

Malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan

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Abstract: *a study was conducted on Malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan. The objectives of the study were to measure the prevalence of malnutrition and to identify the relationship between some factors and malnutrition. Anthropometric measurements were conducted on all the children (182) in the centre. The prevalence of malnutrition was 37.4%. Severe malnutrition was found in 12(17.7%) of malnourished children, moderate malnourished were 26(38.2%) and mild malnourished were 30(44.1%). Malnutrition was associated with age (p value=0.001) and place of birth (odds ratio=5.1, 95% confidence interval=2.4-10.9). Age of child and presence of diarrhoea were associated with malnutrition. The role of mother and family in nutritional status needs to be more investigated.*

Key words: malnutrition, abandoned, orphanage, prevalence, Sudan

1. Introduction

Malnutrition is the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions [1]. Malnutrition is worldwide health problem particularly in developing countries [2]. It continues to be a significant public health and development concern not only in developing country but also in the world [3]. The World Health Organization estimated that number of malnourished children is 181.9 million (32%) in developing countries leading to 50% of the 10 million deaths each year [4].

There are several methods for evaluating a patient's nutritional status, including anthropometric measurements, dietary intake, biochemical parameters, and resting energy expenditure [5]. Many anthropometric indicators can be used to identify malnourished children, such as mid-upper arm circumference (MUAC), MUAC-for-height, weight-for-age, height-for-age, weight-forheight, and body mass index of Quetlet. Most of these indicators need to be used along with specific reference tables [2].

Adequate nutrition during infancy and early childhood is important to the development of child [6]. In addition to insufficient nutrition, there are some reasons behind malnutrition such as diarrhoea. Diarrhoeal diseases are very important cause of malnutrition in children under five years old. Diarrhoea can lead to malnutrition and malnutrition can predispose to diarrhoea. Each episode of diarrhoea deprives the child of the nutrition necessary for growth [7].

2. Materials and Methods

2.1. Study Setting

Mygoma Orphanage is a public institution established in 1961 under the name of Maternity and Childhood Hospital and supervised by Federal Ministry of Health to care for abandoned children up to 4 years of age. It is located in Khartoum, capital of the Sudan. Most of children admitted to

the centre are result of illegitimate pregnancies. They are mainly abandoned just after birth and brought by the police authorities to the centre. Feeding, cleaning, educating and health care are services provided to children by the centre staff and sponsored by Ministry of Social Affairs and Ana Al Sudan Organization.

2.2. Data Collection Methods

Relevant data were collected from all abandoned children in the centre (182) at the time of study. The collection methods used were questionnaire, measurement of weight and height and records.

3. Results

The prevalence of malnutrition among infants was 37.4% (table 1). The findings showed that 114(62.65) of study population were normal, 30(16.5%) were mild malnourished, 26(14.3) were moderately malnourished and 12(6.6%) were suffering from severe malnutrition as shown in table 2. Table three illustrated the relationship between malnutrition and some factors. About 31(34.8%) of malnourished infants were males, most of malnourished infants 51(45.1%) were less than 3 months of age (p value=0.001), and 54(43.5%) were born in unknown place. About 27(67.5%) of malnourished infants were developed diarrhoea (odds ratio=5.1, 95% confidence interval=2.4-10.9).

Table 1: Prevalence of malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan (n=182)

Nutritional Status	No	%
Normal	114	62.6
Malnourished	068	37.4
Total	182	100

Table 2: Classification of malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan (n=68).

Level of malnutrition	No	%
Mild malnutrition	30	44.1
Moderate malnutrition	26	38.2
Severe malnutrition	12	17.7
Total	68	100

Table 3: Relationship between some factors and malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan (n=182)

Child Sex	Malnutrition				Total		OR	%95 CI	P value
	Malnourished		Well-nourished		No	%			
	No	%	No	%					
Male	31	34.8	58	65.2	89	48.9	0.8	0.4-1.5	0.001
Female	37	39.8	56	60.2	93	51.1			
Child age									
<3 months	51	45.1	62	54.9	113	62.1			
3-6 months	15	39.5	23	60.5	38	20.9			
7-12 months	1	10	9	90	10	5.5			
>12 months	1	4.8	20	95.2	21	11.5			0.107
Birth place									
Unknown	54	43.5	70	56.5	124	68.1			
House	10	26.3	28	73.7	38	20.9			
Hospital	4	20	16	80	20	11			
Presence of Diarrhoea									
Present	27	67.5	13	32.5	40	22	5.1	2.4-10.9	
Not present	41	28.9	101	71.1	142	78			

OR=Odds Ratio, CI= Confidence Interval

4. Discussion

Usually, infants less than year of age are vulnerable to develop several diseases. Malnutrition is a major threat to these age group children particularly poor and orphan children. WHO estimated that malnourished children were 32% in developing countries [4]. Our study revealed that the prevalence of malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan was 37.4%. Although this percentage was high, many previous studies reported high percentages of malnutrition in different regions in developing countries. In India 47% of all children below 3 years of age are undernourished [8]. In Sudan, Taha et al mentioned that malnutrition situation in different schools in Khartoum State, Sudan for children between 7 to 12 years is considering a serious issue; about 44% of boys and 46% of girls were malnourished [9].

