EAS Journal of Nutrition and Food Sciences
Abbreviated Key Title:EAS J Nutr Food Sci
ISSN: 2663-1873 (Print) & ISSN: 2663-7308 (Online)
Published By East African Scholars Publisher, Kenya

Volume-5 | Issue-1 | Jan-Feb; 2023 | DOI:10.36349/easjnfs.2023.v05i01.003

OPEN ACCESS

Original Research Article

Problems of Food and Nutritional Practices of Children in Precarious Areas of Port-Bouët in Abidjan

Beugre Gnakon Flora Carenne[1*], Bouafou Kouamé Guy Marcel[2], Amani Yao Célestin[1]

[1]Institute of Anthropological Development Sciences (IADS), Félix Houphouet-Boigny University, Abidjan, Côte d'Ivoire
[2]Department of Science and Technology, Ecole Normale Supérieure (ENS), Abidjan, Côte d'Ivoire

Article History
Received: 22.12.2022
Accepted: 31.01.2023
Published: 11.02.2023

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: Food and nutritional security is a major and topical concern in the world.This study aims to present the food practices of children in precarious neighborhoods of Port-Bouët. The methodology was based on (1) surveys of 400 children (7 to 12 years old), (2) interviews with managers of the health centers of Gonzaqueville, Vridi Canal and Port-Bouët center, (3) the determination of the quantities of the most consumed meals with a scale, (4) calculations of the BMI of children associated with the weight growth curve according to their sex and (5) documentary research to know the chemical compositions of foods. The majority of children eat their meals at home. The structure of children's meals consists of a main course plus water. The most consumed dish is rice with a sauce and little fish (or meat) and attiéké accompanied by fried fish. Meals consumed by children are high in carbohydrates and contain little protein. They eat four times a day and the meal quantities are small. Most of the children are thin and suffer from anemia. Children in the precarious neighborhoods of Port-Bouët have poor dietary and nutritional practices that negatively influence their health. This category of individuals is the most vulnerable.

Keywords: Food practices, food hygiene, food security, health, children, precarious neighborhoods.

INTRODUCTION

Food and nutrition security is a major and topical concern in the world (OECD, 2021; Bouafou K *et al*., 2021; FAO, IFAD, WHO, WFP and UNICEF, 2022; AU, 2022). In 2020, 281.6 million Africans were undernourished, 89.1 million more than in 2014, the report said. Hunger levels and trends vary widely across subregions. About 44 percent of the undernourished on the continent live in East Africa, 27 percent in West Africa, 20 percent in Central Africa, 6.2 percent in North Africa and 2.4 percent in Southern Africa (Fao *et al*., 2021). In 2022, the region is still hit by an unprecedented crisis affecting all 17 countries of the Sahel and West Africa (CILSS, 2022; FAO *et al*., 2022). In Côte d'Ivoire, 20.5% of the population do not reach the minimum level of caloric intake and the diet remains poorly diversified in all age groups (World Bank, 2014). This situation is observed in disadvantaged households, particularly in precarious neighborhoods (Sousa *et al*., 2019; Bouafou *et al*., 2021; Beugré and Amani, 2022). Households with low monthly incomes or living in precarious neighborhoods often practice street food in addition to home cooking (Amaglobeli *et al*., 2022; Bouafou *et al*., 2021). According to numerous studies, the conditions of preparation and sale of meals in street food do not respect good hygiene practices (Sambo, 2014; Soula *et al*., 2020; Ferrari *et al*., 2021; Koffi, 2021). In the precarious neighborhoods of Port-Bouët, we studied the hygiene of street food places. The results revealed that street food vendors, utensils, cutlery have a "relatively good" cleanliness. But most do not have hand washing points. In places with a handwashing point, customers wash their hands on site, seated, in the same container. . The evaluation of good handling practices and the microbial quality of street foods revealed that street foods are a source of consumer health risk and a public health problem (Ferrari *et al*., 2021; Beugré et Amani, 2022). While it is established that poor nutrition has a considerable influence on children and can cause growth delays that lead to cognitive delay that can negatively affect their academic performance (WHO, 2017). From the above, it seemed appropriate to question the food practices of children in the precarious

***Corresponding Author:** Beugre Gnakon Flora Carenne
Institute of Anthropological Development Sciences (IADS), Félix Houphouet-Boigny University, Abidjan, Côte d'Ivoire

neighborhoods of Port-Bouët and their consequences on their health?

