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Evolution of metabolic diseases in urban areas and dietary habits as risk factors in Bouaké (Ivory Coast)

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ABSTRACT

This text explores the association between dietary behaviors and metabolic diseases based on the perception of local urban communities of their daily diet and the experience of treatment

and monitoring of metabolic diseases by health professionals in the health district of Bouaké. The Bouaké's field is translated here as both a space with contours defined by the IPORA research, from which the data studied are extracted, and a social and economic space which positions itself as a mother city in the concentration of food supply, networking

and flows and a reference city in the care of local diabetic patients and surrounding towns. Based on a mixed study with a qualitative tendency, the study is structured around three specific results. First, it highlights the evolution of metabolic diseases in the city of Bouaké, then, it describes the eating habits of the communities living in this city. Finally, she studies the relationship between these urban eating habits and metabolic diseases. Ultimately, the article notes that the evolution of these diseases can be associated with urban eating habits which prioritize low quality products (unhealthy), few fruits and vegetables, as well as basic products (essentially energy).

Keywords: Eating behaviors, Metabolic diseases, Bouake, Ivory Coast.

Introduction

African countries reflect profound changes brought about by structural transformations that are driving them through a nutritional transition. The interplay of changes in diet and public health reflects this nutritional transition. According to this model, processes such as urbanization and industrialization lead to a transformation of food systems, shifting them away from family farming and toward greater dependence on industrial production (Barry M. Popkin, 1980, cited by L. Vanhoutte, 2023, p. 463). In this respect, populations in the Global South are more exposed to malnutrition and the consumption of unhealthy foods, and consequently, to the development of metabolic diseases. This quickly puts a strain on the functioning of healthcare systems (B. Maire et al., 1992, p. 253).

Furthermore, the nutritional transition and the emergence of metabolic diseases, particularly type 2 diabetes, hypertension, and certain cancers, as well as overweight and obesity, are intrinsically linked to the development of African cities. This is because they are exposed to processed food products, advertising, active marketing by agribusiness groups, and significant changes in lifestyles (B. Maire and F. Delpeuch, 2004, p. 23). In some developing societies, metabolic diseases are therefore becoming a national public health issue, as

mortality from chronic diseases is gradually surpassing mortality from infectious diseases (B. Maire and F. Delpeuch, 2004, *ibid*).

Côte d'Ivoire is not immune to these societal challenges. The burden of disease due to chronic illnesses remains considerable and is even increasing significantly, accounting for 31% of deaths in 2014 (MSLS ¹, 2015-2019, cited by MNAB Aka, 2022, p. 19). Overweight and obesity have adverse metabolic effects on blood pressure, cholesterol, triglycerides, and insulin resistance (PN PMTN ², 2015-2019, p. 12). WHO estimates for 2010 indicate that in Côte d'Ivoire, obesity affects 7.9% of the population, including 3.9% of men and 11.9% of women (PN PMTN, *op. cit.*, p. 13). The country has approximately 12 million people suffering from hypertension, and 9 million of the population are completely unaware of their condition ³. The overall prevalence rate increased from 21.7% in 2005 among the entire population aged 15 to 64 years ⁴ to 39.9% among adults aged 20 to 79 years ⁵. Its proportion increases with age, reaching 58.4% in the 55-64 age group (MNAB Aka, 2022, *ibid*). In Côte d'Ivoire, estimates from the International Diabetes Federation (IDF) in 2013 indicated 501,530 cases of diabetes and 11,884 deaths related to the disease. The prevalence of diabetes was then estimated at 6.2% (WHO Côte d'Ivoire, Biennial Report 2022-2023, p. 32). The latest national prevalence estimates from 2008 made by the WHO establish the prevalence of high total cholesterol levels (greater than or equal to 5 mmol /l) in adults aged 25 years or older at 19.9% (PN PMTN, 2015-2019, p15).

