Original Article

Assessment of the Nutritional Status of Nursery School Children in Buea Municipality, South West Region - Cameroon

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Abstract

<u>*Background:*</u> Malnutrition is a public health concern due to its negative impact on human performance, growth, and development, especially in children. The preschool period is the critical stage of active development and growth of physical, social, and mental well-being of children The main objective of this study was to assess the nutritional status of nursery school children aged 2-5years. <u>*Method:*</u> It was a cross section, descriptive school-based study of Nursery school children. A semi structured questionnaire was used to obtain information on sociodemographic characteristics of the children. Nutritional status of the children was assessed using anthropometric measurements (mid upper arm circumference, Body mass index) and dietary intake. The children were weighed and measured as per the WHO guidelines on Anthropometry. Data collected was analyzed using the Stats Graphics and SPSS version 20. Results were presented using frequencies, percentages and means were calculated and presented on tables and charts. <u>*Results:*</u> The results recorded revealed that, out of the 431 Nursery school children who took part in the study, 54. 3% were males and 45. 7% were females. Majority 45. 5% of the children were within the age range of 4 - 4. 9 years. From the MUAC measurements, severe acute malnutrition (≤11. 5cm), moderate acute malnutrition (11. 5-12. 5cm) and mild acute malnutrition (12. 5- 13. 5cm) were recorded according to WHO classification. The group with the most (4. 9%) severe acute malnutrition, moderate acute malnutrition (10. 9%), Mild acute malnutrition (15. 5%) were children within the age range of 3- 3. 9 years. Based on gender and BMI for age, Most (16. 4%) of the underweight children were boys and most of them (7. 4%) were of the age range of 4 - 4. 9 years and the boys (3. 9%) of the age range 3 -3. 9 years were overweight. The overall prevalence of underweight children was 30. 2%. The findings on dietary intake revealed that 50. 7% of the children consumed mostly cereals and tubers and From the Protein group, few (7. 4%) consumed meat, fish and eggs and very few of them (3, 7%) consumed milk and milk products. Also, very few (3. 2%) consumed vegetables and fruits (2. 3%). <u>*Conclusion:*</u> This study concludes that Children in different nursery schools in Buea Municipality are malnourished to different extends and so the fight against malnutrition in the Buea municipality should be encouraged and nutritional interventions to improve on the nutritional status of school age children be stepped–up, as well as introducing nutrition education in schools.

Keywords: *Nutritional Status, Anthropometry, Dietary Intake, Nursery School Children, Buea Municipality.*

Introduction

Malnutrition is a pathological condition caused by a deficiency or excess of one or more nutrients. Inadequate dietary intake can come from food of poor quantity (insufficient or excessive calorie intake) or poor quality (nutritional deficiencies or excess fat) [1]. According to the estimates by the World Health Organisation, undernutrition accounts for a third of child mortality. It can cause developmental delays in young people throughout childhood and adolescence, and can lead to poor performance and drop-out from school [2]. Well-nourished children can grow and develop to meet their full potential. They are better able to experience healthy lives, to learn and take part in their communities, and to thrive throughout life. In 2022, the global number of children under 5 years old with stunted growth was 148 million (22. 3% of under 5 years), and 45 million with wasting (6. 8%) [2]. Such malnutrition is for nearly half of all deaths in children younger than 5 and causes cognitive impairment in many who survive [3, 4]. Underlying social determinants of health that contribute to acute pediatric malnutrition include: economic instability, social instability with limited access to quality education (especially for the child's mother), and poor access to healthcare and other supportive programs in the community [5]. In developing countries, where people may undergo a reduced food intake, lower subcutaneous fat and muscle mass tend to parallel decreased mid-

upper-arm circumference (MUAC) and as a result are useful in the diagnosis of undernutrition [1, 2].

It is an important tool in screening for undernutrition especially when weight and stature measurements are too demanding or are impossible, such as in emergency situations, and when the precise age of the child is unknown, since it has been suggested that MUAC is relatively independent of age for children between 1 and 5 years [6]. The mid-upper arm circumference (MUAC) is a useful tool for a fast assessment of nutritional status. It is an easy and inexpensive way to detect childhood malnutrition, and is increasingly used in developing countries for rapid and extensive nutrition surveillance and screening programs [7]. It is a relatively simple /Index, but with a fixed cutoff, it ignores age related changes. Compared with weight-for height, MUAC has a sensitivity of 24. 6% and a specificity of 94. 8% [8]. Nursery school children (typically 2-5 years) require 1, 000-1, 400 kcal/day, focusing on fruits, vegetables, and whole grains.

