

## Article de synthèse

### *Impact of diet and food habits on Algerian consumer's health*

### *Impact de l'alimentation et des habitudes alimentaires sur la santé du consommateur algérien*

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#### **ABSTRACT**

As consumers, our diet is subject to selection. Although, society and supermarkets offer us to consume almost blindly without thinking, it is crucial to understand the impact of our eating habits. According to several surveys conducted in different regions in Algeria, especially those we performed in the western area, we observed that our diet is rich in meat and meat products, in milk and in refined sugar foods, that according to nutritionists, are not necessary to provide all essential nutrients, and would even be detrimental to our health (high fat diet, less complex carbohydrates, poor dietary fiber, and abundant protein). As a result, a significant prevalence, of non-communicable diseases (NCD) such as diabetes, overweight and obesity, some types of cancers, increases rapidly, predominantly among children and teenage groups. A national strategy should urgently be taken to reduce this prevalence and to ameliorate the health status of Algerian consumers throughout sustainable food program aiming to educate the general population about how their food choices impact their health and wellbeing.

**KEYWORDS:** Food habits, Diet, Health, Sustainable food.

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Article received on: 27.03.2019  
Article accepted on:

#### **1. Introduction**

Diet plays a vital role for our existence on this planet as humankind: more than a source of nutrients that are essential to the satisfaction of our biological and physiological needs, food provides the opportunity for varied hedonic experiences, while ensuring essential social and cultural functions.

Algeria, one of the Middle East and North Africa (MENA) countries, is facing a nutrition transition, affecting quality and quantity of dietary patterns characterized by high consumption of energy, fat (especially of animal origin and hydrogenated), added sugars and salty foods and low intakes of complex carbohydrates, dietary fiber, fruits and vegetables [1].

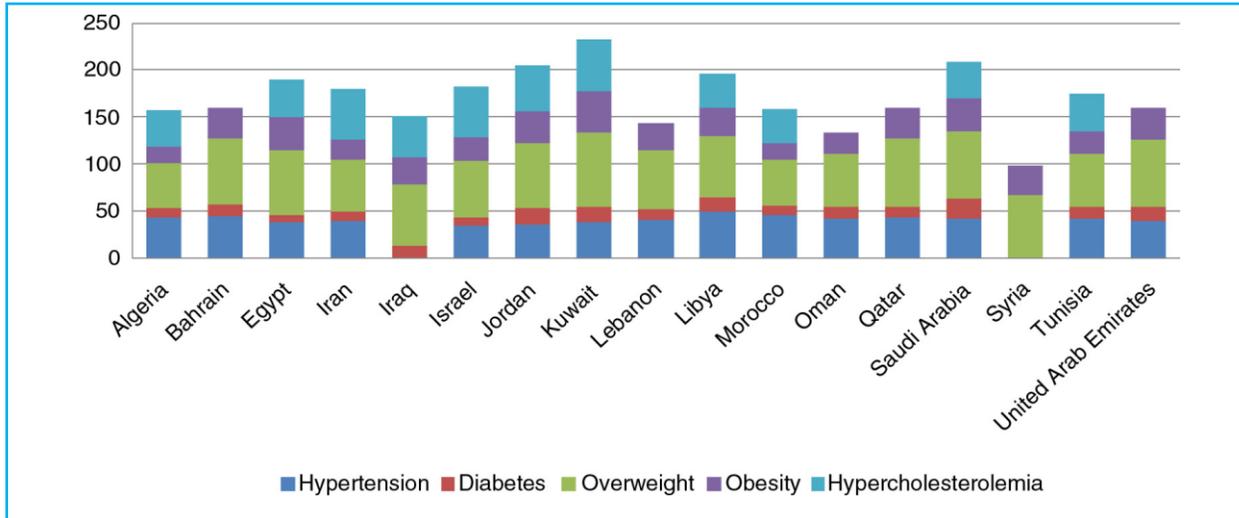
Furthermore, other factors have contributed too, such as a considerable development and urbanization, a series of challenges that include persistent food and nutrition insecurity, and a food consumption patterns contributing to an escalation in diet-related non-

communicable diseases (NCDs), with a decrease in physical activity.

