

Evaluation of Nutrition Rehabilitation Centre (NRC) in Combating Malnutrition in Lucknow, Uttar Pradesh

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Abstract

Background and aim: Mal nutrition is a life threatening health problem in the children as well as key public health and developmental challenge before the government, public health professionals and policy makers. Management of the severely malnourished children does not require sophisticated facilities and equipments or highly qualified personnel. It only requires that each children should be treated with proper care and affection and that each phase of treatment be carried out properly by the trained and dedicated health personnel. When this is done, the risk of children getting affected and died from malnutrition could be substantially reduced. Nutritional Rehabilitation Centres (NRCs) have been established under the National Health Mission to provide facility based management, care and treatment of children with severe acute malnutrition (SAM).

Material and Methods: A facility based cross sectional study was conducted at the Lucknow NRC to assess the effectiveness of facility based care for the children with SAM, factors responsible for the malnutrition, demographic profile of children and families, types of facilities provided and role of facility in addressing and combating the malnutrition to the admitted children. State level NRC data was collected, correlated and analysed with reference to the Lucknow based facility on various performance indicators.

Total of 53 children affected with SAM and Malnutrition who were admitted in the facility from 1st April 2021 to 31st March 2022 were included in the study. District data was collected from the facility and while the state data was collected from the ICDS department on a designed format and questionnaire.

Results: 43% children who were admitted in the facility were discharged with the target weight gain, 36% children were discharged with partial weight gain; 11% children were medically transferred and 10% families defaulted. 45% children admitted in the NRC were from the age group of 6 months to 2 years of age. Average length of stay of the children at the facility being 11 Day while Bed Occupancy Rate (BOR) was 17%. Majority of the referrals (45%) in the facility were through the Anganwadi Workers. The percentage of girl child admitted in the NRC was 58% (31) while of boys it was 42% (22).

Conclusions: Considering the fact that Bed occupancy rate for the children admitted at the NRC Lucknow was merely 17% as compared to 39% of the state and 57% children were discharged without adequate weight gain. Adequate measures should be taken to up to strengthen the follow ups and referrals from the community level and other public hospitals.

Key Words: Nutritional Rehabilitation Centres (NRC), Severe acute malnutrition(SAM), malnutrition children, National Family Health Survey (NFHS).

Introduction and Background

Malnutrition is among India's most serious development challenges which contributes significantly to the country's disease burden. Stunting and under nutrition continued to be the big challenges. The National Family Health Survey (NFHS-5) has revealed some more insights into the problem of malnutrition. NFHS is a large -scale, multi-multi round survey conducted in a representative sample of the households throughout India. It is the second only with to the Census Data and reliability.

Severe Acute Malnutrition (SAM) is both a medical, social problem and a serious developmental challenge before the government. Lack of exclusive breastfeeding, late introduction of the complementary feeding, repeated enteric and respiratory tract infection, ignorance, lack of education coupled with poverty are some of the factors responsible for the Severe Acute Malnutrition (SAM).

Childhood undernutrition is an important public health and development challenge in India. Undernourished children have significantly higher risk of mortality and morbidity. Besides increasing the risk of death and disease, undernutrition also leads to growth retardation and impaired psychosocial and cognitive development. Children with Severe Acute Malnutrition (SAM) have higher risk of mortality than well-nourished children.

Nutrition related Situation Analysis of India and Uttar Pradesh

The estimated number of underweight, malnourished and severely malnourished children under 5 years of age is obtained under National Family Health Survey (NFHS) conducted by the Ministry of Health & Family Welfare. As per the recent report of NFHS-5 (2019-21), the nutrition indicators for children under 5 years have improved as compared with NFHS-4 (2015-16). Stunting has reduced from 38.4% to 35.5%, Wasting has reduced from 21.0% to 19.3% and Underweight prevalence has reduced from 35.8% to 32.1%.

As per the NFHS-5 (2019-21), in rural Uttar Pradesh 41.3 per cent of under-5 kids were stunted (low height for age), while 33.1 per cent under-5 kids were underweight (low weight for age). Seventeen per cent rural under-5 kids in the state were categorised as wasted (weight for height), and 7.1 per cent were severely wasted. This is an improvement from 2015-16 where according to NFHS-4, rural areas of the state had 48.5 per cent under-5 stunted kids; 41 per cent underweight kids; 17.9 per cent wasted kids; and 5.8 per cent severely wasted.

Stunting is a health condition caused due to malnutrition. It can have consequences on human capital, poverty, and equity. A child suffering from stunting may also study less and have fewer professional opportunities. The World Bank says, "A 1% loss in adult height due to childhood stunting is associated with a 1.4 per cent loss in economic productivity."

