e.g., proactive stimulation and appropriate responses) are more effective in promoting growth and development than either intervention alone [12]. Various studies have demonstrated that supplementing dietary rehabilitation with psychosocial stimulation reduces the adverse effects of undernutrition and improves developmental outcomes [13]. Sensory stimulation in addition to emotional support should begin in the stabilization phase whereas psychosocial stimulation (according to the level of child's development) should be introduced in the rehabilitation phase [11]. Structured play therapy is recommended for 15-30 minutes per day to enhance development and improve long term neuro-developmental outcomes [11]. This includes interactive play between the caregiver and child using indigenous, simple and inexpensive toys to help develop motor and language skills.

The purpose of this article is to share the experience of a pilot study that was jointly conducted by the National Centre of Excellence (NCOE) for management of SAM at Kalawati Saran Children's Hospital (KSCH), and the Ministry of Health and Family Welfare (MoHFW), to provide an understanding of the challenges associated with implementation of these interventions.

## STRENGTHENING PSYCHOSOCIAL SUPPORT IN NUTRITIONAL REHABILITATION CENTERS

The primary aim of the study was to determine the feasibility and challenges in implementation of sensory/psychosocial stimulation and structured play therapy along with standard care to children with SAM aged between 1 and 59 months, admitted in select nutritional rehabilitation centers (NRCs).

### Methodology

The study was conducted from February, 2019, to May, 2019 in the following phases:

*Preparation of intervention package*: An expert group was constituted to review existing guidelines, published literature and other resource materials on sensory/psychosocial stimulation and structured play therapy for children with SAM. This was followed by drafting guidelines for the NRCs, based on these. The MoHFW selected ten NRCs, one each from ten states/union territories (Bihar, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, New Delhi, Odisha, Rajasthan, and Uttar Pradesh). An expert group prepared an intervention package containing a training module, list of age-appropriate toys, developmental screening forms and other resource materials. The module provides an overview of normal child development, the process of screening for developmental delay in different developmental domains, and age-appropriate interventions encompassing sensory/psychosocial stimulation and structured play therapy. Snapshots of the normal developmental milestones and developmental age-appropriate activities to be carried out in a child with SAM are available at *http://coesamnetwork.org/UploadDocument/Document-2020-03-04-11-25-38.pdf*

*Training of staff* : Personnel from each NRC (pediatrician, medical officer, nutritionist, and staff nurse) underwent a one-day training course at our center. The operational guidelines and training module was revised based on the feedback from the participants and experts during the training. Each NRC team received the finalized training resources before commencement of the study. On returning to their respective NRCs, the trained personnel sensitized other members at the NRC regarding the interventions.

*Initial steps*: After the stabilization phase of standard SAM management, all the admitted children with SAM were screened for developmental delay by the trained NRC staff using the developmental milestone checklist. If any red flag signs were identified in a child, the NRC team linked the family with the nearest District Early Intervention Centre.

*Protocol for sensory stimulation and structured play therapy*: Age-appropriate therapy in the respective domains was provided through individual sessions (two sessions of 15 minutes each per day). Selection of age-appropriate activities was determined by the developmental status. If the child was unable to perform an activity, the preceding interventions were tried, until one that the child and parent could successfully be engaged in, was identified. If the child could perform an activity too easily, the next activity was selected. The mothers of admitted children were encouraged in conducting structured play therapy and sensory stimulation on a one-to-one basis, under supervision. Group play sessions were also conducted (twice daily for 30 minutes each), in which mothers were also taught how to prepare toys from easily available, inexpensive household material. While preparing for discharge, the mothers and family members were counselled how to show affection and be responsive to their children's cues, interact with them and play with home-made toys. They were also explained the importance of continued and adequate stimulation at home and were provided with the schedule for follow up visits.

*Supervision*: Each of the selected NRCs were visited by a NCOE team (comprising of a pediatrician and nutritionist) for supportive supervision and assessment of the compe-tency of the NRC staff in implementing age-appropriate intervention. This was done by crosschecking the application of their skills related to providing sensory/psychosocial

stimulation and structured play therapy to the admitted children.

*Assessment of feedback of NRC staff and families*: Nutritionist/Staff nurse from all 10 selected NRCs were interviewed regarding the challenges and barriers faced during execution of sensory/psychosocial stimulation and structured play therapy as per the proposed guidelines. The feedback of a few mothers was also taken.

