

Appraisal of Malnutrition on Academic Performance of Students in the Basic Schools in Ghana

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Abstract

The main objective of the research was to find out the prevalence of malnutrition on the academic performance of students of Enchi College of Education Demonstration Basic School. The population for this study consisted of all the Junior High School (JHS) students of Enchi College of Education Demonstration School in the Aowin municipality in the Western North Region of the Republic of Ghana. A random sampling technique was used to select a sample size of 60 respondents made up of 35 boys and 25 girls from the school for the survey. The main instrument for data collection was Close-ended questionnaire, and ten (10) items were used to explore the influence of malnutrition on academic performance of (JHS) students of Enchi College of Education Demonstration School. It was concluded that there was lesser degree of prevalence of malnutrition among students. It is therefore recommended that educational stakeholders should try to address all effects of malnutrition by ensuring that children are assisted and guided to eat a proper diet in order to have holistic development since it was evidence from the study that the quality of food pupils eat were questionable.

Keywords

Appraisal, Malnutrition, Academic Performance, Students, Basic Schools, Ghana

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1. Introduction and Background

Education lies at the heart of attempts made by governments in developing countries to ensure that their people obtain the basic necessities of life - food, shelter, livelihood, and a secured future. In this regard, initiatives such as the Millennium Development Goal two (MDG 2) which advocates Universal Primary Education for All by the year 2015 and the Education for All (EFA) agenda are targets of most governments. Anamuah-Mensah Educational Review Committee set up on 17th January 2002 to review the educational reforms in Ghana was of the view that the philosophy of education in Ghana should create intellectually,

spiritually, emotionally and physically balanced individuals with the requisite knowledge, skills, values, and attitudes for self-actualization and for the socio-economic and political transformation of the nation [1]. Each teacher of Home Economics Education needs to possess the philosophy and skills in the subject as to how nutritious food can aid the improvement of children's academic performance.

In the past, nutrition was relegated to the background and was rarely considered by policy makers when designing and implementing educational programmes aimed at improving participation and high performance of school children. However, in recent years, many countries, development partners and other international organisations now recognise the importance and role of health and nutrition as a key component for the achievement of globally set goals such as

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the MDG 2 and the EFA campaign [2]. Prevalent nutrition and health conditions among school-age children are important determinants of educational outcomes which educational policy makers and planners can no longer afford to overlook. Good health and nutrition are needed to achieve ones' full educational potential because nutrition affects intellectual development and learning ability [3]. The effect of malnutrition on cognitive ability indicates that chronic malnutrition is associated with lower achievement levels in school children.

Research indicates that under-nutrition has adverse effects on mental development and educational achievement of school children [3, 4]. Evidence from most studies indicates that the first two years of childhood nutrition have long-lasting effects on the growth, cognitive development and function of children [5]. Furthermore, it has been indicated in some studies that children who suffer from poor nutrition during the brain's most formative years score much lower on tests of reading comprehension, arithmetic, and general knowledge [6, 7].

Recently, the relationship between nutrition, health and educational achievement of children in developing countries has been of interest to many researchers due to the frequent observation that many children do not enrol on time, and in most cases do not complete primary school. In addition, the mechanism by which health and nutrition influence educational achievement is not well established, although it has been indicated that under-nutrition especially in the early childhood stages of life and poor health affects a child's ability to learn from an early age [8, 9]. Children who are affected by physical growth retardation are likely to either never enrol in school, drop out before completing primary education or are in school but not learning and at a higher risk of dropping out. Rates of delayed school enrolment, high rates of absenteeism, early dropout, and low school attainment are linked to children's health status and malnutrition rates. In addition, some studies report that school children who are over age for their grade usually attend school irregularly, are low-achievers at the primary level and therefore become 'silently excluded' as they are at a higher risk of dropping out before completing primary school [10].

