Nutritional Status of Children Seeking Medical Treatment in a Rural Hospital in Ilam District, Nepal

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Abstract

Introduction: Childhood malnutrition is a leading cause of mortality and morbidity in children under five years in Nepal. There is evidence to show that childhood malnutrition varies from region to region, within Nepal. But there is no data available about nutritional status of children in the 75 districts in Nepal. The aim of this study was to evaluate the nutritional status of children less than five years of age in Ilam district. **Material and Methods:** We analysed the anthropometric data for the children of Ilam district who visited Dr. Megh Bahadur Parajuli Community Hospital in Ilam district. **Results:** Our data showed that 15.7% of girls and 21.2% of boys under-five years suffered from moderate malnutrition. Severe malnutrition was present in 6.7% of girls and 9.6% of boys. Stunting was seen in 32.6% girls and 30.16% boys. Moderate stunting was present in 19.6% of girls and 19% of boys; while severe stunting was present in 11% of the boys and 13% of the girls. **Conclusion:** Our data shows that stunting among under-fives in Ilam is less as compared to that reported for Nepal, but underweight is comparable to the national data. However, a systematic study needs to be carried out in Ilam before drawing firm conclusions.

Key words: Under-fives, Nutrition, Malnutrition, Ilam, Nepal

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Introduction

Nepal demographic health survey reported that 41% of children under five years were stunted, 11% wasted and 29% underweight[1]. Several factors were noted to contribute towards malnutrition- for example, socio-economic factors, mother's literacy, acute illnesses, age of the child[2]. Social problems such as poverty, skewed land distribution and food insecurity are some of the underlying factors which cause malnutrition[3]. Several independent studies have been carried out in Nepal, estimating the prevalence of acute malnutrition to be anywhere from 8- 18%, as measured by MUAC[4,5,6]. World Health Organisation (WHO) data from 2011 report the prevalence of moderate and severe malnutrition to be 29.8% and 8.5% respectively, among boys under five in Nepal. These figures were 28.4 and 7.7 respectively for girls in the same age group. Moderate and severe stunting among Nepali boys who are under five were reported to be 41.3% and 16.8% respectively, and that among girls were 39.5% and 15.8% respectively[7].

Malnutrition is not evenly distributed throughout Nepal. It varies ecologically and regionally. Stunting, wasting and underweight is reported to be much higher in the mountains compared to the national average[8]. Children from Newar community were found to be more malnourished, in a report from Kathmandu (9). Previous study from Mugu district in the mid-Western region of Nepal reports that 18% of children under five years were malnourished (10). Data from Jirel in Eastern Nepal showed that 36.25% and 12.62% children under five years of age had mild to moderate and severe malnutrition respectively based on their MUAC measurements. The prevalence

of stunting among girls were higher than that in boys in Jirel[4].

Nepal is divided into 75 administrative districts. Ilam district is situated in the hilly Eastern part of Nepal, and has a total population of over 300,000. Population of Ilam belongs to several castes, the major ones being Rai, Limbu, Bahun and Chhtri. Dr. Megh Bahadur Parajuli Community Hospital (DMBPCH) is located in rural Ilam district and is one of the 2 hospitals in Ilam district. Most of our patients come from Ilam district, although a small number of patients also come from nearby districts of Panchthar and Taplejung. There are no published reports on the prevalence of malnutrition among children in Ilam or nearby districts to date. Hence we undertook an analysis of the anthropometric data available to us from the children who visited our facility in order to understand the prevalence of malnutrition among under-fives in Ilam district.

Materials and Methods

We analysed the anthropometric data which was collected from children during their visits to our paediatric clinics at the hospital and in the community over 2010-2011. Data available to us were the weight, height and gender of the children (it was not routine practice in our Paediatric clinics to measure mid upper arm circumference (MUAC)). All the observations were measured by the same person on the calibrated equipments used in the paediatric clinic. Data from all the children who had chronic medical conditions and/or severe acute medical conditions were excluded, in order to obtain a representative sample of children from Ilam district. Observations from children with acute medical conditions such as gastroenteritis which are likely to affect the anthropometry were also excluded from this dataset.