Given the prevalence of metabolic diseases and their socio-health implications as national public health issues, Ivorian state authorities will contribute to strengthening the institutional and material resources for combating these diseases. This will be achieved through a series of innovations designed to improve treatment and monitoring. At the institutional level, the National Diabetes Control Program (PNLD) has been replaced by the National Program for the Control of Metabolic Diseases (PNLMM), established by Decree No. 173 MSHP/CAB of June 21, 2007. This strategic plan aims to establish a coherent framework that will bring

¹ Ministry of Health and the Fight Against AIDS of Côte d' Ivoire, "Integrated Strategic Plan for the Prevention and Management of Non-Communicable Diseases in Côte d' Ivoire 2015-2019", 2014

² National Program for the Prevention of Non-Communicable Diseases

³ Ministry of Health, Public Hygiene and Universal Health Coverage: This is the situation report given by Mr. Amon Tanni, Technical Advisor, representing the Minister in charge of Health, Pierre Dimba, at the celebration on Friday, May 17, 2024 in Abidjan-Treichville, of the World Hypertension Day .

⁴ STEPS/MNT Programme Coordination Directorate, "Survey on Risk Factors for Non-Communicable Diseases" transmissibles", Ivory Coast, Ministry of Health and Public Hygiene of Ivory Coast, 2005, p. 165.

⁵ Ministry of Health, Public Hygiene and Universal Health Coverage: This is the situation report given by Mr. Amon Tanni, Technical Advisor, representing the Minister of Health, Pierre Dimba, at the celebration of World Hypertension Day on Friday, May 17, 2024, in Abidjan-Treichville.

together all the necessary resources to contain non-communicable diseases (NCDs).

In terms of practical measures, the PNDS ⁶(2021-2025, p. 52) reveals that, in order to increase service coverage for NCDs, Côte d'Ivoire has decentralized the management of these diseases. This has been achieved through: i) the opening of 6 sites for the management of diabetes and hypertension arterial bringing the number to 29 in 2020, ii) capacity building for healthcare providers (1,446 doctors, 486 nurses and midwives, 96 nursing assistants) in 68 health districts regarding cardiovascular disease prevention within the framework of the WHO PEN (WHO Integrated Essential Intervention Package for the Prevention and Control of NCDs at the Primary Health Care Level), iii) 8 hemodialysis centers in public hospitals, and the reduction of access costs for breast cancer and diabetes care through drug price subsidies. However, despite the strengthening of the institutional and material framework for combating NTDs, the morbidity rate of these diseases remains constantly increasing. It increased from 31% of deaths in 2014 to 37% of deaths over the period 2021 to 2025 (PNDS, 2021-2025, p.52).

According to the National Program for Non-Communicable Diseases (PN PMNT) (2015-2019, p. 10), most non-communicable diseases (NCDs) are strongly associated with four major and common risk factors related to behaviors: tobacco use, physical inactivity, unbalanced diet, and harmful alcohol use. While several studies (DST Akre et al., 2021; D. Koné et al., 2023) emphasize the analysis of risk factors through the lens of the influence of socio-demographic (sex, age), anthropometric (weight, hyperglycemia, polyuria, etc.), and biological (duration or recent illness, etc.) parameters, it is clear that the interaction between metropolitan areas, diet, and health remains a poorly studied and therefore scientifically under-understood area. (D. Meva'a Abomo, H. Ambatta Nyoro, 2020, p.16). This raises a central question: how do dietary habits in urban environments influence metabolic diseases?

Our study, based on a mixed-methods survey conducted from June 3 to 14, 2024, in the Gbêkê region of central Côte d'Ivoire, particularly in the city of Bouaké, aims to investigate the association between urban dietary habits and the occurrence of non-communicable diseases (NCDs). It is structured around three main axes: The first axis relies on triangulation of secondary, primary, and quantitative data to examine the evolution of metabolic diseases in the Gbêkê region and specifically in the city of Bouaké. Using mixed-methods data, the second axis describes the dietary habits of

urban communities in Bouaké. The third axis examines the relationship between these urban dietary habits and NCDs. These analyses are based on the perceptions of local urban communities regarding their daily diet and the experience of healthcare professionals in the Bouaké health district in treating and monitoring metabolic diseases.

1. Methodology

1.1. Survey Site

The analysis presented in this study is based on a mixed-methods approach with a qualitative focus, constructed from a dual perspective: firstly, a desire to shift the sociological focus away from Abidjan, a space often favored by official documentation and in the treatment and monitoring of metabolic diseases; and secondly, a concern to empirically explore geographical areas that have been relatively neglected by research on dietary habits and NTDs. It is from this perspective that we focused our attention on the city of Bouaké, the country's second-largest urban center, located in the heart of Côte d'Ivoire. This city provides a prime location for observing the association between dietary habits and NTDs, for three reasons.