Malnutrition poses a serious threat to the holistic growth and development of children which in turns affects the development of any country. Severe Acute Malnutrition(SAM) is the most critical and visible form of malnutrition. As per WHO , Severe Acute Malnutrition(SAM) is defined as the as very low weight for height (Z score-3 SD of the median WHO child growth standards), or a mid -upper arm circumference <111mm, or by the presence of nutritional oedema.

In comparison to India's progress, Uttar Pradesh legs behind in many of the key parameters related to health and nutrition. Table -1 below shows some of these indicators in which UP has not done well as compared to the national average.

S.N	UP Comparison with India			
	Indicators	NFHS-5(2019-21)		
		Lucknow	Uttar Pradesh	India
1	Infant Mortality Rate (IMR) (per 1000 live births)	-	50.4	35.2
2	Under-Five Mortality Rate (U5MR) (per 1000 live births)	-	59.8	41.9
3	Total children age 6-23 months receiving an adequate diet (%)	2.3	6.1	11.3
4	Children under 5 years who are stunted (height-for-age) (%)	32.1	39.7	35.5
5	Mothers who consumed iron folic acid for 100 days or more when they are were pregnant (%)	22.8	22.3	44.1

Source: NFHS 5

As per POSHAN Tracker, Uttar Pradesh has 19.6 million beneficiaries registered with its 186,960 Anganwadi centres, with approximately 11.5 million beneficiaries, including children, pregnant women, and lactating mothers, who were entitled to supplementary nutrition in the state.

There are improvements in various sectors and dimensions related to the economics, social and health well-being of the general population. These include educational attainment, infant mortality, vaccinations, and institutional deliveries. Despite the fact, there has been made a considerable progress and achievement to address the problem of malnutrition through various policy and ground level interventions such as Anaemia Mukt Bharat Abhiyaan, Poshan Mission, Prime Minister Martu Vandana Yojna, Nutrition Rehabilitation Centre (NRC) and various other program and interventions but the problem of malnutrition is persisting.

Introduction about the Nutrition Rehabilitation Centre (NRC)

Severely malnourished children are often drying because of lack of specialised treatment practises that are not similar for most of them, but suitable for severely malnourished (SAM) children. Nutrition Rehabilitation Centre are established in health facilities to provide appropriate and facility-based case management to children with SAM for the under 5 children.

NRCs are playing an important role in care and treatment of children affection with SAM and malnutrition.

The Nutrition Rehabilitation Centre (NRC) program had been launched under collaborative scheme of UNICEF and Govt. of India. It is a unit for restoring severely acutely Malnourished (SAM) children to good health while educating their mothers about nutrition and childcare. Nutritional rehabilitation centers (NRCs) were established with the objective of providing institutional care to malnourished children and building the capacity of the primary caregivers of these children.

The Nutrition Rehabilitation Centres (NRC) are facility-based care units where severely acute mal-nourished (SAM) children below the age of five years are admitted with their mothers and care givers for treatment, stabilization, and rehabilitation. It is a health facility where children with Severe Acute Malnutrition (SAM) are admitted for medical and nutritional care. A steady linkage with Integrated Child Development Schemes (ICDS) identifies and admits severely malnourished children in the community in NRC for medical and nutritional support.

Objectives of the Nutrition Rehabilitation Centre (NRC)

The overall aim of the NRC is to improve the nutritional status of children through provision of quality health and nutritional care to children below three years. This in turn will help in timely action at facility, community and household level to prevent and treat malnutrition. The Nutrition Rehabilitation Centres (NRCs) have been established by the government with the following objectives.

- To reduce under 5 child mortality due to Severe Acute Malnutrition and to provide institutional care for children with acute malnutrition.
- To provide clinical management and reduce mortality among children with severe acute malnutrition, particularly among those with medical complications.
- To promote physical and psychosocial growth of children with severe acute malnutrition (SAM).
- To build the capacity of mothers and other care givers in appropriate feeding and caring practices for infants and young children
- To identify the social factors that contributed to the child slipping into severe acute malnutrition.
- To provide institutional care for children with acute malnutrition.
- To build the capacity of primary caregivers in the home-based management of malnourished children.

Facilities and Services provided at the Nutrition Rehabilitation Centre (NRC)

The following services and care provided for the in-patient management of SAM children at the NRC includes :

- 24 hour care and monitoring of the child.
- Treatment of the child suffering from medical complications.
- Therapeutic feeding and nutritional support to inmates.
- Providing sensory stimulation and emotional care.
- Social assessment of the family to identify and address contributing factors.
- Capacity building of the primary caregivers on preparation of low cost Nutritious diet from locally available food ingredients,
- Demonstration and practice- by -doing on the preparation of energy dense child foods using locally available, culturally acceptable and affordable food items.
- Counselling on appropriate feeding, care and hygiene and other counselling services viz. Family planning, Better hygiene practices, Psycho-social care & development.
- Follow up of children discharged from the facility.

