

## PREVALENCE OF UNDER NUTRITION AMONG UNDER FIVE YEAR CHILDREN IN EKPOMA, EDO-NIGERIA

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### ABSTRACT

The nutritional status of under-five children is a reflection of the health of children in the community and this forms the basis for the development of success-oriented interventional programmes. This study therefore, determines the prevalence of under nutrition among under-five's in Ekpoma -a community in central part of Edo state, Nigeria. It is a descriptive cross-sectional study of 402 under-five year children selected by systemic sampling method. Data collection was done by physical examination and interviewer-administered questionnaire. Their height and mid-upper arm circumference were also measured using tape-rule, while weight was measured using a standard electronic scale. The study was conducted between February, 2012 and April, 2012. The results showed that the prevalence of underweight, stunting and wasting, was 2.5%, 12.4% and 9.5% respectively. Male under-five's were more likely to be underweight (3.2%) and wasted (9.7%) compared to their female counterparts (2.2% and 9.4% respectively). On the other hand, female under-five's were more stunted (12.9%) than the males (X %). Conclusively, the prevalence of under nutrition is low among under-five children in Ekpoma. However, the prevalence of stunting and its determinants require investigation.

**Keywords:** Nutritional status, Under-five year children, Ekpoma, Nigeria.

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### INTRODUCTION

The world health organization (WHO) defined malnutrition as the insufficiency, excessiveness or imbalanced consumption of nutrients, which has remained the biggest contributor to child mortality (Sullivan and Steven, 2003) and the gravest single threat to public health. In fact, as at 2007, the food and agriculture organization (FAO) asserted that there were 923 million malnourished people in the world, which comparatively, indicated an increase of 80 million since 1990.

According to a report by the United Nation Information Service (2004), an average of one person dies every second; 4000 every hour; 100,000 each day; 36 million each year; as a direct or indirect result of malnutrition. One year later, Fotso and Barthelemy (2005) estimated that on the average, a child dies every 5 seconds; 700 every hour; 16000 each day; and 6 million each year. Even an estimated 58% of all deaths (Nation Information Service, 2004) and 60% of all child deaths (Fotso and Barthelemy, 2005) were attributed to malnutrition

Although globally, it is estimated that 226 million children below 5 years are stunted; 67 million wasted; and 183 million of them weigh less than they

should for their age (UNICEF 1999). The issue of child malnutrition is said to be most widely spread in the tropical and subtropical parts of the world (Jansen and Bailey, 1972). In Nigeria however, the situation is said to be worse in rural areas and constitutes a major health problem among school children (Oninla et al, 2007). As such, nutritional assessment in the community is essential for accurate planning and implementation of intervention programmes aimed at reducing morbidity and mortality rates associated with under-nutrition.

This study therefore, was designed to access the prevalence of under nutrition and the nutritional status of under-five school children in Ekpoma, Edo, Nigeria

### MATERIALS AND METHOD

**Study Area:** Ekpoma is the administrative headquarters of Esan West Local Government Area of Edo State, Nigeria. It lies between latitude 6° 43' and 6° 45' of the Greenwich meridian. It has flat landscape, one lacking in rocks and mountains and good for agriculture purposes.

It is suburban community with public and private hospitals, primary and secondary schools, a university (Ambrose Alli University), and electricity supply, but limited sources of clean water. Geographically, it is less than 100kilometres to Benin -the Edo State capital. It is bounded by Uhumwode Local Government Area on the south and Igueben Local Government Area on the north. The major communities in Ekpoma include Ujemen, Iruekpen, Idumedo Ihumudumu, Ujoelen, Emuado, Eguare and Illeh. The closely associated neighbouring community is Irrua in Esan Central Local Government Area, the home of Irrua Specialist Hospital. The indigenes speak Esan and their occupation is mainly farming and trading. The predominant food and farm produce are yam, cassava, cocoyam, plantain and rice.

