Research Article

Nutritional Status of Women in Cameroon: Status Report Among Women in the City of Yaoundé

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Introduction. **Economic growth and urbanization in low- and middle-income countries are resulting in profound changes in people's lifestyles and consumption patterns, leading to an increase in the prevalence of obesity. The latter today constitutes a public health threat to which men and women are not equal.** ***Objective.*** **This work aimed to determine women's nutritional status in the city of Yaoundé.** ***Materials and methods.*** **A cross-sectional descriptive survey was conducted among women aged 21 and over in the community.** ***Results.*** **The average age of the population was 39.9 (± 14.2) years, with a larger proportion of women of childbearing age. The results showed an alarming proportion of malnutrition, with a cumulative prevalence of overweight and obesity that stood at 46.5%. Nearly half of Cameroonian women in the city of Yaoundé had weights above the recommended normal weight. The average body mass index of the sample reflected this trend, with a value of 25.3 kg/m2, at the lower limit of overweight according to the WHO classification. A significant association between cultural area and nutritional status was found.** ***Conclusion.*** **A dietary guide and adequate communication strategies must be developed to promote optimal nutritional status in order to prevent situations of obesity and the burden of metabolic diseases within this group and on the Cameroonian health system.**

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 doi.org/10.32388/BTYE3Y

Introduction

Economic growth and urbanization in low- and middle-income countries are resulting in profound changes in people's lifestyles and consumption patterns, characterized by an increase in alcohol and tobacco consumption, a reduction in physical activity, and a nutritional transition. This contributes to the epidemiological transition observed worldwide, materialized by an increase in metabolic disorders and pathologies including obesity, cardiovascular diseases, diabetes, and certain cancers[1]. On the African continent, these pathologies coexist with infectious diseases, causing a double burden on health systems. A risk factor for numerous metabolic pathologies, obesity today constitutes a public health threat and has been declared a global epidemic by the World Health Organization (WHO)[2]. There are two types of obesity: android or abdominal obesity and gynoid obesity, which is found particularly in female individuals. Depending on the type of obesity, the health risks differ. Furthermore, when it comes to obesity, men and women are not equal, with women bearing more of the burden of obesity compared to men. Overweight and obesity are responsible for 2.4 million deaths and nearly 71 million years of healthy life lost among women worldwide[3]. Black women are even more at risk of this metabolic disorder[2]. This study was therefore a question of describing women's nutritional status in the city of Yaoundé.

Methodology

A cross-sectional descriptive study was conducted in Yaoundé, the political capital and cosmopolitan city of Cameroon. The study was approved by the Institutional Ethics and Research Committee of the Faculty of Medicine and Biomedical Sciences (FMSB) of the University of Yaoundé I. Data collection took place during the month of September 2023 among women aged 21 and over recruited through convenience sampling in the community. Written consent was obtained prior to any participation in the study. The anonymity of the participants was guaranteed by not mentioning any identification and by assigning each form a unique code. Their sociodemographic data were recorded, and anthropometric parameters (height, weight, waist circumference) were collected according to WHO recommendations. The nutritional status of the participants was assessed according to two classifications: that of the body mass index (BMI) and the waist circumference to height ratio (WHR). The WHO classification considers individuals whose BMI is between 25 and 29.9 kg/m2 to be overweight and those whose BMI is greater than 30 kg/m2 to be obese. A substitute measure and indicator of visceral adiposity, the WHR defines an increased risk of developing metabolic diseases for values between 0.50 to 0.60 and a substantial risk for

values above 0.60. The collected data were analyzed using IBM-SPSS version 26.0 software. Results were expressed as mean (standard deviation) for data following a normal distribution and as median (interquartile range) otherwise. The Fisher chi-square test was used to analyze the association between sociodemographic data and nutritional status.

Results

Sociodemographic characteristics

The average age of the population was 39.9 (± 14.2) years, with extremes of 21 and 71 years. The sociodemographic characteristics of the participants are recorded in Table I.

Variables	Modalities	n(%)
Age (years)	]20-30[	30(30,3)
	[30-40[	26(23,3)
	[40-50[	14(14,1)
	[50-60[	18(18,2)
	[60-70[	9(9,1)
	>70	1(1,0)
Marital status	Single	38(38,0)
	Free union	14(14,0)
	Monogamous	29(29,0)
	Polygamous	9(9,0)
	Divorcee	8(8,0)
	Widower	1(1,0)
Cultural area	Coast	20(20,0)
	Forest	38(38,0)
	Grassfields	15(15,0)
	Sahel	9(9,0)
	Savannah	16(16,0)

Table I. Sociodemographic data of participants

Sociodemographic data collected in order to study their association the association between it and the morphological profile among women in the city of Yaoundé.

The study population was mainly made up of women of childbearing age (67.7%). More than half of the participants (52.0%) were in a relationship, with 14% in a common-law union and 38% in a marital union.

The most represented cultural area was the forest zone, with more than a quarter (38%) of occurrences. Aspects related to their nutritional status were presented in the following section.

