

Research Article

Dietary Monitoring of Children and Adolescents Requesting Weight Loss at Nutrition Service of Côte d'Ivoire National Public Health Institute

Assi Kaudjhis Kouassi Regine Hermione^{1, 2, 4, *} , **Sable Parfait St éphane¹** ,
Kouassi Kouakou Firmin^{3, 4, 5} , **Yepie Herbert²** , **Konan Kouacou¹** ,
Ake-Tano Odile¹ 

¹Nutrition Unit, National Institute of Public Health, Abidjan, Côte d'Ivoire

²Nutrition and Food Security Department, Nanguy Abrogoua University, Abidjan, Côte d'Ivoire

³Institute of Anthropological Sciences for Development, Felix Houphouet Boigny University, Abidjan, Côte d'Ivoire

⁴Ivorian Nutrition Society, Abidjan, Côte d'Ivoire

⁵Anthropological Society of Paris, Abidjan, Côte d'Ivoire

Abstract

Introduction: management of obesity require preventive and curative approach. The objective of this study was to examine dietary monitoring of children and adolescents requesting weight loss. **Method:** This was a retrospective study conducted over a period of one month in nutrition department of Cote d'Ivoire National Public Health Institute. Study population was children aged 6 to 11 and adolescents aged 12 to 17, all diagnosed as obese. They were placed on a personalized low-calorie diet and they attended follow-up consultations and nutritional education sessions. They were monitored over a period of two-year. **Results:** on a total of 112 children and adolescents, female's predominance was noted (58.9%). The cohort comprised 46% children and 56% adolescents and their history was most marked by rheumatic diseases (29.5%). Adherence to the diet over a 24-month period showed that only 2.7% of children and adolescents were able to adhere to it. More than half (54.5%) attended fewer than 3 of the 6 group nutrition education sessions scheduled. After two years of follow-up, the overall nutritional status of the children and adolescents improved, with a decrease in obesity of nearly 29 points and weight normalization in 5.4% of participants ($P < 0.05$). **Conclusion:** The results observed highlight that the success of a weight loss program in young people depends less on restriction than on the sustainable adoption of balanced eating habits that are adapted to their reality.

Keywords

Diet, Nutrition Education, Overweight, Obesity, Children and Adolescents, Côte d'Ivoire

*Corresponding author: kouassikaudjhis@gmail.com (Assi Kaudjhis Kouassi Regine Hermione)

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1. Introduction

Excess weight or obesity is defined as “an abnormal or excessive accumulation of fat that poses a risk to health” resulting from an imbalance between energy intake and expenditure. It can have various repercussions on a person's biological, physical, psychological, and social health [1]. Its prevalence has risen at an alarming rate in recent decades, particularly among children and adolescents, making it one of the greatest challenges of public health [2].

Indeed, the prevalence of excess weight among children and adolescents aged 5 to 19 has increased dramatically, from 4% in 1975 to just over 18% in 2016 in both developed and developing countries [2]. The consequences of excess weight in children and adolescents are numerous. They range from low self-esteem and socialization problems to the risk of developing noncommunicable diseases (diabetes, cardiovascular disease, etc.) at an earlier age and an increased risk of premature mortality in adulthood [3].

Childhood is a sensitive transitional period during which the lifestyle choices that are made can have a lasting impact on health in adulthood, making the management of excess weight crucial. There are various treatments for excess weight in children and adolescents, but so far, the results of studies do not allow for a single treatment to be chosen, given the limitations of each treatment method. WHO (2022) recommends a combination of approaches incorporating nutritional intervention, physical activity with a reduction in sedentary activities, and a behavioral management component, combined with long-term follow-up, given the chronic and recurrent nature of this disease [2].

On the nutritional side, dietary support for children and adolescents sometimes raises questions about whether or not to prescribe a restrictive diet and also about the feasibility of such a diet. In the search for a therapy to overcome excess weight in children and adolescents, a program based on an educational approach, health coaching, was initiated within the Nutrition Department of Côte d'Ivoire National Public Health Institute in 2019, comprising physical activity, a dietary component, and a psychological component. The aim of this program was to promote the well-being of children and adolescents while strengthening their knowledge and skills in nutrition and physical activity, as well as facilitating positive and healthy eating habits at home. Seen that a dietary compliance and nutrition education are key elements in their health, a low-calorie diet supported by nutrition education sessions was assigned to all children and adolescents included in this program.

