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Obese and Overweight People Food Profile in Brazzaville, Congo

Y.S. Itoua Okouango*, Vital Mananga, Michel Elenga

[1]Department of Studies in Food Science and Nutrition, University Marien NGOUABI of Brazzaville, Congo

***Corresponding author:** Y.S. Itoua Okouango, Doctor, Department of Studies in Food Science and Nutrition, University Marien NGOUABI, BP: 69, Brazzaville, Congo, Tel: +242066867437; E-mail: yvonvasther@gmail.com

Abstract

In Congo Brazzaville, there are two factors that early led the country to turn to importation of meat and agricultural products from developed countries: low performances in both livestock farming and agriculture sectors and the population growth of people who preferably live in urban centers. The association of those two factors has impacts on people nutritional status. This present study, for the first time, shows the actual situation of overweight and obese people food profile in Congo Brazzaville what shall enable to elaborate a database and take further necessary measures to address the issue. To do so, a food consumption study has been carried out in the nine neighborhoods of Brazzaville, the capital city of the republic of Congo, and concerned 65 households. So, it appears that, of the 26.2% of the investigated people, 58.5% were women. The women were the dominant gender, aged between 31 and 40 ($p<0.001$). The women who were living alone represented 84.5% and those who were living in couples represented 15.5%. Those investigated people had a low education level: 73.3% of them only attended junior high school. Their households' monthly income was low too. The households whose sizes ran from 7 to 8 people represented 21.3% and those living with three meals a day at home represented 85.7%. The majority of the investigated people that lived on food dominated by animal proteins represented 92.3%, those living on oilseeds represented 90.8% and simple carbohydrates represented 98.5%. Fruit and vegetables, rich in micronutrients and fibers, were not eaten enough: fruit 3.1% and vegetables 1.5% ($p < 0.001$). 86.2% of overweight and obese people had sport activities restrictions. So, people in Brazzaville, according to the above figures, adapt to behavior that leads to obesity. That is why, for such a population, we must initiate a food education and fight bad behavior that leads to obesity.

Keywords: Food profile; Overweight; Obesity; Congo Brazzaville; Nutritional status

Introduction

In the majority of developing countries (DCs), the traditional low-fat diet from unprocessed plants has been replaced by a diet rich in animal fats and simple carbohydrates, and low in fiber, thus bringing into play diversity. food[1,2], malnutrition and population health. These dietary modifications have been accompanied by the coexistence of overweight, obesity and cardiovascular diseases[3].

In Congo Brazzaville, the poor performance of all livestock and agriculture sectors and the increase in the population living preferentially in urban centers are two factors that pushed the country to turn very early to import agricultural and meat products from industrialized countries. This type of food system has implications for the nutritional status of the population. These repercussions are signs of a society in transition characterized by low-intensity chronic diseases, degenerative infectious diseases[4-6], overweight, obesity and food cancers[7].

In Congo, Apart from the work of *Kimbally et al*. on arterial hypertension and other cardiovascular risk factors[8], there is still no published work on obesity. In this context, this study was conducted to find out if the food situation of overweight and obese people

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could find a nutritional origin. Hence the importance of evaluating the nutritional profile of overweight and obese people in order to build a database on this topic and to provide the necessary subsequent solutions. Thus, this study is specifically interested in knowing the frequency of food consumption by overweight and obese people and determining the nature of these foods

Methodology

Field of study: The study was conducted in Brazzaville, capital of the Republic of Congo. To carry out this work throughout the city, it was divided into nine sections corresponding to the various districts which were themselves subdivided into enumeration areas.

Target population

The target population of our study is overweight and obese people living in the city of Brazzaville. The size of the sample was made by a random selection that was made by contact with relevant subjects, which allowed having anthropometric data and food profile 65 overweight and obese people.

Anthropometric material

For our study, we used a weigh scale SOEHNLE, deported 150 kg with a precision of 0,5 kg (dial 360°) and a height gauge SECA with a height gauge SECA with metallic ribbon of 2 meters and graduated with the mm.