In this study, majority of malnutrition was mild which is easy to be managed by certain nutritional intervention. The present study observed statistical association between malnutrition and age of child (p value=0.001). In a study conducted in rural DR Congo, Malnutrition rates increased from the 0-5 to the 6 – 11 months age category [10]. The most common age groups with PEM were 6 to 12 months (55.7%) and 13 to 24 months (36.8%) [11]. Also a statistical association was found between malnutrition and presence of diarrhoea (odds ratio=5.1, 95% confidence interval=2.4-10.9). High magnitude of malnutrition observed among children who had diarrhoea [3].

5. Conclusion

The prevalence of malnutrition among Infant Children in Mygoma Orphanage Centre, Khartoum, Sudan was high. The role of mother and family in determining the child nutritional status needs to be more investigated. Age of child and presence of diarrhoea were associated with malnutrition.

6. Acknowledgement

Our thanks go to the administration and staff in Mygoma Orphanage Centre for giving us an opportunity to search in the centre and for providing the valuable information.

References

- [1] Roselyne Akugizibwe, Josephine Kasolo, Duncan B. Makubuya and Ali M. Damani. Missed opportunities in the diagnosis and management of protein energy malnutrition among children under 5 years in Wakiso district, Uganda. *J. Public Health Epidemiol*, 5(11), pp. 463-470, November 2013
- [2] Bobby Joseph, Aaron Rebello, Poonam Kullu, and Vimal D. Raj. Prevalence of Malnutrition in Rural Karnataka, South India: A Comparison of Anthropometric Indicators. *J Health Popul Nutr*, 20(3):239-244. Sep 2002.
- [3] Bantamen G, Belaynew W and Dube J. Assessment of Factors Associated with Malnutrition among Under Five Years Age Children at Machakel Woreda, Northwest Ethiopia: A Case Control Study. *J Nutr Food Sci*, 4:1. 1000256. 2014.
- [4] Mangala S and Subrahmanyam G. Epidemiology of Malnutrition among under Five Children in Rural Area in Karnataka, India. *International Journal of Recent Trends in Science And Technology*, 9(3): 311-314. 2014.
- [5] Yukie Higashiyama, Masaru Kubota, Satoko Oshima, Marie Mibu, Yuka Yasui, Ayako Nagai. Assessment of Japanese healthy children's nutritional status using Waterlow classification. *Health*, 4(11): 1036-1040. 2012.
- [6] Sheenam Garg, Ravinder Kumar Malik, Tejinder Pal Singh and Renuka. Child Nutrition: A Pillar To Development. *International Journal of Advanced Research*, 2(1): 766-772. 2014.
- [7] Jitendra Bahadur Singh, Manoj Kumar, Kashif Shahnawaz, Amrit Krishna. Diarrhoea And Malnutrition In Children: A Study From Kishanganj District, Bihar. *J of Evolution of Med and Dent Sci*, 3(14): 3594- 3599. Apr 2014.
- [8] A Khokhar, S Singh, R Talwar, S K Rasia, S R Badhan, M Mehra. A Study of Malnutrition among Children Aged 6 Months to 2 Years From A Resettlement Colony of Delhi. *Indian Journal of Medical Sciences*, 57(7): 286- 290. July 2003.
- [9] Taha H. Musa, Elrasheed A. Ali, Hassan H. Musa and Arshad Khan. Anthropometric parameters of malnutrition in children 5-15 years old in Khartoum State, Sudan. *Journal of Public Health and Epidemiology*, 5(8): 313-318. August 2013.

- [10] Hallgeir Kismul1, Catherine Schwinger, Meera Chhagan, Mala Mapatano and Jan Van den Broeck. Incidence and course of child malnutrition according to clinical or anthropometrical assessment: a longitudinal study from rural DR Congo. *BMC Pediatrics*, 14:22. 2014.
- [11] Agozie C Ubesie, Ngozi S Ibeziako, Chika I Ndiokwelu, Chinyeaka M Uzoka and Chinelo A Nwafor. Under-five protein energy malnutrition admitted at the University of Nigeria Teaching Hospital, Enugu: a 10 year retrospective review. *Nutrition Journal*, 11:43. 2012.