ORIGINAL ARTICLE

MALNUTRITION OR PLAGUE: PREVALENCE AND DETERMINANTS OF CHRONIC MALNUTRITION AMONG PAKHTUN UNDER FIVE YEARS CHILDREN

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ABSTRACT

Objectives: To assess the prevalence and determinants of malnutrition among the Pakhtun under five years children.

Material & Methods: This cross sectional study was carried out at the pediatric wards of Hayatabad Medical Complex, Peshawar, Pakistan from November 2010 to March 2011. A total of 200 children were assessed for anthropometric measurements, biochemical blood indices for some nutrients, feeding and weaning practices and a number of socio-demographic factors.

Results: Major determinants identified in the current study were poverty, gross illiteracy particularly among mothers, large and complex family structures, large family sizes, late and poor weaning practices and frequent infections. The promising feature was exclusive breast feeding up till 9 months (75%). The data showed stunting (low -height- for- age) after one year and wasting (low- weight- for- height) in the age group 06 months up till one year to be very common. Throughout this age group anthropometry exhibited low trends against the WHO standards. Among the underlying nutritional deficiencies anemia with lower hemoglobin level remained a permanent feature and followed by low blood calcium and serum albumin.

Conclusion: Although child malnutrition is multisectorial involving many aspects of life. Poverty, illiteracy, frequent infections, domestic food insecurity and poor dietary practices are the major determinants of malnutrition among the Pakhtuns of this region.

Key Words: Malnutrition, Pakhtun, anthropometric, socio-demographic, dietary practices.

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INTRODUCTION

Malnutrition among children under five years is considered as the major public health concern of south Asian Countries[1]. More than 50% of south Asian children are malnourished[2], and half of the world's malnourished children live in Pakistan, India, and Bangladesh[3]. In this region, Pakistan has the highest infant and child mortality rate[4], reported to be 101 per 1000 live births[5]. One out of every three children is malnourished[6]. Out of which 30-40% is stunted (6.2-8.3 million) and 14% (2.9 million) suffer wasting i.e. low weight for height[7]. If this depressing trend of malnutrition continues it would be unlikely to achieve Millennium Development Goal # 4 of reducing child mortality by 2015[8].

A number of contributing factors have been identified such as lack of proper immunization[9], acute infections[10], birth defects[11], organic diseases[12], maternal malnutrition[13], early cessation of breast feeding[13], maternal illiteracy[1,6,14], gender inequality[6,15,16], food restrictions during illnesses[17], withholding colostrum[18], food taboos[8,19], lack of health facilities[1] and a galaxy of environmental factors are causing the phenomenal rise in child malnutrition[20,21,22]

The rising economic recession and uncontrolled inflation are pushing the families to adopt poor dietary practice in the already bleak circumstances. This domestic food insecurity (both urban and rural) is further adding to number of malnourished children. Pakistan in general and Khyber Pakhtunkhwa in particular remained a center of both man made and natural disasters from more than a decade leading to internal displacement and refugee status. The refugees from Afghanistan have added to the burden of hunger and disease of

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this region since more than three decades. Such circumstances can severely affect nutritional status of the vulnerable groups, especially children under five[22].

MATERIAL & METHODS

This cross sectional study was carried out at the pediatric wards of Hayatabad Medical Complex, Peshawar, Pakistan from November 2010 to March 2011. A total of 200 children were assessed for anthropometric measurements, biochemical blood indices for some nutrients, feeding and weaning practices and a number of socio-demographic factors.

RESULTS

The data regarding the socio demographic indicators (Table 1) revealed that 48.5% father were semi educated while 51% were illiterate with 93% engaged in some type of employment. Majority of mothers were housewives being 84.5% illiterate, a major national concern for the health and education policy makers. Extended joint families were a common feature which might have caused the division of already limited food among large families. Mean family income shows that 63% children belonged to families with mean monthly income in range of Rs. 5000-10,000. Age of weaning is shown in figure 1.

Anthropometric indices of the children showed that mean heights had a normal trend among throughout this age group the mean heights of both genders remained below WHO standards. Severe stunting was

