

Malnutrition in Children Aged 6-59 Months in Mugu District

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ABSTRACT

Background: Malnutrition is one of the leading causes of child morbidity and mortality. The severity of hunger in mountain and hill districts of Mid- and Far-Western Development Regions is a serious concern. Mugu, is one of the most remote and least developed districts of Nepal, periodically facing food insufficiency. This study was carried out to evaluate the malnutrition status of the most vulnerable group of children (6-59 months age group) in Mugu district.

Methods: This study conducted in Mugu district was prospective and observational. Nutritional status of children aged 6-59 months were assessed by measuring mid-upper arm circumference by using MUAC tape and data was collected by interviewing caretakers. The data were analyzed and compared to the national figure.

Results: Altogether 198 children aged 6-59 months were recruited for this study. Among them 49% were boys and 51% were girls. According to MUAC criteria, 1% of children had suffered from Severe Acute Malnutrition (SAM), 17% had Moderate Acute Malnutrition (MAM) and 82% had adequate nutritional status.

Conclusions: The prevalence of Acute Malnutrition is high in Mugu district. The important factors, among numerous others are food scarcity, poor hygiene and environmental practices, lack of care of the mother towards her child due to priority given to work and lack of knowledge about proper child feeding/care.

Keywords: Malnutrition; Mid Upper Arm Circumference (MUAC); Moderate Acute Malnutrition (MAM); Severe Acute Malnutrition (SAM).

INTRODUCTION

Nutrition is defined as the science of food and its relationship to health.¹ Childhood malnutrition is one of the leading causes of morbidity and mortality. It is a complicating factor for other illnesses.² The situation of child Malnutrition in Nepal is very high due to the cultural, social, economical, educational and political structure of Nepal.³ Stunting, underweight and wasting are more common in Mid and Far-West Hills and Mountain areas than other parts of the country.⁴ Approximately 50% children in Nepal are undernourished out of which 49% are stunting, 39% are underweight

and 13% are wasting.⁵ The immediate implication of malnutrition is weight loss and faltering growth, as well as increased susceptibility to disease. The long term effect of malnutrition or stunting has intergenerational implication as well. Stunted girls who reach motherhood are more likely to give birth to low birth weight (<2.5 kg) babies,⁶ who in turn are at risk of malnourishment. The condition of stunted children can worsen with the onset of diarrhoea, respiratory tract infections which leads to increased death rates.

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Hunger and malnutrition has emerged as a “silent humanitarian crisis” in Nepal. There is severe hunger in the Mountain and Hilly districts of Mid and Far- Western Regions of the country. Mugu district is located in the Mid- Western Development region of Nepal. It is a mountaineous and a hilly district combined to the west by Humla and Bajura districts, to the south by Jumla and Kalikot districts, to the east by Dolpa district and to the north by Tibet. Mugu is divided into 24 VDC's. The district headquarter is Gamgadi. Its area is 3535square kilometers. The total population in the whole district is 43937.⁸ The majority of the population comprises of Hindu (62%),with the rest mostly being Buddhists. Chhetris, Thakuris, Sherpa, Kamis, Damais etc are the prevalent caste and ethnic groups. Mugu district is a multilingual society having more than 21 different languages, with a majority of people speaking Nepali. Mugu is a remote area with steep slopes, poor soil and a dry climate limiting agriculture. The main crops are rice, millet, wheat, barley, maize and beans. Fruits and vegetables are very rare. Most of the populations have between 6-9.5 months of food sufficiency. Most of their goods, including food items are imported from India which leads to high transportation costs and hence, higher prices affecting particularly the most vulnerable population who lives in remote areas. There is one Health Post or Sub-Health Post in each VDC and District Hospital in the Headquarter (Gamgadi). There are no roads on Mugu. Villages are connected by trails and tracks. Hence, the only means of transportation is by foot or by animal (Mules). Accessibility of large parts of the district is hindered during winter due to snowfall and during monsoon due to landslides.

METHODS

A prospective observational study was conducted at Mugu district (Gamgadi and nearby villages) from 2066 Bhadra 24-29. After verbal consent, a set of questionnaire was used for interview of the respondent. Interview was taken with the mother or head of the family. A total of 198 children of 6-59 months old were examined through house to house visit.