This study aims to analyze the food practices of children in precarious neighborhoods of Port-Bouët. To do this, it will be a question of (1) presenting the food practices of these children and (2) showing the impact of this practice on their health.

I- MATERIALS AND METHODS

I-1- Presentation of the study area

The commune of Port-Bouët is located in Ivory Coast in the south-east of the district of Abidjan. It is a peninsula located between the Atlantic Ocean and the Ebrié lagoon which extends along the sea coast for nearly 30 km from East to West with an area of 111 km2. (Coulibaly *et al*., 2004). Nearly 65% of the communal perimeter of Port-Bouêt is occupied by precarious neighborhoods, hosting, according to the communal authorities, more than 80% of the local population. The municipality of Port-Bouët has 12 precarious neighborhoods, 9 of which are located along or near the coast and 3 located along or near the lagoon (Beugré and Amani, 2022).

I-2- Data Collection

As part of our study, we used both qualitative and quantitative methods. This study was carried out with children from precarious neighborhoods in Port-Bouët and their parents. During this study, 400 parents and 400 children were interviewed. These are primary school children having lunch either in the canteen or at home. In addition to children and their parents, health service officials were interviewed. The methods and materials used for our surveys allowed us to collect our data. These are (1) surveys (questionnaires) with children and parents, (2) interviews (interview guides) with health center managers in Gonzaqueville, Vridi Canal and Port-Bouët center, (3) calculations of the quantities of the most consumed meals using a scale, (4) calculations of the BMI of children using the weight-for-age growth curve specific to boys as well as girls and (5) documentary research on the chemical composition of foods or meals.

II- RESULTS AND DISCUSSION

II-1- RESULTS

2-1-1-Food and nutritional practices of babies and children in precarious neighborhoods of Port-Bouët

2-1-1-1- Feeding patterns in children

Children (60.9%) consume more of their meals at home than in street food (30.1%).Among children who attend primary school, some eat lunch in the canteen while others take it home

2-1-1-2- Structure and composition of children's meals

In food at home, the meal structure of 91.6% of children who do not eat in the canteen and those who eat there is composed of a main course accompanied by a drink (water). Children eat lunches and dinners at home (households). The percentage of children who consume lunch is 97.3% against 2.7% who do not. Of those who eat lunch, 64% eat at home. The composition of the lunches most consumed by primary school students at home is:

(1) rice + sauce (eggplant, vegetable leaves, peanuts, dry okra) + beef or fish (48.5%);
(2) “attiéké” (cassava semolina cooked to value) + fish (24.7%);
(3) banana or yam “foutou” + sauce (aubergine, vegetable leaves, peanut, dry okra) + beef or fish (12%);
(4) other dishes or foods (14.8%)

Almost all of the children in precarious neighborhoods, i.e. 96.9%, take their dinner prepared at home, compared to 3.1% who take it from street food. The most consumed meals are:

(1) rice + (eggplant, vegetable leaves, peanuts, dry okra + fish or beef (52.7%);
(2) “attiéké” + fried fish or cooked meat (15.9%);
(3) banana or yam “foutou” + sauce (eggplant, vegetable leaves, peanut, dry okra) + beef or fish (9.3%);
(4) other dishes or foods (“wanchin” or rice + red beans/cowpeas + tomato purée, lettuce salad + bread, fatty rice + smoked fish) (22.1%).

In street food, children consume more breakfast and snacks. For lunch, 36% of children eat in the canteen or in street food. The structure of the meals is composed of a main course accompanied by a drink (water). Observations have shown that the breakfast purchased by children is condiment bread (bread from 50 FCFA to 100 FCFA with condiments from 50 FCFA to 100 FCFA (2 to 4 teaspoons of vermicelli or beans or minced meat or mashed fish or a mixture of these condiments with oil, a tomato paste) and some vegetables (tomatoes, onions).The children also eat millet porridge for 50 FCFA (equivalent to a small sachet of water) with fritters of 50 FCFA (2 fritters of 20 g each) or bread of 50 FCFA (a quarter of a loaf). Children's snacks differ little from their breakfasts except that they take them at different times and on different days. They eat in groups. Breakfasts and snacks are most often purchased outside the home. At each meal (breakfast, lunch, snack and dinner), the children generally drink water (for a fee, i.e. 2 sachets of water at 25 FCFA) and juices (bissap or sorrel juice in sachets, “frigolo or sugar water + dye in a sachet” or “grotto” yogurt at the price of 50 FCFA each).