Nutritional status

The average BMI of the sample was 25.3 (±4.3) kg/m2 and ranked at the lower limit of overweight, while the average WHR was 0.57 (±0.67). The details of the anthropometric indicators have been summarized in Table II.

Variables		N(%)	BMI(kg/m^2)	p value	WHR
Age (years)	]20-29]	30(30,3)	24,3 ±5,1	0,874	0,47 ±0,11
	[30-39]	26(23,3)	26,4 ±4,1		0,53 ±0,06
	[40-49]	14(14,1)	25,7 ±3,1		0,50 ±0,10
	[50-59]	18(18,2)	25,3 ±4,4		0,50 ±0,08
	[60-69]	9(9,1)	24,9 ±2,9		0,49 ±0,14
	≥70	1(1,0)	24,6 ±3,4		0,41 ±0,23
Marital status	In a relationship	53(53,0)	26,4 ±4,3	0,586	0,51 ±0,10
	Single/Divorcee/Widower	47(47,0)	23,6 ±5,3		0,48 ±0,10
Cultural area	Coast	20(20,0)	24,9 ±3,7	0,036 *	0,50 ±0,11
	Forest	38(38,0)	24,5 ±3,0		0,47± 0,11
	Grassfields	15(15,0)	0,51± 0,08		25,8 ±5,0
	Sahel	9(9,0)	0,53 ±0,10		26,2 ±4,5
	Savannah	16(16,0)	23,4 ±4,1		0,47± 0,11

Table II. Distribution of indirect indicators of body composition according to sociodemographic data

**Fisher's Chi 2 test with 5% error between sociodemographic data and nutritional status according to participants' BMI.*

Participants' age influenced their nutritional status such that for the age groups below 30 and above 60 years, normal weight BMIs were recorded, while the intermediate age groups were overweight (p>0.05). As for marital status, women in a relationship had a higher average BMI than single women, although this difference was not statistically significant (p>0.05). Analysis of the association between cultural area and nutritional status highlighted a statistically significant association (p=0.036) with the dependent variable; the Sahel and the Grassfields had average BMIs reflecting overweight situations, respectively 26.2 (±4.5) and 25.8 (±5.0) kg/m2. This trend observed through the BMI was confirmed with the RTT with values of 0.53 (±0.10) and 0.51± (0.08) respectively.

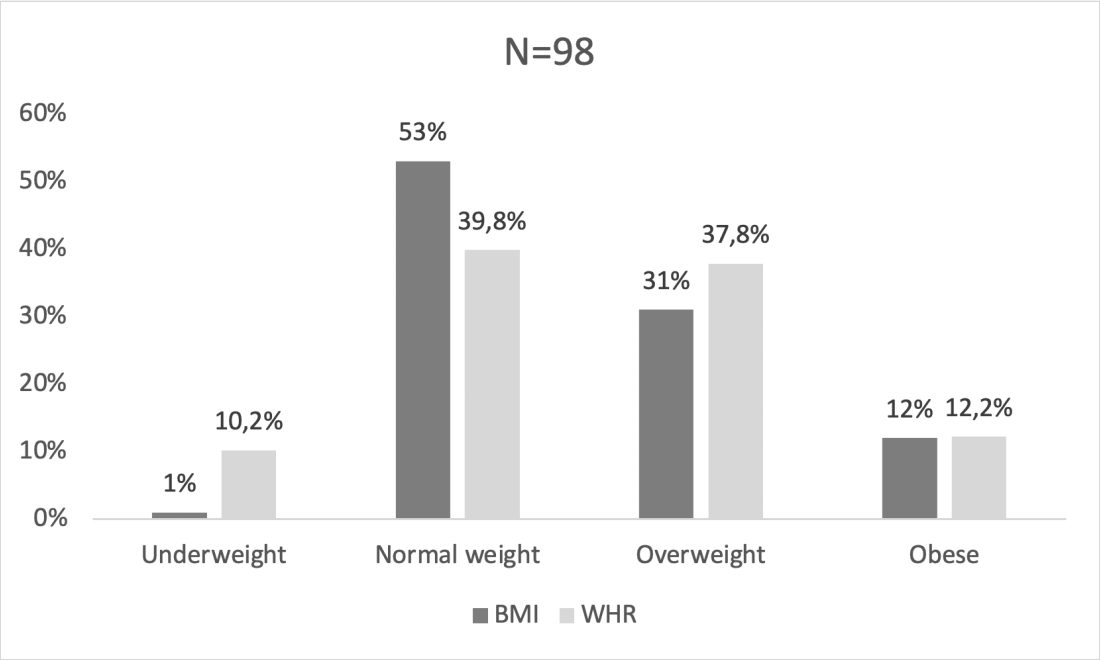

Figure 1. Distribution of nutritional status of participants

Figure 1 reported a variation in results depending on the measurement used. We noted an initially ascending then descending trend in the two curves. Significant differences were observed for the prevalence of the first two categories, underweight and normal weight, then a stabilization of the proportions for the last two categories. Concordance was observed in cases of obesity with almost identical proportions of 12% respectively with the BMI scale and 12.2% with the WHR scale. This difference in distributions was found to be statistically significant (p<0.001).

