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Research Article

**REVEALING THE FACTORS CAUSING MALNUTRITION IN  
INFANTS: A CROSS-SECTIONAL STUDY****<sup>1</sup>Dr. Nawal Talib, <sup>2</sup>Dr. Muhammad Mobeen, <sup>3</sup>Dr. Beenish Suhail**  
<sup>1,2,3</sup>Rawalpindi Medical University, Rawalpindi**Abstract:**

**Objective:** The main objective of the present study was to get knowledge about the diet routines of low weight emaciated children having age less than five years.

**Study Design:** Cross-sectional description base study.

**Place and Duration of Study:** The study was conducted at Pediatric ward of Holy Family Hospital (HFH), Rawalpindi for the duration of six months from March, 2018 to August, 2018.

**Materials and Methods:** A total number of 151 children were selected for the study that were having low body weight and looked emaciated. Non-probability convenient method was used for the selection and their eating routines were decided. The data was collected through already designed questionnaire after taking parents of the children into confidence. SPSS-16 was used to analyze the gathered information. Different variables were calculated through descriptive statistics. Weighing machines and measuring tapes were used during the information gathering process.

**Results:** The current study consists of a total of 151 children having age < 5 years. Percentage of males and females was as 64.2 % (97) and 35.8% (54) respectively, urban and rural areas as 19.2% and 80.8% accordingly; school going and non-school going as 6.60% respectively. With 54% of highest ratio, occupation of children's fathers was laborer and mothers were housewife of 95.4% emaciated children. 62.9% mothers were illiterate and 62.3% mothers fully breast fed their infants. 51% babies were fed through feeder bottle. Chronic disease was not found in a large number of children. Vaccination was carried out in 85% children and no signs of measles were observed in the children.

**Conclusion:** Subsequently studying the malnourishment amongst kids having age of < 5 years by means of various variables found that basic reasons of malnutrition is insignificant eating routines as unfamiliarity about prominence of absolute breast feeding, early termination of breast feeding, formula milk usage, illiteracy of parents, lack of essential nutrients in their food which prevent the body functioning normally and poverty.

**Keywords:** Breastfeeding, Undernutrition, Malnutrition, Dietary habits, Children < 5 years.

**Corresponding author:**

**Dr. Nawal Talib,**  
Rawalpindi Medical University, Rawalpindi.

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**INTRODUCTION:**

Imbalanced, insufficient or excessive intake of nutrients is known as malnutrition [1]. When some one's food doesn't provide sufficient protein and calories for growth and maintenance or because of sickness they are unable to digest the diet eaten then such persons are malnourished [2]. Insufficiencies in all or any main macronutrients, such as carbohydrates etc, will result in Protein-energy malnutrition.

Shortage of definite micronutrients i.e minerals and vitamins will result in diseases of Micronutrient deficiency [3]. Reason of marasmus is deficiency of energy and protein due to which patients looks skeletally thin but insufficiency of micronutrient is less critical as in extreme cases deficiency of protein and energy lead to kwashiorkor, in which swelling also known as moon face is the result of malnutrition [4].

Beriberi, xerophthalmia anaemia, scurvy, pellagra and at the end mortality is the results of deficiency of vitamin and mineral also called micronutrients [5]. Iodine deficiency can cause goiter (enlarged thyroid gland) and can lead to mental retardation for a developing fetus or death. In under development countries deficiency of vitamin-A, iron and iodine are three main micronutrient deficiencies. In children, leading reason of preventable blindness is the deficiency of vitamin-A which is also a severe clinical problem globally. the most common form of malnutrition in the whole world is deficiency of iron [6].

Malnutrition etiology is multifactorial and composite which is normally because of illness and insufficient food intake. Incomplete vaccination, large family size, low birth weight, low socioeconomic status, mother's age less than 20 years, birth interval, poor sanitation of the area, child age <36 months, parental education, beginning of breast feeding and unsuitable weaning are the factors reported in various studies [7]. Adequate care for mother and children, a proper health environment and food security are the three determinants of malnutrition including access to health services. The foremost reason of child malnutrition is poorness [8].