2-1-1-3- Biochemical constituents of the meals most consumed by children in the precarious neighborhoods of Port-Bouët

The biochemical constituents of some of the most consumed meals have been determined in Tables I-A and I-B. Moisture (g/100g MF), ash, protein (g/100g DM), fat (g/100g DM), fiber (g/100g DM),

carbohydrate (g/100g DM) DM), and the energy value (kcal/100g DM) of the most consumed dishes were determined. These dishes are composed of "Foutou banana with eggplant sauce", "Placali with seed sauce plus fresh okra" and "Garba".

In Table I-A, the meals most consumed by children have high carbohydrate contents between 55 and 91 (g/100g DM) while protein contents are low and between 9 and 18 (g/100g DM). The meals most consumed by children in the precarious neighborhoods of Port-Bouët are high in carbohydrates (more than 55%) and the protein content is low (less than 18%).

Table I-A: Biochemical constituents of some of the most consumed meals by the children of the precarious neighborhoods of Port-Bouët

Foods	Humidity (g /100 g MF)	Ash %	Protein content (g/100g DM)	Fat content (g/100g DM)	Fibers (g/100g DM)	Carbohydrate content (g/100g DM)	Energy value (kcal/100g DM)
Foutou banana with eggplant sauce	67,29	5,94	14,31	8,73	4,1	67,01	403,91
Placali with seed sauce plus fresh okra	66,77	8,89	17,11	14,26	4,1	55,62	419,34
« Garba »	49,22	1,57	9,82	7,27	0,39	80-91	228,39

Source: Yéboué (2017), Koffi (2019) and Kunindjani (2021)

In Table I-B, the moisture (g/100g MF), ash, protein (g/100g DM), fat (g/100g DM), fiber (g/100g DM), fiber (g/100g DM), carbohydrates (g/100g DM), and the energy value (kcal/100g DM) of the most consumed dishes were determined. These dishes are composed of "Attieké with egg", "Attieké with fish", "Attieké with meat", "Leaf sauce" and "Rice + peanut sauce" In Table I-B, the meals most consumed by children have low levels of protein and fat. The rates of these different contents are respectively between 4 and 19 (g/100g DM) and between 11 and 16 (g/100g DM).

Table I-B: Biochemical constituents of some of the most consumed meals by the children of the precarious neighborhoods of Port-Bouët/ continued

Foods	Protein content (g/100g DM)	Fat content (g/100g DM)	Energy value (kcal/100g DM)
Egg Attieke	4	12	419
Attieke with fish	7	11	445
Attieke with meat	13	11	538
Sauce leaf	11	11	157
Rice + peanut sauce	19	16	573

Source: National Recipe Guide (2015 and 2017)

Table I-C groups together the levels of protein (g/100g DM), carbohydrates (g/100g DM), lipids (g/100g DM), sugar (g/100g DM), starch (g/100g DM), fiber (g/100g DM), and the energy value (kcal/100g DM) of all the foods most used in the composition of meals for children in precarious neighborhoods.

Table I-C: Biochemical constituents of some commonly consumed foods by the children of the precarious neighborhoods of Port-Bouët

Food Cooked	Protein (g/100g DM)	Carbohydrates (g/100g DM)	Lipids (g/100g DM)	Sugar (g/100g DM)	Starch (g/100g DM)	Fibers (g/100g DM)	Energy value (kcal/100g DM)
Banana	0,79	28,9	0,18	14	0	2,3	529
Cassava	0,69	32	0,043	0	0	0,4	561
Onion	1,3	6,2	0,2	4	<0,5	1,4	0
Fish	23,5	0	5,52	0	0,021	0	604
Rice	2,95	31,7	0,56	0,11	28,5	1,1	621
Tomato	0,95	2,8	0,11	2,49	0	0,7	0
Meat	26	0,027	10,1	0	0	0	816

Source: ANSES, 2020

2-1-1-4- Meal frequency and schedule

The vast majority of children (91.8%) eat four times a day and 8.4% eat either twice or three times a day. We have breakfast in the early morning, lunch around noon and 1 p.m., lunch in the evening and afternoon tea at 4 p.m.