**Ethical Consideration:** The traditional ruler of Ekpoma, *The Enogie of Ekpoma* was seen and intimated about the aim of this study after which he granted permission for the study. The elders of each of the communities were also consulted and their permission obtained before the commencement of the study. Informed consent was obtained from the caregivers of the children after being educated on the study and its objectives.

**Study Population:** A total of 402 under-five children (male and female) whose caregivers reside in Ekpoma were recruited for this study.

**Selection Criteria:** The under five children whose caregivers have been living in Ekpoma for the past 5 year.

**Exclusion Criteria:** The under five children who have undergone major surgery, sickle cell disease patient and any other chronic illnesses were excluded from this study.

**Duration of Study:** The study was conducted between February and April 2012.

**Sampling Method:** Systematic sampling technique was utilized in selecting the participants. There are nine quarters in Ekpoma. An average of 45 houses was used in each quarter and one out of every third house was selected and an under five child in the house was recruited and the caregiver interviewed.

**Method of Data Collection:** The interviewer-administered questionnaire used to obtain information from the caregivers was divided into two sections: Section A elicits bio-data information of caregivers and under-five year children, while section B was on the nutritional status of the children. This

was accessed by measuring their weight (kg) using a standard electronic scale, and height (cm) and mid-under arm circumference (cm), were measured using a tape rule (tailor's tape). Also, physical examination involved general inspection of oral hygiene, skin, eyes, hair, nail and ears.

The nutritional status of the children was determined using the International Reference Population defined by U.S National Centre for Health Statistics (NCHS) and Centres for Disease Control and Prevention (WHO 2006). Height-for-age (HAZ), weight-for-height (WHZ), and weight-for-age (WAZ) Z-scores was calculated based on WHO (2006) recommendation. The children were classified as stunting, wasting, and being under-weight, if the HAZ, WHZ, and WAZ were < 2 standard deviation (SD). Under-nutrition was defined as the presence of stunting, wasting or under-weight.

**Data Analysis:** Data was analyzed using statistical packages for social sciences (SPSS) version 16.0. Statistical analyses included descriptive statistics, student's t-test, chi square, correlation and regression.

## RESULTS

A total of 402 under-five children participated in the study. The care-givers of these under-five children were mainly within the ages of 30 and 39 (270; 67.20%), married (340; 84.60%), Christians (366; 91.00%) had secondary education as their highest educational attainment (276; 68.70%) and were mainly traders in term of occupation (184; 45.90%) (See table 1).

Table 2 represents the demographic profile of the under-five year children. Their mean age, height and weight were  $36.83 \pm 9.36$  months,  $94.34 \pm 9.00$ cm and  $13.11 \pm 1.55$ Kg respectively. Majority of them were within the ages of 36 – 47 months (168; 41.80%) and majority of the population were females (278; 69.20%).The prevalence of under-weight, stunting and wasting were 2.5%, 12.4% and 9.5% respectively.

Figures 1, 2, 3 and 4, shows the comparative status of the weight for height by sex, weight for age by sex, height for age by sex and mid-upper-arm circumference (MUAC) for age by sex of the under five children based on the WHO standard. A total of 121 (30.10%) had MUAC less than -2SD, while 4 (1.00%) had MUAC above 2SD.

Male under-five's were more underweight (3.20%) and wasted (9.7%) compared to females (2.20% and

9.40% respectively) but the females were more stunted (12.90%) than the males (11.30%) (See table

3 and figures 1, 2, 3 and 4).

**Table 1: Demographic profile of care-givers of the sampled population**

Demographic profile	Variables	Frequency (%)
Age (years)	20 – 29	42 (10.40%)
	30 – 39	270 (62.20%)
	40 – 49	18 (4.50%)
	50 – 59	72 (17.90%)
Marital status	Married	340 (84.60%)
	Widow	50 (12.40%)
	Single	6 (1.50%)
	Divorce	6 (1.50%)
Religion	Christians	366 (91.00%)
	Muslim	2 (0.50%)
	Traditional	34 (8.50%)
Highest educational attainment	None	48 (11.90%)
	Primary	66 (16.40%)
	Secondary	276 (68.70%)
	Tertiary	12 (3.40%)
Occupation	Traders	184 (45.90%)
	Farmer	44 (10.90%)
	Civil servants	62 (15.40%)
	Students	24 (6.00%)
	Full house wife	88 (21.90%)

