Study on Nutritional Status of Children Under 5 Years in Palpa District, Nepal: Special Reference to Baal Vita

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ABSTRACT

Background: Malnutrition is a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients. Malnutrition is a major underlying cause of the child morbidity and mortality in Nepal. Adequate nutrition is a fundamental right for every human being. Malnourished child is depriving from physical and mental development. **Objectives:** To assess the nutritional status of children under 5 years and to find out the knowledge and practice regarding micronutrient powder "Baal vita". **Materials and Methods:** Descriptive cross sectional community based study was conducted in Palpa district. A total of 390 respondents at the age of 6-59 months were selected with the help of multistage sampling. Through anthropometry, prevalence of underweight, stunting and wasting was determined. **Results:** Prevalence of underweight, stunting and wasting was 25.9%, 27.2% and 7.3% respectively. The association between age of the mother at the birth of the children and nutritional status of children is not statistically significant. Majority of the children (80.5%) used to take junk foods sometimes, followed by 16.7% very often and 2.8% children never used to take. Majority of the children (52.6%) were taken the micronutrient powder (first course) but the coverage of second course of micronutrient powder was 29.5% followed by third course coverage only 18.9%. **Conclusion:** The nutritional status of children in this study was found to be satisfactory because compared to the Millennium Development Goals (MDGs) target but the coverage of micronutrient powder is low.

Keywords: *Underweight, stunting, wasting, Malnutrition, Waterlow's and Gomez classification*

INTRODUCTION

Malnutrition is one of the major public health problems in developing countries including Nepal, remains a serious obstacle to child survival, growth and development. It does not only directly affect the children by reducing their physical and mental performance but makes the situation worse by making the children susceptible to infection, slower recovery and higher mortality.[1] It is one of the foremost underlying causes of the child morbidity and mortality. Malnutrition increases the risk of a child dying due to common infections such as pneumonia, diarrhoea, measles, and malaria by over 50%. According to WHO, nearly 55% of below five years children's death worldwide are caused by malnutrition. Among those who survive, inadequate nutrition reduces cognitive growth. Not only severe malnutrition, but also mild to moderate malnutrition increases the risk of a child dying due to common infections. Around 40% under five mortality results from diarrhoea or acute respiratory infection; which are curable in first stage with simple home remedies when nutritional status is good.[2] There are many factors that directly or indirectly cause malnutrition among children. Children who suffer from repeated episodes of diarrhoea or Acute Respiratory Infections (ARI) are more likely to suffer from malnutrition which leads to insufficient intake of calories, proteins, vitamins and minerals.[3] Children below 5 years and especially those aged 6 months to 24 months are at particular risk.

The common types of malnutrition in Nepal are: protein energy malnutrition, iodine deficiency disorders, iron deficiency anemia and vitamin A deficiency. Government of Nepal, Ministry of health and population has implemented many nutritional intervention programmes. One of them is Micronutrient Powder or "Baal Vita" programme with the aim of reducing malnutrition specially micronutrient deficiency at the age of 6 months 24 months. It provides one packet of "Baal Vita" per day and contains Vitamin A (400 mcg), Thiamine (0.5 mg), Riboflavin (0.5 mg), Pyridoxin (0.5 mg), Cynacobalamin (0.9 mcg), Vitamin C (30 mg), Vitamin D3 (5 mcg), Vitamin E (5 mg), Folic acid (150 mcg), Niacin (6 mg), Copper- Cupric gluconate (0.56 mg), Iodine-Potassium iodide (90 mcg), Iron-Ferrous Fumarate (1010 mg), Zink (4.1 mg) and Selenium (17 mcg). It is started when child reaches 6 months of age providing one packet per day for 2 months. After gap of 4 months, in 12 months again started for 2 months, again at the age of 18 months 60 packets are provided.