Suboptimal dietary patterns often show excessive sodium/saturated fats, low fiber/dairy, and high calorie intake on non-care days. Key guidelines emphasize 30-40% fat (2-3 years) or 25-35% (4-8 years) of daily calories, with limited sugar and salt [9]. The importance of having proper nutrition has in recent years been emphasized as a key factor in leading a healthy life and has contributed to the trend toward healthier diets [10]. Nutrition education therefore can play a major role in the way caregivers feed their children, which in turn can contribute to an overall improvement of the nutritional status of children [11]. Child growth is the most widely used measure of children's nutritional status. The first 1000 day of life (0-33months) is a very critical phase in a child's life during which rapid physical and mental development occurs [12]. Lack of nutritious foods during childhood stage can lead to poor health and inadequate learning – undernutrition, stunting, and wasting, leading to failure in mental and physical growth and reduced schooling and productivity afterward. At the same time, adequate nutrition is essential for children to achieve their full developmental potential. Globally, each year undernutrition, fetal growth restriction, stunting, wasting, and micronutrient deficiencies result in about 3, 1 million deaths of children younger than five years. ach 60 million in 2020 [13]. The World Health Organization reported that 149 million children under age five years are stunted while 49 million were wasted worldwide in 2019 [14]. Sub-Saharan African countries have the highest number of undernourished children (336 million) compared to other developed countries. In Tanzania, undernutrition, weak growth, stunting, wasting, and micronutrient deficiencies were the leading causes of almost half of deaths among children under five years. The prevalence rate of underweight and stunting in children under five years in sub-Saharan was reported as 13. 2% in Lesotho, 13. 4% in Namibia, while 28. 7% in Nigeria, and 25. 7% in Burkina Faso. A Tanzanian study reported that 19% of children between 2 -5 years were at risk of malnutrition while 3% were moderate acute malnutrition [13] while in Mozambique, the prevalence rate of stunting, underweight, wasting was reported as 51%, 13% and 5% respectively [15]. Undernutrition in developing countries in Sub- Saharan Africa is common and mainly attributed to food shortages, food insecurities inadequate food access, financial constraints, infectious illnesses, and insufficient health care services access [14,15]. While malnutrition can manifest in multiple ways, the path to prevention is virtually identical: adequate maternal nutrition before and during pregnancy and lactation; optimal breastfeeding in the first two years of life; nutritious, diverse, and safe foods in early childhood; and a healthy environment, including access to basic health, water, hygiene and sanitation services and opportunities for safe physical activity. These key ingredients can deliver a world where children are free from all forms of malnutrition. Early Childhood Development centres provide an excellent environment to promote healthy eating and physical activities, and nutrition education [16]. The assessment of the nutritional status of preschool children is critical to identify children who require nutrition intervention to improve their health and well-being [17].

In Cameroon, the latest nutrition survey conducted by the National Statistics Institute reported high rate and increasing prevalence of stunting (33%), underweight (15%) and wasting (6%) in children under 5 years. It also showed that the height and weight disorders are more common in rural than urban areas [18]. Despite sufficient quantity and diversity of food resources in Cameroon, especially in the South Western Region [19], where many foods are produced, malnutrition rates among children under 5 years persist and is at rise [18]. This work was initiated to assess the nutritional status of children aged 2 to 5 years in Buea, in order to develop a nutritional education program and planning that will to improve the nutritional situation of children in this locality.

Materials and Methods

Research Design
A survey was initially carried out to nursery schools for the research. The research design used for this study was the descriptive research design whereby qualitative and quantitative data were gathered through administering questionnaires to kids in some 26 nursery schools around Buea. The tool that was employed in the initial identification process was to move to the schools and collect data based on random selection of one nursery school per major neighborhood in Buea emphasizing on some details such as sex, neighborhood, anthropometric measurements, BMI, knowledge of feeding habits, types of food eaten.