**Table 2: Demographic profile of the sampled under five populations**

Demographic profile	Variables	Mean/ frequency (%)
Mean	Age (months)	36.83±9.36
	Height (cm)	94.34±9.00
	Weight (Kg)	13.11±1.55
	MUAC (cm)	14.82±2.17
Age (months)	12 – 23	28 (7.00%)
	24 – 35	132 (32.80%)
	36 – 47	168 (41.80%)
	48 – 49	74 (18.40%)
Sex	Male	124 (30.80%)
	Female	278 (69.20%)

**Table 3: Prevalence of under nutrition in the sampled under five populations**

Variable	Male (%)	Female (%)	Total (%)
Under nutrition	3.20	2.20	2.50
Stunting	11.30	12.90	12.40
Wasting	9.70	9.40	9.50

## DISCUSSION

Malnutrition has been defined as a pathological state resulting from a relative absolute deficiency or excess of one or more essential nutrient (Lucas and Gilles, 2003). It is not a simple matter of whether one has satisfied one's appetite or not, since a child who eats

enough to satisfy immediate hunger can still be malnourished (UNICEF, 1998).

Although the prevalence of underweight, stunting and wasting (2.5%, 12.4% and 9.5 respectively) reported in this study is low compared to studies elsewhere, that of stunting is however worrisome. This indicates

that stunting which signifies long term irreversible chronic under nutrition (Dutta et al., 2009), was the most common form of under nutrition among under five children in Ekpoma.

However, the values obtained from this study were low as compared to the reported prevalence rates for stunting (41%), wasting (14%) and under weight (32%) by the Nigeria Demographic and Health Survey (NPC, 2008), and that from a study conducted by Omuemu and Ofili (2009) whereby underweight and stunting among under-five children were 28.1% and 22.6% respectively.

On a wider perspective, it is obvious that the prevalence rates obtained in this study for under-nutrition parameters, are lower than those reported for other countries like Kenya (Kwena et al., 2003), Tibet (Dang et al., 2004) and Tanzania (Dares Salaam) (Matee et al., 1997) where the prevalence rates for stunting, wasting and underweight were 30%, 4% and 20%; 39%, 5.6% and 23.7%; and 31.6%, 2.9% and 14.6% respectively.

Nevertheless, the pattern of under nutrition in this study was similar to that reported by Kwena et al. (2003), Dang et al., (2004) and Metee et al. (1997), as stunting was ranked highest among the consequences of under-nutrition except for the study by Omuemu and Ofili (2009) where the opposite occurred.

The observed low prevalence of under nutrition in this study could be due to the occupation of the care givers as they did not apparently appear constrained to cater for their children. In addition, educational status may also play a part as only 11.9% of the care-givers were found to have no form of education in this study. Indeed, maternal employment and educational characteristics limits good child care practices as negative correlation exists between height for age and the number of hours mothers worked outside the home (Kulwa et al., 2006).

Also, the finding that males were more under-weight and wasted than female agrees with the study by Dutta et al. (2009) but contradicts a meta-analysis of 16 demographic and health survey carried out in Sub-Saharan Africa by Wamani et al. (2007). However, there exists some form of similarity with the data obtained from the Nigeria Demographic and Health Survey (NPC, 2008), as boys were more likely to be wasted and underweight than female children.

Judging by the findings of this study therefore, it can be concluded that in Ekpoma, under-five year old children are relatively not under nourished.

Nevertheless, the relatively high level of stunting observed in this study, indicates that further studies to determine its determinants are required.

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#### **AUTHOR(S) CONTRIBUTION**

Ozor M.O., Iyamu OA. and Osifo UC. were actively involved in the preparation and design of this manuscript.