Teaching materials

The teaching material consists mainly of a survey form in the form of questionnaires to the respondent whose answers are noted or checked on the form by the interviewer. This fact sheet consists of open-ended questions and closed questions on anthropometric characteristics, socio-occupational and economic status, food consumption and dietary habits, food preferences and frequency of consumption.

Household survey

The survey was conducted in the urban commune of Brazzaville from September to October of the year 2015. It is a longitudinal survey of a population of 65 households in the nine districts of Brazzaville, with a three-stage survey for the draw of Enumeration Zones, blocks and statistical units at the level of parcels retained in the Enumeration Area. Each person was followed for 6 days in the household. The survey was conducted in such a way that two interviewers were assigned to work with all the households in the geographical area comprising all the enumeration areas.

For each household surveyed, the surveyors were asked to evaluate the anthropometric characteristics and its food profile using the 24H method. Food profile questionnaires were submitted to overweight and obese individuals in the household. The interviews were conducted possibly in the official language (French) or in national languages (Lingala and Kituba). Anthropometric measurements were performed by qualified persons according to the procedures recommended by WHO. The respondents were weighed (weight in kg) and measured (size in cm to 10-1) without shoes and slightly dressed. The scale and the chart were checked before each measurement session. The standardization of methods has made it possible to control their precision and reproducibility[9].

Overweight and obesity were determined using the Body Mass Index (BMI = P / T2 in kg / m^2). In adults, there is obesity when the BMI is greater than or equal to 30, overweight when it is greater than or equal to 25 and less than 30, and underweight if it is less than 18.5.

In children, the 85th and 95th percentile BMI values define the thresholds for overweight and obesity, respectively[10].

Data processing and analysis

The processing of the data collected as well as the capture and production of the tables were carried out using Excel 2003 software, EPI-INFO.6.04d en-2001. The variables are expressed as percentages. The significance of the differences perceived between two percentages is verified according to the standard tests of the differential statistics. The comparison of more than two percentages is made using the Student's test. For this, the comparison value $\chi 2$ (h-1) is given by the tables of $\chi 2$ to (h-1) degrees of freedom, with a threshold of significance of 5%.

Results

Anthropometric measurements: The anthropometric data of the people surveyed are presented in Table 1. With regard to age, the results show that the most represented age group consists of persons aged 31 and 40 (26.2%), followed by persons aged 41 to 50 (24%). 6%) and people aged 20 to 30 (18.5%). Respondents over age 70 represent only 1.5%. Regarding sex, the results show that women were more numerous (58.5%) than men (41.5%) with P <0.001.

With regard to BMI, the results show that more than half of those surveyed were overweight (63.1%), 26.2% had type 1 obesity; 7.7% had type 2 obesity and 3.1% had type 3 obesity with a very significant difference of P <0.001.

Table 1: Anthropometric data

Parametres	Variables/Caractéristiques	Pourcentages (%)	Intervalle de confiance à 95%	Significativité P
Age	<20	4,6	1,0-12,9	$<10^{-3}$
	20-30	18,5	9,9-30,0	
	31-40	26,2	16,0-38,5	
	41-50	24,6	14,8-36,9	
	51-60	10,8	4,4-20,9	
	61-70	13,8	6,5-24,7	
	>70	1,5	0,0-8,3	
Sex	Male	41,5	41,5	$<10^{-3}$
	Female	58,5	58,5	
	25,0-29,0 (overweight)	63,1	50,2- 74,7	
BMI	30,0-34,9 (obesity 1)	26,2	16,0-38,5	$<10^{-3}$
	35,0-39,0 (obesity 2)	7,7	2,5-17,0	
	>40 (obesity 3)	3,1	0,4-10,7	

Demographiccharacteristics: Table 2 shows the socio-professional and economic characteristics of the people surveyed.

The analysis in Table 2 reveals that private sector workers make up the largest category (30.8%), followed by civil servants (27.7%), with p $<10^{-3}$. Housewives and the unemployed are the least represented with 9.2% percentages respectively; 1.5%. The difference between the different variables is very significant (P <0.001). The majority of the people surveyed lived alone (84.5%) compared to 15.5% who live in couples, P <0.001). The educational level of those surveyed is lower because the majorities have the level of college (72.3%) while 1.5% has the university level.

