

**Clinico- epidemiological study of moderately and severely malnourished
children attended Tikrit Teaching Hospital**

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Abstract

Malnutrition in certain communities represents both medical as well as social problem that may contribute in or aggravate other illness. To evaluate the clinical and epidemiological criteria of Malnutrition among children and its relevance factors in Tikrit province.

Patients and methods: This study was conducted in Tikrit Teaching Hospital for the period from April/ 2005 to June/ 2005. One hundred fifty children with moderate to severe malnutrition were included. The age range was 6 months to 60 months (mean 18, SD 11). Children were clinically examined for signs of malnutrition. Assessment of malnutrition was based on anthropometric measures weight and height depending on percentage of median and standard deviation charts (Z score). A pre- constructed questionnaire was prepared for this purpose which includes; age, sex, residence, type of feeding, educational level and occupation of parents, and water supply. The results revealed that the highest percentage of malnutrition was found among those with 6- 11 months (46%). Female were more affected than male (54% vs. 46%). The majority of children suffering from malnutrition were belong to families reside in rural areas 114 (76%). The educational levels of mother, type of feeding are also arise as contributing factors of malnutrition. Socio-epidemiological factors and contributing in the markedly prevalent malnutrition among children of 6 months to 5 years old in Tikrit province Increase the health education of mothers about the importance of breast feeding and avoid early feeding of liquid or solid diet and good sanitation.

Keywords: malnutrition, breast- feeding, Tikrit province.

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Introduction

Malnutrition in certain communities represents both medical as well as social problem. Thus a disease may frequently result from chronic nutritional and emotional deprivation, because poor understanding poverty or family disintegration are unable to provide the child with the nutrition and care [1, 2]. Poverty is the root cause of malnutrition, while infectious disease act as aggravating factors particularly in developing countries where malnutrition and infection are widely prevalent and often co- exist [3, 4]. Malnutrition is one of the leading causes of morbidity and mortality during childhood. It may be arising either due to dietary deficiency or due to other diseases [5, 6].

Poor socio-economic status of the family contributes in the development of malnutrition especially in developing countries that also affects children growth through non-dietary factors such as sanitation, beliefs, customs and ignorance [7]. Education of parents is important that make better decision to promote their children's growth and health [8]. Quantity and quality of diet play an important role in child health as low quality diet impede vitamins intake and low absorption of minerals [9].

Patients and methods:

This study was conducted in Tikrit General Hospital for the period from April/ 2005 to June/ 2005. One hundred patients with moderate to severe malnutrition were included in this study. The age range was 6 months to 60 months. Inpatients (pediatric ward) as well as outpatients (outpatient clinic) were enrolled. A pre- constructed questionnaire was prepared for this purpose which includes; age, sex, residence, type of feeding (breast, bottle, mixed feeding or ordinary feeding), weaning time, any associated illness (gastroenteritis, chest infection), educational level, occupation of parents, and water supply. Patients were examined thoroughly including general physical examination and for signs of malnutrition. Assessment of malnutrition was based on anthropometric measures weight and height depending on percentage of median and standard deviation charts (Z score). The patients were classified either moderately malnourished or severely malnourished 75- 60% or 2Z to 3Z [10]. Data analysis was done by using Chi- square as a test of significant.

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Results:

Children enrolled in the present study were categorized into 5 groups according to their ages. Table (1) showed the number and percentage of each group. The highest percentage of malnutrition was found among those with 6- 11 months (46%) compared to other age groups.

Table (1): Distribution of children according to age

Age group (Months)	No. of children	%
6- 11	71	46
12- 23	40	27
24- 35	25	17
36- 47	9	6
48- 60	5	4
Total	150	100

The distribution of malnourished children according to sex was illustrated in table (2). The percentage of malnutrition was found to be slightly higher in female children compared to male children (54% vs. 46%). However, the difference between the two groups was statistically insignificant ($p > 0.05$).

Table (2): Distribution of children according to sex

Sex	No. of children	%
Male	69	46
female	81	54
Total	150	100

The distribution of malnourished children according to the area of residence was shown in table (3). Malnourishment was found to be significantly higher ($p > 0.05$) among children belong to families reside in rural areas 114 (76%) compared to those reside in urban areas 36 (24%).

Table (3) Distribution of children according to residence

Residence	No. of children	%
Rural	114	76
Urban	36	24
total	150	100

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Result in table (4) showed the distribution according to the levels of mother' s education whose their son or daughter suffering from malnutrition. Illiterate mothers forming the highest percentage 65 (43%), which was significantly higher ($p \leq 0.05$) compared to other groups.

Table (4): Distribution of children's mother according to educational levels

educational level	No. of mothers	%
Illiterate	65	43
Read & write	52	35
Primary school	26	17
Intermediate school	3	2
Secondary school	1	0.6
Higher education	3	2
Total	150	100

According to severity of malnourishment status, severe malnutrition was found in 84 (56%) of children, while moderate malnutrition was found in 66 (44%) children, The difference between the two groups was statistically significant ($p < 0.05$), table (5).

Table (5): Distribution of children according to severity of malnutrition

Category	No. of children	%
Severe malnutrition	84	56
Moderate malnutrition	66	44
Total	150	100

Table (6) revealed the distribution of malnourished children according to their type of feeding. malnourished children breast feeding 83 (55%) was significantly higher than among other types of feeding ($p < 0.05$).

Table (6): distribution of children according to type of feeding

Type of feeding	No. of children	%
Breast feeding	83	55
Bottle feeding	25	17
Mixed feeding	7	5
Family feeding	35	23
Total	150	100

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Discussion

The total malnourished children included in the present study were 150 children. The results showed that the highest percentage of them were less than 24 months old. This may be attributed to the high growth potentials during this period of physical and mental development, so any insult affecting the growth in this period can be easily recognized. It has been well known that younger children are at much greater risk of dying from hunger than older children. Furthermore, it has been estimated that more than one- fourth of all deaths occur in children in developing countries less than 60 months of age mostly during the first three years of life [4, 6, 7].

Regarding the sex distribution, the result showed that females forming a higher percentage than males. This may be due to the social habits in offering a better care and rising to the males especially in rural areas [1, 5].

There is a significant association between the residence and vulnerability to malnutrition among children. The higher percentage of malnutrition in rural areas obtained in this study may be related to poor sanitation, deep rooted beliefs, customs, dietary habits in the rural areas, like using tea alone, or with yogurt, or using a juice in bottle instead of milk. Several studies from Asia, Africa and South America have documented that addition of tea with breast or bottle- feeding may increase the risk of diarrhea and probability death [9, 11, 12].

It has been documented that the earlier the introduction and excessive food in addition to breast- milk, the higher chance of diarrhea and other causes of morbidity, malnutrition and mortality among children [9,13]. The family with low income may be a contributing factor for early introduction of solid food especially cereal in the bottle and excessive use of foods that are high in sugars [3, 8]. The sudden and early weaning of the baby from breast or bottle feeding, by enforcing the baby to take the usual family diet is another bad habit in our community that may contribute in malnutrition [1, 2, 7].

The current study also found that the educational levels of the mothers is important in decreasing the risk of malnutrition, because better educated mothers may make better decision regarding their children's care, which in turn is likely to promote child growth and health [3, 14].

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The higher percentage of children with malnutrition was on breast- feeding. This is may be due to the defect in the family diet that affects the lactating mothers and consequently their children [4, 9, 13].

To minimize the impact of malnutrition in our community, better education of mothers about the importance of breast feeding, avoid early introduction of liquid or solid diet to the babies, beside good sanitation, providing clean water and compliance with national immunization program are recommended.

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