Area of the Study
Buea is the capital of the South West Region of Cameroon. The city is located on the eastern slopes of Mount Cameroon at an elevation of 900m and has a population of 300, 000 (at the 2013 Census). About 300, 000 people live in Buea (including the villages of Bokwaongo, Muea; Bomaka; Tole; Mile 16 (Bolifamba); Mile 17; Mile 15; Mile 14 (Dibanda); Bova; Bonjongo; Likombe; Buasa; Great Soppo; Molyko; Small Soppo; Bwitingi; Mile 18 (Wonyamavio); Lower farms; Bokwai; Bonduma; Sandpit, Wonyamongo, Bulu; Bokova.

Buea has a subtropical highland climate. Because of its location at the foot of Mount Cameroon, the climate in Buea tends to be humid, with the neighborhoods at higher elevations enjoying cooler temperatures while the lower neighborhoods experience a hotter climate. Extended periods of rainfall, characterized by incessant drizzle, which can last for weeks, are common during the rainy season as are damp fogs, rolling off the mountain into the town below. Buea is endowed with many educational institutions ranging from the government schools, to lay private and confessional schools that provide academic services from the nursery schools base to primary schools up to the higher education level across different in Buea. Buea municipality as of date has 107 nursery schools with a total population of 13280 pupils (Boys: 6466, Girls: 6814) for 608 teachers.

Population of the Study
The target population was preschool children in the age group 2-5 years. 11 nursery schools were randomly selected from the 11 major different neighborhoods in Buea Municipality. The study sample included 431 children. Nursery Schools in Buea are frequented by

children of families with different economic, social, and cultural levels.

All registered children aged 2-5years attending the selected schools were eligible to participate in the anthropometric measurements and dietary assessment. Anthropometric measurements used for this study are weight and height of the preschoolers following the WHO measuring standards (WHO, 14).

Sample and Sampling Plan

A random sampling technique was used to select preschoolers that were weighed and measured and to whom questionnaires were administered. The results obtained, were used to generalize on the assessment of the nutritional status of nursery school children in Buea.

Table 1: List of studied schools

S/N	Name of School	Latitude (N)	Longitude (E)	Elevation (m)
1	Manga Memorial Nursery and Primary School, Bakweri Town	04°15′030″	009°15′715″	741
2	Rijoflo Nursery and Primary School, Great Soppo	04°15′697″	009°24′5438″	787
3	St. Veronique International Bilingual Nursery and Primary	04°14′547″	009°24′4307″	845
4	Learning Ladder Nursery and Primary School, Clerks Quarter	04°15′098″	009°23′3917″	888
5	Catholic Nursery School, Wokoko–Molyko	04°15′907″	009°27′7837″	637
6	Government Nursery School, Buea Town	04°16′092″	009°23′3437″	982
7	Government Nursery School, Bokova	04°17′168″	009°27′7593″	689
8	Government Nursery Practicing School, Likoko Membea – Bokwango	04°13′904″	009°22′2739″	937
9	Faith Bilingual Nursery and Primary School, Bomaka	04°15′493″	009°30′0327″	530
10	St. Andrews Catholic Nursery and Primary School, Muea	04°17′196″	009°30′0112″	559
11	Divine Favour Nursery and Primary School, Mile 16	04°13′964″	009°30′0910″	481

This study was implemented in some randomly selected nursery schools in Buea Municipality. The children's birth (certificates) record was reviewed to get the age in months, gender and other demographic information were obtained. pre-tested questionnaire was used to collect information on socio-economic status, dietary assessment, household information, anthropometric measurements, and nutritional knowledge of the mothers. Weight and height measurements were taken according to Standard Operating Procedure (SOP) in light clothing and without shoes, to nearest 0. 1kg, 0. 1cm, respectively. Body mass index (BMI) in kg/m2 was calculated from the measured heigh. The following anthropometric measurements were carried out for every child accordingly. The measurements taken included;

Weight: a calibrated scale was used and checked against a known weight prior use. Before use, the scale was placed on hard flat surface and setting to zero. Shoes and heavy clothes were removed and children weighed. Weight was recorded to the nearest 0. 1Kg.

Height: It was measured using a non-stretch tape fixed to the wall in a leveled area. After removing the shoes, each child was asked to stand on the floor; feet together and with heels, buttocks, and back of the shoulders touching the wall adjacent to the tape. The child was asked to look forward so that the line of vision was parallel to the floor with arms hanging on the sides.