Weights for age and heights for age for a total of 193 children under the age of 5yrs (89 boys and 104 girls) who attended the paediatric clinic in our hospital during 2010-11 were plotted on WHO growth charts. Moderate and severe acute malnutrition and stunting was determined as 2 and 3 standard deviations (SD) respectively below the mean z-scores for the weight for age and height for age respectively, as per the WHO guidelines.

Results

Weight for age data was available for 193 children (89 boys and 104 girls), and height for age data for 109 children (46 girls and 63 boys) under five years of age. We excluded the children with severe acute or chronic medical conditions which had the potential to affect their nutritional status. In our group, 15.7% girls and 21.2% of the boys suffered from moderate malnutrition, and 6.7% girls and 9.6% boys suffered from severe malnutrition. A total of 19% of boys and 19.6% of girls suffered from moderate stunting; and 11% of boys and 13% of girls suffered from severe stunting.

It can be noted that below 1year of age, there was more uniform distribution of the weights around the mean. In the >1.5 yr age groups, the weights of majority of children fell below the mean z-scores, as can be seen from the graphs.

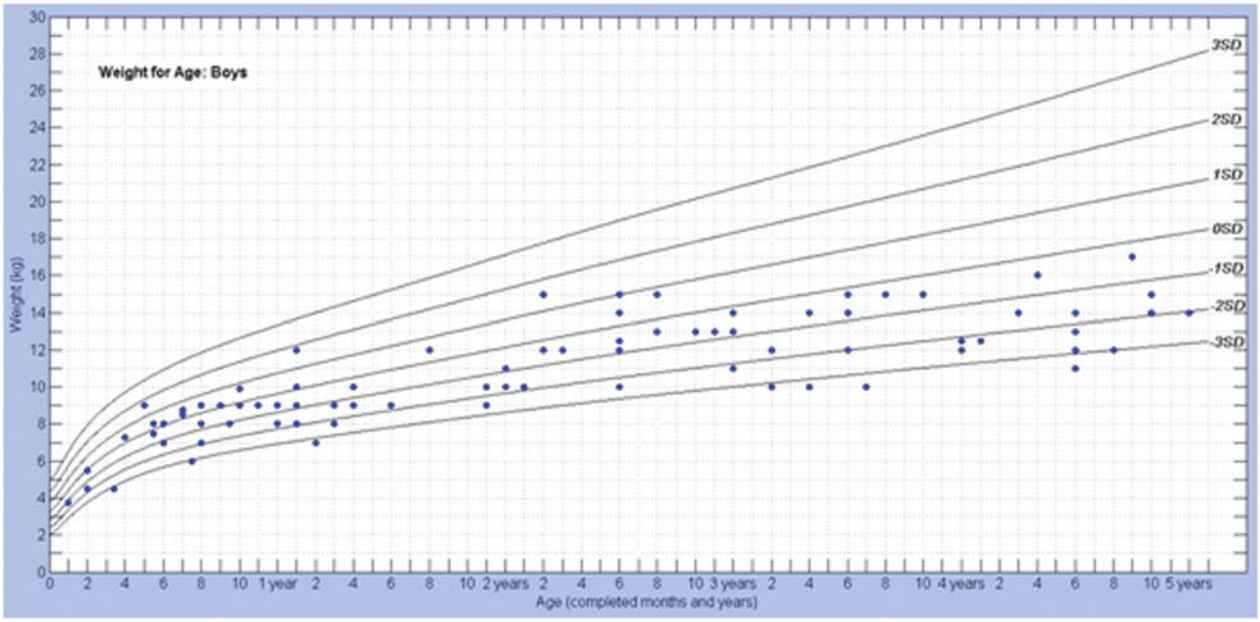

Fig 1: Weight for age in boys under 5 years in Ilam district (n=104)

Table 1: Malnutrition in boys under 5 years in Ilam district (n=104)

Malnutrition in boys	Proportion of boys
Boys with moderate malnutrition	21.2%
Boys with severe malnutrition	9.62%
Malnutrition in boys under 5 years (moderate & severe)	30.77%