## Preliminary Results

During the study period, 670 children with SAM were included across all 10 centres. The proportion of children with delay in various developmental domains was as follows; gross motor –30%, fine motor –24.9%, cognitive –23%, language (receptive) –24%, language (expressive) –21%, socio-emotional –25%, and self-help skills –20%.

Age-appropriate structured play therapy could be conducted as per the module in 9 NRCs. Some NRCs did not have adequate resources and space to allocate a separate room for execution of the age-appropriate activities. In one center, only group play therapy was practiced. It was observed that some nutritionists and nurses were not confident in development assessment and required support by the doctors. The feedback of the mothers who were interviewed revealed that they had observed a positive change in their children's development after the sensory/psychosocial stimulation and structured play activities and they were motivated to continue them at home (data not shown).

## LEARNING

The pilot study revealed that a high proportion of children with SAM had delay in motor and socio-emotional development. Nutritionists delivering care to children with SAM were able to provide psychosocial support and structured play therapy after training and ongoing hand holding. In some of the NRCs, sensory stimulation and structured play activities could not be implemented as per requirements due to budgetary constraints in procuring age-appropriate toys. A major limitation was inability to study the longitudinal progress in the participant's developmental milestones, extent of parental adherence to home-based stimulation, and the challenges encountered in sustaining these practices at home. Further studies will be needed to assess these as well as the short- and long-term impact on different developmental domains in children with SAM after discharge. Some unanswered issues that emerged from the study were the optimal timing of developmental assessment after admission, and whether frontline workers can effectively provide psychosocial support in community-based management. In the present study, only ten NRCs from ten states were involved. Given the wide diversity of NRCs across India in terms of multiple aspects; geographical locations, infrastructure, service provisions, performance etc., a more extensive participation from other states would have made the findings and experience more generalised.

There is enough evidence from other countries showing that interventions involving sensory stimulation and structured play therapy in children with SAM facilitates the development of skills in various domains; physical, social, emotional, cognitive/mental language, and self-help. Psychosocial stimulation integrated with medical management and nutritional rehabilitation of children hospitalized with SAM is found to be effective in improving children's growth and development. In a randomized controlled trial from Ethiopia on children admitted with SAM, the intervention group received play-based psychomotor/psychosocial stimulation besides medical care and nutritional rehabilitation during hospital stay and after discharge at home for 6 months [14]. Stimulation significantly improved the gross motor skills during the hospital stay, and the fine motor skills after discharge, during the home follow-up visits. Similar results have also been reported from studies conducted in Bangladesh [15]. Integrated nutritional rehabilitation and psychosocial stimulation is essential to optimize growth and development. There is a need to provide training to the existing staff posted at NRC in skills of developmental assessment and implementation of age-appropriate structured play therapy. These activities should also be included in community-based management and continued at home by caregivers. High-quality trials are needed to determine the impact of psychosocial stimulation on neurodevelopmental outcomes in children with SAM in the community and hospital settings. There is an unmet need to ascertain the right implementation model for improving

**Box I Learning From the Pilot Study on Psychosocial Stimulation in Severe Acute Malnutrition**

- A high proportion of children admitted to nutrition rehabilitation centers (NRC) have delay in motor and socio-emotional development.
- Sensory stimulation and structured play therapy is an integral part of management of children with severe acute malnutrition and its implementation is possible with training of NRC staff in development assessment and guidance about sensory stimulation and structured play therapy.
- Mothers and caregiver's involvement in the child's stimulation process is of utmost importance.
- Mothers feel confident when they are involved in play activities.
- Community awareness of the child's right to adequate nutrition, supportive nurturing environment and early learning opportunities should be increased.

motor, nutritional and developmental status of children with SAM. **Box I** details our learning from this pilot study.

*Note*: AD is a staff member of UNICEF. The author alone is responsible for the views expressed in this paper and they do not necessarily represent the decisions, policy or views of UNICEF.

*Contributors*: PK, AD: conceived the study; PS,SR: involved in the pilot and prepared first draft of manuscript; PK,AD: reviewed the draft manuscript and provided critical inputs. All authors approved the final version of manuscript, and are accountable for all aspects related to the study.
*Funding*: UNICEF India. *Competing interests*: None stated.

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