Admission and treatment of children

Children who meet the admission criteria (MUAC <11.5 cm, bilateral pitting odema, weight for height <-3SD and poor appetite) will be provided institutional care using the standard treatment cost. The referred cases will be examined in the OPD/casualty. Children with severe medical complications will be admitted to the Paediatric ward first and after stabilisation will be shifted to the NRC. On admission each children will be provided with a unique number for subsequent follow up. The children advised admission will be treated at the NRC for a period of 14 days.

In addition to medicines, special foods and nutritional supplements will be provided to the child free of cost. Similarly, child attendant will be provided food and Rs 150/- as wage compensation for 14 days stay and Rs 140 for 4 days for follow ups visits. During the course of the stay the mothers will be advised on care and feeding of the child.

Discharge and follow up of Children

Children admitted to the facility will be discharged once they meet the discharge criteria Discharge criteria from the facility will as listed below:

Criteria for discharge
<ul style="list-style-type: none"> Discharge criterion for all infants and children is 15% (15% of admission weight) weight gain and no signs of illness.
<ul style="list-style-type: none"> This should be achieved through facility based care in NRC when community based programme is not in place.
Discharge from Nutrition Rehabilitation Centre
<p>Child</p> <ul style="list-style-type: none"> Oedema has resolved Child has achieved weight gain of >15% (15% of admission weight) and has satisfactory weight gain for 3 consecutive days(>5gms /kg/day) Child is eating an adequate amount of nutritious food that the mother can prepare at home. All infections and other medical complications have been treated Child is provided with micronutrients Immunization is updated <p>Mother/Caregivers</p> <ul style="list-style-type: none"> Knows how to prepare appropriate foods and to feed the child. Knows how to give prescribed medications, vitamins, folic acid and iron at home. Knows how to make appropriate toys and play with the Child. Knows how to give home treatment for diarrhoea, fever, and acute respiratory infections and how to recognize the signs for which medical assistance must be sought. Follow-up plan is discussed and understood Knows how to prepare appropriate foods and to feed the child. Knows how to give prescribed medications, vitamins, folic acid and iron at home. Knows how to make appropriate toys and play with the Child. Knows how to give home treatment for diarrhoea, fever, and acute respiratory infections and how to recognize the signs for which medical assistance must be sought. Follow-up plan is discussed and understood

Location and size of the NRC

NRC Lucknow is a special health unit with 10 bed , located in Balarampur government hospital and dedicated to the initial management and nutrition rehabilitation of children with severe acute malnutrition. The unit has a distinct area with the Balarampur hospital and other medical facilities are available in the hospital such as pathology, operation theatre, blood transfusion, paediatrician ward, and radiology etc.

As per the state guidelines, NRC should have the following:

- Patient area to house the beds; in NRC adult beds are kept so that the mother can be with the child.
- Play and counselling area with toys; audio-visual equipment like TV, DVD player and IEC material.
- Nursing station

- Kitchen and food storage area attached to ward, or partitioned in the ward, with enough space for cooking, feeding and demonstration.
- Attached toilet and bathroom facility for mothers and children along with two separate hand washing areas.

The approximate covered area of the NRC should be about 150 square feet per bed, plus 30% for ancillary area. A 10 bedded NRC should have a covered area of about 1950 square feet; this will include the patient area, play and counselling area, nursing station, kitchen, storage space, two bathrooms and two toilets should have a cheerful, stimulating environment; it should be child friendly. Walls can be brightly painted and decorated. Ward should have sufficient space for all mothers/caregivers staying with the children to sit together and be given cooking and feeding demonstration.

Objectives of the study

- To assess the impact of NRC in addressing and combating the problem of malnutrition.
- To study the different indicators of the NRC performance.
- To understand the functioning and services being provided to the children at the NRC Level,
- To understand the social and gender profile of the malnourished and SAM children being treated at the facility,

Material and Methods

A facility based cross sectional study was conducted the at the Lucknow NRC to assess the effectiveness of facility based care for the children with SAM, factors responsible for the malnutrition, demographic profile of children and families, types of facilities provided and role of facility in addressing and combating the malnutrition to the admitted children. State level NRC data was correlated and analysed with reference to the Lucknow based facility on various performance indicators.

All children aged one to fifty-nine months were admitted to these centres from 1st April 2021 to 30th March 2022 were included in the assessment exercise. Total of 53 children affected with SAM and Malnutrition who were admitted in the facility were included in the study District was data was collected from the case records/registers maintained at the facility and while the state data was collected from the ICDS department on a designed format and questionnaire.

