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**Research Article**

## DIETARY HABITS IN MALNOURISHED CHILDREN UNDER FIVE YEARS OF AGE

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### **Abstract**

**Objective:** The aim of study was to identify the dietary habits in under five years malnourished children.

**Study Design:** A descriptive cross-sectional study

**Place of Study:** The study was conducted in Holy Family Hospital, Rawalpindi

**Materials and Methods:** To determine the dietary habits in malnourished children under 5 year of age. We have done descriptive cross-sectional study at paeds ward Holy family hospital Rawalpindi. 151 children were selected through non-probability convenient sampling and their dietary habits were determined. The mothers of children were taken into confidence and data was collected using a structured questionnaire about dietary habits. The collected data was analyzed via SPSS-16 software. Descriptive statistics were computed for different variables. The instruments used in the process of data collection were measuring tapes and weighing machines.

**Results:** Total numbers of children included in this study were 151 under 5 year of age. 97 (64.2 %) were males and 54 (35.8%) were females, 19.2% were from urban while 80.8% were from rural areas, 6.6% were school going and rest 93.4% were non-school going, Among the occupations of Fathers of these children highest percentage were of Laborers (54%). 95.4% of the mothers of these malnourished children were housewives, of which highest percentage were uneducated i.e 62.9%. Majority (62.3%) of children were exclusively breast fed by their mothers. The percentage of bottle feeding was 51%. A large percentage of children were found to be free of off and on chronic illness. 85 % of children were vaccinated and no history of measles.

**Conclusion:** After the study of malnutrition among children under five years of age we have concluded by using various variables that malnutrition's basic cause is poor dietary habits as early cessation of breast feeding, use of formula milk, unawareness about importance of exclusive breast feeding, uneducation of mother, poverty, lack of essential nutrients in their diet which prevent the body functioning normally.

**Keywords:** Malnutrition, dietary habits, children under 5, undernutrition, breastfeeding.

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## INTRODUCTION:

Malnutrition can be defined as the insufficient, excessive or imbalanced consumption of nutrients.[1] Individuals are malnourished, or suffer from undernutrition if their diet does not provide them with adequate calories and protein for maintenance and growth, or they cannot fully utilize the food they eat due to illness.[2]

Protein-energy malnutrition is the one resulting from deficiencies in any or all major macronutrients, such as carbohydrates etc.

Micronutrient deficiency diseases - resulting from a deficiency of specific micronutrients i.e vitamins and minerals.[3] Micronutrient deficiency is a less crucial. Marasmus is caused by a lack of protein and energy with sufferers appearing skeletally thin. In extreme cases, it can lead to kwashiorkor, in which malnutrition causes swelling including a so-called 'moon face'. [4]

Vitamin and mineral deficiencies (micronutrients) can lead to anaemia, scurvy, pellagra, beriberi and xerophthalmia and, ultimately, death.[5]

The 3 major micronutrient deficiencies in the developing world are iron, iodine (deficiency can cause goiter [enlarged thyroid gland] and can lead to death or mental retardation for a developing fetus), and vitamin A. Vitamin A deficiency is a serious worldwide medical problem because it is the leading cause of preventable blindness in children. Worldwide, iron deficiency is the most common form of malnutrition.[6]

The aetiology of malnutrition is complex and multifactorial. It is usually a consequence of inadequate dietary intake and disease. Factors reported in various studies include initiation of breast feeding and improper weaning, incomplete vaccination, low socioeconomic status, mother's age less than 20 years, poor sanitation of the area, child age <36 months, large family size, low birth weight, maternal education and birth interval.[7]

The three determinants of malnutrition are, The Immediate Determinants of child nutrition status manifest themselves at the level of individual human beings. They are dietary intake (energy, protein, fat, and micronutrients) and health status. The immediate determinants of child nutrition status are in turn influenced by three Underlying determinants manifesting themselves at the household level. these are food security, adequate care for mother and

children and a proper health environment, including access to health services a key factor affecting all underlying determinants is poverty finally the underlying determinant of child nutrition are in turn influenced by Basic determinants. [8]