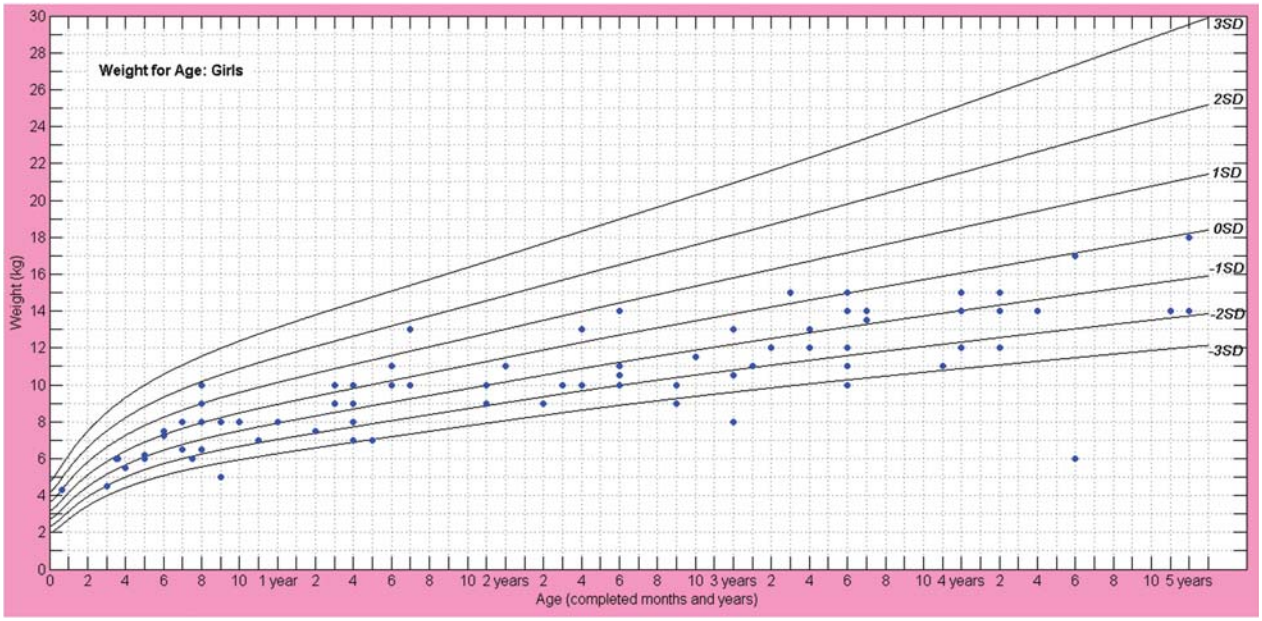

Fig 2: Weight for age of girls under 5 years in Ilam (n= 89)

Table 2: Malnutrition among girls under 5 years in Ilam (n= 89)

Malnutrition in girls	Proportion of girls
Girls with moderate malnutrition	14.6%
Girls with severe malnutrition	7.87%
Girls under 5 years with malnutrition (moderate & severe)	22.47%