With indirect contribution >1/2 of all deaths of children globally, malnutrition is clearly blamable for 3 million mortalities in a year in children with age > 5 years of emerging realms [9]. Increase in severity and frequency of infections with delayed recovery and increased chance of death, might be the results of undernutrition. Stunted growth of the infants might be due to the poor nutrition in first thousand days after the birth [10]. Three million people are affected

by malnutrition / sub-nutrition, assessed by the National Health Service (NHS), UK [1]. Malnutrition contributes 45% from all death cases of children globally according to the World Health Organization (WHO) [1].

Behind unhealthy child due to poor feeding there is another factor related to malnutrition that is illiteracy [11]. Among the poor dietary habits one is consumption of junk foods which is very commonly noticed in Pakistani children causing malnutrition and health related problems [12]. Where the weight for height, weight for age and height for age indices are below -2 Z-Score, such a condition of nutrition is known as malnutrition [13]. Usage of SD system or Z-Score system to grade undernutrition is presently recommended by WHO. Those children are considered undernutrition that is to be underweight or stunted in which Z-Score is < -2 or SD in > 2. Those children are considered to be severely undernourished where the values of SD are < 3 or Z-Score is < -3 [14].

Compromised efficiency among populace reduced intellectual performance, diseases and deaths are strongly connected with malnourishment and it limits the potential of a country [15]. The most important developmental period of human's life is formed in the 1<sup>st</sup> year of life [16]. From a large point of view improving the quality of nutrition have great importance, as the habit of diet and lifestyle of childhood may extend into adulthood [17].

Percentage of wasted, stunted and underweight of nursery children in underdevelopment countries are 9.2%, 42.7% and 35.8% respectively according to an estimation of malnutrition worldwide [18]. Highest child malnutrition rates in the world are there in Ethiopia. Regardless of some improvements, nearly half of the children less than five years of age are still malnourished according to a monitoring effort of child malnutrition average over the past two decades [19]. Even though, according to an observation that the condition of malnutrition between children in Africa is worst, the problem of malnutrition is much greater in South Asia, for example, the occurrence of low weight among nursery children is almost double in Bangladesh as equated to Mozambique or Somalia and equal to that of Ethiopia [20].

Amongst main reasons of disease and death chronic malnutrition is the one of it. A cross-sectional study was carried out on 380 randomly-selected children with <5 years of age in Dhaka city, Bangladesh to identify the factors affecting and to recognize the frequency of chronic malnutrition on height for age Z-Score (HAZ). According to the information

collected from this study the occurrence of stunting, moderate stunting and severely stunting was as 39.5%, 14.0% and 25.0% respectively in infants of Dhaka city [21]. Underweight, stunted and wasted children of Pakistan were reported in a study as 33.03%, 53.38% and 11.52% respectively with CI=27.96-38.54 [22]. An improvement in this parameter was seen with occurrence of 37%, in the data collected from WHO studies over the period 1996 – 2005. The reason of it might be programs of child health like IMCI that include nutritional analysis or because of information showing rural and urban areas [23]. By increasing the time period between birth, malnutrition status was eliminated. Babies of malnourished mothers compared to nourished mothers were facing higher percentage of malnutrition. Stunted, wasted and underweight children of illiterate mothers were as 52.6%, 12.2% and 55.7% [24].

High average of malnutrition might be due to educational factors, cultural, socio-economic, lack of preventive and curative health services, overcrowding and poor environmental sanitations as per the criteria of WHO, 1995 [25].

#### MATERIALS AND METHODS:

The current research was descriptive and cross-sectional study. The study was held at Pediatric ward

