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Influence of socio-economic factors on nutritional status of rural children at Nkontompo in the Sekondi-Takoradi metropolis of Ghana

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Abstract

Malnutrition is a global menace pervasively affecting the growth and development of human life especially on children. While malnutrition is believed to be caused by different factors, the conventional literature has pointed out that the socio-economic variables of people affect their nutritional status. The study was a cross-sectional descriptive survey. Using a structured questionnaire and measurements of weight and height the researcher generally sought to examine how socio-economic and environmental conditions, together with feeding practices affect the nutritional status of rural children under five years in Nkontompo in the Sekondi-Takoradi metropolis. A major finding of this study is that, 95% of the children of school going age in Nkontompo are not malnourished because, parents have good knowledge of the effective practices to help their nutritional status. The key practices identified in the community are breast feeding, immunization, monitoring of weight loss or gain, complementary feeding.

Keywords: Malnutrition, socio-economic, pre-school, breastfeeding

1. Introduction

The effects of malnutrition on human performance, health and survival have been the subject of extensive research for several decades and studies show that malnutrition affects physical growth, morbidity, mortality, cognitive development, reproduction, and physical work capacity^[9, 1]. Malnutrition is an underlying factor in many diseases in both children and adults, and it contributes greatly to the disability-adjusted life years worldwide. Malnutrition is particularly prevalent in developing countries, where it affects one out of every three preschool-age children^[8].

Major progress has been made over the past few decades in reducing child malnutrition in developing countries. Between 1999 and 2011 the proportion of malnourished children was reduced by 25% in developing countries^[12]. In spite of this achievement, 37% of children under the age of five years in developing countries are still underweight^[11]. Malnutrition remains an important predictor of child morbidity and mortality, accounting for more than half of all child deaths worldwide^[9]. A strong link exists between increasing severity of anthropometric deficits and increased child mortality. This hypothesis is corroborated by a World Health Organization (WHO) technical report which noted a strong exponential association between the severity of underweight and mortality^[12]. Poor growth is associated with impaired development which is apparent in the relationship between growth status, and school performance and intellectual achievement highlighted in a study^[2]. Malnutrition also increases a child's risk of contracting respiratory infections, diarrhoea, measles and other diseases that often kill children or permanently harm their physical, psycho-social and cognitive development^[11, 8]. Further, malnourished children are more likely to have functional impairment in adult life leading to a reduction in productive life and thus affecting the overall economic productivity of the society^[15]. For example, it is widely accepted that adults who survive malnutrition as children are more likely to suffer from higher levels of chronic illness and disability^[15].

Factors that contribute to malnutrition are many and varied. The primary determinants of malnutrition, as conceptualized by several authors relate to unsatisfactory food intake, severe and repeated infections, or a combination of the two. The interactions of these conditions with the nutritional status and overall health of the child -and by extension - of the populations in

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which the child is raised have been shown in the UNICEF Conceptual framework of child survival [11]. Briefly, the model characterizes the correlates of malnutrition as factors that impair access to food, maternal and child care, and health care. It is these very factors that impact the growth of children. Consequently, the assessment of children’s growth is a suitable indicator for investigating the wellbeing of children, and as well as for examining households’ access to food, health and care [11].

The objective of the present investigation is to determine the nutritional status of children in Nkotompo of the Sekondi-Takoradi metropolis of Ghana and to establish the relative importance of demographic and socio-economic factors as well as child nutrition and health practices on the growth and survival of children within the Nkotompo community.

2. Materials and Methods

2.1. Location and size

Sekondi-Takoradi metropolitan area is located between Latitude 4° 52' 30" N and 5° 04' 00" N and Longitudes 1° 37' 00" W and 1° 52' 30"W. Bounded to the north of the metropolis is the Mporhor Wassa District, the south by the Gulf of Guinea, the West by the Ahanta West District and the East by Shama District. The metropolis happens to be the smallest district in the region with a land area of 385 Km². However, it is the most populated district with a population of 559,548 [5]. The metropolis is strategically located in the south-western part of the country, about 242 Km to the west of Accra, the capital city, and approximately 280 Km from the La Côte d’Ivoire in the west. Nkotompo has a total population of 4072 and an average household size of 4.6 [5]. Figure 1 is a map of the study area.