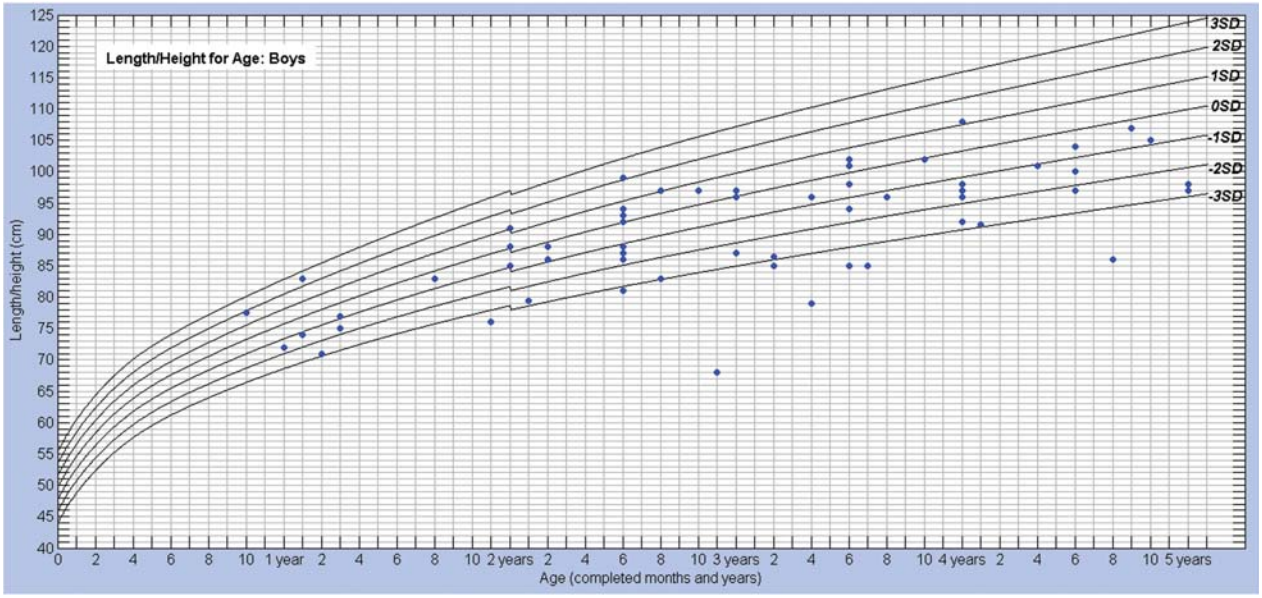

Fig 3: Height for age among the boys in Ilam district (n= 63)

Table 3: Stunting among the boys in Ilam district (n= 63)

Stunting in boys	Proportion of boys
Boys with moderate stunting	19%
Boys with severe stunting	11%
Boys under 5 years with stunting (moderate & severe)	30.16%

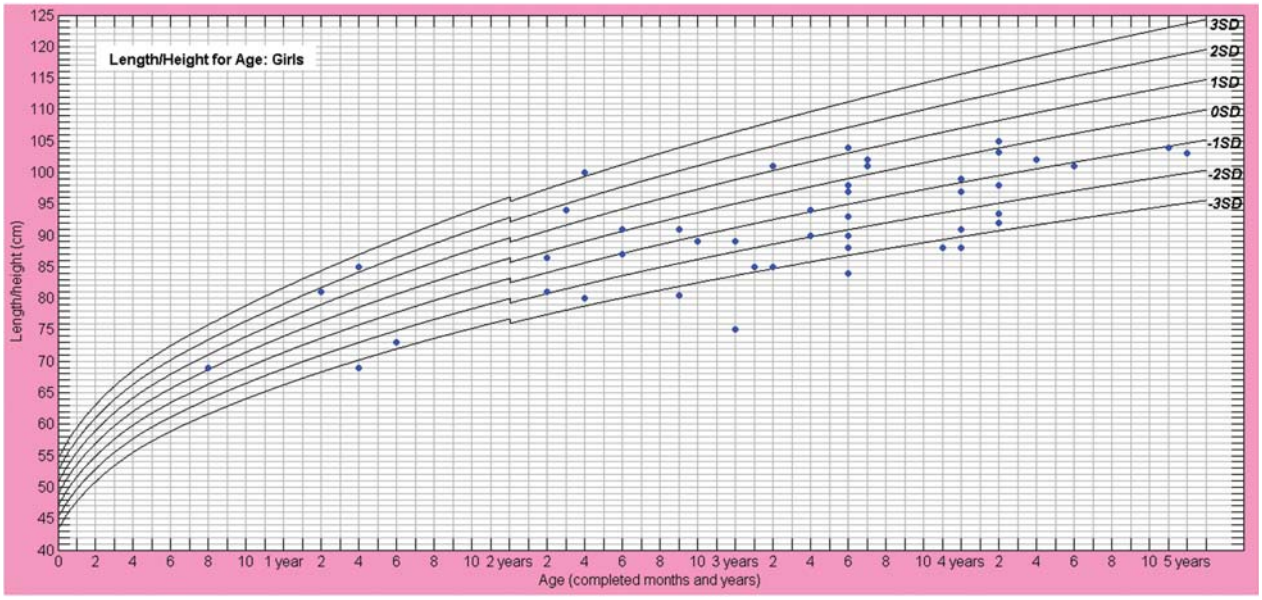

Fig 4: Height for age among girl in Ilam district (n= 46)

Table 4: Stunting among girl in Ilam district (n= 46)

Stunting in girls	Proportion of girls
Girls with moderate stunting	19.57%
Girls with severe stunting	13.04%
Girls under 5 years with stunting (moderate & severe)	32.6%

Discussion

Malnutrition is a major problem among under-fives in Nepal, contributing to significant morbidity and mortality in this group. Our data from Ilam reveals that the prevalence of moderate malnutrition among under-fives is less than that reported in all of Nepal. As is apparent from the national data, malnutrition becomes worse after 18 months of age[1].