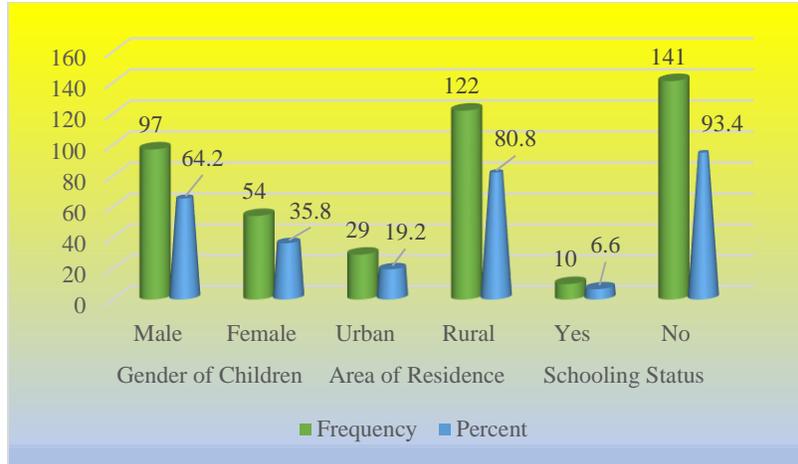
of Holy Family Hospital, Rawalpindi for the duration of six months from March, 2018 to August, 2018. A total 151 children were selected for the study that were having low body weight and look emaciated. Non-probability convenient method was used for the selection. There was no restriction of gender and socioeconomic class of the patients but the age, which must be less than 5 years. All the selected children were suffering from malnourishment and were either visited the hospital or admitted in the pediatric ward. Their eating routines were decided. The data was collected through already designed questionnaire after taking parents of the children into confidence. Different variables were calculated through descriptive statistics like number of male and female, weight, height, birth sequence of children, frequency of breast feeding per day, fruit eating habits, glasses of milk per week and quantity of bottle feeding every day. SPSS-16 was used to analyze the gathered information.

#### RESULTS:

Quantity of male and female children were as 97 (64.2 %) and 54 (35.8%) respectively of total selected 151 patients with the age less than 5 years. School going and not going to school ratio was as 10 (6.60%) and 141 (93.4%) respectively. Urban and rural areas patients were as 19.2% and 80.8 % accordingly. Table one shows the data.

**Table No 01: Percentage and Frequency of different variables**

| Variables          | Frequency | Percentage |        |
|--------------------|-----------|------------|--------|
| Gender of Children | Male      | 97         | 64.2 % |
|                    | Female    | 54         | 35.8 % |
| Area of Residence  | Urban     | 29         | 19.2 % |
|                    | Rural     | 122        | 80.8 % |
| Schooling Status   | Yes       | 10         | 6.60 % |
|                    | No        | 141        | 93.4 % |

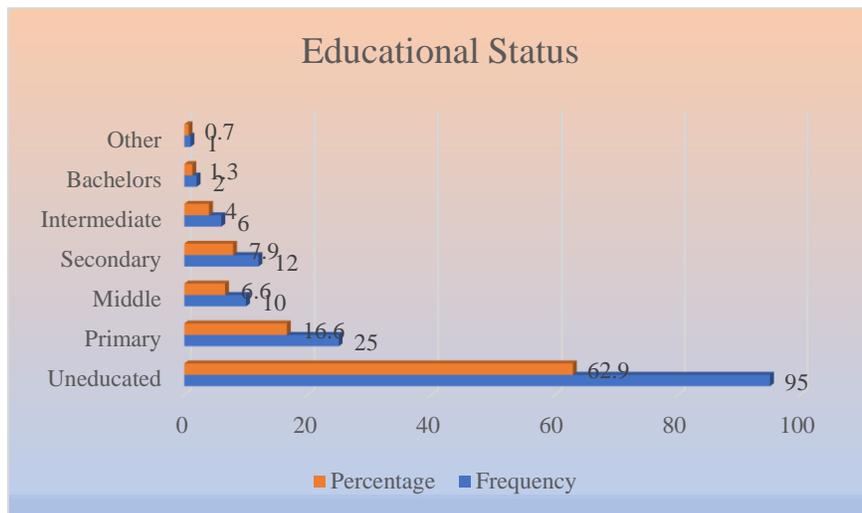


Educational status of these malnourished children’s mothers was also gathered. Highest ratio of children’s mothers as 62.0% was found illiterate, rest was 6.60%middle, 7.90% secondary, 4.0%

intermediate, 1.30% bachelor and 0.70% other educations. Tabular information is presented below in table no 02.

**Table No 02: Educational Status of Children’s Mothers**

| Educational Status | Frequency  | Percentage   |
|--------------------|------------|--------------|
| Uneducated         | 95         | 62.9 %       |
| Primary            | 25         | 16.6 %       |
| Middle             | 10         | 6.6 %        |
| Secondary          | 12         | 7.9 %        |
| Intermediate       | 06         | 4.0 %        |
| Bachelors          | 02         | 1.3 %        |
| Other              | 01         | 0.7 %        |
| <b>Total</b>       | <b>151</b> | <b>100 %</b> |