Firstly, in terms of population size, the city of Bouaké ranks second only to Abidjan, the economic capital of Côte d'Ivoire, which accounts for 36% of the urban population. According to the latest census, the city of Bouaké represents 4.7% of the country's urban population, approximately 725,160 inhabitants (INS, 2021, cited by KA Adou, 2024, p. 17).

Next, in terms of food metropolization (R. Brunet et al. 1993, p. 301, cited by D. Meva'a Abomo, H. Ambatta Nyoro, 2020, p. 16), the city of Bouaké is an illustration. Indeed, food metropolization refers to the process of concentrating food supply in a metropolis with high demand, based on a network of food exchanges and flows between the mother city, satellite cities, and rural areas within a metropolitan area. Bouaké is therefore a social and economic space that positions itself as the mother city in the concentration of food supply, the networking, and the flows that are perpetually built, deconstructed, and rebuilt between satellite cities and rural areas (D. Meva'a Abomo, H. Ambatta Nyoro, 2020, p.16), due to the presence of a wholesale market and several other peripheral markets.

Finally, Bouaké boasts a tertiary-level university hospital (CHU) comprised of referral services that receive patients from the city of Bouaké and surrounding towns in the central,

⁶ National Health Development Program

northern, and western parts of the country. The internal medicine department specializes in the management of metabolic, endocrine, tumoral, infectious, and other rare diseases. It is the referral service for the care of diabetic patients in Bouaké and surrounding towns (D. Koné et al., 2023).

1.2. Data collection methods

The quantitative survey focused on four urban health centers in the city of Bouaké: the Nimbo, Ahougnassou, Belle Ville, and Air France 3 centers. Using a questionnaire, we interviewed 140 patients, including 42 in Nimbo, 36 in Ahougnassou, 50 in Air France 3, and 12 in Belle Ville. These figures take into account the challenges faced by patients with low attendance at health centers and administrative health constraints. Our qualitative sample consisted of 35 respondents obtained through data saturation and triangulation. This allowed us to utilize individual interviews, focus groups, and secondary data collection techniques.

The interview guide was used to collect information. To this end, we conducted 14 interviews, including 10 individual interviews (3, due to (1) interview with each of the district health directors (Bouaké South, Bouaké Northeast, and Bouaké Northwest, (1) directorate Regional representative from Gbéké, (1) diabetologist from the Bouaké University Hospital, (1) president of the youth association in the Nimbo neighborhood, (1) Imam in the Belle Ville neighborhood, (1) pastor in the Ahougnansou neighborhood, (1) president of the women's association of the city of Bouaké residing in Ahougnansou, (1) head of the 133 CIDT housing complex neighborhood (replacing missed appointments in Belle Ville), and 4 focus groups, namely: (1) heterogeneous youth focus group in the Nimbo neighborhood, (1) homogeneous women's focus group in the Ahougnansou neighborhood, (1) homogeneous focus group conducted in the Adjé neighborhood Yaokro and (1) heterogeneous male-female focus group in the Air France 3 district.

Healthcare professionals were selected using a reasoned approach based on the study's objectives, and local communities were engaged through networking. The collected data were analyzed using thematic content analysis. This approach was used to identify the different parts of the results. Specifically, it involved cross-referencing what, from one interview to another, referred to the same theme (dietary habits, probable link with metabolic diseases) in order to minimize the singularity of the participants' discourse and to seek thematic coherence between interviews in relation to the stated research objectives (A. Blanchet, A. Gotman, p. 99).

2. Results and data analysis

2.1. On the evolution of metabolic diseases in the city of Bouaké

2.1.1. Evolution of NTMs according to secondary data

The city of Bouaké is divided into three health districts: Bouaké Northeast, Bouaké Northwest, and Bouaké South. Analysis of secondary data on the evolution of metabolic diseases from the Gbéké Regional Health Directorate clearly shows a significant increase in metabolic diseases across all three districts of Bouaké. Based on interview data, the most prevalent and well-known metabolic diseases are hypertension and diabetes. Indeed, the Bouaké Northwest area recorded the highest number of hypertension cases, with an increase of 866 patients between 2023 and 2024. This was followed by the Bouaké Northeast area with an increase of 152 patients during the same period, and Bouaké South in third place with an increase of 16 patients. However, regarding diabetes and hyperglycemia, while there was a relative decrease of 18 patients between 2023 and 2024, there was an increase of 540 patients with diabetes and hyperglycemia during the same period in the northwestern Bouaké area, as well as an increase of 38 patients in the southern Bouaké area. The table opposite illustrates the evolution of non-communicable diseases in the health districts of the city of Bouaké.

