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Original Article

Nutritional status of under five-year children from Shinkiari and Bedadi areas of District Mansehra, Pakistan

[1]Farzana Bibi and [2]Shumaila Noreen
Affiliation of Authors:
[1]Department of Bioinformatics, Hazara University Mansehra, Pakistan
[2] Department of Zoology, University of Peshawar, Pakistan

KEY WORDS:
Nutritional, Children, malnutrition, disease

ABSTRACT

Objective: To measure the prevalence of malnutrition with the gender difference and age trend among the children. Information about nutritional status is an indicator of the nutritional situation in our society. **Methodology:** A cross sectional survey was conducted by structured questionnaire, a nutritional status of each child from household was assessed through anthropometric measurements. Two important indicators of nutritional status i.e. disease and malnutrition were studied by measuring the height for age, weight for age and weight for height. **Results:** Children from Shinkiari were more affected and malnourished than those of Bedadi area. Among the Shinkiari children, 59% were found stunted, 40.5% were under weight and 42.9% were wasted. Among the children of Bedadi village, 55.8% were stunted, 46.5% were under weight and 44.2% were wasted. In comparison, nutritional status of girls was found to be more affected than boys, which indicated that the parents paid more attention to boys in comparison to girls. **Conclusion:** Malnutrition rate is very high in District Mansehra, Pakistan due to lack of maternal education and poor quality of food. Malnutrition can be reduced by increasing female education and quality of food for growing population.

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Correspondence: Shumaila Noreen
Department of Zoology, University of Peshawar, Pakistan
Email: Shumail67@hotmail.com

Introduction

Nutrition is the field of science that deals with various factors of food and the way in which proper nourishment is achieved. Good nutrition is the basic unit for survival. health and development1. Nutrition is essential for growth and development, health and for the survival of children and adults [2,3]. It is important in all stages of growth but particularly the infantile phase, where the rate of growth is higher than at any other stage of life and is less dependent on growth hormone (GH) than during other phase.[4]

Malnutrition is a common term for a medical condition caused by an improper or imbalanced consumption of nutrients[5]. A prolong period of malnutrition can cause starvation or scurvy and tuberculosis6, Nutrition deficiencies affect the long-term physical growth and development of persons and may lead to illness and disability in adult stage7. Health and nutrition problems are the outcome of unsatisfactory food intake and repeated infections, or a combination of both. Under nutrition conditions among children remains common in all around the world. According to WHO 2011, about 178 million children under five years displayed short heights and 115 million were underweight.

The same report showed the stunting rate in Asian countries[8].

Nutritional status is determined by parameters including calorie consumption over a given period: intake of protein and other nutrients, neonatal and postnatal mortality, infant mortality, birth weight and child rates9. Over the past ten years, growth monitoring of children under five years of age is the main focus of investigation in Pakistan by many health projects and service institutions but few monitoring has been carried out in rural areas. The most commonly used measure for malnutrition is weight for age[10]. In Pakistan, approximately 25-34% infants are of low birth weight, while 40-49% children under the age of five years are underweight[9].

The present study aimed to observe the nutrition status of below 5 years children from Shinkiari and Bedadi areas of Mansehra and to measure the prevalence of malnutrition with the gender difference and age trend among the children.

Material and Methods

Study area location

The survey was conducted in Shinkiari and Bedadi areas of District Mansehra, KP, Pakistan. These areas are located 15 km in North of Mansehra city on the Karakoram Highway.

Data collection

The details in the questionnaires comprised of household profiles such as members of family, marital status of household heads, education levels, occupation, source of income, dietary status and age of the children.

Studied parameters

Following parameters were studied:

Date of birth: Age was recorded through personal interviews of households and immunization or birth card and arranged in months.

Height: The height of children under 16 months were measured lying flat on measuring boards. The height of children above 16 months was measured standing straight on measuring board

Weight: Weight of children was measured by digital weighing balance.

The data was arranged by WHO standards11. Low weight for age, low height for age and low weight for height are defined as less than two standard deviations (SD) below the median of the WHO child growth standards12,13

Height for age: Height of the children was measured with respect to their age. Children having low height for age were considered as stunted. Data was arranged by formula: % stunted children= (Numerator/denominator)

× 100 Numerator: number of children with height for age below-2 SD
Denominator: total number of children.
Weight for age: Weight of the children was measured with respect to age. Children with low weight for age were considered as underweight.
% underweight children= (Numerator/denominator) x100
Numerator: number of children with weight for age below-2 SD
Denominator: total number of children.