2-1-1-5- Quantities of meals ingested at home

The majority of children from precarious neighborhoods (63%) consider meals prepared at home to be "sufficient" compared to 37% of children who find them "insufficient" for the whole family.

2-1-1-6- Respondents consumption of fruit and/or vegetables at home: households, residents, pregnant/breastfeeding women, children and adolescents

- Children rarely eat fruit at home. As for vegetables, they are consumed in culinary preparations.
- Children eat vegetables in meals prepared outside and do not eat fruit.

2-1-1-7- Taboos, prohibitions or food totems of children in precarious neighborhoods

The majority of children (65.4%) in the precarious neighborhoods of Port-Bouët have no taboos, prohibitions and/or food totems while (34.6%) have food taboos. This is the pig (86.2%) which is the most widespread totem and other totems such as (catfish, snail and goat (13.8%). These totems are those of all household members.

2.1.2. Consequences of food and nutritional practices on the health of children in precarious neighborhoods in the municipality of Port-Bouët

2.1.2.1. Weight characteristics of children in precarious neighborhoods of Port-Bouët according to BMI

Table II presents the different levels of BMI such as thinness, normal weight and overweight in children. The majority of children in precarious neighborhoods in Port-Bouët (85%) are underweight or thin. Among them, 24.7% are skinny. There are almost no children with a normal weight (0.3%).

Table II: Weight characteristics of children in precarious neighborhoods of Port-Bouët according to the BMI

BMI level	Percentage of children (%)
Leanness	85
Normal	0,3
Overweight	14,7

2.1.2.2. Food and nutritional pathologies of children in precarious neighborhoods

The illnesses of children aged 5-14 recorded in the "Gonzagueville" and "Vridi Canal" health centers are mentioned in Table III-A. The information received on children's illnesses was provided within the household. After investigation, the diseases found most in children are: anemia (33.6%), stomach and duodenal ulcer or stomach wound (18.1%). It reveals a dominance of anemia.

Table III-A: Pathologies of children aged 5-14 recorded in the centers of health of "Gonzagueville" and "Vridi Canal".

Children from 5 to 14 years old	2019	2020	2021
Number of consultants	2903	2380	2622
Diarrhea	20	37	60
Typhoid fever	35	30	48
Anemia	583	859	1078
High blood pressure	03	00	00

Tables III-B, III-C, III-D show respectively the cases of (1) food/nutrition-related diseases, (2) diseases related to poor food and environmental hygiene and gastro- intestinal and (3) cardiovascular and metabolic diseases of children.

Table III-B: Percentage of children with food/nutrition related diseases

Name of diseases	% of sick children
Slump	**8,4**
Beriberi	**8,4**
Kwashiorkor	3,8
Obesity	3,4
Growth retardation	**8,4**
Anorexia	8
Kwashiorkor	7,7

Table III-C: Percentage of children with illnesses related to poor food and environmental and gastrointestinal hygiene

Name of diseases	% of sick children
Diarrhea	**19,4**
Stomach and duodenal ulcer	**18,1**
Constipation	16,8
Dysentery	5,5
Typhoid fever	8,4
Cholera	4,2

Table III-D: Percentage of children with cardiovascular disease and metabolism of children

Disease names	% of sick children
Anemia	**33,6**
High blood pressure	3,4
Low blood pressure	7,6
Hyperglycemia (Diabetes)	1,7