In Ghana, where delayed enrolment, poor school performance, high dropout occurrence and absenteeism are extremely common, few studies have examined the relationship between these educational indicators and malnutrition [11, 12]. The main problem under study is that impact of malnutrition on child's level of academic performance has not been fully realized by trained home economics graduate teachers as a result of wrong perception they have about nutrition. This is seemingly affecting the

attainment of the objectives of the essence of giving well balanced diets to children of school going age. Despite the numerous efforts that have been made to let people know the essence of nutrition to a child's academic performance in teaching and learning, there seems to be an impression that the main objectives of this in home economics education have not been achieved. The main problem then is simply lack of knowledge about the importance of nutrition and the serious repercussions of malnutrition on school going children in line with academic performances. There is therefore the need to find out whether malnutrition among school going children of Enchi College of Education Demonstration Basic School has effects on their academic performance. The study sought to answer this two research questions -1. What is the level of prevalence of malnutrition among the students of Enchi College of Education Demonstration Basic School? 2. What is the relationship between malnutrition and academic performance of students of Enchi College of Education Demonstration Basic School?

2. Review of the Literature

Malnutrition or faulty nutrition results from mal-absorption, poor diet, over-eating, reduced supply of food or from inability to digest, assimilate, and use the necessary nutrients. Malnutrition is the gravest single threat to global public health. It may exist if a person has a poor diet that gives wrong balance of basic food groups. Malnutrition is a broad term which refers to both under-nutrition (sub-nutrition) and over-nutrition, this implies that the body requirements for nutrients are not met [13, 14]. Malnutrition is considered a risk factor in the educational future of children and should be a major concern for health, nutrition and educational policies [7]. Individuals are malnourished, or suffer from under-nutrition if their diet does not provide them with adequate calories and protein for maintenance and growth, or they cannot fully utilize the food they eat due to illness. People are also malnourished and suffer from over-nutrition if they consume too many calories. This is explained as oversupply of food nutrient, therefore concerns insufficient, excessive or imbalanced consumption of nutrients.

Malnutrition in the form of deficiencies of essential vitamins and minerals continues to cause severe illness or death in millions of people worldwide. Even mild forms of these deficiencies can limit a child's development and learning capacity early in life, which can lead to cumulative deficits in school performance, resulting in higher school drop-out rates and a high burden of illiteracy in future populations [15]. Investments in meeting the nutritional requirements and improving the nutritional status of children are fundamental to the achievement of sustainable development. High

proportions of infants, children, adolescents, adults and elderly in the developing world suffer from one or more of the multiple forms of malnutrition. Poor preschool child nutritional status is known to have important long-term effects on the work capacity, intellectual performance and life-time earnings of adults [15]. Pre-schools have tried to address all effects of malnutrition by ensuring that children are assisted and guided to eat a proper diet in order to have holistic development. Despite this, the quality of food for basic school students has been questioned due to its under-nutrition state.

Under nutrition is a condition caused by lack of food, nutritional value combined with interaction from infections [16]. The studies of the effect of under-nutrition on cognitive ability, though not entirely conclusive, indicate that chronic under-nutrition is associated with lower achievement levels among school children. Studies have found that severe stunting in the first two years of life lowers test scores in School age (8-11 years); chronic malnutrition lowers language and mathematics test scores and that short stature may lead to late enrolment for Primary school children [15, 16]. Notwithstanding, under-nutrition has caused cretinism in school going age children. School-age children with cretinism are unable to participate in regular schooling. These children have educational needs that must be met by special education systems generally unavailable in those populations where iodine deficiency is endemic. School-age children with signs of cretinism in populations where iodine deficiency is endemic are likely to have neurodevelopment deficits that place them at an educational disadvantage compared to children from similar social and economic backgrounds in non-endemic areas [17]. This implies that vitamins in children's food intake should be looked at to ease their vitamin deficiency.

Deficiency of vitamin A in children has been referred to as a nutritionally acquired immune deficiency that puts them at increased risk of not only morbidity and mortality from infectious diseases but also decreased physical growth and blindness in early childhood [18]. The vicious cycle of Vitamin 'A' Deficiency (VAD) and infections in young children including those of school-age can have very devastating consequences. There is now extensive evidence that VAD is widespread in young children in many developing countries with a global estimate of over 250 million children under five years of age affected by VAD (FAO, 2008). Omega-3 fatty acid, iron, zinc, folic acid and Vitamin A, B and C have proved capable of increasing level of intelligence, learning skills and memory. Deficiency in Omega-3 fatty acids, can lead to increased risk of attention-deficit disorder and dyslexia [18]. They concluded that performance possibilities of children are dependent upon

health and wellbeing. Minds that have been given proper nutrition perform better on tests and general classroom tasks. School-age children who are visually impaired or blind because of severe vitamin-A deficiency have educational needs that must be met by special educational systems that are unavailable in most populations with endemic vitamin-A deficiency [19]. Vitamins can be sourced from milk, liver, fruits, vegetables, butter, eggs, whole grains and pork. This posits that protein in the food given to school children should be increased to enhance their growth development.