MUAC: This was measured using a flexible and non-stretch tape. MUAC was measured by placing the tape on bare skin mid-way between the shoulder and elbow of the left hand to get the circumference. The measurements were taken to the nearest 1cm.

Inclusion Criteria

All nursery school children aged 3-5years in Buea Municipality and willingness to talk and participate in the study.

Ethical consideration

In order to conduct a study involving preschool children, institutional consent for access to the pupil was obtained from the school's heads. The concept and the objective of the study were explained to the teachers and parents and caregivers who facilitated the management of the children's responses. Administrative authorization to carry out the research in Buea Municipality, was obtained from the South West Regional Delegation of Basi Education and the Mayor of Buea municipal council. Confidentiality of respondents was assured.

Data Analysis

All answered questionnaires were reviewed, data coded and entered into Microsoft word and Microsoft Excel version 2010. The data was grouped and analyzed using Stats Graphics Centurion XVII software. Results were presented using descriptive statistics in charts and tables. One way ANOVA was used to test for significance.

Results

Of the 431 Nursery school children that took part in this study, 54. 3(234) were boys and 45. 7(197) were girls. Majority (45. 4%) of the children were within the age range of 4- 4. 9 years and only 7% of them were 5years and above. Most (96. 7%) of them had christian background. Concerning educational level of the parents, majority (37. 6%) had secondary education and most (66%) of them were government employed.

Table 2: Socio-Demographic information of participants (n= 431)

Variable	Category	Frequency	Percentage
Sex	Male	234	54.3
	Female	197	45.7
Age range(years-mths)	2-2.9	35	8.1
	3-3.9	171	39.7
	4 -4.9	196	45.4
	≥5	29	7
Parental Education	Primary	76	27.7
	Secondary	103	37.6

	Tertiary	87	31.7
Occupation	Unemployed	18	6.6
	Farmer	64	23.3
	Government	66	24
	Private Sector	22	8
Religion	Christians	417	96.7
	Muslims	14	3.2

Mid Upper Arm Circumference (MUAC)

From the MUAC measurements, severe acute malnutrition, moderate acute malnutrition, and mild acute malnutrition were recorded according to WHO classification. The age group having the highest (4. 9%) severe acute malnutrition, moderate acute malnutrition (10. 9%), Mild acute malnutrition (15. 5%) were children within the age range of 3- 3. 9 years. Generally, the different levels of malnutrition (severe acute malnutrition, moderate acute malnutrition and mild acute malnutrition based on the MUAC measurements, was recorded in all age groups as shown in table 3 below.

Table 3: Mid upper arm circumference (MUAC) classification of Nursery school children in Buea Municipality

MUAC CLASSIFICATION				
Age Range (years)	MUAC	Frequency	Percentage	Classification
2 - 2.9	<11.5cm	5	1.2	Severe Acute Malnutrition
	11.5-12.5cm	7	1.6	Moderate acute malnutrition
	12.5-13.5cm	12	2.9	Mild acute malnutrition
	>13.5 cm	8	1.9	Normal
3 - 3.9	<11.5cm	21	4.9	Severe Acute Malnutrition
	11.5-12.5cm	47	10.9	Moderate acute malnutrition
	12.5-13.5cm	67	15.5	Mild acute acute malnutrition
	>13.5 cm	36	8.4	Normal
4 -4.9	<11.5cm	17	3.9	Severe Acute Malnutrition
	11.5-12.5cm	43	9.9	Moderate acute malnutrition
	12.5-13.5cm	54	12.5	Mild acute malnutrition
	>13.5 cm	83	19.2	Normal
5	<11.5cm	6	1.3	Severe Acute Malnutrition
	11.5-12.5cm	4	0.9	Moderate acute malnutrition
	12.5-13.5cm	3	0.7	Mild acute malnutrition
	>13.5 cm	18	4.17	Normal

Body Mass Index (BMI) for age classification of the children based on gender

Based on gender of the children and according to the WHO BMI classification of malnutrition, the findings revealed that, Most (16. 4%) of the underweight children were boys and 7. 4% of them were of age range of 4 - 4. 9 years. Concerning overweight and obesity, 9. 4% 0f the boys were overweight and 3. 1% of them were obese. As for the girls, 13. 6% of them were underweight, 7. 0% overweight and only 1. 8% were obese as shown on tables 4 and 5 below.