2.2. DISCUSSION

2.2.1. Structure, composition and traditional consumption frequencies of meals

In all children, the meal structure is as follows: main course with water. The most consumed meals are: (1) rice + (eggplant, vegetable leaves, peanuts, dry okra + fish or beef); (2) "attiéké" + fried fish or cooked meat; (3) " foutou" of banana or yam + sauce (aubergine, vegetable leaves, groundnut, dry okra) + beef or fish and (4) other dishes or foods ("wanchin" or rice + red bean/cowpea + puree of tomato, lettuce salad + bread, fatty rice + smoked fish). According to the Republic of Côte d'Ivoire (2016) and Kunindjani (2021), the traditional dishes of the different regions of Côte d'Ivoire are in the form of: main courses with accompanying sauce, such as the structure of the meals children from precarious neighborhoods in Port-Bouët. The composition of the meals of the children of the precarious neighborhoods of Port-Bouët is similar to that of the Ivorian peoples who consume rice, tubers (cassava, yam) and plantain accompanied by a wide variety of sauces (eggplant, seed, okra , groundnut, tomato, kédjénou…) (Courade *et al*., 1989; Koffi, 1996 and Koffi *et al*., 2009, Kunindjani, 2021). Also, according to Yoboue *et al*., (2021), cereals and tubers are dominant in the foods consumed by most rural households. Cassava, yam, plantain, rice and maize are the most consumed foods in Ivory Coast. Nationally, rice is the most consumed cereal.

2.2.2. Low levels of daily fruit and vegetable consumption

In general, children in the precarious neighborhoods of Port-Bouët rarely consume fruit and vegetables are rarely consumed in culinary preparations. This is the same as in rural communities in Sudan and Ethiopia where these foods are consumed in small quantities (Workicho *et al*., 2016; Khalid *et al*., 2017). We deduce that diets based on the consumption of cereals or starches as staple foods and low in fruit and animal products are common in low-income countries (Jones *et al*., 2014). However, the average global availability of fruits and vegetables has increased; however, only Asian countries and upper-middle-income countries, including Côte d'Ivoire, have enough fruits and vegetables to meet the FAO/WHO recommendation to consume a minimum of 400 g per day (FIRCA, 2018; FAO *et al*., 2020). In short, the respondents consume the following food groups: a lot (1) cereals and (2) tubers, a little (3) proteins and (4) vegetables, and to a lesser degree (5) fruits. Their diets seem to be diversified since they ingest on average at least four food groups, according to the standards (Kennedy *et al*., 2012). But this finding is nuanced. Indeed, according to the INS (2015), in terms of food diversity, food secure households regularly consume five different food groups (cereals, tubers, proteins, leaves and oil). On the other hand, food insecure households only consumed three groups, namely cereals, tubers and leaves. Food products such as proteins, dairy products, legumes are rarely consumed.

2.2.3. Insufficient quantities of meals ingested in precarious neighborhoods

In our interviews, six to seven people share an average of one kg of rice during a meal with an average quantity of 1,200g of fish to share. As far as street meals are concerned, the populations spend on average 200 FCFA – 500 FCFA to afford a meal whose average quantity is 300 g – 600 g of cooked food. Which seems insufficient?

These results are in line with that of Muteba (2014) carried out in Congo Brazzaville which showed that the quantities of food consumed/individual/day in poor households are between 493g and 506g with energy intake estimated at 1,130 calories and 50g of protein. From all the above, our respondents are undernourished and therefore malnourished (DIIS, 2019). The causes of respondents' malnutrition can be multiple: (1) their inadequate diet (immediate cause), (2) lack of money (underlying cause) and (3) low level of education (root cause) (Burgess and Glasauer, 2005).

2.3. Pathologies linked to poor dietary and nutritional practices

2.3.1. Underweight and abnormal weight detected in children

The vast majority of children in precarious neighborhoods in Port-Bouët, 85%, are underweight or thin.These results reflect in many respects cases of malnutrition, affecting almost a third of the populations of the precarious neighborhoods of Port-Bouët.

According to the UN, one in nine people is undernourished. In developing countries, the undernourished population is estimated at nearly 12.9% (FAO, 2017; DIIS, 2019). Our target population is no exception.

The high cost and unaffordability of healthy diets is associated with increasing food insecurity and different forms of malnutrition, including stunting in children and obesity in adults (FAO *et al*., 2020).