Table 1: Nutritional status of the children (weight for age)*

Nutritional status	Frequency	Percentage
Normal (90-110%)	289.0	74.1
Mild malnutrition (Gr. I) (75-89%)	79	20.3
Moderate malnutrition (Gr. II) (60-74%)	20	5.1
Severe malnutrition (Gr. III) (≤60%)	2	0.5
Total	390	100.0

*Weight for age calculated according to Gomez Classification (WHO standard)

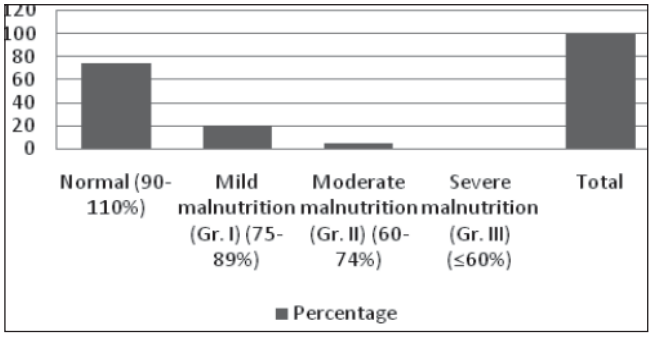
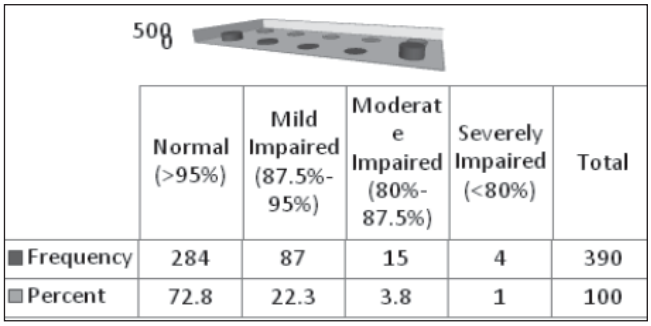


Table 2: Nutritional status of the children (height-for-age)

ttp://mohp.gov.np/english/files/new_publications/9-1-	Frequency	Percent
Normal (>95%)	284	72.8
Mild Impaired (87.5%-95%)	87	22.3
Moderate Impaired (80%-87.5%)	15	3.8
Severely Impaired (<80%)	4	1.0
Total	390	100.0

*Height for age according to Waterlow's classification



The nutritional status of children in Nepal has improved over the past 15 years and is close to achieving the Millennium Development Goals (MDGs) target of reducing the percentage of underweight children to 29 percent by 2015. The percentage of stunted children declined by 14 percent between 2001 and 2006 and declined by an additional 16 percent between 2006 and 2011. A similar pattern is observed for the percentage of underweight children reduced by 9 percent between 2001 and 2006, 26 percent between 2006 and 2011. Similarly, the percentage of wasting declined by 15 percent between 2006 and 2011.[4] The Millennium Development Goals (MDGs) will never be met without significant acceleration in addressing under nutrition as one of the primary cause of child mortality.

MATERIALS AND METHODS

Descriptive cross sectional community based study was conducted where multistage sampling technique was used. Palpa district was selected purposively, out of 65 VDC, 13 VDCs were selected randomly. Out of 9 wards, 3 wards were selected randomly. After that, 10 respondents selected from each ward by using random table. Thus a total of 390 respondents at the age of 6-59 months were selected where the face to face interview was taken to mother of child by using structural questionnaire. Anthropometric measurement was taken by taking weight in kilogram, with the help of weighing machine, height was measured in cm with the help of measuring tape and mid upper arm circumference (MUAC) of left hand was measured by using measuring tape (shakir tape). Nutritional status was determined by calculation of weight for age (underweight), height for age (stunting) and weight for height (wasting) by using Waterlow's and Gomez classification.

Tabulation and Analysis of data: After collection of data, data were entered into the Statistical Package for Social Science (SPSS). Analysis and interpretation of data were done in detail with the help of statistical measures accordingly. **Duration of the study**: The period of data collection was 1st June, 2013 to 30 November, 2013.

RESULTS

Majority of respondents (95.14%) had ownership of radio, followed by 76.45% had television at home and only 4.74% were subscribers of newspaper. Radio (16.11%), television (13.91%) were the sources of information about nutrition.

Majority of children (74.1%) were normal in weight but around one quarter (20.3%) were mild malnourished fallowed by 5.1% were moderate malnourished and very few (0.5%) were severe malnourished.

Majority of the children (72.8%) were normal in height but around one quarter (22.3%) were mildly impaired, followed by 3.8% were moderately impaired and 1% severely impaired as well as Wasting (weight for height) were 7.3%.

Majority of the children (87.1%) were normal and 12.9% were 1st degree, mild malnourished among the 6-11 months children, similarly among 18-23 months children, half (50%) were normal and half were 1st degree, mild malnourished, but few (9.1%) among 24-29 months children were 3rd degree, severe malnourished.

