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Original Research Article

Caregivers' and stakeholders' perceptions on treatment intervention of nutritional rehabilitation centre in Eastern India: a qualitative study

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ABSTRACT

Background: Severe acute malnutrition (SAM) prevalence in India has increased over the last decade. SAM children are admitted to nutritional rehabilitation centres (NRCs) for medical complications. NRCs have successfully achieved weight gain among SAM children; however, long-term weight gain is difficult to maintain. This study aimed to explore caregivers' and stakeholders' perceptions of the treatment interventions offered at NRCs in Bhubaneswar.
Methods: The research used qualitative methods, where nine in-depth interviews (IDIs) were conducted using a semi-structured interview guide among mothers of SAM children and their stakeholders. Transcripts from the recorded IDIs were prepared in English. ATLAS.ti version 7 software was used for in-depth thematic analysis using an inductive approach to generate top codes, sub-themes, and major themes. The study was approved ethically with written informed consent from the participants.
Results: The study found three major themes: perceived improvement in their child's health, a sense of being welcomed and cared for, challenging and unfamiliarity, along with a reluctance to accept intervention. Caregivers reported improvements in children's health, including better adherence to daily routines, increased food intake, and notable weight gain. However, challenges included unfamiliarity with NRC environments, concerns about family care during their stay, and societal reluctance towards government health interventions. Stakeholders' perspectives focused on the quality and effectiveness of services and interventions, and systemic hindrances to service provision.
Conclusions: Our findings suggest that community-level challenges persist in delivering NRC services. Public health measures are needed to increase awareness in the community about the prevention and management of SAM children.

Keywords: Caregivers, Children, Mothers, Nutritional rehabilitation centre, Severe acute malnutrition

INTRODUCTION

Malnutrition is one of the major causes of morbidity and mortality among preschool children, especially in low and middle-income countries.[1] One of the forms of malnutrition is undernutrition, which can manifest as wasting, stunting, underweight, and micronutrient deficiencies. When there is severe wasting in an under-five child, the condition is known as severe acute malnutrition (SAM). WHO and UNICEF have defined the criteria for diagnosing SAM as the presence of weight for height <3SD, mid-upper arm circumference (MUAC) <11.5 cm, and the presence of bilateral pedal oedema in children aged 6 months to 5-year-olds. The global prevalence of SAM (severe acute malnutrition) was 2.1% in 2022.[2] The prevalence of SAM in India as per NFHS-3 (National Family Health Survey-3), NFHS-4, and NFHS-5, is 6.6%, 7.5%, and 7.7% respectively.[3] Children under

five years who are severely wasted (weight-for-height) are 6.1% in Odisha, while in Khordha it is 2.4%. The prevalence of undernutrition, i.e., stunting, wasting, and being underweight, among under-five children is 31%, 18.1%, and 29.7% respectively, in Odisha as per NFHS-5.[3]

The Government of India's initiatives to tackle SAM among children focus on a multi-faceted approach that includes community-based and facility-based interventions. These include the establishment of nutrition rehabilitation centres (NRCs), integrated child development services (ICDS), National Health Mission (NHM), Community-based Management of acute malnutrition, and Poshan Abhiyan.[4-7] SAM children who develop medical complications are managed at designated facilities known as the Nutritional Rehabilitation Centre (NRC).[8] The nation's first NRC was established at the Government district hospital in Guna, Madhya Pradesh, in 2005 under the National Rural Health Mission (NRHM).[9] And as of December 2023, 1,129 NRCs are operating across the country.[10] NRCs are located in district hospital campuses, and Community Health Centres can be a 20 or 10-bed ward with a kitchen, a feed demonstration space, attached toilets/bathrooms, a play area, and a kitchen garden. Services provided in NRC include medical treatment, nutritional support and counselling, psychosocial support, follow-up, and referrals. SAM children admitted to NRC continue their stay for 14-21 days. Attainment of 15% weight gain of the admission weight (WHO recommendation 2009) fulfils the criteria for discharge for children 6 to 60 months from NRC. However, the criteria for discharge from inpatient care depend on the child and the mother/caregiver factors as well. Four follow-ups of the children discharged from NRC are required at an interval of 15 days.[8]