The objective of this study was to examine dietary monitoring in obese children and adolescents who had been treated over a two-year period prior to the study.

2. Method

This was a retrospective study conducted at the nutrition

department of Côte d'Ivoire National Public Health Institute over a period of one month from July 15, 2025, to August 15, 2025. The study population consisted of children aged 6 to 11 and adolescents aged 12 to 17 who were obese according to WHO guidelines [4]. The study included all children and adolescents who, at the start of treatment, had been placed on a low-calorie diet, attended at least one quarterly group nutrition education session and one monthly individual follow-up consultation and have a physical file. The observation period was 24 months. Conversely, all pregnant adolescents and children and/or those on neuroleptics or hormone treatment were excluded from the study. A total of 112 children and adolescents were selected to participate in the study. The procedure for developing the diet followed four steps: the dietary history of each subject and the classification of foods from their dietary history based on the table of food composition consumed in Côte d'Ivoire [5], the determination of the basal metabolic rate and caloric needs of each subject, and the proposal of a weekly diet based on the subjects' food preferences. For the low-calorie diet, 500 kcal were subtracted from the energy requirements of each child and adolescent in order to achieve a weight loss of 10 to 15% of the initial weight recommended by the French High Authority for Health (HAS) as a realistic first-line goal [6]. This weight goal was adapted to each case. When biological assessment revealed hyperglycemia, hyperlipidemia, and/or high uric acid levels, this diet was considered special. Data was collected using a survey form that included sociodemographic characteristics, anthropometric measurements. Data entry and analysis were performed using Microsoft Office (Word, Excel) and SPSS version 23.0 software. The dependent variable was body mass index, which was divided into three categories (normal weight, overweight, obese). Quantitative data were described using mean, standard deviation, and extremes, while qualitative variables were described using proportions. Chi-square test was used to compare qualitative variables, with a significance threshold of 5%.

From ethical point data collection was carried out in accordance with confidentiality requirements. Authorization from the Director of the National Public Health Institute and the head of the nutrition department was obtained prior to the start of the study.

3. Results

3.1. Socio-demographic Characteristics of Children and Adolescents

A total of 112 participants was predominantly female, with a sex ratio of 0.7. The cohort comprised 46% children and 56% adolescents. All children and adolescents were obese, and their history was most marked by rheumatic diseases (29.5%).

The majority of participants ate their lunch during the school year in school cafeterias (80.3%). Each patient had received a diet, with 75.9% following a low-calorie diet without complications (Table 1).

3.2. Evolution of Dietary Management

Adherence to the diet over a 24-month period showed that

only 2.7% of children and adolescents were able to adhere to it. More than half (54.5%) attended fewer than 3 of the 6 group nutrition education sessions scheduled. Only 3.6% completed at least 10 visits (Table 2). After 2 years of follow-up, the general nutritional status of children and adolescents improved, with a decrease in obesity of nearly 29 points and weight normalization in 5.4% of participants ($P < 0.05$). (Table 3).

Table 1. Distribution of children and adolescents according to socio-demographic and health characteristics.

		Number	Percentage
Sex	Male	66	58,9
	Female	46	41,1
Category	Children	52	46
	Adolescents	60	54
Medical history	Cardiovascular disease	24	21,4
	Rheumatic disease	33	29,5
	Respiratory disease	23	20,5
	No history	32	28,6
Nutritional status	Obesity	112	100
	Home	10	9
Lunch location	Canteen	90	80,3
	Restaurant	12	10,7
Type of diet received	Low calorie	85	75,9
	Low calorie (Hyperuricemia)	12	10,7
	Low calorie (Dyslipidemia)	15	13,4

Table 2. Distribution of children and adolescents according to diet adherence and attendance at nutrition education sessions and follow-up consultations over a 24-month period.

		Number	%
Diet discontinuation time	Non	109	97,3
	Yes	3	2,7
Number of nutrition education sessions	< 3	61	54,5
	3 - 4	18	16,1
	≥ 5	33	29,4
Number of visits	< 6	81	72,4
	6 - 9	27	24
	≥ 10	4	3,6

Table 3. Evolution of the nutritional status of children and adolescents after 2 years of follow-up.