Table 1: Evolution of NTDs in the health districts of the city of Bouaké.

Area	MNT	Year 2023	Year 2024
Bouake northeast	Hypertension	2632	2784
	Diabetes	2649	2631
	Hyperglycemia without a history of diabetes	2649	2631
Bouaké Northwest	Hypertension	1045	1911
	Diabetes	184	724
	Hyperglycemia without a history of diabetes	184	724
Bouaké south	Hypertension	1237	1253
	Diabetes	172	210
	Hyperglycemia without a history of diabetes	172	208

Source: 2023-2024 statistical data from the regional health directorate of the Gbêkê region.

2.1.2. Perceptions of the evolution of NCDs among urban communities and healthcare professionals

The triangulation of the aforementioned secondary data and primary data from individual interviews with healthcare professionals and focus groups with local urban communities reveals a significant evolution in metabolic diseases in urban areas, particularly in the city of Bouaké. These social actors unanimously agree that initially, these diseases were perceived as affecting only the elderly or the wealthy. However, they observe that today, these diseases affect all segments of the population, especially young people, children, and those experiencing social hardship. According to local communities, they observe individuals with these diseases within their communities, including families, neighborhoods, workplaces, and informal gatherings. In this respect, they are

redefining metabolic diseases as common and widespread illnesses.

Before, our parents didn't know about this. When I think back to the 80s, these diseases were very rare, but today, these diseases have multiplied. Most young people have them. From the age of 40, you get them. Even children, we see their blood sugar levels rise. These diseases have become widespread. Interview with a pastor in N'gattakro on June 7, 2025 (...) "And before, before, when we said someone had diabetes, it was always rich men because they only ate good things. But now, even the poorest people are diabetic. And before, high blood pressure was something that only overweight people had, but today, you're thin, oh, you have high blood pressure. " Focus group with women conducted on June 9, 2025.

Indeed, interviews conducted within local communities show that some people estimate knowing, for example, two to three diabetics out of a population of ten people in their circle, and three to five people with hypertension out of a population of ten people in their circle. The religious leaders we interviewed (Imams and pastors) also confirm these estimates. In fact, they have observed the rise in metabolic diseases among their followers. These leaders even state that people suffering from diabetes or hypertension come to them seeking prayers for healing. Furthermore, according to these religious leaders, when some are healed, they remain in these churches as permanent members. " *People come with this (NTD), and when we pray for them, they come to be healed, and when we pray for them, they stay.* " Interview with a pastor in N'gattakro on June 7, 2025.

Healthcare professionals, particularly departmental directors with experience in monitoring and treating metabolic diseases in Bouaké, also confirm the perceptions of the increasing prevalence of these diseases among local communities. Indeed, they observe that during consultations, the number of people with either hypertension or diabetes is steadily rising. According to a diabetologist at the Bouaké University Hospital, during follow-up and treatment consultations, he sees at least 20 to 30 patients with diabetes and/or hypertension per day, and more than 400 per month.

When we consult our records and look back at the numbers of people who come to the emergency room for a hypertensive crisis or high blood sugar, we see that this number has really changed, and sometimes we're not surprised to see very severe hypertension in young people. These are common and widespread illnesses. Interview with a healthcare professional on June 10, 2025.

2.2. Urban eating habits: The use of an unbalanced diet

Cross-sectional analysis of interview data reveals that urban eating habits are built around the use of a diet that is not "balanced." The following paragraph first analyzes the low consumption of fruits, vegetables, and dairy products in daily intake and then highlights the diversification of diets around a single nutrient group (carbohydrates or energy-providing foods).

