Prevalence of Low Calorie Intake by Rural Families in Palpa District of Nepal

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ABSTRACT

Background: Healthy population is indispensable for national development. Adequate food intake by people is the key determinant to keep up their health. Malnutrition nevertheless remains pervasive in developing countries, undermining people's health, productivity, and often their survival. Food insecurity and hunger remain persistent in Nepal. Prevalence of low calories intake by rural family is widespread throughout the country population. Mainly marginalized communities, ethnic group with poor economic status, traditional societies and lower cast people are exposed to food deficit. **Objective:** to investigate the prevalence of low calories intake by rural families and its associated determinants in Palpa district. **Materials and methods:** The cross-sectional study was designed to achieve objective of the research. A random sample of 339 families was selected from rural areas (DUMRE, DAMKADA, GORKHEKOT and TELGHA villages) of this district. Data were analyzed by using the SPSS software for Windows (version 16.0). **Results:** The existence of inadequate food calorie intake among rural families was most common. Most of them were fall under the malnutrition. **Conclusion:** low calorie intake by ethnic group was considerably higher than other groups in community.

Key words: Demographic variables, low food calories intake, malnutrition and Palpa district

INTRODUCTION

Freedom to work and the right to enjoy a healthy life are enshrined in the constitutions of most of the countries as fundamental rights of its citizens. However this freedom does not always guarantee enjoyment of good health for the poor citizens of many developing countries. Most of the developing nations are plagued by problems of under nutrition and a host of infections.[1] Nutrition is an input to and foundation for health and development. Better nutrition is a prime entry point to ending poverty and a milestone to achieving better quality of life.[2] Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system and neurological and cognitive development.[3,4]

Undernutrition leads to increased mortality and morbidity which lead to loss of economic output and increased spending on health, individuals are less productive (both due to physical and mental impairment), and that children benefit less from education.[5] Inadequate nutrition is perhaps the most important problem facing the poor people in the world today. In spite of the progress made in improving nutrient availability in the last decade, a large proportion of poor households in developing countries still have inadequate access to sufficient food.[6] Although per capita daily calorie intake in developing countries has increased substantially in the last decade, the number of undernourished people is still around 923 Million

and the recent food price increases has also triggered an increase in hunger worldwide.[7]

Malnutrition is a complex condition that can involve multiple, overlapping deficiencies of protein, energy and micronutrients. The underlying causes are illnesses, poor dietary intake, lack of sanitation and hygiene, lack of mothers' education, lack of awareness, lack of appropriate education, cultural practices and taboos, women's low social status, poor transport linkages and low levels of agricultural technology, lack of political will to improve the situation and inadequate complementary feeding.[8,9] Protein energy malnutrition (PEM) remains a major public health problem in Nepal to such extent that it is the most common cause of childhood morbidity and mortality. Nepal has a very high rate of child malnutrition: half (49%) of children under five are stunted and one third (39%) are underweight. Maternal undernutrition is also a significant problem in Nepal. The economic costs of malnutrition are very high – an estimated 2-3 % of GDP.[10] Since 1990, at national level, overall food production is deficit and Nepal has been a net cereal importer for most years during the last two decades.[11] Poverty and malnutrition in Nepal are characterized by considerable regional and ethnic variation.[12]

MATERIALS AND METHODS

The cross-sectional study was designed to investigate the prevalence of low calories intake by rural

families in palpa district of Nepal. Sample size of 339 was calculated assuming margin of error 5%, non-response rate 10% with 95% confidence interval (CI). A random sample of 339 families was selected from rural areas (DUMRE, DAMKADA, GORKHEKOT and TELGHA villages) of this district. After getting the consent form concern authorities, local people and respondents, a structured questionnaire and checklist of food items (rice/wheat, potato, pulses, meat, fish, milk, eggs, vegetables, and fruits) were used to collect information (amount of continue three-day food consumed by family) from head of household (Data collection period was December 2012 to June 2013). Actual intake of calories by families was compared with the multiplication result of Expected Calories Consumption and consumption unit. Data were analyzed by using the SPSS software for Windows (version 16.0). Chi-square test was used to find out association of ordinal variables as: family type, house type, occupation and cast, with nutritional outcome. Anonymity of the respondents and their views were maintained in the study.

RESULTS

The study stated that sixty nine percent of respondents were connected to the nuclear family system. Most of them (41.9 %) were Magar. Unemployment rate was 9.4% and most of them (52.2%) had their own pucca house Table-1.

Table 1: Socio-demographic characteristics of the respondents

1. Family type	Nuclear	234(69.0)
	Joint	105(31.0)
2. Caste	Brahmin	60(17.7)
	Kshetri	66(19.5)
	Magar	142(41.9)
	Schedule cast	53(15.6)
	Janajati (except Magar)	18(5.3)
3. House type	Kaccha	162(47.8)
	Pucca	177(52.2)
4. Occupation	Unemployed	32(9.4)
	Teacher	32(9.4)
	Farmer	82(24.2)
	Business	117(34.5)
	Others	76(22.4)

Results from the study found that 66.96% families were suffering from malnutrition in study areas (Fig. 1.).

