

Maternal determinants of under nutrition among under five year children In Ekpoma, Edo-Nigeria

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Abstract

The maternal determinants of under-five under-nutrition in Ekpoma, were studied with survey data of 402 women in Esan West Local Government Area of Edo State- Nigeria. The study involves a descriptive cross-sectional survey of mothers/care givers and their under-five year children selected by systemic sampling method. Data collection was done by physical examination and interviewer-administered questionnaire. The results showed an under nutrition prevalent of 24.38% (2.5% under-weight, 9.5% wasting and 12.4% stunting) among the under-five. The major maternal determinants of under-nutrition among the under-five were age (30-39 years), education (secondary education as highest educational level), occupation (civil servants and traders), family size greater than four children and birth order above two. By implication, maternal age, education, occupational status and family size were the most important maternal determinants of under-nutrition in under-five year children in the study area. On the side of the child, birth order was a determinant of under-nutrition. Conclusive, under-nutrition determinant is multi-factorial.

Keywords

Under-nutrition, Under-Five Year Children, Maternal, Determinants, Nigeria

1. Introduction

Malnutrition is said to leads to a reduction in human performance, deterioration of health and reduced survival of populations ([1], [2]), as well as hindering the potential for countries to reduce poverty and maximize socio-economic development ([3]). In fact, the underlying cause of over half of all child morbidity and child mortality has been linked with under-nutrition ([4]). Specifically, Ezzati and Co. ([5]) noted that childhood under-nutrition negatively affect child school performance and in turn has negative impact on national development.

Although the issue of child malnutrition is said to be most widely spread in the tropical and subtropical parts of the world ([6]), according to Kasirye ([7]), child under-nutrition is one of Africa's most fundamental challenges for improved human development and has no uncertainty premeditated the achievement of the goal of reducing child

malnutrition. This is especially so in the Sub-Saharan Africa region, where it is estimated that 4.8 million children die before the age of 5 years each year ([8]).

In Nigeria however, the situation is said to be worse in rural areas and constitutes a major health problem among school children ([9]). Although the prevalence of underweight, stunting and wasting (2.5%, 12.4% and 9.5 respectively) reported in a recent study in Ekpoma is low compared to studies elsewhere, that of stunting is however worrisome ([10]). This is due to the fact that stunting signifies long term irreversible chronic under nutrition ([11]) and was the most common form of under nutrition among under five children in Ekpoma according to the study by Ozor et al ([10]).

Based on the findings by Ozor et al ([10]), this study therefore, was designed to access the maternal factors that predispose under-five school children in Ekpoma to under nutrition. This is important because 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. Indeed, the importance of child nutritional status is thus well recognized (12) as it serves as an indicator for tracking the nutrition and health status of populations.

2. Materials and Method

2.1. Study Area

Ekpoma is the administrative headquarters of Esan West Local Government Area of Edo State, Nigeria. It lies between latitude $6^{\circ} 43'$ and $6^{\circ} 45'$ 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 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.

2.2. Ethical Consideration

The traditional ruler of Ekpoma, *The Enogie of Ekpoma* was seen and educated on the objective of this study after which he granted permission for the study. Informed consent was obtained from the respondents after being educated on the study and its objectives.

2.3. Study Population

A total of 402 under-five caregivers who reside in Ekpoma were recruited for this study.

2.4. Selection Criteria

The under-five caregivers must have been living in Ekpoma for the past 5 year.

2.5. Exclusion Criteria

The under-five caregivers who have undergone major surgery, and any other chronic illnesses were excluded from this study.

2.6. Duration of Study

The study was conducted between February and April 2012.

2.7. 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.

2.8. 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 ([13]). Height-for-age (HAZ), weight-for-height (WHZ), and weight-for-age (WAZ) Z-scores was calculated based on WHO ([13]) 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.

2.9. 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.

3. Result

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%)
	None	48 (11.90%)
Highest educational attainment	Primary	66 (16.40%)
	Secondary	276 (68.70%)
	Tertiary	12 (3.40%)
	Traders	184 (45.90%)
Occupation	Farmer	44 (10.90%)
	Civil servants	62 (15.40%)
	Students	24 (6.00%)
	Full house wife	88 (21.90%)

The bio-data information of caregivers, under-nutrition status of under-five children and risk factors for under-

nutrition are as illustrated in Table 1. Over all, the caregivers were mainly within the ages of 30 and 39 (270; 67.20%), married house wife (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%).

Table 2. Prevalence of under nutrition in the sampled under five populations

Variable	Total (%)
Under nutrition	2.50
Wasting	9.50
Stunting	12.40

A total of 98 (24.38%) caregivers have under-five who were undernourished. The under-nutritional characteristics were under-weight (2.5%), wasting (9.5%) and stunting (12.4%) as shown in table 2.

Table 3 shows the relationship of maternal socio-determinants and under-five under-nutrition. A maternal age (between the ages of 30-39), married, Christians, with secondary education, occupation as civil servants and traders, have a family size greater than 4 and with birth order above two were the major risk factor for under-weight, wasting and stunting in under-five children of Ekpoma.