Malnutrition is directly responsible for 300,000 deaths per year in children younger than 5 years in developing countries and contributes indirectly to more than half of all deaths in children worldwide.[9] Nearly half of all deaths in children under 5 are attributable to undernutrition. Undernutrition puts children at greater risk of dying from common infections, increases the frequency and severity of such infections, and contributes to delayed recovery. Poor nutrition in the first 1,000 days of a child's life can also lead to stunted growth.[10] According to the National Health Service (NHS), UK, it is estimated that around three million people are affected by malnutrition (subnutrition).[1]

The World Health Organization (WHO) says that malnutrition is by far the largest contributor to child mortality globally, currently present in 45 percent of all cases.[1] Another factor related to malnutrition is mother's illiteracy which is prone to end into poor feeding practices and unhealthy child.[11] One of the commonly noticed cause of health problems and malnutrition among children in Pakistan is eating of junk food, one of the poor dietary habit.[12]

The aim of this study is to identify the dietary habits of malnourished children under the age of 5 years. This will help us to give suggestion that will prevent malnutrition in children through various interventions.

Malnutrition can be defined as a state of nutrition where the weight for age, height for age and weight for height indices are below -2 Z-score.[13]

Currently, the WHO recommended the use Z-Score or SD system to grade undernutrition. Children who are more than 2 SD below the reference median (i.e. a Z-Score of less than -2) are considered to be undernourished i.e. to be stunted, wasted or to be underweight. Children with measurements below 3 SD (a Z-Score of less than -3) are considered to be severely undernourished. [14]

Malnutrition limits the potential of a country and is strongly associated with mortality, morbidity, reduced cognitive performance and compromised productivity among its population.[15]

The first years of life form the most significant

developmental period of man's life.[16] Since lifestyle and dietary habits that originate in childhood can extend into adulthood, improving the quality of nutrition is of great importance from a larger perspective.[17]

The worldwide malnutrition estimation rates indicate that 35.8% of preschool children in developing countries are underweight, 42.7% are stunted, and 9.2% are wasted. [18]

Ethiopia has one of the highest child malnutrition rates in the world. A considerable effort to monitor child malnutrition rates over the past two decades shows that, despite some improvements, approximately half of the children under five are still malnourished.[19]

Although, there is a perception that the situation of malnutrition among children is worst in Africa, the problem of malnutrition is much higher in South Asia, for instance, the prevalence of underweight among preschool children is almost double in Bangladesh compared to Somalia or Mozambique and equal to that of Ethiopia.[20]

Chronic malnutrition is one of the major causes of morbidity and mortality among preschool children and the future productivity of nations. To understand the prevalence of chronic malnutrition and to identify the factors affecting height-for-age z-score (HAZ) among preschool children, a cross-sectional study was conducted among 380 randomly-selected children aged less than five years in Dhaka city, Bangladesh. Results of analysis of this study data revealed that the prevalence of stunting among preschool children in Dhaka city was 39.5%, with 25% severely stunted and 14% moderately stunted ( $p<0.001$ ).[21] In Pakistan, 33.03% (CI= 27.96-38.54) of children under the age of 5 are underweight, 53.38% of the children are stunted and wasting has been reported in 11.52% of the children.[22] Data from WHO studies over the period 1996-2005 (period after our data was collected) showed an improvement in this parameter (37% prevalence). This may be due to child health programmes like IMCI that incorporate nutritional counseling or may be due to the data representing urban and rural data.[23]

Malnutrition status was diminished with increasing of the length of previous birth interval. Children who had malnourished mothers were suffering from malnutrition in greater percentage than those of nourished mothers. Children of illiterate mothers were 52.6 percent stunted, 12.2 percent wasted and 55.7 percent under-weighted.[24]

According to the criteria of WHO (WHO,1995), high rate of malnutrition may be attributed to poor environmental sanitation, overcrowding, lack of preventive and curative health services and others socio-economic, cultural and educational factors.[25] Dietary management should be based on improving the existing diets by nutritional counseling and, if needed, by the provision of adapted food supplements providing nutrients that cannot be easily provided by local foods.[26]

For accelerating the progress in betterment of nutrition, requires large scale nutrition-sensitive programs that spread awareness about key underlying determinants of undernutrition and increase the effectiveness of nutrition-specific interventions. These measures will lead to an environment for children in which they can develop to their full potential.[27]

