



## **RISK FACTORS OF PROTEIN-ENERGY MALNUTRITION DEFICIENCY 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 study risk factors 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).*

### **Keywords:**

*Risk Factors, Malnutrition, Children, Nyala, Protein Energy*

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## **1. INTRODUCTION**

Malnutrition is a broad range of clinical conditions in children and adults that results from deficiencies in one or a number of nutrients (1). 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 (2). By January 2009, 4.8 million civilians had been affected by Darfur’s crisis, of whom 2.9 million were displaced (3). 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 (4). Acute malnutrition is the leading cause of ill-health of children in Darfur(5). 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 (6). 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 (7). Under-nutrition responsible for 11 percent of disability adjusted life years (DALY) among young children worldwide (8). 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(9). 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 (6). As seen from the viewpoint of public health efforts, this nutritional disease has the potential of being totally preventable in today's world (10). 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 (11). 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)(12). 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 (13). 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 (14).

## 2. 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 8223person.

## 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 were 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.

## 3. RESULT

The malnutrition increase among children there family income less than 250SD was found 12.9%, the children affected with respiratory disease highly affected with malnutrition it found that 14.9%. There is strong relation between children low birth and malnutrition it increase among children low birth 12.2% with (P.V:0.000), the children from parent jobless more affected with malnutrition is 10.9% with strong significant (0.036).

**Table 1:** show the relation between malnutrition and numbers of meals per day give to child.

No of meals/Day	Nutritional Status				Total	
	Well nourished		Malnourished		No	%
	No	%	No	%		
<b>Two meals</b>	22	5.5%	12	3%	34	8.5%
<b>Three- Four</b>	245	60.9%	87	21.6%	332	82.6 %
<b>More than four</b>	33	8.2%	3	0.7%	36	9%
<b>Total</b>	300	74.6%	102	25.4%	402	100%

X = 7.409

p. value = 0.025



**Table 2:** illustrate the relation between malnutrition and family monthly income

Income per month	Well nourished		Malnourished		Total	
	No	%	No	%	No	%
<250 SDG	131	32.6%	52	12.9%	183	45.5%
250-299 SDG	77	19.2%	15	3.7%	92	22.9%
300-349 SDG	37	9.2%	16	4%	53	13.2%
350-399 SDG	19	4.7%	3	0.7%	22	5.5%
400-449 SDG	23	5.7%	10	2.5%	33	8.2%
> 450	13	3.2%	6	1.5%	19	4.7%