2.3.2. Food-borne and nutritional pathologies present in children

In children, our study highlights a predominance of anemia (33.6%), diarrhea (19.4%) and stomach and duodenal ulcer or stomach wound (18.1%). In addition, several cases of stunting associated with marasmus and beriberi (25.2%) were highlighted. Overall, the pathologies revealed by our surveys were confirmed by the data collected in the health centers of the precarious neighborhoods of Port-Bouët. All of the diseases detected in children in the precarious neighborhoods of Port-Bouët are indicative of poor diet and nutrition (WHO, 2018; DIIS, 2019). These diseases are generally due to poor living conditions and inadequate sanitation, as is the case in the precarious neighborhoods of Port-Bouët (Beugré and Amani, 2022). This increases the risk of disease. We observed a prevalence of anemia among our respondents. A deficiency or nutritional anemia is defined by a decrease in hemoglobin. A deficiency or nutritional anemia is a deficiency in exogenous factors essential for erythropoiesis (the process of manufacturing red blood cells by the body): iron, folic acid, vitamin B12 (Aubry, 2019; DIIS, 2019). There is also another type of anemia linked to poor absorption of iron consumed in food (Adebo *et al*., 2018; DIIS, 2019).

The meals that children eat are either insufficient in iron, folic acid and vitamin B12 or poorly absorbed. Indeed, certain foods consumed such as whole cereal grains, or drinks such as tea or coffee, contain “antinutrients” (phytates) which reduce iron absorption (DIIS, 2019; Aubry, 2019). It should be remembered that their diet is partly based on cereals. Moreover, the poor diet of children in fruit and vegetables leads us to believe that this may also be the cause of anemia (Mohamed, 2013; Bencharif, 2011; Yessoufou *et al*., 2015). Indeed, a diet rich in proteins of animal origin, fruits and vegetables makes it possible to have a higher rate of iron absorption by the human body as underlined by Badham *et al*., (2007).

CONCLUSION

The majority of children eat their meals at home. The structure of their meal consists of main course plus water. The most consumed dish is rice with a sauce and little fish (or meat) with a high carbohydrate content and little protein. They eat four times a day and the meal quantities are small. Most of the children are thin and suffer from anemia. In perspective, it is to consider a study on the food practices of children eating in the canteen and its consequences on their health.

REFERENCES

- CSAO/OCDE. (2021). Transformations des systèmes alimentaires au Sahel et en Afrique de l’Ouest : implications pour les populations et les politiques, Maps & Facts, no 4, avril 2021. 37 P
- Bouafou, K. G. M., Gboudjou, G. A., & Amani, Y. C. (2021). Food, Nutritional or Agricultural Resilience: Synthesis of Research. *EAS J Nutr Food Sci*, 3(6), 153-166.
- FAO, FIDA, OMS, PAM & UNICEF. (2022). Résumé de L’État de la sécurité alimentaire et de la nutrition dans le monde 2022. Réorienter les politiques alimentaires et agricoles pour rendre l'alimentation saine plus abordable. Rome, FAO. 40p. https://doi.org/10.4060/cc0640fr
- Union Africaine (UA). (2022). 2022 : L’Année de la nutrition | Union africain
- FAO, CEA & CUA. 2021. Afrique - Aperçu régional de l'état de la sécurité alimentaire et de la nutrition 2021 - Statistiques et tendances. Accra, FAO. https://doi.org/10.4060/cb7496fr
- Comité permanent Inter Etats de Lutte contre la Sécheresse dans le Sahel (CILSS). (2022). Rapport Régional sur la Sécurité Alimentaire et Nutritionnelle au Sahel et en Afrique de l’ouest 2022. 66 P
- Banque Mondiale. (2014). World Development Indicator, Côte d’Ivoire. http://data.worldbank.org/data-catalog/world-developmentindicator).
- Sousa, S., Gelormini, M., Damasceno, A., Lopes, S. A., Chongole, C., Muholove, P., & al. (2019). Street Food in Maputo, Mozambique: Availability and Nutritional Value of Homemade Foods. Nutrition and Health, 25, 37-46. https://doi.org/10.1177/0260106018816427
- Beugré G. F. C., Bouafou K. G. M., & Amani Y. C. (2022). Shops, Markets (Food, Ingredients or Condiments) and Street Food Places in the Precarious Neighborhoods of Port-Bouët In Abidjan. IAR J Nut Fd. Sci. 3(3): 1-5
- Amaglobeli D., Hanedar E., Gee Hee H., & Thévenot C. (2022). “Fiscal Policy for Mitigating

the Social Impact of High Energy and Food Prices." IMF Note 2022/001, International Monetary Fund, Washington, DC. 14p