- Sex: The sex of each child was recorded (M/F)
- Age (months): Any document related to health such as immunization card was considered. If there was no document with a birth date available, then the date of birth of each child from 6-59 months was asked to the head of the family and age was estimated by using the local seasonal and event calendar.
- MUAC (mm): The Mid-upper arm circumference was recorded to the nearest mm using MUAC measuring tapes graduated to 0.1cm. The MUAC of the left arm

of all children 6-59 months old was taken.

- Health seeking behavior was asked and recorded.
- Information regarding toilet facilities, water source/storage.
- Breast feeding practices/weaning foods/child's diet was asked and recorded.
- Provision of toys for the child and playful environment was asked as well as observed.

Table 1. The cut off points used for MUAC

| MUAC (mm) | NUTRITIONAL STATUS |
|-------------|-----------------------------|
| <110 | Severe Acute Malnutrition |
| >=110 < 125 | Moderate Acute Malnutrition |
| >=125 | Normal |

RESULTS

Out of 198 children from 6-59 months, 49% were boys (n=98) and 51% were girls (n=100). Children from age group 6-17 months were high in number followed by age groups 18-30 months and 30-41 months. From age group 54-59 months, there were only few children (Table 1).

Table 2. Age and Sex of the Children

| Age group | Boys | | Girls | | Total | |
|--------------|------|----|-------|----|-------|-----|
| | n | % | n | % | n | % |
| 6-17 months | 32 | 16 | 34 | 17 | 66 | 33 |
| 18-30 months | 22 | 11 | 22 | 11 | 44 | 22 |
| 30-41 months | 22 | 11 | 22 | 11 | 44 | 22 |
| 42-43 months | 16 | 8 | 18 | 10 | 34 | 18 |
| 54-59 months | 6 | 3 | 4 | 2 | 10 | 5 |
| Total | 98 | 49 | 100 | 75 | 198 | 100 |

According to MUAC criteria, 1% of children had Severe Acute Malnutrition (SAM), 17% had Moderate Acute Malnutrition (MAM) and 82% had Adequate Nutritional status (Table 2-4).

Table 3. Malnutrition according to MUAC

| MUAC (mm) | Boys | | Girls | | Total | |
|-------------|------|------|-------|------|-------|-----|
| | n | % | n | % | n | % |
| <110 | 1 | 0.5 | 1 | 0.5 | 2 | 1 |
| >110 & <125 | 14 | 7 | 20 | 10 | 34 | 17 |
| >=125 | 80 | 40.5 | 82 | 41.5 | 162 | 82 |
| Total | 95 | 48 | 103 | 52 | 198 | 100 |

There is small difference in the occurrence of malnutrition (MAM) according to sex-girls being more affected. According to MUAC criteria, the overall data shows that about 18% of children of 6-59 months age group are at risk of mortality

Health-seeking Behavior

37% of children of 6-59 months had been sick 2 weeks

prior the study. Of those children who were sick, 68% of the parents/caretakers were seeking a medical treatment. Among them 39% took their children to the Government Health Facility (District Hospital/Health Post/Sub Health Post), 30% to Traditional healer (Dhami) and the rest to others (FCHV, Medical shop)

Hygiene and Sanitation

Open defecation is prevalent. Only 20% households used latrines. 28% of the households wash their hands after defecation and only 10% use soap. 84% of the household's water storage containers were not covered.

Breast feeding/child Care

Breast feeding is done by 100% of the mothers (except 2 cases where animal milk was given due to loss of mother soon after the delivery of the baby). However, meals were not adequate for the baby because their mother should go to work leaving their children behind at home under the care of an older sibling or the mother in law. The babies were fed animal milk in between. Weaning started at 5 months for girls and at 6 months for boys. The babies were fed family meal like rice, bread, corn. The food was first chewed by the caretaker to be made soft and then fed to the babies younger than 12 months. The babies fed on breast milk till the mothers conceived next baby, or continued feeding for up to 2 years. There is lack of exclusive breast feeding, timely introduction of nutrition-rich complementary food and preference for feeding small children. Family meal constitutes either rice with soup or pulses or beans or Dhindo (similar to porridge) with chilies/spices or bread made from millet, wheat or corn. Only few families consume milk, vegetables, eggs, meat. Fruits are seasonal (mostly apples). It was observed and information received from the caretakers that there was no availability of toys and playful environment for the children.