2.2.1. Low consumption of fruits, vegetables and dairy products

According to healthcare professionals interviewed in the city of Bouaké, fruits and vegetables are considered very important in the daily diet. The same is true for dairy products. These foods provide protein to the human body, help fight certain diseases, and contribute to the building and development of organs. However, their consumption of these foods is low, even virtually nonexistent, in the daily diets of households. Indeed, the households interviewed for this study are aware of the importance of fruits and vegetables in their diet. However, aside from prohibitions or religious beliefs associated with the consumption of certain fruits by some individuals, family size and economic resources appear to be the main barriers to the consumption of fruits, vegetables, and dairy products in urban areas. Fluctuating prices of these foodstuffs and the size of the household significantly reduce their regular consumption during meals. Furthermore, to circumvent this difficulty, households wait for the production season of certain fruits to buy them because of the price drop during that period. " *Fruits and vegetables are important, but I have a family of six. If we have to eat raw vegetables and fruit, the budget will be high, so it's a matter of resources. We want variety, but we lack the means.* " Focus group with men from the Adjeyaokro neighborhood, conducted on June 11, 2025.

Here, fruit is seasonal, and not everyone can afford it. When you finish eating, you'll have a piece of fruit to compensate. How many people can spare 200 or 300 FCFA to buy a mango? Avocado season is over; you'll see an avocado for 400 FCFA. In Africa, families are large, and there are some things we prefer to do without. When it's mango season, there's a mango tree in the neighborhood or courtyard, and everyone takes advantage as they wish. If it's over, we wait for the next season. When you see a mango for 200 FCFA, you put 100 FCFA on it, that's enough for your attiéké, and you leave it at

that. Focus group with young people in Nimbo, conducted on June 6, 2025.

2.2.2. Dietary variation and nutritional poverty

The daily consumption of urban households surveyed in Bouaké is characterized by dietary variation, but is generally low in nutrients. Indeed, this consumption is structured primarily around lunch and dinner. Breakfast remains an option for some households surveyed. Among those who eat breakfast, some are drawn to bread and coffee in the morning. Others prefer a leftover meal (rice or placali ⁷with sauce), reheated the following morning; what they commonly call "lying rice." For lunch, some households favor either attiéké with fish, or rice with sauce (meat or fish). Finally, for dinner, some continue with rice and sauce, while others are drawn to foutou (yam or plantain) or *cabato* ⁸ for those who want a lighter meal.

Some households believe their eating habits are varied because they want to break free from a food routine. Conversely, some believe their diet is balanced because they don't get sick and don't eat the same foods morning, noon, and night. However, others believe their diet is unbalanced because there is no variation in their meals. For them, the same eating patterns are repeated morning, noon, and night, leading to a routinization of their daily meals. This is evidenced by the excerpts selected during the focus groups:

In the morning, I eat my rice, at midday, a little attiéké or rice, and in the evening, my yam foutou like a good little Baoulé. It's a matter of habit, and I'm comfortable with it. (...) "In the morning, I have rice, at midday I don't eat much, and in the evening, it's my yam foutou because yam foutou can keep me going until midday the next day. I think it's balanced if you don't get sick, and then it depends on your budget, if I don't have money to buy salad or raw vegetables. (...) "In the morning, it's a piece of bread, at midday, most of the time, we eat attiéké, and now in the evening, either rice, foutou, or placali. I can say that my diet is varied because what I eat in the morning, I don't eat at midday or in the evening." Now, a balanced diet? I don't think so, because we don't always have the means to have all three components of a meal: starter, main course, and dessert. Focus group with men conducted on June 11, 2025.

This variation in urban diets highlights nutritional poverty. According to health professionals, the foods regularly consumed in households are not balanced. For them, diversifying meals does not necessarily mean they are

⁷ Traditional food derived from cassava

⁸ Corn flour in the Malinke language

balanced. In fact, they believe that most of the foods consumed regularly by households, both at home and outside the home, have poor nutritional value because they are composed of only one type of nutrient, particularly carbohydrates. For health professionals, a balanced diet should include three types of nutrients: carbohydrates (energy-providing), proteins (building blocks), and vitamins (protective). However, the dietary composition of the aforementioned households reveals a concentration of only one type of nutrient: carbohydrates, which are considered energy-providing. These include starchy foods and cereals, notably rice, fufu (yam and banana), cassava (attiéké, placali, gari, etc.), and maize (wheat, cabato, etc.). Consequently, urban households have limited or even nonexistent diets, often lacking fruits, vegetables, and dairy products, and prioritize only one type of nutrient: carbohydrates (energy-providing).