Weight for height: Children whose weight was low for height were considered as wasted.

%wasted children= (Numerator/denominator) × 100
Numerator: number of children with weight for height below-2 SD
Denominator: total number of children (14).

Results

Of the 170 children surveyed. 84 surveyor were selected (50 boys, 34 girls) from Shinkiari and 86 (42 boys, 44 girls) from Bedadi areas of Mansehra. Pakistan.

Nutrition status of Shinkiari
Height for age: According to height for age, more than 35.7% children from Shinkiari were normal, 59.5% were stunted and 4.8% were over height (Table 1),

Weight for age: According to weight for age, 52.4% were normal children, 40.5% were underweight and 7.1% children were overweight (Table 1).

Weight for height: According to weight for height in present study, 42.9% children were normal, 42.9% were wasted and 14.3% were overweight (Table 1).
Nutrition status of Bedadi
Height for age: According to height for age, more than 41.9% children from Bedadi were normal, 55.8% were stunted and 2.3% were over height (Table 2).
Weight for age: According to weight for age, 48.8% children were normal, 46.5% were underweight and 4.7% children were overweight (Table 2).
Weight for height: According to weight for height study, 48.8% children were normal, 44% were wasted and 6% children were overweight (Table 2).
Overall nutritional status of children
Height for age: According to height for age, 38.8% children were with normal heights, 3.5% were over
heighted and 57.6% were stunted (Table 3).
Weight for age: According to weight for age, 50.6% were of normal weight, 43,5% were underweight and 5.9% were overweight. The percentage of stunted children was high than underweight but the percentage of overweight was high than over height.
Weight for height: According to weight for height study, 45.9% were of normal weight, 43.5% were wasted and 10.6% were overweight. The percentage of underweight and wasted was equal in the present study (table 3).
In Bedadi and Shinkari areas, the percentage of stunted children was higher than percentage of underweight and wasted children. The study showed that the girls were more affected in comparison than boys. approximately 25-34% infants are of low birth weight, while 40-49% children under the age of five years are underweight9.
The present study aimed to observe the nutrition status of below 5 years children from Shinkiari and bedadi areas of Mansehra and to measure the prevelance of malnutrition with the gender difference and age trend among the children.

Material and Methods

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North of Mansehra city on the Karakoram Highway.

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Weight: Weight of children was measured by digital weighing balance.

The data was arranged by WHO standards11. Low weight for age, low height for age and low weight for height are defined as less than two standard deviations (SD) below the median of the WHO child growth standards. [12,13]

Height for age: Height of the children was measured with respect to their age. Children having low height for age were considered as stunted. Data was arranged by formula: % stunted children= (Numerator/denominator) × 100 Numerator: number of children with height for age below-2 SD

Denominator: total number of children.

Weight for age: Weight of the children was measured with respect to age. Children with low weight for age were considered as underweight.

% underweight children= (Numerator/denominator) x100

Numerator: number of children with weight for age below-2 SD

Denominator: total number of children.

Weight for height: Children whose weight was low for height were considered as wasted. %wasted children= (Numerator/denominator) × 100

Numerator: number of children with weight for height below-2 SD

Denominator: total number of children (14).

Results

Of the 170 children surveyed. 84 surveyer were selected (50 boys, 34 girls) from Shinkiari and 86 (42 boys, 44 girls) from Bedadi areas of Mansehra. Pakistan.

Nutrition status of Shinkiari

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Nutrition status of Bedadi

Height for age: According to height for age, more than 41.9% children from Bedadi were normal, 55.8% were stunted and 2.3% were over height (Table 2).

Weight for age: According to weight for age, 48.8% children were normal, 46.5% were underweight and 4.7% children were overweight (Table 2).

Weight for height: According to weight for height study, 48.8% children were normal, 44% were wasted and 6% children were overweight (Table 2).

Overall nutritional status of children

Height for age: According to height for age, 38.8% children were with normal heights, 3.5% were over

heighted and 57.6% were stunted (Table 3).

Weight for age: According to weight for age, 50.6% were of normal weight, 43,5% were underweight and 5.9% were overweight. The

percentage of stunted children was high than underweight but the percentage of overweight was high than over height.