DISCUSSION

Severe malnutrition is common in children in areas with insufficient food, inadequate knowledge of feeding, technique and poor hygiene. Hygienic practices such as hand washing before feeding child benefits the health of the child. In this study, both genders are almost equally represented. Though study group is small (n=198), it represents the prevalent malnutrition in one of the least developed/most remote mountaineous and hilly districts of Nepal. Malnutrition is very high in this study (1% Severe Acute Malnutrition and 17% Moderate Acute Malnutrition) compared to the national figure (13% Acute Malnutrition). This could be due to the hard life style of population, insufficiency of food and lack of knowledge about appropriate child feeding and caring. Among the Jirel

children of Eastern Nepal, 12.62% of under 5 children were suffered malnutrition by MUAC measurement.³ A study done among orphans in Kathmandu, Nepal¹⁰ showed 8% children with third degree malnutrition. The percentage of children suffering is comparatively low perhaps due to the difference in population. 10% of the children were found suffering from severe malnutrition at rural area Sarlahi.¹¹ Other factors may be the absence of playful environment for the children.⁹ Malnutrition without complications or co-morbidity is typically not perceived as a health problem by neither the community nor the medical staffs. The association between malnutrition and inadequate food intake and feeding practices is often not recognized. The tiny intake of food rich in animal protein as well as vegetables and fruits suggest that vulnerable population like less than five years children will suffer from micronutrients deficiency and growth retardation which may aggravate their health status with increased risks of infection.

It would have been more accurate if the study population were extended to assess the child's nutritional status (weight-for-height index, height-for-age index and weight-for-age index). The particular study only used the MUAC indicator. The measurement of MUAC is an easy method of assessing the nutritional status of the community. It is less time consuming, study expenditure is low and convenient for the study in the remote areas like Mugu. On the other hand, it is a good predictor of risk of mortality with Acute Malnutrition.

CONCLUSION

The high prevalence of Acute Malnutrition is troublesome at Mugu. Factors such as food scarcity, poor hygiene and environmental practices (open defecation), lack of care of the mother towards her child due to priority given to work (farming and others), lack of knowledge about proper child feeding/care contribute to the problem. Strengthening practices related to nutrition (exclusive breast feeding; timely introduction to nutrition rich complementary foods and micronutrients), improving sanitary conditions at household level by implementing a community latrines construction programmes, providing access to safe drinking water, and by giving key message in term of hygiene through proper hand washing to the community could prevent malnutrition.

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CONFLICTING INTEREST

None declared.

REFERENCES

1. Park K, Park's text book of preventive and social medicine, 16th ed. Jabalpur (India): Banarsidas Banot Publishers; 2000.p.405.
2. Richard E. Behrman, Robert M. Klegman, editors. Nelson text book of Pediatrics 16th ed. United States of America; Hal B. Jenson; 2000.p.167-169.
3. Chapagain RH, Adhikari AP, Dahal R,Subedi J, Bhengero J,Willams-Bhengero S and Towne B. A study on Nutritional status of under 5 Jirel children of Eastern Nepal. Journal of Nepal Health Research Council. 2004 Oct; 2(2):64-67.
4. Ministry of Health and Population (Nepal), Department of Health Services. Annual Report 2065/66 (2008/2009). 2009.
5. Ministry of Health and Population, New ERA, Macro International Inc. Nepal demographic and health survey 2006. 2007.
6. WHO, UNHCR, WFP and IFRC. The Management of Nutrition in Major Emergencies. 2000.
7. World Food Program (WFP) Nepal. A Sub-regional Hunger Index for Nepal. 2009.
8. Central Bureau of Statistics, Government of Nepal; 2001.
9. Sah N. Determinants of Child Malnutrition in Nepal: A case analysis from Dhanusha, Central Terai of Nepal. Journal of Nepal Health Research Council. 2004 Oct; 2(2):50-54.
10. Singh S, BC RK, Simkhada P, and Van Teijlingen E. Health status and health needs of orphan children in Kathmandu, Nepal. Journal of Nepal Health Research Council. 2007 Oct; 5(2):39-48.
11. Mall B, Sherchand JB, Ghimire P, BC Rajendra Kumar, Gauchan P. Prevalence of intestinal parasitic infestation and malnutrition among children in a rural community of Sarlahi, Nepal. Journal of Nepal Health Research Council. 2004 Apr; 2(1):55-57.
12. Lawrence M. Tierney, Jr. Stephen J. McPhee, Maxine A. Papadakis, Steven A. Schroeder. Current Medical Diagnosis and Treatment. 1993.p.966.