Table 3. Relationship between maternal socio-determinants and under-five under-nutrition in Ekpoma, Nigeria

Demographic profile	Variables	Frequency (%) of under-nutritional characteristics		
		under-weight	Wasting	Stunting
Age (years)	20 – 29	0 (0.0%)	3 (7.90)	6 (12.0)
	30 – 39	6 (60.0%)	23 (60.53)	31 (62.0)
	40 – 49	2 (20.0%)	4 (10.53)	2 (4.0)
	50 – 59	2 (20.0%)	8 (21.05)	11 (22.0)
Marital status	Married	8 (80.0%)	33 (86.84)	41 (82.0)
	Widow	2 (20.0%)	0 (0.0)	8 (16.0)
	Single	0 (0.0%)	4 (10.53)	1 (2.0)
	Divorce	0 (0.0%)	1 (2.63)	0 (0.0)
Religion	Christians	7 (70.0%)	30 (78.95)	44 (88.0)
	Muslim	1 (10.0%)	2 (5.26)	1 (2.0)
	Traditional	2 (20.0%)	9 (23.68)	5 (10.0)
	None	2 (20.0%)	7 (18.42)	11 (22.0)
Highest educational attainment	Primary	2 (20.0%)	6 (15.79)	8 (16.0)
	Secondary	6 (60.0%)	25 (65.79)	30 (60.0)
	Tertiary	0 (0.0%)	0 (0.0)	1 (2.0)
	Traders	4 (40.0%)	21 (55.26)	24 (48.0)
Occupation	Farmer	4 (40.0%)	5 (13.16)	10 (20.0)
	Civil servants	2 (20.0%)	11 (28.95)	11 (22.0)
	Students	0 (0.0%)	1 (2.63)	3 (6.0)
	Full house wife	0 (0.0%)	0 (0.0)	3 (6.0)
Number of children	≤ 4	4 (40.0%)	11 (28.95)	11 (22.0)
	≥ 5	6 (60.0%)	27 (71.05)	39 (78.0)
Relationship with under- five	Aunt	0 (0.0%)	2 (5.26)	3 (6.0)
	Grandmother	2 (20.0%)	0 (0.0)	3 (6.0)
	Mother	8 (80.0%)	36 (94.74)	44 (88.0)
	1-2	0 (0.0%)	2 (5.26)	0 (0.0)
Birth order of the under-five	3-4	6 (60.0%)	13 (34.21)	33 (66.0)
	5-6	2 (20.0%)	16 (42.11)	12 (24.0)
	7+	2 (20.0%)	7 (18.42)	5 (10.0)

4. Discussion

The findings of this study showed that more than two, nine and twelve out of every hundred under-five children in Ekpoma are at least under-weight, wasting and stunted respectively. Although it is reported that nutritional status of children is a major public health concern in many developing

countries ([14]), under-five under-nutrition is placid in this study area. While nutritional status during childhood is important for human development as it affects every phase of human life, the improvement of childhood nutrition therefore assist in the goal to reduce child mortality considering the report by WHO ([15] and Pelletier et al., ([16]) that under-nutrition is an underlying cause of an estimated more than a

half of all deaths of under-five children. For this reason, investment in childhood nutrition contributes not only to improving children's current welfare but to enhancing human's capacity in the long run as asserted by Victora et al. ([17]). Therefore, investigating on the determinants of under nutrition- especially the maternal factors, will also improve children's current welfare and human's capacity in near future.

In fact, studies conducted in developing countries have identified several causes of under-nutrition in children and the most prominent causes reported were poverty, low levels of parental education, and rural residence ([18], [19], [20]). Based on the findings of the present study, maternal determinant of under-nutrition is multi-factorial. In the present study, a child in Ekpoma is at risk of been under-nourish when he/she is having a mother or care-giver within the ages of 30 and 39, with lower education status, working as civil servant, trading or farming, or he/she is in a family of five or more children and in the birth order of more than two children. In line with these findings, other studies have reported various socio-demographic-such as maternal illiteracy and poverty, to remain primary causes of under-five under-nutrition ([21], [22]). Similarly, many studies have showed that maternal education is a crucial factor for nutritional status of children in developing countries ([14], [23], [24]) and this was supported by the finding of this study.

Although there was no significant association between the maternal demographic data and under-five under-nutrition in this study, studies ([15], [25], [26]) had however, noted low socioeconomic status as a factor in rural settings. In fact, poor family income is a factor that has been found to be a significant predictor for under-nutrition in studies done in some parts of Africa ([27], [28], [29]) and in India ([30]). This suggestion may be considered to be in line with the findings of this study when one takes a look at the educational impact in the present study. Education is one determinant of income as the educated are more favourable for high pay occupation. Moreover, the study area is favourable for those who are educated considering the area to have a university and many private and public secondary schools. In line with some African studies ([15], [31]), this study demonstrated a positive association between mothers' education and under-nutrition of under-five children.

On the other hand, from this study, mother with an occupational status were more likely to present with an under-nourish under-five. This may be that been employed (as in civil servants) and the search for income (as in traders and farmer) deprived under-five the care and attention they required. The present study also showed that having siblings of more than two is in itself a risk factor for under-nutrition. In accordant with this observation, various studies have shown that having a large family size can be a risk factor for under-nutrition ([32], [33], [34]).

Conclusively, the current study emphasizes the importance of maternal education and income on child nutrition. The regional variations in nutritional status of under-five in this

study may be attributed to differences in socio-economic status, cultural values, social security and health services for mother and child. Based on the findings of this study, it is suggested that further studies be carried out in this direction to further investigate other determinants. Also, the important of researches in other part of Nigeria and other African countries cannot be overemphasized.

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