All we're offered are energy-rich foods, carbohydrates. Everything we eat is carbohydrates, especially with the proliferation of roadside eateries and restaurants. It's a way of forcing us, without explicitly saying so, to consume this. You go to a roadside eatery, and they say there's plantain fufu, yam fufu, with peanut sauce, pistachio sauce, palm nut sauce — you see, there's variety. But it's still the same type of food: carbohydrates. They might give you yam in a different form, like stew, rice can be oily or not, and then with attiéké, they might put red palm oil on it, but it's still the same type of food, and therefore, all of this isn't a good diet. (...) It's when the three food groups — energy, protection, and building — are in our meals. When we say we eat, we must eat fruits, vegetables, proteins, meat, dairy products, fish, and eggs. Interview conducted respectively on 06-06-2025 with a health professional and on 04-06-25 with a Departmental Director of Health in Bouaké.

2.3. The association between eating habits and metabolic diseases

Cross-sectional data analysis shows that dietary habits in urban Bouaké reflect a low consumption of fruits, vegetables, and dairy products, as well as a focus on a single type of nutrient (carbohydrates). These household eating habits are described by health professionals as "unbalanced," "poor eating," or "unhealthy." They believe this could eventually lead to the development of metabolic diseases. In this regard, health professionals suggest a plausible link between these dietary habits and the onset of metabolic diseases. Furthermore, their analysis indicates that when patients are diagnosed with these diseases and placed on a dietary regimen, adherent individuals show improvement.

There is a definite probability of a link between metabolic diseases and dietary habits, as the condition of the affected individual improves when they adhere to a healthy diet. Interview conducted with a healthcare professional on June 10, 2025 (...) "It's because we eat large quantities of carbohydrates: energy-rich foods, and lipids: all kinds of oil. But carbohydrates and lipids, this combination, contributes to metabolic diseases. All that ice cream we eat, the attiéké... " "Garba, birthdays, that's what causes diabetes in the long run." Interview with a healthcare professional on June 6, 2025 (...) "Dietary habits can influence the progression of diseases. When you eat properly and healthily, it means that diseases are less likely to occur." Interview with a healthcare professional on June 4, 2025.

For the urban communities of Bouaké, the majority of those interviewed had heard of metabolic diseases. These social actors perceive these diseases as diet-related, rather than hereditary. Their perceptions are based on preconceived notions. " *What we eat makes us sick, it causes diabetes, it causes hypertension*, " Focus group of men in Adjeyaokro on June 11, 2025 (...) " *I think that, for most people, it's the food, what we eat, that causes the diseases. Most of our women like to cook with bouillon cubes, etc... you have to be very careful, it kills a man in the long run*, " interview with an imam in Belle Ville conducted on June 7, 2025.

Furthermore, those interviewed who suffer from metabolic diseases tend to attribute the causes to diet. According to them, after receiving a positive diagnosis, their health improves when they follow the diet prescribed by their doctors. Subsequently, when they retrospectively analyze their former eating habits (more sugar, salt, and fat, fewer fruits and vegetables), they resign themselves to acknowledging the link between their diet and the onset of metabolic diseases. " *The doctor didn't tell me why it happened. Also, the foods he told me to stop eating—I remember eating a lot of them before*. " Women's focus group conducted on 09-06-25.

3. Discussion

3.1. On the prevalence of metabolic diseases

Based on the triangulation of mixed and secondary data, the study shows a significant increase in metabolic diseases in urban areas, particularly in the city of Bouaké. This finding is confirmed by the studies of D. Koné et al. (2023) regarding the prevalence of diabetes in Bouaké. They conducted a descriptive and analytical study in the internal medicine department of the University Hospital Center (CHU) of Bouaké over a two-year period, from January 1, 2020, to December 31, 2021. Their results show that, out of a total of

2,457 patients hospitalized in the internal medicine department during the study period, 181 were diabetic, representing a prevalence of 7.4%. Among these 181 diabetic patients, 136 had been diagnosed with an infection. The prevalence of infection among hospitalized diabetic patients was 75.1%. The average age of the patients was 52 years. The sex ratio was 0.7. Diabetes was discovered incidentally in 50% of cases, and type 2 diabetes (88.2%) was predominant. Furthermore, our results are corroborated by the Wake Up NGO report (2023) on the prevalence of hypertension. According to this report, the prevalence of hypertension has increased from 13.7% at the end of 1979 to over 25% today, representing an established prevalence of 20 to 30%. In this document, the Ivorian association Wake Up Africa expresses concern about this prevalence rate of hypertension in Côte d'Ivoire, which "will lead to many complications, as revealed by a hospital study in Bouaké in 2001 that found severe hypertension in more than 70% of the cases observed."