It was seen that NRCs were successful in improving the weight of admitted SAM children, but it is not sufficient for sustained weight gain in post-discharge patients.[11-13] It has also been seen that mothers/caregivers lacked proper knowledge of nutrition and feeding practices.[11-13] A systematic review of follow-up of SAM children between 6 to 24 months after treatment shows that children were still vulnerable post-discharge from NRC, and follow-up studies on the same are lacking.[11] Studies on the evaluation of treatment interventions are mostly cross-sectional studies. These studies have seen outcomes of NRC intervention in terms of recovery rate; however, they found that defaulter rates ranged between 6.2% to 47.2% which is alarming.[13-17]

This study sought to investigate the factors influencing caregivers' decisions to either default or accept NRC interventions for children under five. Thus, the study aimed to explore the caregivers' and stakeholders' perceptions of treatment intervention at NRC for SAM children in Bhubaneswar, Odisha.

METHODS

The study was conducted between January and February 2024 in the Khordha district of Odisha, Eastern India (Figure 1). This qualitative research used phenomenology where the event was SAM among under-five children, warranting treatment intervention at an NRC in Bhubaneswar, Odisha. Participants were mothers of SAM children who had stayed at NRC with their child during their child's treatment (caregivers) and key informant individuals who were linked to providing service to SAM children who were treated at NRC (stakeholders). The Rashtriya Bal Suraksha Karyakram (RBSK) register was used to line list caregivers, and purposive sampling was done to include participants who were accessible, vocal, and willing to participate based on information given by ASHA of that village. For stakeholders' inclusion, participants who were key informant individuals from varied backgrounds who were involved in SAM management were selected.

Figure 1: Sishu Bhawan (NRC) in Bhubaneswar, Odisha.

The study was approved by the institute ethics committee of the institute before the commencement of data collection. All participants were informed regarding the nature of the study, and written informed consent was taken. All in-depth interviews (IDIs) were conducted by the first author, who received training for the same and had no association with NRC or the participants. Face-to-face IDIs were done in a quiet and secluded place, wherever possible, and a tape recorder was used to capture the data. A pre-designed semi-structured interview guide with probes was used to explore the caregivers' understanding of NRC, merits, demerits, difficulties, and challenges faced during their stay at NRC. Similar questions were asked to stakeholders, where we explored their understanding of NRC, merits, demerits, difficulties, and challenges faced while linking and providing service to a child at NRC. Each interview was in the native language of the participant (Odia), and the median duration of IDIs was 10 minutes 43 seconds, where the minimum duration was 4 minutes 14 seconds, and the maximum duration was 21 minutes 10 seconds. IDIs were halted once data saturation was achieved.

Data analysis involved familiarization with raw data, generating a coding framework, checking saturation, generating top codes, and identifying, reviewing, and organizing sub-themes and major themes. Taped interviews were transcribed from the native language to English by a native Odia translator. Transcript files were imported to ATLAS.ti version 7 software for in-depth thematic analysis using an inductive approach. Top-level codes were generated, further sub-themes were derived based on the similarity of top-level codes, and sub-themes were further categorized into major themes. Two authors of the research team were involved in generating top codes. Wherever there was disagreement over the categorization of themes and sub-themes, a consensus was reached after consultation with two senior authors.

RESULTS

Caregivers included five literate mothers aged 22 to 34 years. All were homemakers by profession. All mothers included had a SAM child under five years of age with complications and were admitted to an NRC within the preceding two years (Table 1). Stakeholders included individuals with varied professions who were linked in the chain of service provision for SAM children (Table 1).

Table 1: Sociodemographic characteristics of the participants included in in-depth interviews.