- Bouafou, K. G. M., Beugré, G. F. C., & Amani, Y. C. (2021). Street Food around the World: A Review of the Literature. Journal of Service Science and Management, 14, 557-575. https://doi.org/10.4236/jssm.2021.146035
- Sambo, C. G. (2014). An Ethical Assessment of Street Food Vending in Lusaka's Central Business District. Memorie of Master of Arts in Applied Ethics, University of Zambia.
- Soula, A, Yount, A. C., Lepillier, O., & Bricas, N. (2020). Manger en ville: Regards SocioAnthropologiques d'Afrique, d'Amérique latine et d'Asie (pp. 1-172). Editions Quae. https://doi.org/10.35690/978-2-7592-3091-4
- Ferrari, A. M, Oliveira, J. S.C., & São José, J. F. B. (2021). Street Food in Espírito Santo, Brazil: a Study about Good Handling Practices and Food Microbial Quality. *Food Science and Technology*, 1-8. https://doi.org/10.1590/fst.31620
- Coulibaly, L., Diomandé, D., Coulibaly, A., & Gourène, G. (2004). Utilisation des ressources en eaux, assainissement et risques sanitaires dans les quartiers précaires de la commune de Port-bouët (abidjan; cote dřivoire). VertigO Ŕ La revue en sciences de l'environnement, 5(3).
- Koffi, A. L. J. (2021). Consommation du "Garba" en Côte d'Ivoire: Entre Risques Sanitaires et Construction de Lien Social. European Scientific Journal, 17, 230-246. https://doi.org/10.19044/esj.2021.v17n19p230
- Word Heath Organisation (WHO). (2017). Cibles mondiales de nutrition 2025 : note d'orientation sur le retard de croissance. 12p. (WHO/NMH/NHD/14.3).
- Yéboué, K. H., Amoikon, K. E., Kouamé, K. G., & Kati-Coulibaly, S. (2017). Valeur nutritive et propriétés organoleptiques de lřattiéké, de lřattoukpou et du placali, trois mets à base de manioc, couramment consommés en Côte dřIvoire. Journal of Applied Biosciences, 113(1): 11184. https://doi.org/10.4314/jab.v113i1.7)
- Koffi, K. F., Monin, A. J., Kouakou, N. D. V., N'Cho A. J., & Amoikon, A. E. (2019). Evaluation de la composition nutritive du garba: Aliment de rue prisé à Abidjan. *International Journal of Innovation and Applied Studies*, 26(3), 802-811.
- Kunindjani A. K. (2021). Identification et pouvoir nutritionnel des principaux mets traditionnel consommés en Côte d'Ivoire : Essai chez le rat (Rattus norvegicus) en croissance. Thèse de doctorat, Université Nangui Abrogoua- Abidjan, 179 p.
- GUIDE NATIONAL DE RECETTES Pour l'alimentation de complément des enfants âgées de 6 à 24 mois en Côte d'Ivoire. (2015). 91p (fantaproject.org)
- GUIDE NATIONAL DE RECETTES A Base d'Aliments Locaux pour la Prise en Charge Nutritionnelle des Adolescents et Adultes. (2017). 96p (fantaproject.org)
- ANSES (Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail). (2020). Table ciqual 2020.
- République de Côte d'Ivoire (RCI). (2016). Plan National Multisectoriel de Nutrition 2016 – 2020. 37p PNMN_2016_2020_15_08_16.pdf (pnmin.gouv.ci)
- Courade G., Droy I., & Hanne D. (1989). Côte d'Ivoire le système alimentaire dans la crise. Afrique Contemporaine N°150 - 2ème trimestre, 26ème année 1989.
- -Koffi N. A. (1996). Relation qualité de l'alimentation état de santé bucco-dentaire. Etude portant sur 378 enfants d'âge scolaire à Abidjan (R.C.I.). Thèse troisième cycle, Avril 1996.
- Koffi, A., Brou, L., & Kpangni, B. (2009). Evaluation approfondie de la sécurité alimentaire des ménages ruraux en Côte d'Ivoire. Rapport final. P.A.M : Programme Alimentaire Mondial des Nations Unies.
- Yoboue, N., Assa, R., N'guessan, A., & Kouakou, E. (2021). Determinants of Food and Nutrition Security in Côte d'Ivoire: Case of Abobo Baoule a Sub-district of the Ivorian Political Capital in West Africa". *Acta Scientific Nutritional Health*, 5(2), 100-106.
- Workicho, A., Belachew, T., Feyissa, G. T., Wondafrash, B., Lachat, C., Verstraeten, R., & Kolsteren, P. (2016). Household dietary diversity and Anima Source Food consumption in Ethiopia: evidence from the 2011 Welfare Monitoring Survey. Public health, 16.
- Khalid, F. A., Ali, A. K. M., Ali, S. A., Mosmar, Z. Y. A., Salih, S. S. M., Salman, T. K., Desogi, M. A., Soghaier, M. A., Mohammed, E. E., & Mohammed, A. A. (2017). Households' dietary habits and food consumption patterns in Hamishkoreib locality, Kassala State, Sudan. J.E.F, 4(1), 181-186.
- Jones, A. D., Shrinivas, A., & Bezner-Kerr, R. (2014). Farm production diversity is associated with greater household dietary diversity in Malawi: Findings from nationally representative data. Food Policy, 46: 1- 12.
- FIRCA. (2018). Les filières bananes plantain, ignames et manioc. *Rapport*, 24 p.
- Kennedy, G., Ballard, T., & Dop, M. C. (2012). Guide pour mesurer la diversité alimentaire au niveau du ménage et de l'individu. Organisation des Nations Unies pour l'alimentation et l'agriculture. Rome. Disponible sur www.fao.org/docrep/016/i1983f/i1983f.pdf
- INS (2015). Enquête sur le niveau de vie des ménages en Côte d'Ivoire. Rapport, disponible sur www.ins.ci, 91p.