3.2. Urban eating habits: between low consumption of fruits, vegetables and dairy products and nutritional poverty

Our study shows that dietary habits in urban areas, particularly in the city of Bouaké, are defined by health professionals as unbalanced and nutrient-poor. Indeed, there is a low consumption of fruits, vegetables, and dairy products in the daily diets of urban communities. This diet is characterized by a focus on a single nutrient group: carbohydrates. Our results corroborate the report of the National Program for the Promotion of Nutrition and Nutrition (PN PMNT) (2015-2019, p. 11). This report indicates that in Côte d'Ivoire, in a 2005 survey of 4,530 individuals aged 15 to 64 in the Lagunes administrative region, 37.2% consumed few or no fruits and vegetables, compared to 62.8% who consumed them daily. Analysis of consumption levels reveals that 78.1% of consumers have a low level of fruit and vegetable consumption (fewer than 5 servings per day), while 21.9% consume 5 or more servings per day. According to the report, low levels of daily fruit and vegetable consumption are found primarily in urban areas (93.6%) compared to rural areas (6.4%). Furthermore, these results are confirmed by the work of Y. Berton - Ofouémé (2017, p. 2). Indeed, through her analyses, she proves that disadvantaged urban households in Africa who spend less than one dollar a day, more than 60% (Cotonou, Abomey - Calaviy, Porto-Novo, Bamako, Pointe-Noire, Luanda) and 32% in Brazzaville consume low quality products (often fatty animal products), few fruits and vegetables, and devote most of their food budget to basic products (mainly energy).

3.3. Association between eating habits and metabolic diseases

From the perspective of healthcare professionals' experience in treating and monitoring patients with metabolic diseases, and the social perceptions of local urban communities in the city of Bouaké, a link appears to exist between these urban dietary habits (low fruit and vegetable consumption, primarily energy-rich) and the occurrence of metabolic diseases. In this regard, our results support the findings of the PN PMNT report (2015-2019, p. 11). The report estimates that low fruit and vegetable consumption is responsible for approximately 5.3 million deaths per year. It is also attributed to approximately 19% of gastrointestinal cancers, approximately 31% of ischemic heart disease, and 11% of heart attacks worldwide. According to this report, the amount of dietary salt consumed is a significant determinant of blood pressure levels and overall cardiovascular risk.

The report also notes that there is evidence that consuming high levels of energy-dense foods, such as processed foods that are high in fats and sugars, promotes obesity compared to low-energy foods like fruits and vegetables. He also mentions that it is proven that the risk of type 2 diabetes is directly associated with the consumption of saturated and trans fats, and inversely associated with polyunsaturated fats of plant origin. These results are also supported by the contribution of Y. Berton - Ofouémé (2017, p. 2). In her study, the author notes that reduced food intake, failure to adhere to nutritional recommendations, and poor dietary diversity expose individuals in these families to undernutrition and an unbalanced diet, the consequences of which are significant for their health.

Conclusion

For a long time, metabolic diseases were considered illnesses affecting the elderly or the wealthy. However, today, local communities and public health professionals are observing a significant increase in these diseases across all social classes. In this respect, they are redefining metabolic diseases as common and widespread. This increase can be linked to urban dietary habits that prioritize low-quality products (often fatty animal products), few fruits and vegetables, and families that allocate the majority of their food budget to staple foods (primarily energy-rich). Furthermore, these dietary patterns are described by health professionals as an unbalanced diet strongly correlated with the occurrence of metabolic diseases in urban areas. Moreover, it remains imperative to focus on the category of urban youth exposed to NCDs whose food base is built around the consumption of unhealthy foods in

order to describe their relationship to taste and their social preference.

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