## MATERIALS AND METHODS:

The study design was cross sectional descriptive study. The study was conducted in the Pediatric ward and Pediatric Out Patient Department (OPD) of Holy Family Hospital Rawalpindi. The period of study was of 5 months from March to August 2017. 151 children under 5 years of age were included in study. These children were selected through convenient non probability random sampling in pediatrics ward of Holy Family Hospital Rawalpindi. Our study included malnourished children under 5 years of age that were either admitted in the pediatric ward or visited the pediatric OPD. Both male and female children were included belonging to any socioeconomic class. The exclusion criteria included children who were not malnourished and those above 5 years of age. A self-administered questionnaire was designed for this study. The mothers of children were taken into confidence and parents of children were given assurance of confidentiality about the data and data was collected using a structured questionnaire about dietary habits. The collected data was analyzed via SPSS-16 software. Descriptive statistics were computed for different variables that are Age in months, Weight in Kg, Height in Cm, Number of male siblings, Number of female Siblings, Birth Order of child, Duration of each breastfeed in minutes, Frequency of Breastfeeding per 24 hours, Frequency of bottle feed per 24 hours, Glasses of milk per week, Fruit Intake (Times/week).

## RESULTS:

The total number of children under five years of age included in this study via random sampling were 151 under 5 year of age. 97 (64.2 %) were male and 54 (35.8%) were female. (table 1.1)

TABLE 1.1 Gender of Child

	Frequency	Percent
Male	97	64.2
Female	54	35.8
Total	151	100.0

19.2% of them were from urban while 80.8% were from rural areas (table 1.2)

TABLE 1.2 Area of Residence

	Frequency	Percent
Urban	29	19.2
Rural	122	80.8
Total	151	100.0

Among 151 children, 10 (6.6%) were school going and rest 141 (93.4%) were non-school going (table 1.3)

TABLE 1.3 Schooling Status

	Frequency	Percent
Yes	10	6.6
No	141	93.4
Total	151	100.0

A large percentage i.e 62% of the mothers of these malnourished children was uneducated whereas 16.6% had primary education. Mothers with middle, secondary, intermediate, bachelors and other educations were found to be 6.6%, 7.9%, 4.0%, 1.3% and 0.7% respectively (table 1.4)

TABLE 1.4 Mother's Education

	Frequency	Percent
Uneducated	95	62.9
Primary	25	16.6
Middle	10	6.6
Secondary	12	7.9
Intermediate	6	4.0
Bachelors	2	1.3
Other	1	.7
Total	151	100.0

Majority (62.3%) of children was exclusively breast fed by their mothers and remaining 37.7% mothers did not exclusively fed breast milk to their children. (Table 1.5)

TABEL 1.5 Exclusive Breast feeding

	Frequency	Percent
Yes	94	62.3
No	57	37.7
Total	151	100.0

A large number of mothers breast fed their children from both sides (84.8%). (table1.6)

TABLE 1.6 Breastfeeding from both sides

	Frequency	Percent
Yes	128	84.8
No	23	15.2
Total	151	100.0

The percentage of bottle feeding was 51%. Around 49% of mothers preferred breast milk to bottle milk. (table1.7)

TABLE 1.7 Bottlefeeding of child

	Frequency	Percent
Yes	77	51.0
No	74	49.0
Total	151	100.0

More than half of the mothers living in the urban areas (58.6%) exclusively breast fed their children and even larger percentage (63.1%) of mothers living in rural area did the same. (Relative Table 1.1)  
 Even 63.1% of uneducated mothers exclusively breastfed their children, strangely no mother who did Bachelors exclusively breast fed their children. (Relative Table 1.2)

Relative table 1.1: Relation of area of residence v/s exclusive breast feeding.