A lack of protein, also known as Protein Energy Malnutrition, led to poor school performance by children and caused young children to be lethargic, withdrawn, and passive, all of which help affect social and emotional development [20]. In populations where malnutrition is endemic, children with a history of severe Protein Energy Malnutrition (PEM) enrol late in school, drop out early, and manifest school-aptitude deficits. The severity of these problems during school age varies as a function of the extent to which the environment to which these children were exposed following nutritional rehabilitation meet their nutritional, physiological, emotional, and educational needs. When these needs are met, the school aptitudes of children with a history of severe PEM are not likely to be a hurdle to learning in the classroom. Lack of protein, and energy also known as PEM has been linked to poor school performance by children and caused them to be lethargic and passive. Children with a history of chronic mild-to-moderate malnutrition as reflected in stunting will, on the average, perform less well in school than their peers [21].

Research has proved that malnutrition in the first 2 years of the child's life causes a shrink of the brain, impairing physical and mental development and a reduction of Intelligence Quotient (IQ). Malnutrition is known to be capable of decreasing scholastic performance, lower IQ levels, poor psychosocial development, increased dropout, and decreased cognitive functions [22]. The human brain needs sufficient energy – specifically glucose – and a variety of micro-nutrients to perform cognitive functions. A long-term deficiency of any or numerous macro- or micro-nutrients causes malnutrition and consequential cognitive impairment, the extent of which depends on the duration and degree of the malnourishment and the timing of its occurrence in development. In Ghana, macronutrient malnutrition (i.e., starvation) is rare, but the diets of Ghanaian schoolchildren lack quality as measured by adequate and varied consumption of fruits, vegetables, and whole grains, and moderation of saturated fats and extra-calorie foods.

This in effect negatively impact on the child's academic performance at school [13]. Children with a history of early

severe or mild-to-moderate PEM who are subsequently exposed to public health interventions that combine nutritional, health, and educational inputs will have major advantages in school aptitudes and performance compared with children with similar history but without exposure to such programmes. Fluctuating levels of carbohydrates might cause dizziness and mental confusion both of which can affect cognitive performance. A heavy carbohydrate food when consumed can cause one to feel calm and relaxed because of the brain chemical called serotonin whose creation is enhanced with carbohydrate [21].

It is particularly helpful in showing how school progress can be placed in jeopardy without any involvement of the intellectual abilities required for school learning. Early deficiency as a school-learning variable in the neurodevelopment of normal children is likely to be at risk in areas where iodine deficiency is endemic [21]. Among the most susceptible cognitive domains are visual-perceptual organization, visual-motor coordination, and speed of information processing. A malnourished child requires more intense care from their parents and is intellectually less productive. Malnutrition has been proved to affect negatively the growth patterns of children with physical, cognitive and psychological impairment which over time causes permanent disabilities in their learning age [23].

The effects of malnutrition on cognitive ability indicate that chronic under-nutrition is associated with lower achievement levels in school children [24]. Good health and nutrition are needed to achieve one's full educational potential. Children who are fed with good nutritionally balanced diet score higher on tests of factual knowledge than those with less adequate nutrition [25]. Deficiencies in iron, iodine and vitamins are major problems for school-age children in low income countries. Such deficiencies can negatively impact on susceptibility to infections and also impairs mental development and learning ability of school children. Malnutrition in early childhood can affect school aptitudes, time of school enrolment, attendance, concentration and attentiveness [25].