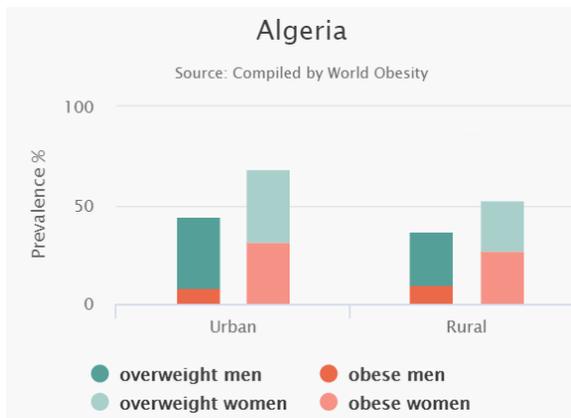
During the last few decades, several studies [2,3] in the MENA region have revealed an alarming increase in the prevalence of overweight and obesity associated with other metabolic diseases and types of cancer. The burden of NCD reported to be high 77.9% [4], despite high prevalence of malnutrition disorders (including protein-energy malnutrition, iron-deficiency anemia and iodine-deficiency disorders) in these countries [5,6]. The International Diabetes Foundation (IDF) showed that in 2017 the MENA region had the second highest prevalence of diabetes (9.2%), with almost 40 million people with diabetes, after North America and Caribbean region. Algeria represents a prevalence of 6.9% with an annual cost of approximately 567 USD per diabetic person [7]. Similarly, the World Health Organization (WHO) data has revealed a significant increase in the prevalence of CVD risk factors within MENA countries, especially obesity which is responsible for almost 30-40% of CVDs as shown on Figures 1 and 2.



Actually, Algeria is considered as the largest African country that 75% of its foodstuffs' need are covered by imports that lead to a heavy financial constraint on the national budget. In other words, Algerian diet depends slightly on food availability of local agro production [10].



**Figure 1:** The burden of CHD risk factors (%) in the Middle East and North Africa countries in 2010. Data adopted from World Health Organization [8]



**Figure 2:** Obesity and overweight prevalence in Algeria. Data adopted from the WOF[9]

## 2. Eating habits of Algerian consumers

Unfortunately, the Algerian economy is depending on the hydrocarbon revenues and on the barrel of oil market. As the rest of the Maghreb countries, Algeria is confronting a serious food security challenge.

It is well established that eating habits affect general well-being. Eating habits can be drawn as follows: food selection, food attitudes, food acceptance, food consumption, and food waste.

As in many other MENA countries, Algerian eating habits have significantly changed, moving away from the Mediterranean diet towards food richer in animal fat and sugar. However, most fruits and vegetables are varied and inexpensive, accessible fish, cereals at the base of traditional cuisine and olive oil. The best traditional, familiar and preferred of its dishes is "Couscous", traditional pastries with honey, "Chakchouka" (sort of ratatouille or piperade) and "Chorba" (traditional soup with meat and vegetables) that remind us of celebrations, family and traditions.

Supermarkets are more and more numerous in the big cities with huge food distribution. Therefore, Algerian consumers make several food selections every day, due to a large extent to our global food supply. Of course, not all of them are healthy. The determinants of those selections set are primarily economic factors (such as cost), geographical or

ecological factors (what is available locally), and culturally-based practices, beliefs and attitudes, which determine the type of raw foods available, and the ways that they are combined into edible entities (that is, cuisine).

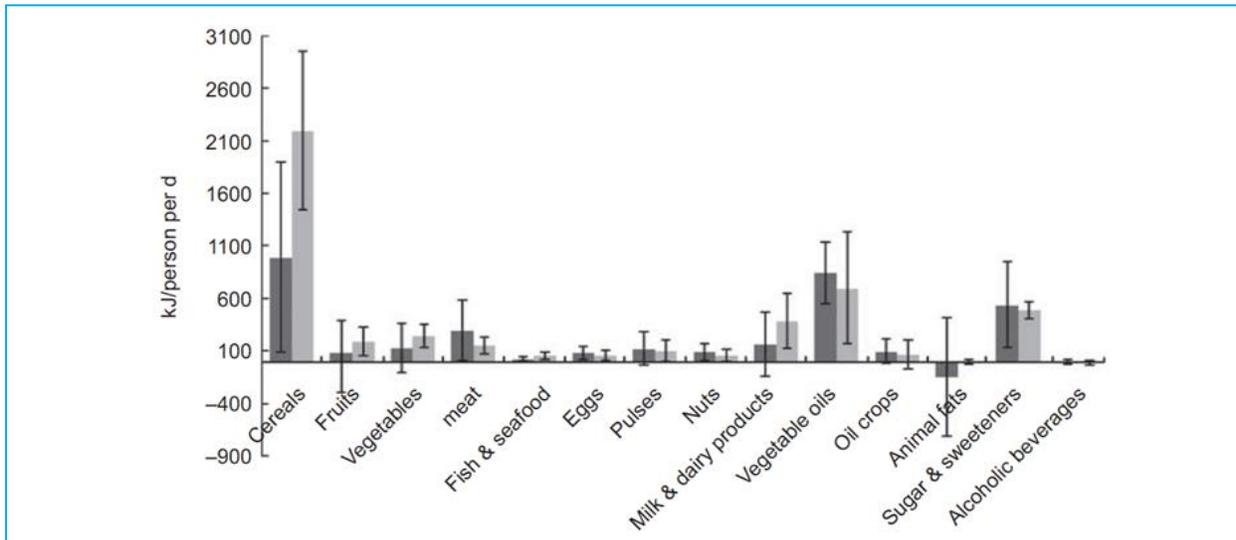
It is well known that we, Algerians, adore to consume! Without being obliged to do so, we enjoy it.