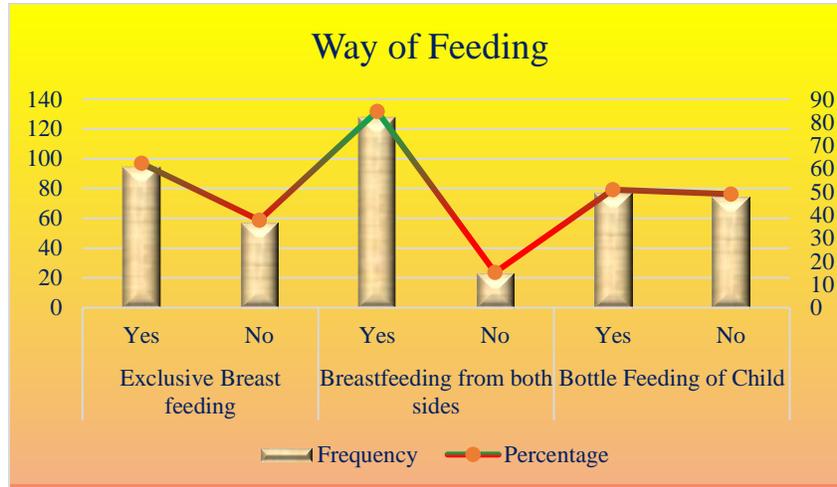


Exclusively breast-fed children were in majority as 62.30% and partially breast-fed children were 37.70%. 84.40% mothers fed their children from both sides and 51.0% used bottle feeding to their babies.

Mothers who preferred breast feeding on to bottle feeding were 49.0%. Data is shown below in tabular form.

Table No 03: Milk Feeding of Children

| Way of Feeding                |     | Frequency | Percentage |
|-------------------------------|-----|-----------|------------|
| Exclusive Breast feeding      | Yes | 94        | 62.3       |
|                               | No  | 57        | 37.7       |
| Breastfeeding from both sides | Yes | 128       | 84.8       |
|                               | No  | 23        | 15.2       |
| Bottle Feeding of Child       | Yes | 77        | 51.0       |
|                               | No  | 74        | 49.0       |

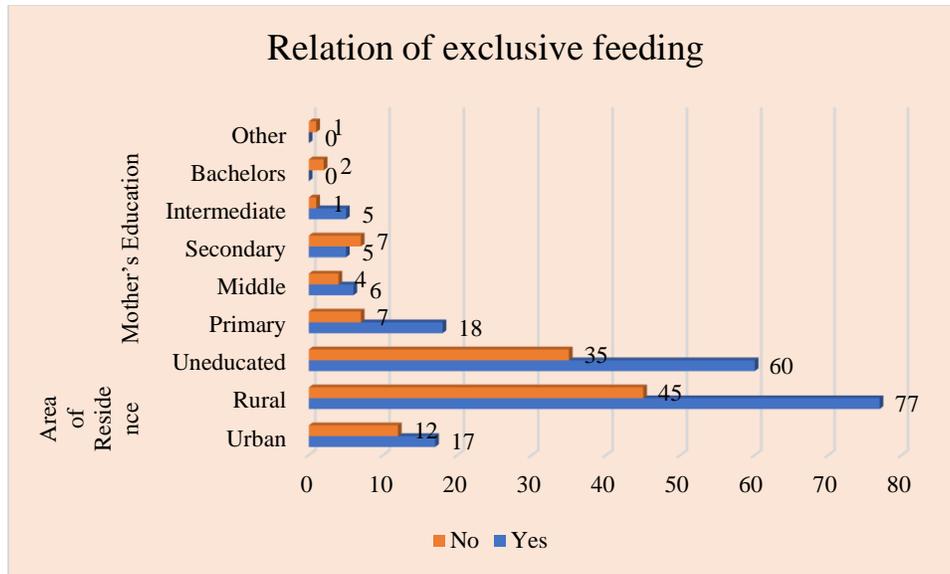


58.60% of mothers from urban areas, 63.10% of mothers from rural areas and 63.10% illiterate mothers exclusively breast fed their babies.

Astonishingly, bachelor mothers didn't breast fed their children. Table no 04 below describes the data.