The results also show that 35.4% of the surveys had an income of 100,000 to 125,000 CFAF in the month for the household, while those who had more than 125,000 CFAF represented only 3.1% with a significant difference. 0.001.

Table 2: Demographic characteristics of overweight and obese people

Paramters	Variables	Percentage (%)	Confidence Interval to 95%	Significance P
Profession	High/Student Household Official Private workers Worker Unemployed	13,8 9,2 27,7 30,8 16,9 1,5	6,5 -24,7 3,5-19,0 17,3-40,2 19,9-43,4 8,8-28, 30,0-8,3	$<10^{-3}$
Marital situations	Seul(e) En couple	84,5 15,5	38,1-63,4 9,9-30,0 18,6-41,8 0,0-8,3	$<10^{-3}$
Education level	Aucun Primaire collège Lycée Université	3,1 4,6 72,3 18,5 1,5	0,4-10,7 1,0-12,9 59,8-82,7 9,9-30,0 0,0-8,3	$<10^{-3}$
Revenu (salaire) mensuel du ménage	<25,000 F CFA 25000-50000 F CFA 50000-75000 F CFA 75000-100000 F CFA 100000-125000 F CFA >125000 F CFA	9,2 1,5 33,8 16,9 35,4 3,1	0,0-8,3 3,5-19,0 22,6-46,6 8,8-28,3 23,9-48,2 0,4-10,7	$<10^{-3}$

Household characteristics: The characteristics of the households surveyed are shown in Table 3. The dominant household size (21.5%) consisted of 7 to 8 persons while that of two persons was only 4.6%, with P <0.001. Just over a majority (52.3%) of those surveyed had three meals a day and at home (85.7%) versus 12.3% who took them to the workplace.

Table 3: Household size, number and place of meals consumed by respondents

Paramters	Variables	Pourcentage (%)	Intervalle de confiance à 95%	Significance, P
Taille du ménage	2 3 4 5 6 7 8 >8	4,6 6,2 10,8 18,5 15,4 21,5 21,5 1,5	1,0-12,9 1,7-15,0 4,4-20,9 9,9-30,0 7,6-26,5 12,3-33,5 12,3-33,5 0,0-8,3	$<10^{-3}$
Nombre de repas	1 repas 2 repas 3 repas Pas de repas	3,1 43,1 52,3 1,5	0,4-10,7 30,8-56,0 39,5-64,9 0,0-8,3	$<10^{-3}$
Lieu de repas	Maison Lieu de travail	87,7 12,3	77,2-94,5 5,5-22,8	$<10^{-3}$

Types of food eaten: The types of food consumed by respondents are shown in Table 4. All the people surveyed consumed starchy foods (100%), the majority of which had a predominantly protein diet of animal origin (92.3%) compared with 7.7% of plant origin. Cereals (98.5%), oilseeds (90.8%) and simple carbohydrates (98.5%) are also the most consumed foods by this category of the population. Food practices

Table 4: Types of food eaten by respondents

Paramètres	Variables/ Caractéristiques	Pourcentage (%)	Intervalle de confiance à 95%	Significativité P
Féculents	Oui Non	100,0 0,000	94,5-0,0 0,0-0,0	$<10^{-3}$
Protéinesanimales ProtéinesVégétales	Oui Oui	92,3 7,7	83,0-97,5 1,7-15,0	$<10^{-3}$
Céréales	Oui Non	98,5 1,5	91,7-100,0 0,0-8,3	$<10^{-3}$
Oléagineux	Oui Non	90,8 9,2	81,0-19,0 3,5-19	$<10^{-3}$
Glucides simples	Oui Non	98,5 1,5	91,7-100,0 0,0-8,3	$<10^{-3}$

Table 5 shows the different dietary practices of overweight and obese people surveyed in Brazzaville. This table shows that 73.8% of those surveyed spend on food for an amount ranging from 50,000 to 100,000 CFA francs. This amount is considered insufficient to cover the monthly needs related to food by 98.5% of those surveyed. To make up for this shortcoming, the people surveyed are forced to carry out other secondary activities such as small business (24.6%).