Unconsciously, we find ourselves purchasing everything. Any pretext is welcomed to satisfy our unconditional love towards impulsive consumption. So, have we ever been to a supermarket doing specific shopping on a pre-made list? At the exit, we ended up with half or one of our shopping caddy (-ies) stuffed with extra products that we had not even planned to purchase. We are attracted by advertisements, promotions, and even the layout of products. It should be reminded that what we eat is not only determined by our nutritional needs, it does not depend solely on individual preferences, but also on cultural, psychological and social tendencies, and media pressure too.

We live in a busy world that keeps getting busier. Therefore, the spread of fast-food restaurants in Algeria, even in the south region, constitutes a phenomenon to take into consideration, established in major urban areas. However, not such in our neighboring countries (Morocco and Tunisia), KFC and McDonald's type of stores having difficulty to settle because of the legislation. The spread of food vending machines in public areas, at the level of our universities, schools, and hospitals, represents a new occurrence too where unhealthy foods such as snacks and sugared drinks are sold.

Other factors affect and guide Algerian food preferences and selection:

- The foods' sensory properties, such as taste, smell or appearance;
- Social, emotional or cognitive factors. Personal values, the way of life. Skills (e.g. cooking skills), beliefs (for or against bio, genetically modified organisms (GMOs), etc.);
- Cultural, religious, and economic factors too. Education, belonging to an ethnic group or community, availability, and visibility or the price of food that play a major role in our choices too.



**Figure 3:** Changes in the availability of food groups during 1961-2007 in the Middle East (□) and North Africa (■) [1,11]

According to recent published data of the National Office of Statistics (ONS), Algerian households spend 42% of their annual expenditure exclusively on food corresponding to 1875 billion dinars [12].

### **Ramadan model**

Ramadan fasting month constitutes a reference model, during which overconsumption of food products (or even wastefulness), reaches its peak. Consumers are seized with an immeasurable desire to

purchase almost everything that crosses their way and with quantities more than sufficient. Certainly, half of these foods will unfortunately end up in the trash. This is obviously not profitable for anyone. In addition, ecologically speaking, it will have serious consequences on the environment thus posing a threat to our well-being. The excessive food consumption of households has revealed a new phenomenon, absolutely unfamiliar in the past that is "waste". This scourge is taking alarming proportions especially in the approach and during the month of Ramadan and during the summer season too.

Algerian consumers should be aware and should consider consuming what they need and not everything they desire. To self-control being the golden rule. Therefore, it's major to know when, where, and how to manage budget. While caring about the quantity of goods purchased to avoid waste, because in reality, it is the greed of consumers that is much more devastating than their number.

Results obtained from surveys during Ramadan fasting period, among healthy and diabetes population, showed an overconsumption of fatty foods, especially saturated and trans, meat, traditional pastry and cakes. Dietary calories intake exceeds 2000 Kcal per day in some studies [13].

### 3. Results from previous studies in Algeria

Referring to surveys and investigations conducted in the Algerian territory, particularly those undertaken in the western region, during the last two decades, it turns out that our diet is rich in meat, fat, and dairy products, which according to nutritionists, is absolutely not necessary to provide all the nutrients we need, and would even be detrimental to our health (too much fat, less complex carbohydrates and dietary fiber but as much protein).

The number of overweight and obese (Algerian) subjects continues to increase, especially among children and adolescents of both sexes [14-17].