Ethical approval for the study was obtained from the NRC Lucknow.

Results

The following are the key findings from the study which was conducted at the Lucknow NRC which was established in July 2015 at the Balrampur Hospital through National Health Mission.

The percentage of girl child admitted in the NRC was 58% (31) while of boys it was 42% (22). Only 9 children out of 53 who were admitted at the facility were from the Muslim community. Regarding social profile of the children admitted in the Lucknow facility, majority of the children belongs to OBC (39.6%), while remaining were from other categories such as General (30%), SC (28.3%) and ST (2%). 45% children admitted in the NRC were from the age group of 6 months – 2 years of age, while 43% children were in the age bracket of more than 2 years to 5 years, while 12 % were from the below the six-month age. The mean age of children being the 25 months.

Total of 53 children affected with SAM and Malnutrition were admitted in the facility from 1st April 2021 to 31st March 2022. This comes to 4 children average in a month which is much below the GoI benchmark of 20 children. Bed occupancy rate for the children admitted at the NRC Lucknow was merely 17% as compared to 39% of the state.

Average length of the stay of the 55% children in facility was 7-14 days, while 26 % children stayed in the facility for more than 14 days. Average length of stay of the children at the Lucknow NRC being 11 Day. Main referrals in the facility were through the Aganwadi Workers, e.g., 45%, followed by OPD/Ward (26%), RBSK (17%), and remaining 13% were referred by RBSK FLW and Self, respectively. Regarding referral in the NRC, 63% children were referred by the frontline functionaries such as ANM, ASHA, AWW, while 19% were children reached to NRC self/through their parents without any guidance and referral.

Regarding performance of the NRC Lucknow, 43% children were discharged with the target weight gain which is far below than state average of 65%. Similarly, 36% children were discharged with partial weight gain and 11% were medically transferred and 10% families defaulted and did not respond. 43% admitted children in the facility were discharged as cured against the cure GOI benchmark of 75%, while state average being 65%. Average weight gain for the discharged children was 9 (Gm/Kg/Day). 8% children defaulted from the NRC due to various reasons against the state average of 14%.

Once discharged from the NRC, the child continues to be in the Nutrition Rehabilitation program till she/he attains the defined discharge criteria from the program. Special focus is also given on improving the skills of mothers and care-givers on complete age appropriate caring and feeding practices. In addition, efforts are made to build the capacity of mothers/caregivers through counselling and support to identify the nutrition and health problems in their child.

Discussion

The study results shows that most of the children admitted in the NRC are between 6- 24 months. Diarrheal and fever were the primary reasons and symptoms at the time of admission in the NRC. The possible reasons for this could be in incorrect and non-regular complementary feeding the content and frequency along with early marriage, birth order, gender discrimination, antenatal care visits and socio-economics status. As per the NFHS -5, total children aged 6-23 months receiving an adequate diet is 2.3 and children under the age of months exclusively breastfed is 71.7 in the district Lucknow. The NRC facility of Lucknow district records a cure rate of 43 and bed occupancy rate of 17%.

Children were admitted in the facility as per the define admission criteria and provided with medical and nutritional therapeutic care .The services and care provided for the in- patient management of SAM children include.

Conclusion

There is no denying the fact that the Nutrition Rehabilitation Centre is playing an important role in the cure and treatment of SAM children but the overall performance of the facility on various indicators have been low. Further efforts should be undertaken to enhance the performance of the facility by strengthening the community level and hospital related linkages and referrals to the NRC as the average children per month at the facility is 4 against the GOI benchmark of 20 children. Similarly, there should be more focus and interventions to prevent and detect malnutrition in under 2 years children. Follow ups of defaulted children should be more streamlined by enhancing the incentives to family members and frontline functionaries. The cases which require special attention, they may be referred to the Hospital immediately.

Financial Support and Sponsorship

There are financial implications related to this study. No funding support and assistance was taken from any organisation.

Conflict of Interest

There are no conflicts of interest.

Acknowledgement

I extend my sincere gratitude and thanks to the Nutrition Counsellor and other team members of NRC Lucknow as well as the officials and consultants of ICDS department for participation and support.

References

1. Nutrition Rehabilitation Centre (NRC), SOP of UP and Assam NHM.
2. <https://pib.gov.in/newsite/PrintRelease.aspx?relid=186712>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9024259/>
4. <https://theprint.in/health/how-this-remote-backward-up-district-is-fighting-malnutrition-amid-covid-pandemic/711726/>
5. <https://www.newsclick.in/NFHS-5-Survey-Data-Nothing-Uttam-About-Uttar-Pradesh>
6. <https://nhm.assam.gov.in/frontimpotentdata/nutrition-rehabilitation-centre-nrc>