Malnutrition during early infancy and childhood has been linked to permanent conditions of poor organ development, impairment of the nervous system and neurological damage [26]. These effects apparently have serious long-term consequences on educational attainment. A research on What works? Interventions for maternal and child nutrition and survival found that stunting and wasting in infancy as a result of malnutrition (micronutrient deficiency) contribute to a long-term impact on cognition and learning potential [27]. The studies found out that, the effect of under-nutrition on cognitive abilities of children though not entirely conclusive, further indicated that chronic under-nutrition is associated

with lower achievement levels among school children [27]. Recent studies have found that: severe stunting in the first two years of life lowers test scores in School age (8-11 years); chronic malnutrition lowers language and mathematics test scores and that short stature may lead to late enrolment for Primary school children [16]. Both hunger and malnutrition impact negatively on the education of school age children. Incidences of absenteeism such as in Uganda have been blamed partly on inadequate or sheer lack of nutritious food. Children especially in rural areas of developing countries would rather stay home than go to school and endure hunger [28]. The consequences of deficient or inadequate diets manifesting as illness or some forms of physical incapacity often have negative implications on educational progress. The cyclical relationship between hunger and malnutrition on one side and child education on the other is interesting [16, 19].

Nutrient deficiencies contribute to a vicious cycle of malnutrition, underdevelopment and poverty affecting already underprivileged populations since nutritionally deficient adults are less productive, less innovative and more susceptible to diseases. While education is viewed as a tool to improve livelihoods and fight poverty, disease, hunger and malnutrition; in the face of the latter, education itself is hampered [29]. A study on Nutrition and Cognition in School-Aged Children: A Brief Review posits that nutrition affects learning and behaviour and suggested that diet can influence cognition and behaviour in many ways, which include the condition of not enough nutrition or the condition of the lack of certain nutrients [30]. About one-third of children who completed a food-habit questionnaire had inadequate fruit and vegetable intake. These students also showed poor school performances as compared to those students who had an adequate intake of fruits and vegetables [30].

3. Methodology

The survey approach used in this study is a non-experimental research. The population for this study consisted of all the JHS students of Enchi College of Education Demonstration School in the Aowin municipality in the Western North Region of the Republic of Ghana. A random sampling technique was used to select a sample size of 60 respondents from the school made up of 35 boys and 25 girls for the survey. The main instrument for data collection was Close-ended questionnaire, and ten (10) items were used to explore the influence of malnutrition on academic performance of students of Enchi College of Education Demonstration School. The Likert measuring scale was used to determine the extent of agreement or disagreement on some issues about the problem. The scales used for the items were

Strongly Disagree; (2) Disagree; (3) Neutral; (4) Agree; and (5) Strongly Agree. In this regard, data on students' prevalence of malnutrition and the effects of malnutrition on

academic performance were captured. The responses were analysed with the use of the SPSS to achieve the research objectives.

4. Findings and Discussions

4.1. Prevalence of Malnutrition

The first objective of this study was to assess the prevalence of malnutrition among the students of Enchi College of Education Demonstration School. Seven questionnaire items were used to elicit pupils' views on the above objective and simple percentages and weighted average were used in analysing the data which are presented in Table 1

Table 1. Prevalence of malnutrition among Pupils.

Item Scales	Responses					Weight Total	Weight Mean
	Strongly Agree 5	Agree Weight 4	Neutral 3	Disagree 2	Strongly Disagree 1		
1. I always take breakfast	33	16	10	1	2	262	4.24
2. I enjoy three square meals each day	32	13	5	8	2	245	4.08
3. I eat fruits and vegetables everyday	18	18	9	15	0	219	3.65
4. Examining the quantity and quality of my food intake, I feel malnourished	35	10	11	4	0	256	4.27
5. My food intake depends on affordability	34	13	2	7	4	246	4.10
6. Food availability supersedes food nutritional values in my choice of food	13	23	10	3	11	204	3.4
7. I sometimes sacrifice my diet for education	42	5	4	6	3	257	4.28

Item 1 of Table 1 which reads - I always take breakfast shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 33 (51.7%) strongly agreed, 16 (26.7%) agreed, 10 (16.7%) were not certain, 1 (1.7%) disagreed, whilst 2 (3.3%) strongly disagreed to the assertion. Greater percentage agreeing implies that pupils agreed taking breakfast always. A weighted average of 1.8 shows that majority of the pupils strongly agreed to the assertion.