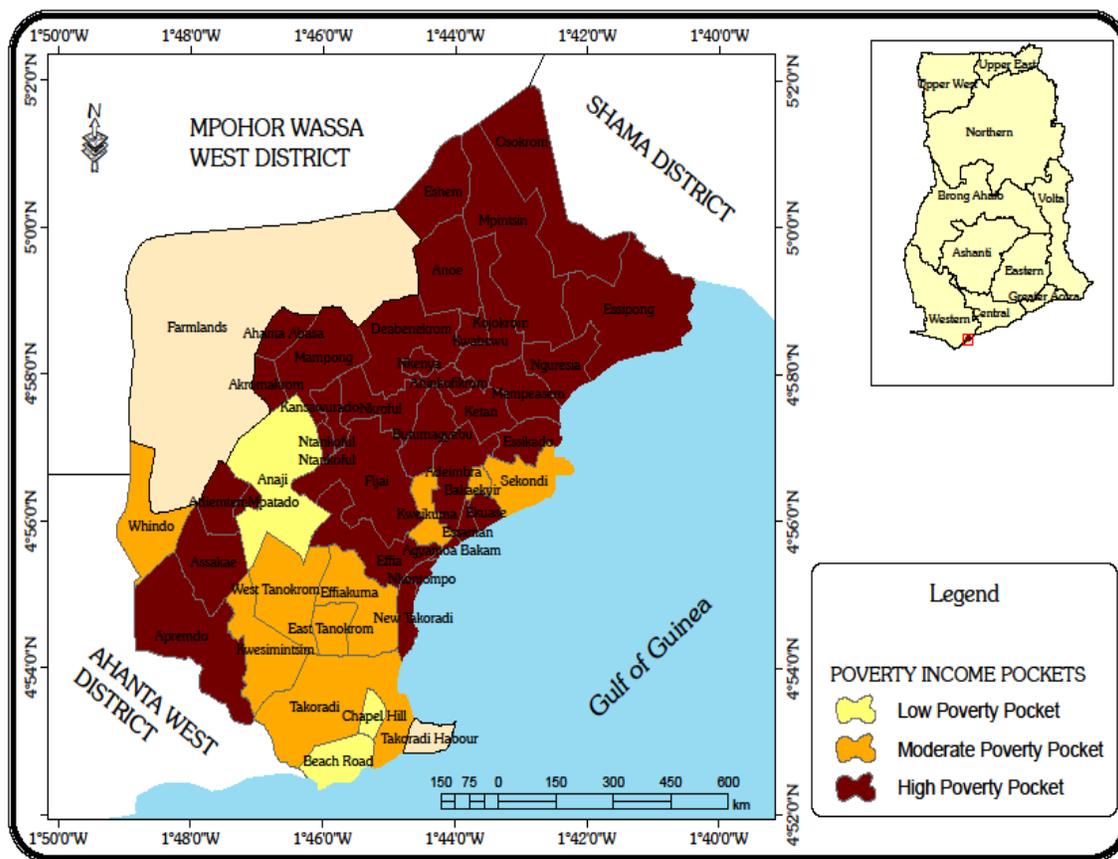


Fig 1: Projected map of Sekondi-Takoradi Metropolis in Western Region of Ghana.

The metropolis has an equatorial type of climate. Vegetation is highly woodland in the northern and central parts, while thicket is intermingled with tall grass species along the coast, especially in areas where there are no permanent crops. The land cover of the metropolis can broadly be categorised into five types, namely, moderately closed tree canopy with herb and bush cover, moderately dense herb or bush with scattered trees, mosaic of thickets and grass with or without scattered trees, planted cover and settlements [10].