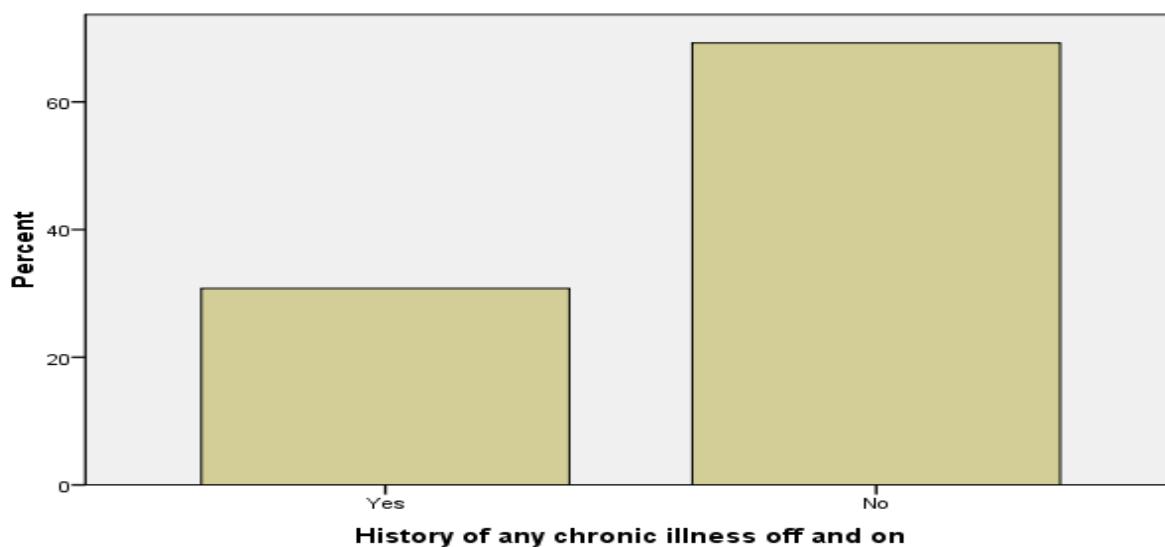
		Exclusive Breast feeding		Total
		Yes	No	
Area of Residence	Urban	(58.6%) 17	12	29
	Rural	(63.1%) 77	45	122
Total		94	57	151

Relative table 1.2: Relation of Mother's education v/s exclusive breast feeding.

		Exclusive Breast feeding		Total
		Yes	No	
Mother's Education	Uneducated	(63.1%) 60	35	95
	Primary	(72%) 18	7	25
	Middle	(60%) 6	4	10
	Secondary	(41.6%) 5	7	12
	Intermediate	(83.3%) 5	1	6
	Bachelors	(0%) 0	2	2
	Other	(0%) 0	1	1
Total		94	57	151

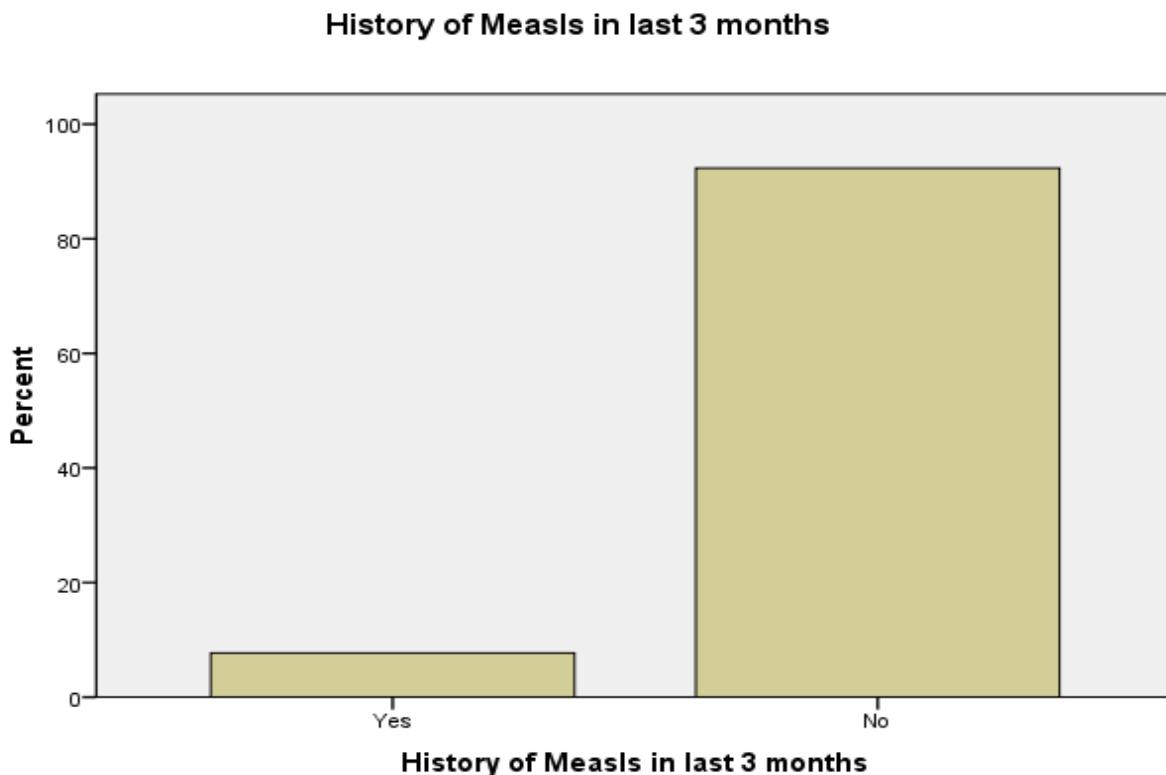
A large percentage of children were found to be free of off and on chronic illness and less were having history of chronic illness (bar chart 2.1)