Table 4: Boys BMI for age

Age range	Underweight		Normal		Overweight		Obese	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
2- 2.9	6	1.4	6	1.3	3	0.6	2	0.4
3 - 3.9	26	6	45	10.4	17	3.9	7	1.6
4 - 4.9	32	7.4	54	12.5	15	3.4	4	0.9
5	7	1.6	7	1.6	2	0.5	1	0.2
Total	**71**	**16.4**	**112**	**23.5**	**37**	**9.4**	**14**	**3.1**

Table 5: Girls BMI for age

Age range	Underweight		Normal		Overweight		Obese	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
2- 2.9	4	0.9	8	1.9	2	0.5	1	0.2
3 - 3.9	23	5.3	45	10.4	10	2.3	2	0.5
4 - 4.9	27	6.3	41	9.5	16	3.7	4	0.9
5	5	1.1	6	1.4	2	0.5	2	0.2
Total	**59**	**13.6**	**100**	**23.0**	**30**	**7.0**	**8**	**1.8**

Global Nutritional status of the children based on BMI for age

The results recorded revealed that globally, 30. 2% 0f the nursery school children were underweight, 15. 5% were overweight, 5. 1% were obese and 49. 2% had normal nutritional status as shown on table 6 below.

Table 6: Nutritional status by BMI Classification of Nursery School Children in Buea, South West Region

Mean BMI for age	Percent/Number boys	Percent/Number girls	Total Percent/ Number of children
Underweight ≤16.5 -18.5	16.4(71)	13.6 (59)	30.2(130)
Normal >18.5 - 25	25.9 (112)	23.2 (100)	49.2 (212)
Overweight 25 - 30	8.6 (37)	7 (30)	15.5 (67)
Obese >30 -35	3.2 (14)	2 (8)	5.1 (22)

Dietary Intake

The dietary pattern of the children showed that 58. 9% of the children were consuming food from the carbohydrate food group with cereals (25. 2% and tubers (24. 4%) more consumed in this group. For fats and oils food group, more of them (16. 7%) consumed palm oil than the refined oils. From the Protein group, few (7. 4%) consumed meat, fish, and eggs and very few of them (3, 7%) consumed milk and milk products. Also, very few (3. 2%) consumed vegetables and fruits (2. 3%) as shown on table 7.

Table 7: Food consumption by Nursery school children per week

Food Types	Frequency	Percentage	Valid
Carbohydrate Foods			
Rice	56	12.9	12.9
Cereals – Corn	32	7.4	7.4
Wheat flour	21	4.9	4.9
Tubers (Sweet potatoes, potatoes, yams, cocoyams)	59	13.7	13.7
Cassava and derivatives	46	10.7	10.7
Others (Banana, plantain)	40	9.3	9.3
Total	**254**	**58.9**	**58.9**
Fat and Oil Foods			
Red palm oil	72	16.7	16.7
Refined oil	33	7.7	7.7
Total	**105**	**24.4**	**24.4**
Protein Foods			
Meat / fish / eggs / beans / peanuts	32	7.4	7.4
Milk / dairy products	16	3.7	3.7
Total	**48**	**11.1**	**11.1**
Vegetables and fruits	14	3.2	3.2

5. 1: Correct Nutrition Education Knowledge of parents of Nursery School Children

The results revealed that majority (50. 3%) of the parents did not know the correct meaning of a balanced diet, 45% did not have knowledge of foods rich in carbohydrates/proteins/fats and 55. 9% did not have knowledge on food rich in vitamins and minerals. But there was no significant association (p>0. 05) between parents' knowledge on nutrition education and Nutritional status of the children as shown on table 8.

Table 8: Correct Nutrition Education Knowledge of parents of children and malnutrition

Variable	Response	Frequency	Percentage (%)	Regression	p-value
Meaning of balanced diet	Yes	214	49.7	0.036	0.237
	No	217	50.3	—	—
Know foods rich in carbohydrates / proteins / fats	Yes	237	55.0	0.014	0.394
	No	194	45.0	—	—
Know foods rich in vitamins / minerals	Yes	177	41.0	0.032	0.259
	No	254	58.9	—	—

Discussion

Sociodemographic characteristics of the study population

The nursery period is the critical stage of active development and growth of physical, social, and mental well-being of children The main objective of this study was to assess the nutritional status of nursery school children aged 2-5years. Out of the 402 children who participated in this study, 234(54. 3%) were boys and 197(45. 7%) were girls. This is contrary to a study carried out by Mokone SM *et al.* in South Africa [20], in two provinces attending early childhood development centres where females were 52% and the males were 48%. As regarding age distribution, majority (45. 4%) of the children were within the age range of 4 - 4. 9 years. In a related study carried out in the North West region of Cameroon by Chiabi *et al.*[22], majority (62. 2%) of the children were of the age range within 3- 3. 7 years. The educational level of most (37. 6%) of the parents was secondary Education and they were mostly government employed.