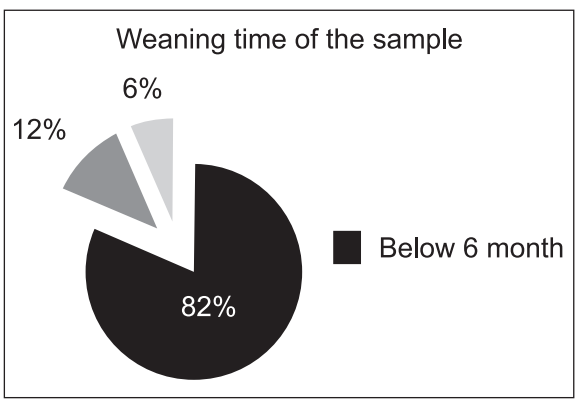

Fig 1: Age of Weaning Introduction

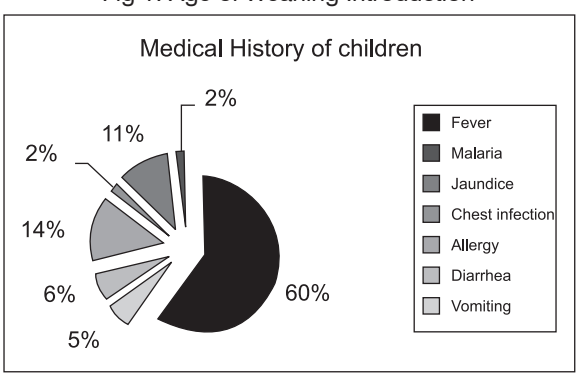

Fig 2: Disease Record of the Children

Table 1: Socio-Demographic Determinants of Malnutrition among the sample

Variable	Category
1. Gender	
Boys	125(62.5%)
Girls	75(37.5)
2. Family Type	
Joint	167 (83.5)
Nuclear	33 (16.5)
3. Occupation/Education(Fathers/Mothers)	
a). Educated	48.5 (24.25)/ 15.5 (7.75)
b). Illiterate	51.5 (25.75)/ 84.5 (42.25)
c). Employed	93 (46.5)/ 2 (1)
d). Jobless/House wives	7 (3.5)/ 98 (49)
4). No of siblings	
2-3	17(8.5)
4-6	155(77.5)
7+	28(14)
5). Total family Size	
4-6	17(8.5)
7-10	162(81)
12+	21(10.5)
6). Family Income	
≤5000	15 (7.5%)
5000-10,000	126 (63%)
10,000-15000	24 (12%)
15,000-20,000	35 (17.5%)

Table 2: Feeding and Weaning Record of the Sample

	No. of patients & percentages
1. Breast feeding	
Exclusive	150 (75%)
Non Exclusive	50 (25%)
2. Weaning record	
Roti (bread)	18 (18.9%)
Tea	8(8.4%)
Rice/kitchri	5(5.2%)
Biscuit/rusks	10 (10.5%)
Vegetabe/fruit	15 (15.7%)
Milk	9(9.4%)
Banana	12 (12.6%)
Potato	6(6.3%)
Regular family meal	7(7.3%)
Other food item	5(5.2%)

observed among the girls from 1 to 3 years indicating a serious dietary discrimination and attention to the health status of girl child in Pakhtuns' society. The weight indices indicated normal ranges among both boys and girls (4.8±2.1 kg and 8.7±2.9 kg) from age of 0-6 months and 6-12 months. While for the rest of the ages mean weights were lower than the WHO standards. Normal mean head circumferences were observed at the age group of 0-6 months, 6-12 months, 2-2.5 year, and 3-3.5 year respectively, while for the rest of the age period means were lower as per recommended standards. The mean MUAC (Mid Upper Arm Circumference) values of both male and female children were less than normal among all age group children except 6-12 months of boys and 1.5-2 year of girls. Medical history of the patients is shown in figure 2.

The biochemical indices of the children showed the mean hemoglobin levels were moderately and severely anemic. 5.8% children had mean Hb 4±2gm/dl. 44.6% and 40.9% children had mean Hb of 7.6±2.7gm/dl and 10.4±3.2gm/dl respectively. About 30% children had low serum sodium level than normal. Majority of children had normal serum sodium level i.e. 70% (139.3±11.8mmol/L), 37% and 59% children had blood potassium level in normal range (3.4±1.8mmol/L and 4.7±2.1mmol/L, respectively). The blood calcium levels were towards the lower limits of the normal reference value. The mean of serum albumin of about 66.6% children was 0.02±0.14g/dl and those of 33.3% children was 5±0.07g/dl which were quite below the reference ranges. Feeding and weaning record of the sample is shown in Table 2.

DISCUSSION

Child malnutrition is considered as the major risk factor to illnesses, apathy, and deaths around the world. Malnutrition is a serious threat to children's physical and mental development and their educational attainment[25]. The findings of the current study positively found the major correlates of poverty, food insecurity at domestic level, and frequent infections mentioned elsewhere[26] to the current scenario of child malnutrition in the KP region. Larger family sizes, extended family structures, lower family incomes, and mass illiteracy particularly among mothers are the major associated risk factors found in our study. A comparatively higher (125 vs. 75) number of boys admitted in the wards is an indication of gender discrimination being done with female children for access to health facilities as compared to male children. Anthropometry of the children showed a better nutritional status up to one year mainly due to exclusive or partial breast feeding but after 9 months of age a decline in all the measurements were observed with a serious wasting around one year and stunting from three and half years. The results are in compliance with the findings of Asfaw et al[27], NNS 2001, NNS 2011 and PDHS 2012-13[28,29,30]. However the indices found were quite below the finding of Laghari et al[31]. The data showed 75% of the mothers exclusively breast fed their babies while 25% babies were fed on either formula, cow or goat milk. As far the weaning practices most of the babies were given first solid at age 6 months however, the food did not meet the criteria of weaning food (complementary food) in any case. The foods given were rotie, tea, biscuits, potato or a portion from the regular family meals. The higher percentage of anemic children (44.6%) having hemoglobin (gm/dl) of 7.6±2.7 and 40.7% children having Hb of 10.4±3.2 is the strongest indication of chronic malnutrition and poor dietary intake/practices of the studied sample. Medical history of the children showed almost all of the children were admitted for acute severe infectious disorders such as diarrhea, jaundice, malaria, respiratory infections etc. The data regarding feeding and weaning practices showed one positive indicator of 75% exclusive breast feeding at least up till age 9 months to one year, however late and poor complementary food have added to the children's misery of overall poor health and resistance. The common reason for the cessation of breast feeding was the successive pregnancy as reported by majority of the mothers which further add to mother child vicious cycle of chronic malnutrition.

CONCLUSION

The causes of malnutrition among the Pakhtun children are interrelated and multi–sectorial that involve many aspects of life ranging from family ecological environment to economic perspective to dietary practices.

RECOMMENDATIONS

Social and health indices needs to be addressed at all levels to support and improve household food insecurity/poverty, health care services at the BHU's, and the deeply imbedded problem of low literacy rate of this region.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Ghaffar F: Conceptualized Designed Critical analysis of the data Statistical analysis and write up to the manuscript

Tanveer S: Data Collection.

Qadir SS: Guided data Collection.

Aslam S: Organizing the content.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.