Around one third (32.84%) children were 1st degree mild malnourished who were born to mothers 15-17 years of age and remaining were normal whereas majority of children (90.91%) were 2nd degree, moderate malnourished born to mothers 24-26 years of age, less than 1% (0.78) were 3rd degree, severe malnourished borne to mother 21-23 years of age. However the association between age of the mother at the birth of the children and nutritional status of children is not statistically significant.

Majority of the children (80.5%) used to take junk foods

sometimes, followed by 16.7% very often, 2.8% children never used to take. There is no association between consumption of junk food and malnutrition. Majority of mothers (77.9%) had heard about the micronutrient powder, but around one quarter (22.1%) mothers had not heard about it. Majority of the children (52.6%) were taken the first course of micronutrient powder but the coverage of second course of micronutrient powder was 29.5% and followed by third course coverage was only 18.9%. All mothers who quitted it, reported that taste of micronutrient powder is not good and child does not want to continue.

Table 3: Nutritional Status of Children by Age

Age of the children in months	Weight for age				Total
	Normal	1st deg	2nd deg	3rd deg	
6-11	87.1%	12.9%	.0%	.0%	100.0%
12-17	96.4%	3.6%	.0%	.0%	100.0%
18-23	50.0%	50.0%	.0%	.0%	100.0%
24-29	90.9%	.0%	.0%	9.1%	100.0%
30-35	91.7%	.0%	8.3%	.0%	100.0%
36-41	64.3%	17.9%	16.1%	1.8%	100.0%
48-53	23.5%	61.8%	14.7%	.0%	100.0%
54-59	98.5%	1.5%	.0%	.0%	100.0%
Total	74.1%	20.3%	5.1%	.5%	100.0%

Table 4: Nutritional status of the children by age of the mother at birth of the child

Age of the mother at birth (year)	Weight for age			
	Normal	1st deg	2nd deg	3rd deg
15-17	67.16%	32.84%	0%	0%
18-20	79.24%	19.68%	0.54%	0.54%
21-23	75.97%	16.28%	6.98%	0.78%
24-26	9.09%	0%	90.91%	0
Total	74.10%	20.25%	5.13%	0.52%
χ^2 cal = 1.86, df = 9, χ^2 tab=14 (not significant)				

DISCUSSION

41 percent of children below 5 years of age are stunted, 29 percent are underweight and 11 percent of children suffer from wasting in Nepal (NDHS, 2011). These findings are little similar to finding of present study where stunting is 27.2%, underweight 25.9% and wasting 7.3%. This figure was quite low than the study conducted in eastern Nepal where it was reported as 61% underweight.[5] Another study conducted in Jirel community in Jiri VDC, Dolakha to assess the nutritional status of children age group between 12 months to 60 months. It was found that 64% had mild to moderate malnutrition. Another study, the prevalence of stunting in primary school children in Pokhara valley was found 14.9% which is higher than present study.[7] This study shows most of the children (92.1%) were from Hindu and few were from Buddhist. These findings were similar to religion wise distribution of population of Nepal where 80.6% of the total population was Hindu and 10.7% of the population was Buddhist.[8] This study represents that majority of the children were from joint family. Half percent of mothers were primary level, one third mothers were secondary level and very few (9%) were illiterate. Around one third (32.84%) children were 1st degree mild malnourished who were born to mothers 15-17 years of age and remaining were normal. Majority of children (90.91%) were 2nd degree, moderate malnourished born to mothers between 24-26 years of age. However the association between age of the mother at the birth of the children and nutritional status of children was not statistically significant. On contrary, the study conducted in Dhankuta District of Nepal found maternal age more than 35 years at pregnancy, was a risk factor for stunting and underweight in children.[9] This study reveals that coverage of micronutrient powder, first, second and third courses are 52.6%, 29.5% and 18.9% respectively.

CONCLUSION

The nutritional status of children in this study were found to be satisfactory because compared to the Millennium Development Goals (MDGs) target of reducing the percentage of underweight children age 6-59 months to 29 percent by 2015, which is already achieved in this district before 2015 but government has launched micronutrient Powder programme which coverage is very low. Therefore the importance of micronutrient powder should be disseminate to all people, focus on awareness about it, should be contribute from all the sectors and taste should be modified.

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