		Normal weight		Overweight		Obesity		P-value
		n	%	n	%	n	%	
Changes in nutritional status	Before 2 years of follow-up	0	-	0	-	112	100	0,000*
	After 2 years of follow-up	6	5,4	29	25,9	77	68,7	

N: number of subjects; %: percentage

4. Discussion

The objective of this study was to examine dietary monitoring in children and adolescents who were treated over a two-year period at the nutrition department of the Côte d'Ivoire national public health institute. This care consisted of providing individual low-calorie diets to all children and adolescents in the study, accompanied by quarterly group nutrition education sessions and monthly follow-up consultations.

The results of this study show a predominance of females (sex ratio of 0.69). Each patient received a diet with 75.9% low-calorie diets without complications, low-calorie diets taking into account hyperuricemia in 10.7% of cases, and finally low-calorie diets taking into account dyslipidemia (13.4%). (Table 1). We observed that 97,3% of children and adolescents abandoned their diet (Table 2).

The concept of following a diet is a poorly defined behavior with various meanings among children and adolescents. For most patients, it is an intentional and often temporary change in eating habits to lose weight [7]. Due to the variation in definitions, it was difficult to compare our study with other studies. However, the study done by Croll et al (2002) acknowledges that among young children, diets increases with age and is more prevalent among girls [8]. This study, does not focus on the duration and reaction to dieting among these young children. The high proportion of diet abandonment in our study could mean a total refusal to adhere to the diet. This result is consistent with the work of Kouassi E (2021), in which an 8-year-old boy testified that "the diet is a punishment from my parents. You eat something else, something you don't like, while everyone else eats the same thing and what you like" [9].

This abandonment could also be due to the fact that the diet classifies foods as good and bad. This dichotomy could create feelings of guilt and failure in them when they give in to temptation. Obsession with food and calorie counting could become a source of stress and anxiety. Feelings of deprivation can reduce enjoyment and make some children and adolescents irritable [7]. Finally, it is important to take into account the relationship between abandonment and the fact that children are more likely to eat school cafeteria meals. The fact

that many children and adolescents eat in cafeterias and restaurants in our study also limits treatment. Cafeteria meals are not usually individualized. Effective dietary management of obesity requires a comprehensive and individualized approach that takes into account the specific needs of each child [10-12].

In addition to the diet, nutritional education sessions and follow-up consultations were also associated with dietary management. More than half (54.5%) of patients had participated in fewer than three of the six group nutritional education sessions scheduled during this period and 96,4% completed fewer than 10 visits out of 24 visits expected (Table 2). This could be explained by the fact that the follow-up period in our study exceeds that recommended by the French High Authority [13]. The latter recommends adjusting care and support according to changes in the individual and family situation and the achievement of objectives. This finding could also mean that some individuals have achieved their goals and show little interest in continuing follow-up, or that children and adolescents are tired of attending health center at this rate, hence the interest in considering personalizing the follow-up time as requested by the HAS (2022).

After two years of follow-up, the overall nutritional status of children and adolescents improved, with obesity declining by nearly 29 points and weight normalizing in 5.4% of participants ($P < 0.05$) (Table 3). Our results are consistent with those of a large-scale prospective study of approximately 15,000 children and adolescents in which, over three years of follow-up, those who followed a diet gained more weight than those who did not. The authors concluded that, within this age group, self-managed diets were not only ineffective but could promote weight gain. [7, 11, 14]. It is therefore important to monitor children and adolescents and encourage a healthy, balanced diet tailored to their needs in order to avoid the negative consequences of restrictive diets.

This study highlights the limitations of the dietary component. The importance of a holistic approach to obesity management should therefore be considered, rather than focusing solely on diet, in order to develop effective strategies.

Personalized support from a multidisciplinary team should be recommended to tailor the strategy to the specific needs of child or adolescent. Follow-up is not limited to dietetics; it

should combine physical activity and psychological support for comprehensive management [15]. However, this study deserves to be further explored with a larger sample than ours.

5. Conclusion

Dietary monitoring of obese children and adolescents is a major public health issue that requires a comprehensive, individualized, and caring approach. The experience of the nutrition department highlights the importance of multidisciplinary support, combining nutritional education, psychological support, and family involvement. The results observed emphasize that the success of a weight loss program for young people depends less on restriction than on the sustainable adoption of balanced eating habits that are adapted to their reality. It is essential to continue efforts in prevention, professional training, and family awareness to promote effective care that respects the well-being of children and adolescents.