Participants	Age (years)/ gender	Education	Profession	Geographic location
Caregivers				
Mother	22/F	Secondary schooling	Homemaker	Tribal village
Mother	26/F	Primary schooling	Homemaker	Tribal village
Mother	24/F	Secondary schooling	Homemaker	Rural area
Mother	21/F	Primary schooling	Homemaker	Rural area
Mother	34/F	Primary schooling	Homemaker	Tribal village
Stakeholders				
Non-governmental organization (NGO) worker	36/F	Medical social worker (MSW)	Co-founder of an NGO	Urban area
RBSK team member	48/M	Bachelor of ayurvedic medicine and surgery (BAMS)	Ayush Medical Officer	Urban area
ICDS worker	42/F	Secondary schooling	Anganwadi worker	Tribal village
NRC staff	39/F	Diploma in dietetics and nutrition	NRC counsellor	Urban area

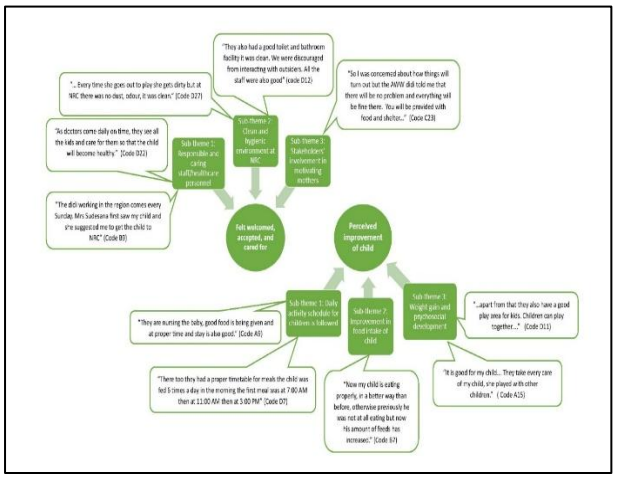

Figure 2: Quotes reflective of themes "felt welcomed, accepted and cared for" and "perceived improvement of child".

Four major themes emerged concerning the perspective of caregivers on treatment intervention of NRC, i.e., "felt welcomed, accepted, and cared for", "perceived improvement of child" (Figure 2), "Challenging and unfamiliarity," and "sociocultural reluctance to accept intervention" (Figure 3). For each of the major themes, distinct sub-themes were derived from top codes (Table 2).

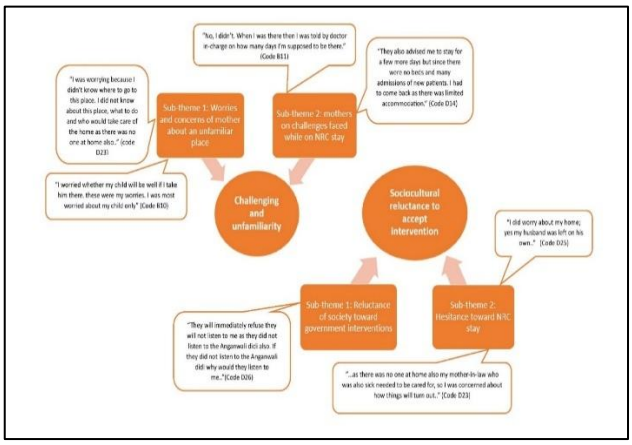

Figure 3: Quotes reflective of themes "Challenging and unfamiliarity" and "sociocultural reluctance to accept intervention".

Table 2: Emergence of codes, sub-themes, and major themes for caregivers' perspective of treatment intervention of NRC.

Top codes	Sub-themes	Major themes
Staffs were friendly/good	Responsible and caring staffs/healthcare personnel	Felt welcomed, accepted, and cared for
They used to care and nurse the child		
Doctors came routinely and timely		
The place was clean and good	Clean and hygienic environment at NRC	
Bathroom and toilet facility were clean		
It was better than home in cleanliness		
Suggested to take child to NRC by social worker/health worker	Stakeholders' involvement in motivating mothers	
Low weight was identified in AWC henceforth advised to take hospital		
Timetable for meals	Daily activity schedule for children is followed	Perceived improvement of child
A routine of daily activities		
Daily schedule is followed		
Children has a routine there		
Food intake increased there	Improvement in food intake of child	
Child started eating properly		
Child gained appetite		
He was a picky eater but now he's started eating		
Weight of child increased	Weight gain and psychosocial development of child	
Child was suffering but he gradually became better		
Child played with other children		
He started interacting more		
Didn't know anything about a new place like NRC	Worries and concerns of mother about an unfamiliar place	Challenging and unfamiliarity
Didn't know much about NRC therefore sceptical		
No one is there to take care of other members of family at home	mothers on challenges faced while on NRC stay	
Worries about who will feed the husband/elderly parents		
Leaving other children at home is difficult		
Unbelieving society	Reluctance of society toward government interventions	Sociocultural reluctance to accept intervention
Refuse to go to a new place		
Refusal to listen to healthcare workers in the village		
Concern whether the child will get well in this new place	Hesitance toward NRC stay	
Worried about household and other members at home		