X = 7.95

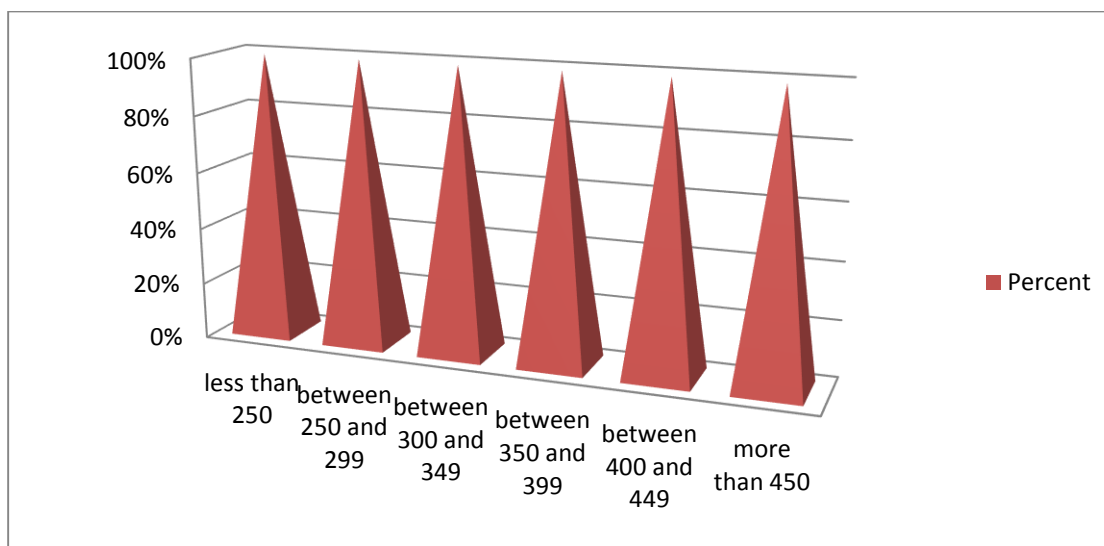
p. value = 0.159

**Table 3:** Prevalence rate of acute malnutrition <-2 Z-score WFH by the occupation of mother

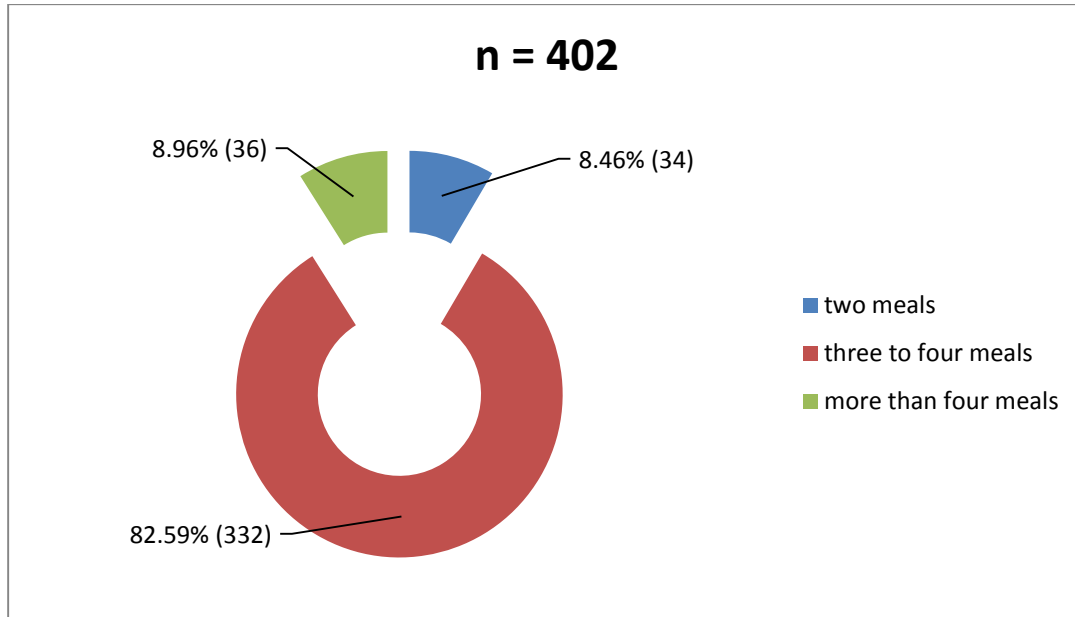
Mother occupation	Nutritional Status				Total	
	Well nourished		Malnourished		No	%
	No	%	No	%		
Labor	31	7.7%	8	2%	39	9.7%
Employee	10	2.5%	6	1.5%	16	4 %
Unskilled work	89	22.1%	44	10.9%	133	33.1%
House women	170	42.3%	44	10.9%	214	53.2%
<b>Total</b>	300	74.6%	102	25.4%	402	100%

X = 8.521

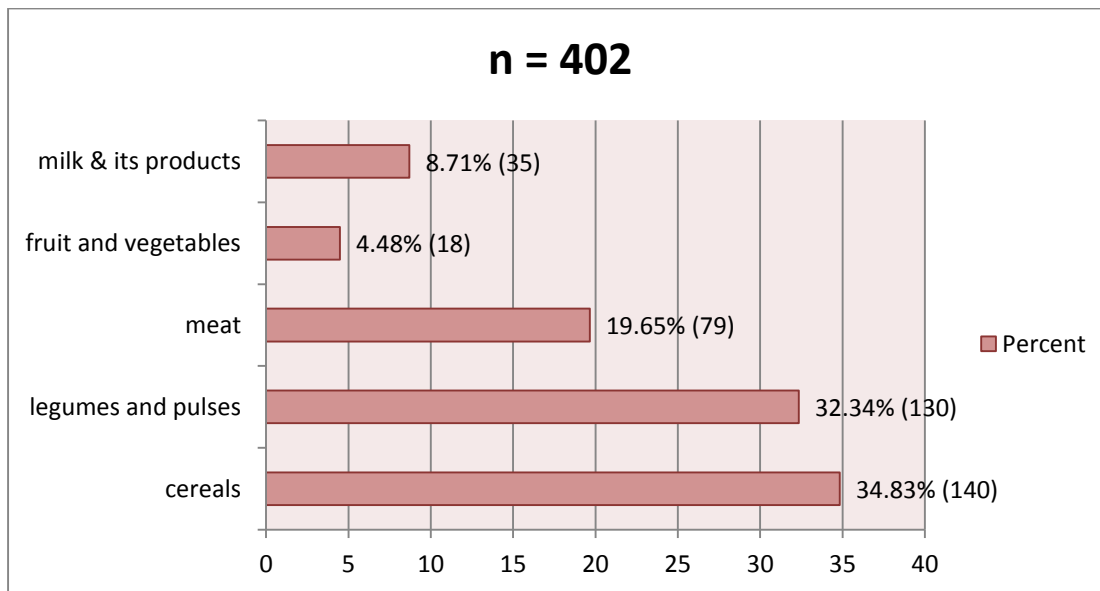
p. value = 0.036significant



**Figure 1:** Monthly family income in SDG Sudanese bound



**Figure 2:** Number of meals per day give to the children less than five at Musi IDPs camp



**Figure 3:** Types of food give to children in the house



## 4. CONCLUSION

The risk factors increase the prevalence rate of acute protein energy malnutrition are low family income and low education. 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.

## 5. 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.

## 6. ACKNOWLEDGEMENT

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