

Mini Review

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Prevalence of Obesity among the Nomadic Population of Southern Algeria



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Abstract

Introduction: Obesity is defined by the WHO as being a very significant accumulation of fat in the body, which can harm general health, currently considered a major public health problem. Our study examines the effect of sedentarization in the appearance of cardiovascular risk factors and in particular this condition in a population of nomads who have been sedentary for more than three (03) years in the Oases of southern Algeria.

Material and Methods: The study focused on 605 nomads aged at least 40 years, who were divided into two groups, 303 nomads and 302 sedentary nomads without distinction of sex or skin color, recruited over a period of 04 years. In this entire population, an interrogation, anthropometric, blood pressure and biological measurements were carried out, as well as the identification of cardiovascular risk factors (arterial hypertension, diabetes, obesity, metabolic syndrome, toxic habits, food consumption, and sedentary lifestyle in this article, we focus on obesity in this population. The statistical methods used are the norms of descriptive analysis (means, standard deviations, medians, quartiles, percentage) and comparative (test χ^2 student, Anova). SPSS 25.0 software was used for this purpose.

Results: The overall mean age of the nomads was 61.22 ± 13.5 years, 167 were male (55.1%) with a mean age of 62.03 ± 14.04 years, and 136 were female (44, 9%) with a mean age of 60.23 ± 12.7 years. That of the sedentary nomads was 58.4 ± 13.7 years, of which 158 were male (51%) with an average age of 62.03 ± 14.04 years, and 144 were female (49%) with an average age of 62.03 ± 14.04 . mean 60.23 ± 12.7 years. The average weight of the nomadic population was 60.6 ± 12.9 kg, that of the sedentary nomadic population was 61.12 ± 12.9 kg, there is no significant difference. The BMI (body mass index) average in the nomadic group was 22.10 ± 4.3 , while it was 22.3 ± 4.5 in the sedentary group, we did not note any significant statistical difference according to the groups. The overall average waist circumference among the nomads was 81.1 ± 12.2 cm, and 80.9 ± 13.2 cm among the settled nomads, the statistical difference is not significant. The overall average height among the nomads was 165.4 ± 9.59 cm, and 165.8 ± 9.23 cm among the settled nomads, the statistical difference is not significant. The prevalence of the overall average glycemia of the population studied was 1 ± 0.34 g/l among the nomads, and $1.15 \text{ g/l} \pm 0.52$ among the sedentary nomads, the statistical difference is significant depending on the environment. The frequency of obesity is found in 5.6% among nomads, while it is found in 7.3% among sedentary nomads. Dyslipidemia was found in 11.2% among the nomads while it was 17.9% among the sedentary nomads. The overall prevalence of metabolic syndrome was found in 24.4% in the nomadic group, and in 25.8% in the sedentary nomadic group, without there being a statistical difference between the groups.

Conclusion: This survey allowed us to have important data in the nomadic population on the cardiovascular risk factor which is obesity.

Keywords: Glycemia; Obesity; Cardiovascular risk; Overweight; Obesity-arterial hypertension; Blood sugar level

Mini Review

The prevalence of overweight and obesity has increased significantly over the past 20 years in most populations around the world and has now reached near epidemic proportions. Subtle changes in the world of traditional life among populations, and particularly among the nomadic population, risk being at the origin of the appearance of this global scourge. However, it remains a real public health problem. In Algeria, overall, the prevalence of total obesity was 22.1%, it increased significantly with age between 35 and 59 years (18.64% to 23.33%) and fell in

the 60-70 age group (18.72%). In men, the prevalence gradually fell from 9.58% in the 35-39-year-old age group, to 9.10% in the 50-59-year-old age group, then in the 60-70-year-old age group to 8.51% [1].

In our nomadic study population, the frequency of obesity is found in 5.6%, the age group from 40 to 49 years was the most exposed to obesity with a rate of 8.1%, followed by that of those over 80 with 4.2%. In the sedentary nomadic population studied, this frequency is found in 7.3%, the age group of 40 to 49 years

was the most exposed to obesity with a rate of 10%. The statistical difference is not significant depending on the group environment.

Depending on gender, the prevalence was higher among women, regardless of the background of the groups studied, with a rate found to be 8.8% among women vs. 3% among men from the same background. The statistical difference is significant. The same for the sedentary nomadic group, with a frequency found of 8.1% among women vs. 6.5% among men from the same environment. The statistical difference is not significant. The

frequency of obesity in women was almost identical regardless of the group studied, it was 8.8% and 8.1%.

The statistical difference is not significant (Table 1). This trend in prevalence of results matched that obtained in certain regions of the world such as the Middle East, where obesity also prevailed among women, and the rates observed (38% to 44% of individuals) were higher than those found in our investigation [2-4].

Table 1: Prevalence of BMI classes in the groups studied according to sex.

BMI / Work Force N		Nomadic		Nomadic Sedentary		
		%	N	%	P	
< 18,5	Man	36	21.6	24	15.6	NS
	Women	29	21.3	38	25.7	NS
	Overall	65	21.5	62	20.5	NS
18,5-25	Man	89	53.3	90	58.4	NS
	Women	75	55.1	71	48	NS
	Overall	164	54.1	161	53.1	NS
25-30	Man	37	22.2	30	19.5	NS
	Women	20	14.7	27	18.2	NS
	Overall	57	18.8	57	18.9	NS
>30	Man	5	3	10	6.5	NS
	Women	12	8.8	12	8.1	NS
	Overall	17	5.6	22	7.3	NS

The same trend of female prevalence was observed among the PIMA Indians, but in this specific case, the frequencies observed were by far greater than those observed in our survey, 13% obese among the PIMA Indians of Maycoba (Mexico), and 63% among those who migrated to Arizona in the USA [5].