Table No 04: Relation of exclusive feeding and area/educational status of mothers of children

| Statistics         |              | Exclusive Breast feeding |    | Total |
|--------------------|--------------|--------------------------|----|-------|
|                    |              | Yes                      | No |       |
| Area of Residence  | Urban        | 17                       | 12 | 29    |
|                    | Rural        | 77                       | 45 | 122   |
| Mother's Education | Uneducated   | 60                       | 35 | 95    |
|                    | Primary      | 18                       | 7  | 25    |
|                    | Middle       | 6                        | 4  | 10    |
|                    | Secondary    | 5                        | 7  | 12    |
|                    | Intermediate | 5                        | 1  | 6     |
|                    | Bachelors    | 0                        | 2  | 2     |
|                    | Other        | 0                        | 1  | 1     |

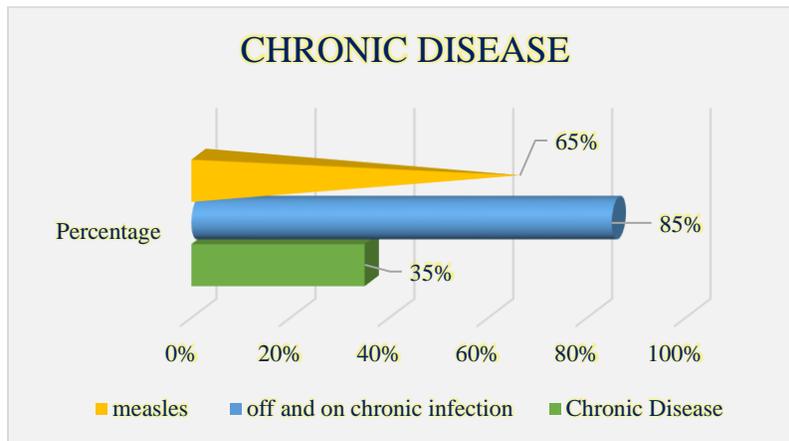


35% of kids were having history of chronic disease and 65% were not found with off and on chronic infection. In last three months children with

no history of measles were 85%. Data is represented in table below.

**Table No 05: Statistics of Chronic Disease**

| Statistics                   | Percentage |
|------------------------------|------------|
| Chronic Disease              | 35%        |
| Off and On Chronic Infection | 85%        |
| Measles                      | 65%        |



**DISCUSSION:**

The present study was conducted in Holy Family Hospital, Rawalpindi with a sample size of 151 malnourished children having age <5 years. When some one's food doesn't provide sufficient protein and calories for growth and maintenance or because of sickness they are unable to digest the diet eaten

then such persons are malnourished [2]. According to the findings of our study 93.40% preschool going kids were undernourished, whereas, in developing countries 35.8% cases of malnutrition were indicated globally [16]. Behind unhealthy child due to poor feeding there is another factor related to malnutrition that is illiteracy [11], while in present study

malnutrition due to illiteracy was 62.9%.

Habit of eating junk food in the children of Pakistan was also observed as the high-risk factor of malnutrition during the current study which is similar to a study conducted in Dhaka city [12]. Deficiency of exclusive breastfeed was observed as the leading cause of malnutrition in some previous studies [11, 12, 26], but contrary to these researches, found 62.3% of exclusive breast fed and 49% mothers preferring the breast milk over bottle milk during present study.

According to the findings of our research study there were no history of measles in 85% cases, meanwhile, on and off chronic illness such as typhoid fever, malaria, diarrhea, common cold, fever and some other infectious diseases i.e chicken pox etc were observed in the patients. But according to the WHO measles and other infectious diseases are somewhat linked with malnutrition [1]. Occurrence of malnourishment in the children of rural areas of Pakistan in a study was 61% [23], whereas, 80.8% prevalence of malnutrition in kids of rural areas was observed during current study.

Malnutrition in kids having age <5 years, can be ward off through improving the present nourishments by nutritional analysis and by providing improved food supplements [27].

### CONCLUSION:

Subsequently studying the malnourishment amongst kids having age of < 5 years by means of various variables it was concluded that basic motives of malnutrition is insignificant eating routines as unfamiliarity about prominence of absolute breast feeding, early termination of breast feeding, formula milk usage, illiteracy of parents, lack of essential nutrients in their food which prevent the body functioning normally and poverty. Used several variables to verify the affiliation among dietary habits and malnutrition. Conclusion is made that prevention from malnutrition can be acquired through educating and giving the proper information about important nutrients and healthy diet to the parents of the children.

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