- Muteba K. D. (2014). Caractérisation des modes de consommation alimentaire des ménages à Kinshasa: Analyse des interrelations entre modes de vie et habitudes alimentaires). Dissertation originale présentée en vue de l'obtention du grade de docteur en Sciences agronomiques et Ingénierie biologique. (Communauté française de Belgique académie universitaire wallonie-europe université de liège-gembloux agro-bio tech)
- DIIS. (2019). Rapport Annuel sur la Situation Sanitaire (2010-2012, 2013, 2015, 2016), disponible sur dipe.info>index.php.
- Burgess, A., & Glasauer, P. (2005). Guide de nutrition familiale. Ed. FAO, Rome, 139p.
- OMS. (2018). Fièvre typhoïde et autres salmonelloses invasives. 15 p.
- Aubry P. (2019). Anémies carentielles ou nutritionnelles Actualités. Centre René Labusquière, Institut de Médecine Tropicale, Université de Bordeaux, 33076 Bordeaux (France) 1, 7p. www.medecinetropicale.com
- Adebo A. A., Yessoufou A. G., Behanzin G. J., Kabanoude A.A., & Yessoufou A.K. (2018). Anémie chez les enfants de moins de 5 ans reçus en consultation au service de pédiatrie de l'Hôpital de Zone d'Abomey-Calavi/So-Ava (Sud du Bénin). *Journal of Applied Biosciences*, 123: 12373-12378 ISSN 1997-5902
- Mohamed A. (2013). Prevalence and Risk Factors of Anemia among children 6-59 months old in Haiti. Article ID 502968, p 3.
- Bencharif M. (2011). Alimentation, état nutritionnel, apport calcique et calcémie d'une population de jeunes adultes. Mémoire de Master, Sciences Alimentaires, INATAA, Mentouri Constantine, 126p.
- Yessoufou, A. G., Béhanzin, J., Ahokpè, M., Djinti, S. A., Bossou, R., & Sezan, A. (2015). La prévalence de l'anémie nutritionnelle chez les enfants malnutris de 6 à 59 mois hospitalisés dans le service de pédiatrie du Centre Hospitalier Départemental du Zou-Collines (CHD/Z-C) dans le plateau d'Abomey (Centre du Bénin). *Int. Bio Che SCI*, 9(1), 82-90.
- Badham, J., Zimmermann, M. B., & Kramer, K. (2007). Le guide de l'anémie nutritionnelle. Suisse: Sight and Life.

Cite This Article: Beugre Gnakon Flora Carenne, Bouafou Kouamé Guy Marcel, Amani Yao Célestin (2023). Problems of Food and Nutritional Practices of Children in Precarious Areas of Port-Bouët in Abidjan. *EAS J Nutr Food Sci, 5*(1), 20-27.