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Table 5: Dietary practices of overweight and obese people studied

Paramètres	Variables/Caractéristiques	Pourcentage (%)	Intervalle de confiance à 95%	Significativité P
Dépenses pour l'alimentation	<50.000fcfa 50.000-100.000fcfa 100.000fcfa >100.000fcfa	1,5 73,8 21,5 3,1	0,0-8,3 61,5 -48,0 12,3-33,5 0,4-10,7	$<10^{-3}$
Suffisance	Oui Non	1,5 98,5	0,0-8,3 91,7-100,0	$<10^{-3}$
Stratégies (Activitéssecondaires)	Petite Restauration rapide Petite étale de produits divers Artisanat Petit commerce confié Autres	3,1 7,7 3,1 24,6 61,5	0,4-10,7 2,5-17,0 0,4-10,7 14,8-36,9 48,6-73.3	$<10^{-3}$
Approvisionnement	Marché de la rue Grand marché Boucherie Restaurant Marché du soir	7,7 44,6 36,9 6,2 4,6	2,5-17,0 32,3-57,5 25,3-49,8 1,7-15,0 1,0-12,9	$<10^{-3}$
Habitudes	Oui Non	54,9 45,1	41,0-66,3 30,8-56,0	$<10^{-3}$

Just under half of the overweight and obese subjects are used to stocking up in the big market (44.6%), in the street market (7.7%) and 4.6% in the market. evening, in butcher shops (36.9%) or in restaurants (6.2%).

Choice of foods of the people surveyed: Table 6 presents the food choices of the people surveyed. Food quality is a determining factor in the choice of foods among the people surveyed (86.2% versus 13.8% do not take this factor into account). Fruits and vegetables that are foods rich in micronutrients and fiber are rarely or rarely consumed (3.1% for fruits and 1.5% for vegetables, p <0.001).

The majority (86.2%) of overweight and obese individuals restrict sports, while 13.8% practice moderate sport. Cigarette consumption was low among respondents (7.7%) while sugary drinks containing fast sugars were high (89.23%).

Table 6: Choice of foods of the people surveyed

Paramètres	Variables/Caractéristiques	Pourcentage	Intervalle de confiance à 95%	Significativité P
Qualité	Oui Non	86,2 13,8	75,3-93,5 6,5-24,7	$<10^{-3}$
Préférences	Poisson de mer Poisson fumé Poisson salé Viande/Poulet Produit de récolte Fruits Légumes	12,3 15,4 4,6 44,6 18,5 3,1 1,5	5,5-22,8 7,6-26,5 1,0-12,9 30,8-56,0 9,9-30,0 0,4-10,7 0,0-8,3	$<10^{-3}$
Sports	Oui Non	13,8 86,2	6,5-24,7 0,4-10,7	<0,01
Cigarette	Oui Non	7,7 92,3	89,3-99,6 86,0-98,2	>0,05
Boissons sucrées	Oui Non	89,23 10,77	4,5-12,6 0, 6,5-25,8	<0,01

Discussion

In the Congo, particularly in Brazzaville, our study of the nutritional profile of overweight and obese people shows that 26.2% of the study population was between 31 and 40 years old. Women (58.5%) outnumbered men (41.5%). These results are similar to those obtained by Gautier and Ravussin on a study of Diabetes and Obesity of Indian primas whose age ranged from 25 to 40 years[11-15].

Our results show that 41.5% of men and 58.5% of women in our sample are overweight and obese. The results on the prevalence of overweight and obesity have also been observed by several authors on studies in teens. According to Prista et al., The prevalence of overweight is 7.7% among girls compared to 4.8% among boys in Mozambique among children aged 6 to 18[16-21].

In Brazilian adolescents, overweight and obesity affect 10.6% of girls and 4.8% of boys[22]. Among teenagers (aged 12-17) in Bahrain, there is a high rate of obesity especially among girls (35%) compared to 21% among boys[23].