Weight for height: According to weight for height study, 45.9% were of normal weight, 43.5% were wasted and 10.6% were overweight. The percentage of underweight and wasted was equal in the present study (table 3).

In Bedadi and Shinkari areas, the percentage of stunted children was higher than percentage of underweight and wasted children. The study showed that the girls were more affected in comparison than boys.

Height for age	Overall	30(35.7)	4(4.8)	50(59.5)	84
	Male	20(40)	4(8)	26(52)	50
	Female	10(29.4)	0(0.0)	24(70.6)	34
Weight for age	Overall	44(52.4)	6(7.1)	34(40.5)	84
	Male	28(56)	4(8)	18(36)	50
	Female	16(47.1)	2(5.9)	16(47.1)	34
Weight for height	Overall	36(42.9)	12(14.3)	36(42.9)	84
	Male	22(44)	8(16)	20(40)	50
	Female	14(41.2)	4(11.8)	16(47.1)	34

Table 1: Nutritional status of children under five years in Shinkiari area.

Parameter	Location	Normal (%)	Above (%)	Below (%)	Total
Height for age	Overall	36(41.9)	2(2.3)	48(55.8)	86
	Male	22(52.4)	0(0.0)	20(47.6)	42
	Female	14(31.8)	2(4.5)	28(63.6)	44
Weight for age	Overall	42(48.8)	4(4.7)	40(46.5)	86
	Male	22(50.4)	4(9.5)	16(38.1)	42
	Female	20(45.5)	0(0.0)	24(54.5)	44
Weight for height	Overall	42(48.8)	6(6.9)	38(44.2)	86
	Male	24(57.1)	2(4.8)	16(38.1)	42
	Female	18(40.9)	4(9.1)	22(50)	44

Table 2: Nutritional status of children under five years in Bedadi area.

Parameter	Location	Normal %	Above (%)	Below (%)	Total
	Shinkiari	36(42.9)	12(14.3)	36(42.9)	84
	Bedadi	42(48.8)	6(6.9)	38(44.2)	86

Table 3: Overall nutritional status of the children under five years.

Discussion

Present study reflects the poor nutritional status of the children of Shinkiari and Bedadi areas of District Mansehra, Pakistan. According to present analysis, 57.6% were stunted, 43.5% were underweight, 43.5% were wasted and 10.6% were overweight in both study areas. The reason was the low maternal education and poor food consumption. Most of the children used Cereals as basic food and very few used milk and eggs in their diet. In these areas, most of the households are uneducated and they have no proper concept of balance diet for their children. In addition, they do not have any good source of income to buy high quality food, which is the main reason of poor nutritional status of these areas. The children below two years, who used milk, eggs and bananas in their diets, have shown good health. Present study is in accordance to the study of Hien and Kam, (2008) conducted in Vietnam children, who were also underweight, stunted and wasted. They concluded that a correlation exists in malnutrition and mother education, family members, birth weight and breastfeeding

time15. Another study predicted that low birth weight has direct relation with nutrition of mother. In their study breastfeeding and feeding practices were acceptable but maternal knowledge related to children were unsatisfactory. Similar results were observed in the present study[16]

Outcome of present study showed similar results with previous study, which designated that no breast feeding has high chance of malnourished17 situations. Similarly delayed weaning after one year of age was associated with malnutrition18. Ruwali, (1999) indicated that stunted growth increases with increase in the age and socioeconomic status has direct relation with stunting, underweight and wasting19. Recently conducted survey reported that education of mothers and other caretakers in the family regarding increased nutritional requirements is important for good health of children. The study recommended the intake of egg in diet on regular basis [20] The health department, the doctors and NGOs working in heath areas should take a step to educate people especially females about the balance diet, use of important food nutrients as milk, eggs, cereals and nuts etc. The education department should take steps to increase the literacy rates in rural areas

Conclusion

Malnutrition rate is high in Shinkiari and Bedadi areas of District Mansehra, Pakistan due to lack of maternal education, poverty in the area and utilization of poor food quality. It is recommended to improve the female education, aware people about balance diet and important food constituents and to increase the quality of food in the area for growing children.

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Declaration Of Interest

The authors declare no conflict of interest.

Author's Contribution.

F.B.: Created concept and design of the research, prepared initial draft, collected data, interpreted the results and generated discussion and conclusion.

S.N: Data collection and Proof reading.