Despite average body mass and visceral mass indicators in the overweight zone and despite discrepancies between the BMI classification and the WHR one, a majority of the study population had a normal weight (46.4%) but a significant number of participants nevertheless found themselves in a situation of overweight (34.4%) and obesity (12.1%) according to the usual classification.

Discussion

The aim of our study was to determine the nutritional status of Cameroonian women aged 21 and over in the cosmopolitan urban city of Yaoundé. According to the literature, the prevalence of obesity and overweight in developing countries, and in Africa in particular, is increasing due to urbanization and inherent changes in lifestyle habits. In addition, black women are at double risk of developing obesity due to genetic predispositions and lack of physical activity[3], it seemed judicious to us to carry out an inventory in the Cameroonian context.

Limitations

A key limitation of this study is that all participants were recruited from an urban setting solely, and the results may not reflect the national trend. As dietary habits and access to healthcare may differ in rural areas, future research should explore the nutritional status of women in diverse settings across Cameroon.

Sociodemographic profile

Within the study population, no association was found between age, marital status, and nutritional status. These results differed from certain data in the literature which identified age as a significant parameter in the evolution of corpulence. Indeed, studies stated that the BMI would increase up to the age of 50 in adult individuals[4] and that young adults in the 20-24 age group would present the lowest rates of overweight and obesity and the highest rates of normal weight[5], which was not found in our work. Our results highlighted a lower BMI among the 20-29 years old group, which subsequently reached its maximum peak among the 30-39 years old group before gradually decreasing with increased age. This increase in BMI beyond this last age group can be explained by the accumulated effect of pregnancies on the female body and the subsequent occurrence of menopause. A study carried out among women in the Barabanki district in India found a statistically significant difference between waist circumference, waist-hip circumference ratio, BMI, and visceral fat mass between pre-menopausal and post-menopausal

women[6]. On the other hand, a significant association was found between the cultural area and the variable studied. The cultural areas of Grassfields and Sahel were associated with being overweight. This could be explained by the richness of their meals. The Grassfields, in particular, are known for their diet rich in fat and carbohydrates spread over three meals a day. Meals generally consist of tubers/cereals accompanied by a sauce usually based on palm oil, vegetables, nuts, seeds, and dried meat/fish[7]. A study carried out in Grassfields territory in the village of Awing noted that this locality was among the rarest rural sites where the prevalence of obesity was higher than undernutrition due to its dietary practices. In addition, adult women were among the groups most at risk[7].

Reliability of measurements

Nutritional status plays an essential role in maintaining good health. Excess body fat is a contributing factor to many pathologies. Now considered an epidemic by the WHO, obesity today represents a major challenge, and being able to prevent it is vital for control programs. Divergent results were found for certain corpulence categories as opposed to other categories; despite obtaining similar trends, the results differed depending on the type of measurement used. These results raise questions about the appropriate option for assessing the nutritional status of individuals and populations. These differences were also found in a study comparing indicators of overall and abdominal obesity carried out in Tunisia among adult women, which found a prevalence of the latter of 37.1% and 60.4% respectively[8]. If the reference measurement remains the BMI for the ease of collecting the data necessary for its calculation, particularly for large populations[4], it is necessary to emphasize that obesity consists of an excess of fat mass, which is different from excess weight. BMI makes it possible to measure corpulence but without providing information on the fat mass distribution in the body, which does not make it possible to distinguish between an obese and a muscular individual or between an android or a gynoid repartition of the body fat. However, the morbidity and mortality lie in the location of body fat[4]. Abdominal obesity, which is correlated with metabolic abnormalities and associated with an increased risk of cardiovascular diseases, diabetes, and mortality, is highlighted by the WHR, making it a more relevant indicator in the prediction of mortality[8]. Furthermore, the different corpulence thresholds used by the WHO do not take into account important parameters such as ethnic characteristics[4]. Various studies have questioned the relevance of thresholds for body mass indicators for non-Caucasian populations and particularly black populations.

Conclusion

Changes in the lifestyles of populations in sub-Saharan Africa are resulting in a nutritional transition, causing a significant increase in nutritional states of overweight and obesity. A real public health threat, obesity constitutes a risk factor for numerous metabolic disorders, causing a decline in the quality of life of individuals and an increase in household and health system expenses. The aim of this study was to determine women's nutritional status in urban areas in Cameroon. Regardless of the measure used, the prevalences of overweight and obesity in the population were high. It appears that 46.5% of women in the city of Yaoundé were overweight, with an average BMI of 25.3 kg/m2. It is therefore necessary to make available to populations a food guide adapted to local cultures and to develop communication strategies with a view to promoting a healthy and balanced diet and the practice of physical activity among women. However, local social constructs on morphological norms could constitute an obstacle to maintaining a healthy weight and thus require better understanding.

Statements and Declarations

Contributions

JA (Conceptualization, methodology, data curation, analysis, investigation, writing), HA (investigation), TM (conceptualization), MJE (supervision, conceptualization, methodology, review).

Conflicts of Interest

No conflicts of interest.

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Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.