This high prevalence among women compared to men could be explained by anatomical and physiological differences between the two sexes; in women, female sex hormones stimulate the body to store fat in adipose tissue. At all ages and all over the world, women, for biological reasons among others, have an average BMI and a higher prevalence of obesity than men. On the other hand, men are more affected by overweight[24].

Our study shows that the risk of overweight and obesity is even more pronounced among private sector workers (30.8%) and civil servants (27.7%). These results are in line with the findings of the Schrwsbary and Wardle study, which states that, in adults, it is well accepted that the social affiliation of individuals is significantly overweight and obese[25]. Thus, in developing countries, the prevalence of obesity is all the more important than the socio-occupational category is high, regardless of sex and age[26]. In developed countries, however, obesity is more common in families with low socio-occupational categories (CSP)[27]. Thus, the Rolland-Cachera and Belliste is a study of the socio-occupational factors[28].

Conclusion

Our study shows that the population of Brazzaville adopts unhealthy behavioral habits and lifestyle that could significantly increase the risk of obesity in this country in the near future. The eating, sedentary and sporting habits of this population seem to be comparable and sometimes even more disturbing than those of the developed countries. It confirms the nutritional transition that the country is going through like other developing nations. The level of energy intake, the composition of macronutrients in the diet and eating habits could also be the main nutritional factors responsible for excess weight in these people surveyed. This anomalous situation is the result of a series of social changes and transformations of the food chain, including the development of out-of-home food, which is accompanied by an increase in the decision-making space of the food industry individual.

It is then necessary to sound the alarm and react in order to preserve the health of the population. For this, it is necessary to set up nutrition education programs and to combat the behaviors that have the greatest impact on obesity. We must of course encourage sports, because to be healthy, you must eat and often do the sport. In addition, it is essential to facilitate access to physical activity by increasing the number of dedicated public places, for the greatest number of people, regardless of the social and economic levels.