The Metropolis lies within the South-Western Equatorial Zone. It has fairly uniform temperature, ranging between 22 °C in August and 30 °C in March. The metropolis has a mean annual rainfall of 2,350 mm. It experiences heavy rainfall in May and June with the minor rainfall occurring between September and October. Sunshine duration for most part of the

year averages 7 hours per day. Relative humidity is generally high throughout the year between 50% and 70% in the dry season and 75% and 85% in the wet season [10].

2.2. Study design

This study was a cross-sectional descriptive survey using a structured questionnaire and measurements of weight and height to determine the nutritional status of children aged 0 to 5 years.

2.3. Sampling procedure and data collection

Purposive sampling method was employed in the selection of the study area (Nkotompo community) from the numerous communities within the Sekondi-Takoradi metropolis owing to its poor health records. The sampling plan was designed to

reach 120 households, having children below five years of age within the community. All identified households with children between 1-5 years age brackets were included in the study. This age group was chosen for the study because according to the world health organization (WHO), higher prevalence of malnutrition occurs during the post weaning period of 12 – 23 months [12]. Children with evidence of severe chronic diseases were excluded from the study.

Structured interviews were conducted using pre-tested questionnaires administered to respondents of randomly selected households. The questionnaire covered demographic information, breastfeeding practices and other socio-economic indicators.

The height (in cm) and weight (in kg) of 120 study children in the households visited were measured using a measuring board and a suspended weighing scale respectively. The children were in minimal clothing and without footwear when measurements were taken. The age of the children were obtained from their parents and verified from their birth certificates or baptismal cards where available. The values obtained were compared with World Health Organisation (WHO) recommended standards/guidelines in determining the degree of stunting (height-for-age), wasting (weight-for-height) and underweight (weight-for-age) of malnutrition.

Prior to initiating the actual sampling and administration of questionnaires, a pre-site assessment at the various households within the community was conducted. The purpose of the pre-site assessment was to promote support and cooperation from the residents with respect to the sampling events and to initiate the gathering of data to develop the sampling plan for the study community.

2.4. Statistical Data Processing and Analysis

Data obtained from sampled households through the administered questionnaires were edited for consistency, coded and fed into the computer for analysis. The analysis was carried out using charts, averages, ratios and percentages as a major summarizing tool with the aid of Statistical Package for Social Science (SPSS 16.0).

3. Results and Discussion

3.1. Results

3.1.1 Demographic and socioeconomic characterisation

The initial focus was to examine malnutrition among children under five but findings of the study revealed that maximum age of children sampled had ages falling below 2 years with majority of the children (68.4%) within the age brackets of 0 - 6 months as shown in Table 1. The results also indicate that 51 respondents representing 42.5% were males whereas 69 representing 57.5% were females.

Data given in Table 1 indicates that about 25.8% of households sampled, had a monthly income of GHC 100-300 (equivalent to US\$ 25 – 75), which was the lowest income range in the study area. This put them among the poorer households within the community. About 21 % of the mothers were also identified not to have had any form of formal education. However, a high proportion of 78.3% of the mothers had primary (42.5%) or secondary (35.8%) level of education with just 4.2 % of the mothers having tertiary education. The findings on the family source of drinking water revealed that, 83% depend on pipe borne water as their source of drinking water, 8% rely on the use of boreholes, 6% on hand-dug wells and 3% depend on other sources such as streams.

A dominant figure of 85.8% of household heads were gainfully employed in the formal sector with only 14.2% of the rest of the respondents engaged in informal employment activities such as fishing, farming and petty trading.