Abbreviations

WHO	World Health Organization
SPSS	Statistical Package for the Social Sciences

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] INSERM (2000). Dépistage et prévention chez l'enfant [Screening and prevention in children]. Expertise collective, 325 p.
- [2] WHO European Regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022. Licence : CC BY-NC-SA 3.0 IGO
<https://www.who.int/europe/publications/i/item/9789289057738> Consulté en janvier 2023
- [3] INSERM (2006). Obésité: Bilan et évaluation des programmes de prévention et de prise en charge [Review and evaluation of prevention and treatment programs]. Paris:
<http://www.inserm.fr/thematiques/santepublique/expertises-collectives>
- [4] OMS. Organisation Mondiale de la Santé (2016). Surpoids et Obésité de l'enfant [Childhood Overweight and Obesity]. Disponible au
<https://www.who.int/fr/news-room/fact-sheets/detail/obesity-and-overweight> Consulté le 25 janvier 2019.
- [5] Ministère de l'Agriculture et du Développement Rural (MADR) (2018). Résultats des bilans alimentaires de la cote d'ivoire 2014-2017 [Results of Côte d'Ivoire food balance sheets 2014-2017]. Disponible sur
https://www.anstat.ci/assets/publications/files/RAPPORT_BILAN_ALIMENTAIRE.pdf
- [6] HAS (2011). Haute Autorité de santé Surpoids et obésité de l'enfant et de l'adolescent (actualisation des recommandations 2003) [Overweight and obesity in children and adolescents (update of 2003 recommendations)]. Argumentaire scientifique. 2011: 1-219.
- [7] Hilary EA Whyte, SM Findlay, Sociéte canadienne de pédiatrie, Comité de la santé de l'adolescent. *Paediatrics & Child Health*, Volume 9, Issue 7, September 2004, Pages 499-503,
<https://doi.org/10.1093/pch/9.7.499> Published: 07 September 2025
- [8] Croll J, Neumark-Sztainer D, Story M, Ireland M. Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: Relationship to gender and ethnicity. *J Adolesc Health* 2002; 31: 166-75.
- [9] KOUASSI Ettie Silvie and ASSI Kaudjhis Kouassi Régina (2021). Representation of The Management of Childhood Obesity in Abidjan: Therapeutic and Psychosocial Implications. *Journal Of Behavioral Health*, Vol 10, No. 2, Page 1-4.
- [10] Bach S. 2023. Les principes de base d'une prise en charge diététique efficace pour l'obésité [Basic principles of effective dietary management for obesity], Guide français de santé disponible sur
<https://www.le-guide-sante.org/actualites/nutrition/prise-en-charge-dietetique-efficace-obesite> Consulté le 6 Septembre 2025
- [11] Geoff D. C, Ball PhD, Roah Merdad MD PhD. (2025) Managing obesity in children: a clinical practice guideline CMAJ April 14, 2025 197 (14) E372-E389;
<https://doi.org/10.1503/cmaj.241456>
- [12] Anko A. M. P., Kouadio K. J., Kouassi K. F., Kouassi K. S. & Kouassi A. M. L. B. (2024). Comportement alimentaire et niveau de masse grasse des adolescents Ivoiriens vivants à Abidjan (Côte d'Ivoire) [Eating habits and body fat levels among Ivorian adolescents living in Abidjan (Côte d'Ivoire)]. *European Scientific Journal*, ESJ, 20 (33), 85.
<https://doi.org/10.19044/esj.2024.v20n33p85>
- [13] HAS (2022). Rapport d'activité 2022 [2022 Activity Report], disponible sur:
https://www.has-sante.fr/upload/docs/application/pdf/2023-06/rapport_dactivite_2022_de_la_has.pdf
- [14] Field AE, Austin SB, Taylor CB et coll. Relation between dieting and weight change among preadolescents and adolescents. *Pediatrics* (2003); 112: 900-6.
- [15] Myriam Azim.(2017) Évaluation à distance de la prise en charge par le R  POP Aquitaine des enfants   g  s de 8    12 ans en surpoids et ob  ses en 2011-2012 [Remote assessment of care provided by R  POP Aquitaine to overweight and obese children aged 8 to 12 in 2011-2012]. *M  decine humaine et pathologie*.(dumas-01627127)
<https://dumas.ccsd.cnrs.fr/dumas-01627127v1>