In terms of quantity and calories, Algerian diet has improved but not necessarily in terms of quality over time. Food supplies *per capita* and per day have increased more than fivefold in half century (cf. Figure 4), so that an Algerian citizen now consumes more than 2,000 kilocalories a day. In some studies, it exceeds 2500 Kcal [19] and even more reaching 3000 to 3500 Kcal [20,21]. A worrying observation because obesity leads to major health problems such as cardiovascular events, diabetes, respiratory disorders, increased blood cholesterol levels, etc. The high prevalence of NCD worldwide, especially in the Middle East and North Africa, has been attributed to rapid changes in the structure of dietary patterns [4,5, 22-25].

### 4. Sustainable diet (the solution)

In 2010, the FAO provided the following definition: "Sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources." [26]. Sustainable diets should be produced by agricultural models that preserve the environment, climate, soil, water, natural and domestic biodiversity, as well as the welfare of farm animals. As the President of the Federation of European Nutrition Societies (FENS) declared during the International Scientific Symposium held in Roma [27], that indeed, the current food production, food supply and food

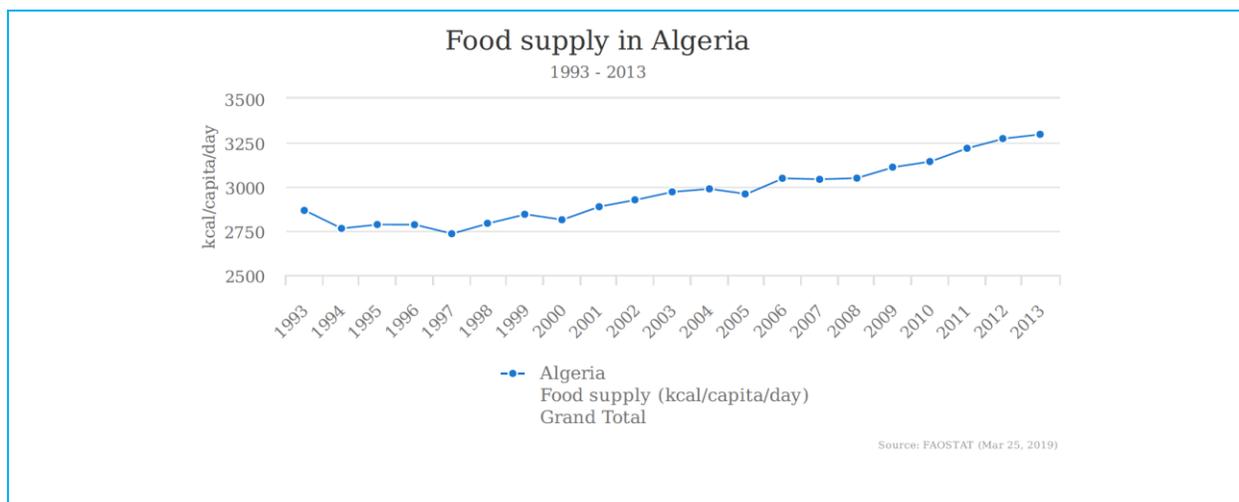


Figure 4: Food supply in Algeria from 1993 to 2013 [18]

consumption system does not fit present and future human needs, since it relies on high fossil energy use

and does not correctly feed everybody, chemicals, and energy inputs, long-distance transport, low-cost human work and cultural loss. Furthermore, it could generate micronutrient and fiber deficiencies as well as excess intakes of fat and sugar promoting overweight and obesity in a general trend of reduced physical activity and body energy expenditure.

It is well recognized that high energy content of most food consumed can fit the significant needs of people with a high energy expenditure such as athletes. However, for most urbanized sedentary people this could be detrimental and leading to obesity and related diseases. [28].

## 5. Conclusion

The nutrition transition, the dietary habit modification, and the westernization of Algerian diet is not an unavoidable fact. A well-organized and an efficient strategy must be adopted to tackle this serious issue since diet is not just an economic matter and constitutes a cultural and a social occurrence. It is not just about manufacturing calories, but make our diet more diverse and balanced that is why these neglected and underutilized species are so important. The gap between nutrition, agriculture, and health must be bridged. At a national level, leaders must work together to set up and develop policies to resolve those issues in a sustainable way.

By promoting education and increasing awareness among Algerian consumers starting with children and young population at the level of schools, colleges, and universities, healthy behavior, avoiding food waste, eating more fruits and vegetables, less animal products, fresh product, local and seasonal, less packaged, we can contribute to eating better, maintain good health, prevent NCDs.

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