Table 1: Demographic and Socioeconomic Characteristics of Children

Variable	Proportion (%)
Sex of children	
Males	42.5
Females	57.5
Age of children	
0 - 6 months	68.3
7 - 12 months	14.2
13 - 18 months	6.7
19 - 24 months	10.8
Religion of household heads	
Christianity	90
Islamic	3.3
Others	6.7
Occupation of household heads	
Formal sector	85.8
Informal sector	14.2
Marital status of mothers	
Single	19
Married	64
Divorced	12
Separated	5
Age of mothers	
16 - 25	18
26 - 35	62
36 - 44	18
45 - 50	2
Education level of mothers	
Primary/JSS education	42.5
Secondary/Vocational education	35.8
Tertiary education	4.2
No education	17.5
Occupation of mothers	
Housewife	13.3
Trader	56.7
Office work	30
Source of drinking	
Pipe-borne water	83
Boreholes	8
Wells	6
others	3

3.1.2. Child health and nutritional practices

Almost all the study children (93.3%) attended growth monitoring programs at the various health centres within the metropolis. All the children have received some form of immunization with 40% fully immunized and the remainder (60%) of the children yet to acquire their full immunization status owing to the age brackets within which they fall under. The proportion of breastfed children was quite high (91.7%). Only 16.7% of children were given complementary foods as against the recommended exclusive breastfeeding period of 0-6 months.

Table 2: Child Health and Nutrition Practices

Variable	Percentage
Possession of Health Book	
Yes	93.3
No	6.7
Attendance to growth monitoring	
Yes	93.3
No	6.7
Immunization Status	
Fully immunized	40
Partially immunized	60
Breastfeeding status	
Breastfed	91.7
Not breastfed	8.3
Age at introduction of complementary food	
Birth - 3 Months	4.2
4 - 6 Months after	12.5
7 - 12 Months	29.1
12 Months after birth	54.2

3.1.3. Nutritional status of children

Results of the study on the nutritional status of children less than 5 years of age and their nutritional status based on the weight-for-age indicator (W/A) is summarized in Table 3. The results show that 95 % of children under three years of age were within the normal nutritional status range per the WHO Malnutrition Index with only 5% of the of the children being

malnourished. Malnutrition were significantly ($p < 0.01$) more prevalent among boys than among girls. However, percentage of malnourished children who were found to be stunted (shortness indicating chronic malnourishment), underweight and wasted (thinness indicating acute malnourishment) are 50%, 33.3% and 16.7% respectively.

Table 3: Nutritional status of children in age range

	Response		Frequency	Percentage	
Age of Child	0-6 Months	Nutritional Status of child	Normal	81	97.6%
			Malnourished	2	2.4%
		Total		83	100.0%
	7-12 Months	Nutritional Status of child	Normal	16	94.1%
			Malnourished	1	5.9%
		Total		17	100.0%
	13-18 Months	Nutritional Status of child	Normal	7	87.5%
			Malnourished	1	12.5%
		Total		8	100.0%
	19-24 Months	Nutritional Status of child	Normal	10	83.3%
			Malnourished	2	16.7%
		Total		12	100.0%
		Nutritional Status of child	Normal	114	95.0%
			Malnourished	6	5.0%
		Total		120	100.0%

3.2. Discussion

Inadequate caring practices as well as poor access to health care have caused perverse malnutrition in Africa and Asia [14]. The nutrition practices of parents as found in this study are categorized into the access to health care services and the caring practices. Family strategies for childhood survival are limited by factors rooted in the structure of the society to which the family belongs and Behm [13] points out healthcare as one of these. For the practices which relate with access to health care services, the first concern was to ascertain whether there is the presence of a health facility and it was noted that all respondents acknowledged the availability of a clinic in the community. However the presence of health care facility in the study area was seen to be more of an external influence and thus did not influence the personal efforts to secure access and the improvement in the nutritional status and welfare of children in the community. However it was observed that the influence of socio-economic status was highly significant since all those children identified to be malnourished (stunted, wasted and underweight) belonged to socio-economically backward families. This finding is corroborated by Biswas *et*

al. [15] who stated that nutritional status are not just medical problems but rather have its roots in many sectors of development. And thus it is largely the by-product of poverty, insufficient education, household size, ignorance, low income and occupation. While socioeconomic conditions certainly have an effect on the nutritional status of children, there is a growing recognition that genetic factors must be considered as well [15]. There have been calls for the inclusion of genetic characteristics in the study of child health and nutrition but genetic components have not been adequately examined in many studies [15].

