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REVIEW ARTICLE

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The Prevalence of Protein-Energy Malnutrition among Children Under Five Years at Musi Internal Displaced Persons Camp Household Survey – Nyala Locality – South Darfur State 2011

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ABSTRACT

We conduct this study to determine the Prevalence of protein energy malnutrition Among Children Under Five years .This study was conducted in Nyala Locality in south Darfur State in Sudan. Cross-sectional descriptive study to measure the Prevalence of protein energy malnutrition. This study designed to cover (n=402 child). Our study found that , The prevalence rate of global acute malnutrition GAM < -2 Z-score WFH (mean Z-score \pm SD: -1.12 ± 1.23) found to be 25.4% (20.8 - 30.6, 95% CI), SAM <-3 Z-score 6.2% (4.3 - 9.0, 95%CI) and the proportion of chronic malnutrition (stunting) <-2 Z-score HFA (mean Z-score \pm SD: -1.44 ± 1.63) 36.6% (31.5 - 42.0 95%CI.) among the study population; 40.2% among boys and 33% among girls. Also the study illustrated that the prevalence rates of GAM, SAM and chronic PEM were higher among boys than girls.

Key: Prevalence, Malnutrition, Children and Nyala.

INTRODUCTION

Malnutrition is a broad range of clinical conditions in children and adults that results from deficiencies in one or a number of nutrients (WPF, 2000). Hunger and malnutrition during calamities are common among refugees and displaced population; over 22 million people currently suffer worldwide, many suffer from one or more of the multiple forms of malnutrition. According to UNICEF 2007, malnutrition contributes to the deaths of more than 6 million children under age five each year (UNICEF, 2007). By January 2009, 4.8 million civilians had been affected by Darfur's crisis, of which 2.9 million were displaced (Jens, 2009). Globally, malnutrition causes about 5.6 million of 10 million child deaths per year, with severe malnutrition contributing to about 1.5 million of these deaths and the prevalence of malnutrition is highest in Sub-Saharan African (Heinkens, 2008). Acute malnutrition is the leading cause of ill-health of children in Darfur (World Nutrition, 2011). World Food Program (WFP) defines malnutrition as "a state in which the physical function of an individual is impaired to the point where he or she can no longer maintain adequate bodily performance process such as growth, pregnancy, lactation, physical work and resisting and recovering from disease." Malnutrition literally means "bad nutrition" and technically includes both over- and under- nutrition. In the context of developing countries, under-nutrition is generally the main issue of concern (WPF, CDC, 2005). Childhood under nutrition is an underlying cause of 35 percent of deaths among children under five years old in the developing world. According to the 2008 Lancet Series on Maternal and Child Under-nutrition, SAM is one of the most important contributing causes of childhood mortality. An estimated 19

million children under five suffer from SAM, with half a million dying directly because of SAM each year. These numbers do not include children suffering from bilateral pitting oedema, which is the most lethal form of acute malnutrition (Black et al., 2008). Under-nutrition responsible for 11 percent of disability adjusted life years (DALY) among young children worldwide (Gross and Webb, 2006). Most people in the developing countries live under the burden of malnutrition, pregnant women, nursing mothers and children are particularly vulnerable to the effects of malnutrition. The prevalence rate of PEM is high frequently in many surveys among children under five years and its levels are consistently higher in children 6-29 months relatively to 30-59 months (WHO). The effects of malnutrition are frequently more serious during the formative years of life. Children suffer from the effects of starvation more quickly than adults (Black et al., 2008).

As seen from the viewpoint of public health efforts, this nutritional disease has the potential of being totally preventable in today's world (FAO, 1992). High goals have been set concretely by the worldwide community, such as the Millennium Development Goal of reducing by half the number of undernourished people in the world by 2015. Yet in order to properly set priorities and make progress in treatment and prevention campaigns, the general (and regionally specific) risk factors of PEM must be thoroughly understood (Daniel, 2010). These include family food shortages, inadequate care and feeding practices, especially of children and women, poor living conditions and poor health services. The Family food shortages, which may be due to lack of money for food, low production of family food, poor food storage and preservation, poor choices

and budgeting. Inadequate care and feeding practices factors which may be due to the way families feed young children and encourage them to eat, the way families care for women (especially during pregnancy, childbirth and breastfeeding) (Ann, 2004). Some studies mentioned the history with low birth weight strongly related to prevalence rate of PEM, study conducted by Emmanuel in U of K, Sudan noticed that there is strong relation between history of low birth weight and PEM (Emmanuel, 2010). Other underlying factors include feeding sick and old people, the way food is prepared and the level of hygiene at home, the ways families prevent and treat diseases at home and use health facilities. The Poor living conditions (e.g. insufficient water, inadequate sanitation and overcrowded houses) and poor health services. Shortages of medicines and skilled health staff increase the risk of disease. Inadequate environmental sanitation services increase the risk of food-borne infections (WPF).