BAR DIAGRAM 2.1

**History of any chronic illness off and on**

Almost in 85 % of children, there was no history of measles in last 3 months (bar diagram 2.2)

BAR DIAGRAM 2.2



#### DISCUSSION:

For our research topic of dietary habits of malnourished children under five years of age we visited Holy Family Hospital Rawalpindi. We took sample of 151 children admitted in paeds ward. Individuals are malnourished if their diet does not provide them with adequate calories and proteins for maintenance of growth. [2] The worldwide malnutrition estimation rates indicate that 35.8% of preschool children in developing countries are underweight as our study showed that 93.4% of preschool going children were malnourished. [16]

In one of the study it was said that factors related to Malnutrition is mother's illiteracy which is prone to end into poor feeding practices and unhealthy child as in our study conducted in Holy family Hospital Rawalpindi we have seen that 62.9% of mothers were uneducated linking illiteracy of mother directly to malnutrition[11]

During our survey we noticed that one of commonly seen cause of health problems and malnutrition among children of Pakistan is eating of junk food that

is one of poor dietary habit and same results were conducted in one of previous study in Dhaka city. [12]

Our research contained sample of 151 malnourished children and 62.3% were exclusive breastfed. 49% of mothers preferred breast milk to bottle milk. It is contrary to previous research which showed that lack of exclusive breastfeed is the leading cause of malnutrition. [11], [12], [26]

WHO says that malnutrition used to be seen as something that complicated such diseases as measles and other infectious diseases but our research showed that in 85% of children there were no history of measles but at the same time we have seen children with on and off chronic illness such as diarrhea, common cold, fever and some other infectious diseases i.e chicken pox, malaria, typhoid fever etc. [1]

The overall prevalence in one of study in Pakistan showed that 61.0% of malnourished children were from rural areas. [23] And our research showed the

same as 80.8% of malnourished children were from rural areas. This is because of poverty, lack of food, poor sanitary conditions, open sewerage system, lack of preventive and curative health services, family income and social class etc.

By comparing the overall results and causative factors of malnutrition we can conclude that improving the existing diets by nutritional counseling and provision of adapted food supplements we can prevent malnutrition under five years of age. [27]

### **CONCLUSION:**

According to our study, 151 children were taken as sample. After the study of malnutrition among children under five years of age we have concluded by using various variables that malnutrition's basic cause is poor dietary habits as early cessation of breast feeding, use of formula milk, unawareness about importance of exclusive breast feeding, un education of mother, poverty, lack of essential nutrients in their diet which prevent the body functioning normally. Various study variables were used to determine the relationship between malnutrition and dietary habits. And it has proven that by mother's proper education and knowledge about importance of healthy diet and important nutrients of child's diet can prevent malnutrition in the children.

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