Feeding practices are the underlying determinants of child nutritional status [7, 6]. Breastmilk provides all the necessary nutrients and anti-infective properties needed by a child in the first 6 months of life. However, there is need to educate mothers on safe breastfeeding and timely introduction of complementary foods because poor breastfeeding practices such as prolonged breastfeeding or failure to introduce adequate complementary foods as recommended places children at risk for stunting or underweight [3]. Undernourished children were more likely to be breastfed for a longer period

(over 12 months) compared to well-nourished children. The study found breastfed infants to be less likely to be stunted than their non-breastfed counterparts who substituted canned or bottled milk in place of the natural breastfeeding practice. Possession of health book and attendance to growth monitoring is an indicator of proper child health and nutrition care. Mothers who send their children for growth monitoring receive food supplements and are offered information on proper child feeding practices. Almost all the children attended growth monitoring and thus 93.3% were in possession of a health book. Large household size is also a well-documented risk factor for child malnutrition in developing countries. The study found children from large households to be more likely to be wasted. Resources available to large households are inadequate to buffer children from the problems of maintaining large families such as competition for limited food and could account for the finding of this study^[18]. The study also found boys to be more likely to be malnourished than girls in the study area ($p < 0.01$), which is consistent with several other studies, and according to WHO^[14], is quite common in the absence of discriminatory practices.

In a developing country like Ghana where the prevalence of the childhood killer disease is high, it has been observed the national health policies seek to facilitate and encourage parents to ensure that, children less than five years receive the various vaccinations against these diseases. Immunization status therefore emerged as a significant predictor of a child's linear growth in the study area. Immunized children were less likely to be malnourished than non-immunized children. However the high response of partially immunised children was attributed to negligence on the part of some parents. It is therefore important to adopt pragmatic effort to encourage full immunization status of children in the community because analysis made by Elagovan and Shanmugan^[4] on the immunization and nutritional status of children under five years in a major district in India, established that children in rural areas die due to infectious and communicable diseases which could have been avoided through immunisation.

4. Conclusion

The research finding established that, socio-economic parameters such as education, occupation, income levels and other socio-economic variables were strongly associated with child nutritional status within the study area. It was also observed that incidence of malnutrition were only recorded by respondents with low socio-economic status as compared to those with high or appreciable socio-economic status within the Nkotompo township. This is evidenced by the fact that, 95% of the children had normal nutritional status per the weight-for-age, height-for-age and weight-for-height standardized method. Based on this, it is perceived that most of the children of school going age in Nkontompo are not malnourished. The children are not malnourished because, parents have good socio-economic baseline indicators as well as knowledge of the effective practices to help their nutritional status. The key practices identified in the community are breast feeding, immunization, monitoring of weight loss or gain and complementary feeding. Therefore it is conclusive that there is a dismal picture in the variation in the level of malnutrition among children aged 2 years and below in the community. However, in terms of the gender differences in the nutritional status of children in the community, it is noted that the female children are less prone to malnutrition as compared to their male counterparts.

5. Recommendation

Based on the findings of the study, the following measures are recommended for further research and policy implementation on malnutrition among children in Nkotompo and Ghana at large.

- It is recommended that efforts should be made by the metropolitan health directorate to provide the framework or platform that enhances parents' knowledge on nutritional practices.
- Further research should be conducted to evaluate the kind of malnutrition among children. This is necessary because protein-energy malnutrition (PEM) is by far the most lethal form of malnutrition and children are its most visible victims.

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