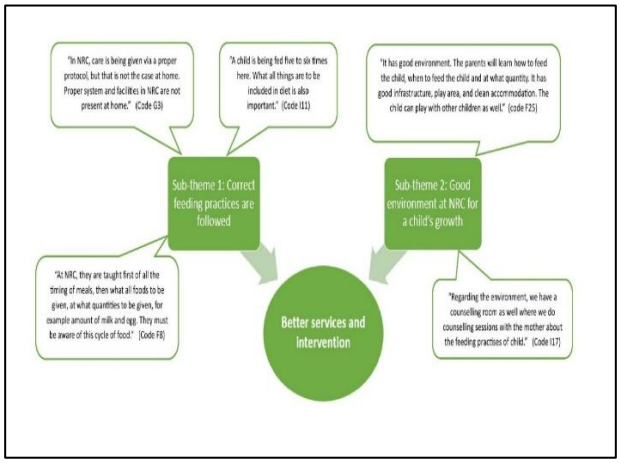

Figure 4: Quotes reflective of the theme "better services and intervention" and its sub-themes.

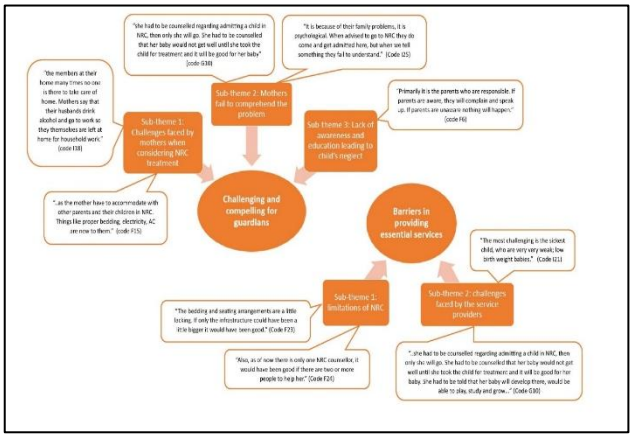

Figure 5: Quotes reflective of the theme "Challenging and compelling for guardians; guardians' neglect" and "barriers in providing essential services" and its sub-themes.

Table 3: Emergence of codes, sub-themes, and major themes for stakeholders' perspective of treatment intervention of NRC.

Top codes	Sub-themes	Major themes
Food diversity, quality, quantity, and gap between meals are taken care of at NRC	Correct feeding practices are followed	Better services and intervention
Outside food and formula feeds are discouraged		
Breastfeeding and home-based foods are encouraged		
Feeding timetable is maintained here		
Mothers counselled about correct feeding practices for child		
At NRC everything is available	Good environment at NRC for a child's growth	
Play area is there for children		
Staffs are sufficient and they work on shift basis		
Environment is very different from home		
No one to take care of other members at home	Challenges faced by mothers when considering NRC treatment	Challenging and compelling for guardians
Father's neglect toward the child		
Working mothers lose their wage		
Per day incentive is very low for stay in NRC compared to their daily wage		
When both parents are working, it is the most difficult situation		
Mothers fail to breastfeed appropriately and take the easy way out i.e., formula feeds	Mothers fail to comprehend the problem	
Mothers do not follow the advice even after repeated counselling		
Mothers fail to understand due to their psychosocial problems		
Guardians do not give importance to weight of the child	Lack of awareness and education leading to child's neglect	
Education of mother/parents is important		
Parents unaware of government services and it's utility		
Accommodation is less/lacking	Limitations of NRC	Barriers in providing essential services
Infrastructure could have been better		
More manpower is required there		
Managing the sickest child is a challenge	Challenges faced by the service providers	
Repeated parental counselling is required for admission of a child		
Follow-up is difficult		

Three major themes that emerged concerning stakeholders' perspectives of treatment interventions of NRC are "Better services and intervention" (Figure 4), "Challenging and compelling for guardians", and "Barriers in providing essential services" (Figure 5). Distinct sub-themes were derived from top codes for each of these major themes (Table 3).