This has been reported by several migration studies, which show that populations with traditional lifestyles who migrate to industrialized countries have an increased prevalence of obesity and type 2 diabetes [6,7]. In recalling that in the age group of 25 - 44 years of this PIMA Indian population, obesity was present in 64% of men and more than 73% of women.

The obesity-arterial hypertension association was frequent in our survey. It was present in 52.9% in the obese nomadic population, and in 68.2% in the sedentary obese population. In fact, blood pressure increased with increasing BMI for every 10 kg increase in weight, it rose by 2-3mmHg.

This proportion of association is similar to that found in the SAHA study [8] in 2004 where the rate was 60.8%, more frequent in women than in men (61.9% and 55.3%). In Tunisia, this rate was 42.4% [9]. Our survey found that 20% of obese nomads, and 37.5% obese nomads settled were smokers. Statistical analysis

shows that there was no relationship between smoking and obesity. These results were similar to those found in the literature. [9,10].

Our results also showed that the blood sugar level in the nomadic population increased significantly in obese 1.32g/l, compared to normal weight 1.25g/l. The same is true for the sedentary population, with a blood sugar level of 1.34 g/l in the obese compared to normal weight 1.14 g/l. The statistical difference is significant. This is consistent with work that has shown that type 2 diabetes has the strongest links to obesity. Indeed, the risk of contracting type 2 diabetes increased with BMI [11].

Our results clearly showed that obesity was associated with alterations in lipid and lipoprotein metabolism, especially in the sedentary nomadic population. As a result, we noted a significant increase in the total cholesterol level 2.13g/l compared to normal weight 1.8g/l. A high average triglyceridemic is also observed in the obese (2.02g/l) compared to the normal weight (1.43g/l) in the nomadic population. In sedentary people, this rate was 1.43g/l in obese people, and 1.3g/l in normal weight people, the statistical difference is significant.

In sedentary people, this rate was 1.43g/l in obese people, and 1.3g/l in normal weight people. Epidemiological studies have clearly demonstrated that hypertriglyceridemia is a risk factor for obesity [12]. The FRAMINGHAM study showed that the total blood cholesterol level was not a satisfactory parameter, because combining two fractions whose consequences are opposite: LDL-cholesterol which is positively associated with the risk of obesity and HDL- cholesterol which is negatively associated [13]. We noted an increase in the average LDL-cholesterol levels in the nomadic population, 1.36g/l in the obese compared to the controls 1.13g/l, as well as in the sedentary, respectively 1.20g /l in the obese and 1.1g/l in the controls, while the HDL-cholesterol level was slightly reduced in the obese patients 0.42g/l compared to the controls 0.45g/l in the nomadic population, whereas they are almost similar in the sedentary nomadic population (0.5g/l). Our results in the obese population studied had found a reduction in the rate of HDL-cholesterol compared to normal weight. This corresponds to a profound reorganization in the composition and metabolism of HDL-c in the obese population. According to some studies, there is an inverse correlation between TG levels and HDL-cholesterol levels in obese people [13].

Concerning Overweight

The prevalence of overall overweight in the nomadic population was 18.8%, it was 22.2% among men and 14.7% among women, with no significant statistical difference by sex. In the sedentary nomadic population, it was 18.9%, divided into 19.5% among men and 18.2% among women, without significant statistical difference. There is also no statistical difference among the groups studied according to their environment.

Concerning abdominal obesity according to the RTH:

a) Abdominal obesity is found in 35.2% of the nomadic population, it was much more common in men (40%) than in women (29%).

b) A clear statistical difference is found, contrary to what was found in the TAHINA survey in 2005, where the overall prevalence was almost similar to that of our survey (34.42%), predominating on the other hand among females with a rate which was 50.96%.

c) In the sedentary nomadic population, the prevalence was 33.4%, divided into 38% among men and 29% among women. The statistical difference is significant. We also noted no statistical difference in the groups studied according to their environment.

Regarding abdominal obesity according to the US NCEP ATP III:

I. Overall abdominal obesity is found among nomads in 17.5%, and among settled nomads in 17.7%, there is no significant statistical difference among the groups according to their environment. This prevalence was more marked among women

(27.7%) than among men (7.6%) in the nomadic environment, with a significant statistical difference.

II. In the sedentary environment, women were more frequently affected than men, respectively (27.8%, and 7.6%). A clear statistical difference is observed ($p < 0.01$).

III. These results are far less significant than those found in the TAHINA survey (36.56%) [15], and those found in the SAHA study (36.5%).

IV. This can be partly explained by the presence of a lean morphotype among the nomadic population, and the observation of a fairly high level of activity in carrying out their household chores.

V. In short, the disturbances recorded in the results of the biochemical assessment as well as the declarations of these nomads, who suffered from a disease considered to result from obesity, were observations worth noting and will need further work to illustrate them.

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