Item 2 of Table 1 which reads I enjoy three square meals each day shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 32 (53.3%) strongly agreed, 13 (21.7%) agreed, 5 (8.3%) were not certain, 8 (13.3%) disagreed, whilst 2 (3.3%) strongly disagreed to the assertion. The greater number of respondents agreeing out of the respondents of 60 implies that greater percentage of the pupils agreed that they enjoy three square meals each day. A weighted average of 2 also indicates that majority of the pupils agreed to the assertion.

Item 3 of Table 1 which reads I eat fruits and vegetables everyday shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 18 (30.0%) strongly agreed, 18 (30.0%) agreed, 9 (15.0%) were not certain, whilst 15 (25.0%) disagreed to the assertion. The greater number of respondents agreeing out of the respondents of 60 implies that greater percentage of the pupils agreed that they eat fruits and vegetables every day. A weighted average of 2.4 also shows that majority of the

pupils agreed to the assertion.

Item 4 of Table 1 which reads Examining the quantity and quality of my food intake, I feel malnourished shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 35 (58.3%) strongly agreed, 10 (16.7%) agreed, 11 (18.3%) were not certain, whilst 4 (6.7%) disagreed to the assertion. The 35 (58.3%) strongly agreeing and 10 (16.7%) agreeing out of the 60 respondents indicates that greater percentage of the pupils agreed that examining the quantity and quality of their food intake, they feel malnourished. A weighted average of 1.7 also supports that majority of the pupils strongly agreed to the assertion. Malnutrition is considered a risk factor in the educational future of children and should be a major concern for health, nutrition and educational policies [7]. This is a cause for alarm, individuals are malnourished, or suffer from under-nutrition if their diet does not provide them with adequate calories and protein for maintenance and growth, or they cannot fully utilize the food they eat due to illness. This implies malnutrition therefore concerns with insufficient, excessive or imbalanced consumption of nutrients.

Item 5 of Table 1 which reads My food intake depends on affordability shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 34 (56.7%) strongly agreed, 13 (21.7%) agreed, 2 (3.3%) were not certain, 7 (11.7%) disagreed, whilst 4 (6.7%) strongly disagreed to the assertion. The 34 (56.7%) strongly agreeing and 13 (21.7%) agreeing out of the respondents of 60 implies

that greater percentage of the pupils agreed that their food intake depends on affordability. A weighted average of 1.9 supports that majority of the pupils agreed to the assertion.

Item 6 of Table 1 which reads food availability supersedes food nutritional values in my choice of food shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 13 (21.7%) strongly agreed, 23 (38.3%) agreed, 10 (16.7%) were not certain, 3 (5.0%) disagreed, whilst 11 (18.3%) strongly disagreed to the assertion. The 13 (21.7%) strongly agreed, 23 (38.3%) agreeing out of the 60 respondents indicate that greater percentage of the pupils agreed that food availability supersedes food nutritional values in their choice of food. A weighted average of 2.6 supports that majority of the pupils agreed to the assertion.

Item 7 of Table 1 which reads I sometimes sacrifice my diet for education shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 42 (70.0%) strongly agreed, 5 (8.3%) agreed, 4 (6.7%) were not certain, 6 (10.0%) disagreed, whilst 3 (5.0%) strongly disagreed to the assertion. The 42 (70.0%) strongly agreeing

and 5 (8.3%) agreeing out of the 60 respondents implies that greater percentage of the pupils agreed that they sometimes sacrifice their diet for education. A weighted average of 1.7 supports that majority of the pupils strongly agreed to the assertion. Contextualizing the discussion on the level of prevalence of malnutrition among the students of Enchi College of Education demonstration school, it was realised that the weighted mean ranged of 1.6 to 2.6 suggests that pupils agree on the given concepts asked.

4.2. Malnutrition and Academic Performance

The second objective of this study was to assess the relationship between malnutrition and the academic performance of students of Enchi College of Education demonstration school. The three (3) itemed questionnaires were designed to help gain a better understanding of the kind of difficulties malnutrition can exert on academic performance of pupils in the classroom. Simple percentages and weighted average were used in analysing the data. The responses are presented in the Tables 2 below:

Table 2. Malnutrition and academic performance and behaviour.