References

1. Maire, B., Lioret, S., Gartner, A., et al. Transition nutritionnelle et maladies chroniques non transmissibles liées à l'alimentation dans les pays en développement. (2002) Cahiers Santé 12: 45-55.
   Pubmed | Crossref | Others
2. Hakeem, R. Socio-economic differences in height and body massindex of children and adults living in urban areas of Karachi, Pakistan. (2001) Eur J ClinNutr 55: 5: 400-406.
   Pubmed | Crossref | Others
3. WHO. Obesity: preventing and managing the global epidemic. Geneva: World Health Organization, (1997) 1-276.
   Pubmed | Crossref | Others
4. Das, U.N. Obesity, metabolic syndrome X, and inflammation. (2002) Nutrition 18(5): 430-432.
   Pubmed | Crossref | Others
5. Engström, G., Hedblad, B., Stavenow, L., et al. Inflammation-sensitive plasma proteins are associated with future weight gain. (2003) Diabetes 52: 2097-2101.
   Pubmed | Crossref | Others
6. Bastard, J.P., Maachi, M., Van Nhieu, J.T., et al. Adipose tissue IL-6 content correlates with resistance to insulin activation of glucose uptake both in vivo and in vitro. (2002) J Clin Endocrinol Metab 87(5): 2084–2089.
   Pubmed | Crossref | Others
7. Kimbally, G., Bolanda, D., Gokaba, O., et al. Hypertension artérielle et les autres facteurs de risqué cardio-vasculaires (2004) A Brazzavilla 21(1) : 8-9.
   Pubmed | Crossref | Others
8. Kellou, M.K. Évolution de la situation alimentaire et nutritionnelle en Algérie de 1968 à 1988. In :Padilla M, Delpeuch F, Le Bihan G, and B Maire Les politiques alimentaires en Afrique du Nord. (1995) Paris : Editions Karthala: 61-70.
   Pubmed | Crossref | Others
9. OMS. Utilisation et interprétation de l'anthropométrie. Rapport d'un comité d'experts, Série de Rapports techniques. (1995) Genève: OMS 854 : 498.
   Pubmed | Crossref | Others
10. Kuczmarski, R.J., Ogden, C.L., Grummer-Strawn, L.M., et al. CDC Growth charts: United States. (2000) Adv Data 8(314): 1-27.
    Pubmed | Crossref | Others
11. Jean-François, G., Ravussin, E. Diabète et obésité : qu'avons-nous appris de l'étude des Indiens Primas? (2000) médecine/sciences 16: 1057-1062.
    Pubmed | Crossref | Others
12. Prista, A., Maia, J.A.R., Damasceno, A.,et al. Anthropometric indicators of nutritional status implications for fitness, activity and health in school-age children and adolescents from Maputo, Mozambique. (2003) Am J Clin Nutr 77(4): 952-959.
    Pubmed | Crossref | Others
13. Neutzling, M.B., Taddei, J.A., Rodrigues, E.M., et al. Overweight and obesity in Brazilian adolescents. (2000) Int J Obes Relat Metab Disord 24(7): 869-874.
    Pubmed | Crossref | Others
14. Al-Sendi, A.M., Shetty, P., Musaiger, A.O., et al. Prevalence of overweight and obesity among Bahraini adolescents: a comparaison between three different sets of criteria. (2003) Eur J ClinNutr 56(3): 471-474.
    Pubmed | Crossref | Others
15. Jammes, Y., Steinberg, J.G., Brégeon, F. et al. The oxidative stress in response to routine incremental cycling exercise in healthy sedentary subjects. (2004) Respir Physiol Neurobiol 144(1): 81-90.
    Pubmed | Crossref | Others
16. Shrewsbury, V., Wardle, J. Socioeconomic status and adiposity in childhood: a systematic review of cross-sectional studies 1990-2005. (2008) Obesity (Silver Spring) 16(2): 275-284.
    Pubmed | Crossref | Others
17. WHO. Obesity: Preventing and Managing the Global Epidemic (2000): 894.
    Pubmed | Crossref | Others
18. Rolland-Cachera, M.F., Bellisle, F. No correlation between adiposity and food intake: why are working class children fatter? (1986) Am J ClinNutr 44(6): 779-787.
    Pubmed | Crossref | Others
19. Leclerc, A., Aiach, P., Philippe, A., et al. Morbidity, mortality and social class. Bibliographical review covering differents aspects of pathology, and discussion (author's transl). (1979) Rev Epidemiol Sante Publique 27(4): 331-358.
    Pubmed | Crossref | Others
20. Beaglehole, R. Challenging the public health workforce. (2004) Sc and J Public Health 32(4): 241-242.
    Pubmed | Crossref | Others
21. Vernay, M., Chan Chee, C., Szego, E., et al. Maigreur, obésité et perte d'autonomie chez les personnes âgées à domicile en France : l'enquête nationale Handicap-Santé volet « ménages », 2008. (2013) Bull Epidémiol Hebd (33-34):

425-432.
Pubmed | Crossref | Others
22. Vincelet, C., Galli, J., Grémy, J. Surpoids et obésité en Ile-de-France. (2006) EDS.
Pubmed | Crossref | Others
23. Chakar, H., Salameh, P.R. Adolescent obesity in Lebanese private schools. (2006) Eur J Public Health 16(6): 648-651.
Pubmed | Crossref | Others
24. Agras, W.S., Mascola, A.J. Risk factors for childhood overweight. (2005) Current Opinion in Pediatrics 17(5): 648-652.
Pubmed | Crossref | Others
25. Rennie, K., Johnson, L., Jebb, S.A. Behavioural determinants of obesity. (2005) Best Pract Res Clin Endocrinol Metab 19: 343-358.
Pubmed | Crossref | Others
26. Harrington, S. The role of sugar-sweetened beverage consumption in adolescent obesity: a review of the literature. (2008) J SchNurs 24(1): 3-12.
Pubmed | Crossref | Others
27. Sallis, J.F. Epidemiology of physical activity and fitness in children and adolescents. (1993) Crit Rev Food Sci Nutr 33(4-5): 405-408.
Pubmed | Crossref | Others
28. Kimm, S.Y., Glynn, N.W., Kriska, A.M., et al. Liu Decline in physical activity in black girls and white girls during adolescence. (2002) N Engl J Med 347(10): 709-715.
Pubmed | Crossref | Others