MATERIAL AND METHOD

Study area and population: Mosi area (Mosi IDPs Camp) is located in Nyala locality, South Darfur State in Sudan, bounded in the North and East by Nyala Valley (Berly), in the West by Karary area, and in the south by Nyala University. The population of Musi IDPs camp is composed of different ethnic groups, who have come from many parts of Darfur most of them from South and East Nyala. The number of population who live in this camp is 8223 person.

Study design: This is a cross – sectional (descriptive study) community – based household survey, the study population include children under five years (6 – 59 months) and their mothers, Sampling technique: the sample size was 402 children. A systematic random sampling

technique was used and 360 HHs had been selected and visited, additional data collected via checklist (observations), one sheet had been designed for data collection (structured questionnaire). Mothers were personally interviewed and children were weighed using the portable electronic scale (UNISCALE) with minimal clothing. The height/length for children up to 2 years was measured on a horizontal measuring board and those over two years were measured standing on horizontal surface against a vertical measuring device. Age and oedema data also recorded in addition to vaccination status were checked by reviewing immunization cards for children less than five years of age. Data were analyzed using microcomputer software programs, excel, SPSS-16 and ENA-SMART 2008. Weight for height index WFH used as the main indicator of acute malnutrition and the reference population used in this study was (WHO-2006), the acute malnutrition is defined as less than -2 z-score WFH.

RESULTS

The prevalence rate of global acute malnutrition GAM < -2 Z-score WFH (mean Z-score \pm SD: -1.12 ± 1.23) found to be 25.4% (20.8 - 30.6, 95% CI), SAM < -3 Z-score 6.2% (4.3 - 9.0, 95%CI) and the proportion of chronic malnutrition (stunting) < -2 Z-score HFA (mean Z-score \pm SD: -1.44 ± 1.63) 36.6% (31.5 - 42.0 95% C.I.) among the study population; 40.2% among boys and 33% among girls. Also the study illustrated that the prevalence rates of GAM, SAM and chronic PEM were higher among boys than girls. The study showed statistical significant relationship between the prevalence rate of PEM and some proposed risk factors, those are: history of low birth weight, number of meals per day.

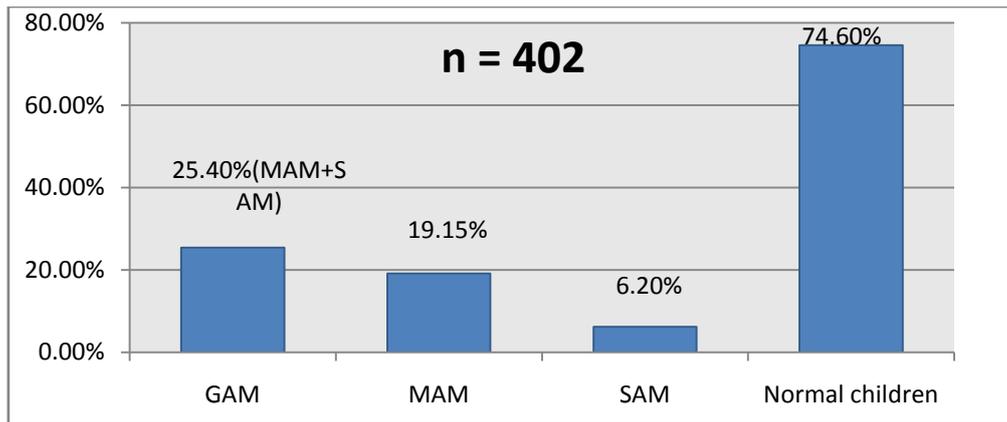


Figure 1. Prevalence rate of GAM, SAM and MAM among children under five year.

Table 1. The prevalence rate of acute malnutrition based on weight-for-height < -2 z-scores (and/or oedema) and by sex among children less than five years of age.

	All n = 402	Boys n = 199	Girls n = 203
Prevalence of global malnutrition (<-2 z-score and/or oedema)	25.4% (102)	28.6% (57)	22.17% (45)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	19.15% (77)	20.6% (41)	17.73% (36)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	6.2% (25)	8.04% (16)	4.43% (9)

Table 2. The prevalence rate of acute malnutrition by age based on weight-for-height < -2 z-scores among the study population at Musi IDPs.

Age (mths)	Total no	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	58	3	5.2	13	22.4	42	72.4	0	0.0
18-29	102	10	9.8	20	19.6	72	70.6	0	0.0
30-41	103	5	4.9	13	12.6	85	82.5	0	0.0
42-53	97	6	6.2	24	24.7	67	69.1	0	0.0
54-59	42	1	2.4	7	16.7	34	81.0	0	0.0
Total	402	25	6.2	77	19.2	300	74.6	0	0.0

CONCLUSION

The prevalence rate of acute malnutrition WFH < -2 z-score is 25.4%, it is higher compared with WFP and SPHERE standards, as well as the SAM < -3 z-score

6.2%. There are statistical significant associations between the prevalence rate of PEM and history of low birth weight, number of meals per day and mother’s occupation.

RECOMMENDATION

Supplementary Feeding Program (SFP) should be established vaccination and complete immunization schedule and the important of breastfeeding and other malnutrition risk factors. Encourage and support IDPs to income generating projects activities

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