DISCUSSION

This study attempted to understand the factors influencing caregivers' decisions to either default or accept NRC. Our findings present some of the key challenges faced by both caregivers and service providers while emphasising the importance of NRCs as a critical intervention for child malnutrition.

In contrast to our study, where there was reluctance toward government interventions, an exploratory study done in Mozambique found that mothers preferred district hospitals for malnutrition management of their children, and all mothers requested additional information on how to prevent and treat malnutrition.[18] Another study in Zimbabwe showed unsupportive leadership, human resource shortages, lack of comprehensive primary health care (PHC) rehabilitation guidelines, no or delayed rehabilitation referral, lack of clear communication strategies, and users' low demand for PHC rehabilitation were challenges.[19]

Similar to our findings, studies from Bangladesh depict reluctance of caregivers toward treatment regimen, their insufficient knowledge regarding proper feeding, caregivers' inattention, and unhygienic practices were some of the principal contextual barriers.[20,21] Arafat et al study in Bangladesh sought to shape future management strategies by understanding caregivers' and different stakeholders' perceptions of malnutrition among infants under six months on barriers/ facilitators to future CBC (Community-based care). Of the five major themes in their result, one theme that emerged was "*views and preferences on treatment: hospitals and doctors were perceived as offering the best treatment, health care*

workers were also important, and respondents highlighted the need for care of the caregiver/mother along with the infant," which corroborated our findings.[22]

Tandon et al study in Chhattisgarh examined the performance of NRCs and assessed the perception of mothers/carers and service providers found that 86% of beneficiaries were satisfied and 100% would recommend others as well to get help from NRCs. The themes identified were "*follow-up visit and follow-up card issuing, counselling to mothers, special diet preparation, delay in receipt of incentives, and training on diet preparation, maintenance of records, and timely submission of reports*" as key problems.[21] Similar findings emerged in our study where mothers felt accepted, welcomed, cared for, and perceived improvement in their child. Findings from Karnataka showed ground-level problems like social stigma, trust issues between caregivers and care-seekers, varying needs and priorities, and overburdened frontline workers create challenges in communication and effectiveness of services, which was also the case in our study.[23] In our study, there was sociocultural reluctance to accept intervention, which was also depicted in a study done in Jharkhand, where predominant traditional and cultural practices were followed for the health care and nutrition of children. Furthermore, lack of adequate social safety nets, limited livelihood opportunities, inadequate child care support and care, and seasonal male migration leave mothers and caregivers vulnerable and limit proper child care, similar to our study.[24] One of our sub-themes was that mothers' failure to comprehend the problem was similar to findings of Uttar Pradesh, where appropriate breastfeeding, complementary feeding, and food diversity were neither understood nor emphasized, and malnutrition was not recognised as a health hazard.[25]

Our study is likely to be one of the few qualitative studies where we assessed perceptions of mothers/caregivers in NRCs, as well as service providers from varied professions who were involved in linking the child to NRC. Our study also included IDIs of mothers with defaulter (based on mothers' recall history where they left the facility against medical advice, and in other cases, there was a lack of accommodation), SAM children, which added to our understanding of NRC service utilisation.

The study had certain limitations. Since we included only key informant stakeholders from Bhubaneswar, insights from other NRCs in the state were limited. The study involved mothers whose children had attended an NRC within the past two years, which may have introduced recall bias during some in-depth interviews. Furthermore, we were unable to include urban caregivers, as the sampling was based on the RBSK list of the RHTC within the institute's field practice area. This limits the generalizability of caregivers' perceptions to urban settings.

CONCLUSION

Our study highlighted that caregivers perceive NRC treatment as adequate for their child. However, they find it challenging and compelling to stay in a different environment. Our study points toward the challenges and hindrances faced by stakeholders in providing service. Hence, public health measures must be focused on caregiver education, family-inclusive approaches, and addressing sociocultural barriers to increase the acceptance and uptake of NRC services. While the current structure of facility-based management of SAM is suitable, system-level changes like flexible admission policies, infrastructural expansion involving satellite or temporary NRCs, and adopting context-specific management policies might help.

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