Table 2: shows that family type, cast, occupation and house type were strongly associated (p=0.000) with calories intake by families.
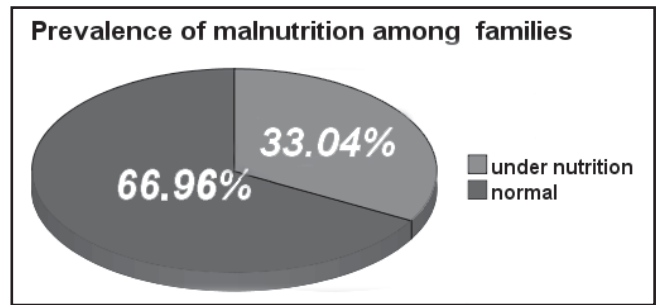
Fig 1: *Prevalence of malnutrition*

DISCUSSION

Dietary assessment is a process designed to determine what kinds of foods a person is consuming and in what amounts. The present study was conducted to find out whether families are meeting their dietary needs and to identify association between demographic variables and nutritional outcome. United Nations Universal Declaration of Human Rights 1948 Article 25 stated that "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, and housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control."[13] But the food and nutrition security remain most fundamental challenge for human welfare and for economic growth. In many countries, sufficient food to meet the needs of all citizens is not even available at a national level.[14] Nepal is a food deficit, land locked and

Table 2: Impact of demographic variables on nutritional status of the families

N =339

		Calories intake		
1. Family type		Less than 2400Kcl	2400Kcl	Total
	nuclear	122	112	234
	joint	105	0	105
Pearson Chi-Square value (75.053), df (1), (p=0.000)				
2. Cast	Brahmin			
	Chhetri			
	Magar only			
	Schedule cast			
	indigenous			
Pearson Chi-Square value (1.149) df(4), (p=0.000)				
3. Occupation	unemployed	32	0	32
	teacher	11	21	32
	farmer	82	0	82
	business	71	46	117
	others	31	45	76
Pearson Chi-Square value (97.222), df(4), (p=0.000)				
4. House type	kaccha	127	35	162
	pacca	100	77	177
Pearson Chi-Square value(18.334), df(1), (p =0.000)				

least developed country. Around forty nine percent of under-five children are chronically malnourished.[15] About eighty per cent of Nepal's people live in rural areas and depend on subsistence farming for their livelihoods. Poor rural people in Nepal generally have large families, very small landholdings or none at all, and high rates of illiteracy, concentrated in specific ethnic, caste and marginalized groups, particularly those of the lowest caste (dalits), indigenous peoples (janajatis) and women. Household food insecurity and poor nutrition are major concerns in these areas.[16] The first health survey of Nepal which was done in 1965/66 among the 6,321 people from 957 households from nineteen different sites of country found that the diet as a whole was lacking in protein, calcium, Vitamin A, riboflavin and ascorbic acid.[17] A random-sampled nutrition survey conducted in Mugu and Humla districts also showed a precarious nutrition situation.[18] National Nutrition Council of Bangladesh estimated that about 45-51% of the total population in Bangladesh were poor based on their calorie consumption. The prevalence of poverty and resulting low calorie consumption was higher in rural than in urban areas.[19] The calorie intake by people of sub-Saharan Africa found 2098Kcal/capita/day only.[20] Similar situation has observed in other developing countries as: National Sample Survey Organization of India conducted a study during 2004 - 2005 found that average daily intake of calories by rural population had 2047 Kcal.[21] Above situations have indicated the food calories intake by rural people in developing countries was found to be low, so it could be key determinant to decline the level of public health in such countries.

Results of the study revealed that, low calories intake among the families was widespread and persistent in rural Palpa. The prevalence of low calories intake by families was to be 66.96%. A study conducted by National Nutrition Monitoring Bureau (NNMB) at different time in India also showed that prevalence of under nutrition in adults was higher in rural areas as compared to urban areas but majority of the urban population who could work in White or blue collar jobs, their energy expenditure for these activities was low, Where average intake of calories by men was 2000 kcal energy/capita/day only.[22] Another survey carried out by NNMB in the rural communities of nine states viz. Kerala, Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujarat, Orissa and West Bengal found that the proportion of preschool children underweight was about 55%, while that of severe underweight was 18%. 33% males and 36% females had chronic energy deficiency. Food and nutrient intake levels were relatively lower in Kerala compared to other states, but the prevalence of under nutrition among young children was low.[23]

Welfare of a household depends on nature of occupation, socio economic condition house type and family type or size, which in turn is based on the nature of the work of the main household earner. All of these veriables are most important to determine level of calorie consumption.[24] Present study indicated that the demographic variables as: family type, occupation of head of the household and type of house were strongly associated (p<0.000) with low calories intake by families as compared to the result from a study conducted by Masuma Khatun, SM Ziauddin Hyder, Abbas Bhuiya and Mushtaque Chowdhury in Bangladesh, where the association between occupation of the household head and family size with prevalence of low calorie consumption among the rural families was Significantly (p<0.001) observable.[25]

CONCLUSION

Most of the indigenous families could spend their life with low calories intake. Nature of occupation, socio economic condition house type and family type or size found to be strong predictors to nutritional outcome in rural communities of Palpa district.

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