Nutritional status assessment by Anthropometric measurements of respondents

Mid-upper arm circumference (MUAC) measurements have emerged as a reliable diagnostic tool, enabling early identification of malnourished children and reducing child morbidity and mortality.

The measurement of MUAC is a quick and reliable method for screening children to identify those who are seriously malnourished. Several researchers worldwide have used MUAC to identify children as having moderate and severe acute malnutrition for its simplicity [22]. The age group having the highest (4. 9%)

severe acute malnutrition, moderate acute malnutrition (10. 9%), Mild acute malnutrition (15. 5%) were children within the age range of 3- 3. 9 years. In a similar study carried out by Biswas in west Bengal, India [23], both severe and moderate malnutrition's were recorded but severe malnutrition was higher in girls (5. 75%) and moderate malnutrition (25. 67%) than in boys. Moderate malnutrition which was highest was recorded in children within the age range of 2 - 2. 5 years. The global Nutritional status of the children based on BMI for age revealed that 30. 2% of the nursery school children were underweight, 15. 5% were overweight, 5. 1% were obese and 49. 2% had normal nutritional status. Based on gender of the children and according to the WHO BMI classification of malnutrition, the findings revealed that, Most (16. 4%) of the underweight children were boys and 7. 4% of them were of age range of 4 - 4. 9 years. Concerning overweight and obesity, 9. 4% of the boys were overweight and 3. 1% of them were obese. As for the girls, 13. 6% of them were underweight, 7. 0% overweight and only 1. 8% were obese. The overall prevalence of underweight children was 15%. These findings of poor nutritional status among these nursery school children could be attributed to inadequate intake of nutritive food and these forms of malnutrition was significantly associated with age and sex. This finding is linked with findings in a recent study carried out by Chiabi *et al.* [21], in the North west Region of Cameroon which revealed that the overall prevalence of undernutrition was equally high (10. 9%). Considering an international study, considering an international study by the joint UNICEF/WHO/World bank group [14], child malnutrition recorded underweight among children under 5 years to be 7. 3%.

Dietary Intake

This study revealed that the dietary pattern of the children was composed of high consumption (58. 9%) of carbohydrate food group (cereals and tubers). From the Protein group, few (7. 4%) consumed meat, fish, eggs and diary products. Also very few (5. 5%) consumed vegetables and fruits. Similar results were obtained from studies carried out by chiabi *et al.* [21] in the North west region and Nicolas *et al.* [24] in the Littoral region of Cameroon. Even higher consumption (83. 9%) of cereals and tubers and low consumption (6. 5%) of vegetables and fruits was obtained in study carried out by Oladejo T A *et al.* [12] preschool children in Ibadan, Nigeria. The results obtained in these studies indicated that there was inadequate intake of balanced diets which consequently lead to the prevalence of malnutrition in preschool children. The study also revealed limited or low nutrition education knowledge on balanced diets by the parents of these children and this affects the major role they have to play in feeding their children adequately.

Conclusion

Based on the analyses obtained from the different nutritional status assessment methods used, the study has highlighted the burden of undernutrition among the nursery school children aged 2-5 years in this region, as well as identified children who were at risk of malnutrition, So, it is necessary to prioritize the allocation of resources for nutritional status assessment of children by health care workers during community outreach programmes in the whole region and refer those who are at risk of malnutrition to health facilities for further management. We also suggest that more studies dealing with children's malnutrition of this age range be undertaken in all regions of Cameroon to limit malnutrition incidences in this age group which may be hindering their performance, proper growth, and development.

Declarations

Ethics approval

The study was reviewed and approved by the ethical committee of our institute and the South West Regional Delegation of Basic Education.

Acknowledgement

Funding

Conflict of interest

None declared

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