Overall, our data reveals that malnutrition among under-fives is lesser in Ilam district compared to the national data for under-fives. There was evidence of a much lower prevalence of stunting (decreased weight for age) in Ilam when compared with the national figures[1,7]. The latter finding may be because of the small data set in our group, compared with the national data for Nepal.

Our data shows that the nutritional status of children under five in Ilam in 2010-11 was better in comparison to the data from Jirel, from 2005[4] and Sarlahi[6]. The prevalence of malnutrition and stunting seen in Ilam was more than that reported from Mugu district, and much higher compared to the prevalence of malnutrition in Humla district, in the study carried out by Thapa et al. [10,11]. Stunting was more in girls than boys, a finding consistent with the data published from Dhankuta district[12]. There is a wide variation in the data published from different districts, although there were very few studies (see table).

There is no previously published data from Ilam district on malnutrition among under-fives. This makes our study an important step towards evaluation of the nutritional status of children in Ilam. By excluding the observations from all the children with chronic illnesses and severe acute illnesses, we believe that our data is representative of the nutritional status of children who are under five years of age in Ilam district. However, our data is based on a small cross-sectional observational dataset collected from children who visited our clinical Paediatric facility at DMBPCH or our village health clinics in Ilam.

Table 5: Malnutrition and stunting in under-fives in Ilam: Comparison with the published data from different districts in Nepal. National data from NHDS 2011 and WHO (2011) is also included. Unless mentioned otherwise, WHO criteria was used by authors. MUAC- Mid upper arm circumference; NA- data not available).

Authors	Place: District	Criteria	Severe malnutrition (girls)	Severe malnutrition (boys)	Mild -Moderate malnutrition (girls)	Mild -Moderate malnutrition (boys)	Malnutrition in children under five	Severe stunting (girls)	Severe stunting (boys)	Mild - moderate stunting (girls)	Mild - moderate stunting (boys)	Stunting in children under five
WHO data 2011[7]	Nepal	Wt & Ht for age	7.70%	8.50%	NA	NA	Boys: 29.8%; Girls: 28.4%	15.80%	16.80%	NA	NA	Boys: 41.3%; Girls: 39.5%
NHDS 2011[1]	Nepal	Wt & Ht for age	7.20%	8.20%	NA	NA	Boys: 29.6%; Girls: 28.0%	15.70%	16.70%	NA	NA	Boys: 41.4%; Girls: 39.5%
Malla et al 2004[6]	Sarlahi Dt	MUAC	20.88%	14.22%	20%	16.88%	NA	NA	NA	NA	NA	NA
Chapagain et al 2005[4]	Jirel Dt	MUAC	14.08%	11.38%	42.25%	31.14%	NA	NA	NA	NA	NA	NA
Chapagain et al 2005[4]	Jirel Dt	Wt for age; Gomez Classification	0	0	54.93%	71.25%	NA	NA	NA	NA	NA	NA
Thapa et al 2013[11]	Humla Dt	Wt & Ht for age	0	1%	7.8%	19.38%	NA	0.9%	4.9%	5.9%	10.7%	22.40%
Thapa et al 2013[11]	Mugu Dt	Wt & Ht for age	1.3%	0%	14.90%	15.50%	NA	6.30%	4.40%	8.10%	10.60%	29.40%
Sharma 2012[10]	Mugu Dt	MUAC	0.50%	0.50%	10%	7%	NA	NA	NA	NA	NA	NA
Sapkota & Gurung 2009[12]	Belahara VDC, Dhankuta Dt	Wt & Ht for age	NA	NA	NA	NA	Boys- 24.7%; Girls- 31.2%	NA	NA	NA	NA	Boys-30.1% ; Girls- 51.9%
Ilam	Ilam Dt	Wt & Ht for age	7.87%	9.62%	14.60%	21.20%	Boys: 30.82%; Girls: 22.47%	13.04%	11%	19.50%	19%	Boys: 30%; Girls: 32.54%

A larger study involving healthy children from all over Ilam district is required to fully understand the current nutritional status of under-fives in Ilam.

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