Items scale	Strongly Agree 5	Agree 4	Uncertain 3	Strongly Disagree 2	Disagree 1	Weight total	Weighted mean
1. I am sometimes inattentive in class when I do not eat well	34	14	1	6	5	246	4.1
2. I sometimes absent myself from school for lack of food	22	6	6	6	20	184	3.07
3. I can improve on my academic performance if the quantity and quality of my diet increases	26	14	7	8	5	228	3.8

Item 1 of Table 2 which reads - I am sometimes inattentive in class when I do not eat well shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 34 (56.7%) strongly agreed, 14 (23.3%) agreed, 1 (1.7%) were not certain, 6 (10.0%) disagreed, whilst 5 (8.3%) strongly disagreed to the assertion. The 34 (56.7%) strongly agreeing and 14 (23.3%) agreeing implies that greater percentage of the pupils agreed that they sometimes become inattentive in class when they do not eat well. A weighted average of 2.2 also shows that majority of the pupils agreed to the assertion. In support of the study, findings on the science of nutrition: educational leadership indicated that eating breakfast helps students to eliminate or reduce stomach pain, headache, muscle tension, and fatigue, all which lead to an interference with learning [31]. The researchers stated that several dietary components support brain function and neurotransmitter activity, and that scientists recommend a wide range of foods as nutrient sources; the most important known ones today are protein, fat, B vitamins, iron, chlorine, and antioxidants. This implies adequate nutritional taken before class help pupils to learn better.

Item 2 of Table 2 which reads I sometimes absent myself from school for lack of food shows that out of the 60

respondents, 22 (36.7%) strongly agreed, 6 (10.0%) agreed, 6 (10.0%) were not certain, 6 (10.0%) disagreed, whilst 20 (33.3%) strongly disagreed to the assertion. The greater number of respondents agreeing out of the respondents of 60 implies that greater percentage of the pupils agreed that sometimes they absent themselves from school for lack of food. A weighted average of 2.9 supports that majority of the pupils agreed to the assertion.

Item 3 of Table 2 which reads I can improve on my academic performance if the quantity and quality of my diet increases shows that out of the 60 respondents from the Enchi College of Education Demonstration School, 26 (43.3%) strongly agreed, 14 (23.3%) agreed, 7 (11.7%) were not certain, 8 (13.3%) disagreed, whilst 5 (8.3%) strongly disagreed to the assertion. The 26 (43.3%) strongly agreeing and 14 (23.3%) agreeing out of the respondents of 60 implies that greater percentage of the pupils agreed that they can improve on their academic performance if the quantity and quality of their diet increases. A weighted average of 2.0 supports that majority of the pupils agreed to the assertion. Contextualizing the discussion on assessing the malnutrition and academic performance among students, it was realized that the weighted mean of 2.0 to 2.9 indicates that pupils

agree that there is a relationship between malnutrition and the academic performance of students. This goes to support [3] that effects of malnutrition on cognitive ability indicates that chronic under-nutrition is associated with lower achievement levels in school children. This implies that good health and nutrition are needed to achieve one's full educational potential because nutrition affects intellectual developments and learning ability.

5. Conclusions and Recommendations

The study discovered that there was lesser degree of prevalence of malnutrition among students. Most pupils established taking breakfast always; that they enjoy three square meals each day; eat fruits and vegetables every day. Pupils declared that examining the quantity and quality of their food intake, they feel malnourished as their food intake depends on affordability. Pupils agreed that they sometimes sacrifice their diet for education; and that food availability supersedes food nutritional values in their choice of food. On inaccessibility of food, the respondents agreed that they sometimes become inattentive in class when they do not eat well and that they sometimes absent themselves from school for lack of food. The study revealed once again that they can improve on their academic performance if the quantity and quality of their diet increases.

The findings show that high proportions of pupils suffer from one or more of the multiple forms of malnutrition. It is therefore recommended that, there should be investments in meeting the nutritional requirements and improving the nutritional status of children since it is seen as the fundamental to the achievement of sustainable development of the individual and the nation.

Poor school child nutritional status is known to have important long-term effects on the work capacity, intellectual performance and life- time earnings of adults. It is therefore recommended that educational stakeholders should try to address all effects of malnutrition by ensuring that children are assisted and guided to eat a Proper diet in order to have holistic development since it was evidenced that quality of food pupils eat were questioned.

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