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EDITORIAL

Obesity: the real pandemic of the 21st century[☆]



La obesidad: la verdadera pandemia del siglo XXI

José Ángel Córdova Villalobos

Ex secretary for Health (2006-2011), León Gto, Mexico

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Two types of dramatic transitions are currently taking place in Mexico: demographic and epidemiological. Demographics show us that even though Mexico has a young population, the population pyramid is tending towards a progressively narrower base. Today there are a greater number of children aged 5 to 9 years than there are from 0 to 4, and more children aged 10 to 14 than 5 to 9 years. The widest point of the pyramid is currently that of 10-15 year olds.¹ Since fertility rates have dropped, the number of births has also dropped and the largest population groups will progressively become older. In 2050 one out of every four Mexicans will be 65 or older. These epidemiological and demographic transitions in our country are happening rapidly and are profound. Within a period of 50 years Mexico will complete an ageing process which took Europe 200 years to complete.²

Social and economic transition has demonstrated that more people lose their lives through accidents (the first cause of death in young people aged between 18 and 35), and that there are more people with different types of disabilities which are either secondary to these same accidents or progressive due to advanced age or chronic non-communicable diseases and this constitutes a major challenge. A sedentary lifestyle is highly frequent today. We all suffer from higher stress levels than we did in previous years and we often adopt unhealthy behavioural patterns

due to changes in dietary habits or other risky behaviours. This has led to a progressively serious increase in the number of people who are overweight and obese, in addition to a higher incidence of diabetes mellitus, high blood pressure and dyslipidemias in the general population. In other words, there has been an increase in people with a metabolic syndrome who are much more likely to suffer from cardiovascular problems which will shorten their life expectancy. It has also been observed that a large number of people continue being addicted to tobacco. Environmental pollution is increasingly recurrent and progressive, and climatic change has, among other things, led to the proliferation of vectors of new diseases (e.g. Zika virus) and an increase in already existing ones.

All of the above is happening in Mexico which remains a country where the problem of malnutrition has not yet been erased. Poverty continues to exist in large population centres. Many people live in overcrowded conditions, where there is promiscuity and bad hygiene and where there also is a broad scattering of communities (over 200,000 with under 2,500 inhabitants). In the light of this, despite the major advances in healthcare cover the latter remains insufficient. In many cases this is due to the complexity of access rather than the health care cover itself. Disparity in healthcare quality also results in public services which are underused.

Obesity is one of the greatest challenges to be faced by the public health service in the twenty first century. The member states of the Organisation for Economic Cooperation and Development (OECD) have reported figures which were published in 2011 by this body and Mexico ranks second among 40 countries, only behind the United States of

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E-mail address: jangelcordova.villalobos@gmail.com

America, but very close to them and with huge differences to prevalence in countries such as India, Indonesia, China, Korea, Japan, Switzerland, Norway, Italy, Sweden or France, for whom obesity is not currently a public health issue.³

The prevalence of obesity in Mexico has increased in the last 20 years. In 1994 it presented in 20.9% of adults and this percentage rose to 32.4% in 2012. There has been a much more significant increase in women (from 25.1% to 37.5%) than in men (from 14.9% to 26.8%). Distribution by Republican States report that there is greater frequency in Colima, Baja California and Baja Sur, Nuevo León, Tamaulipas, Yucatán, Jalisco, Sonora and Sinaloa, with overweight and obesity percentages surpassing 35% of the general population (2008). Only in 7 states is the rate under 25%: Hidalgo, Tlaxcala, Guerrero, Michoacán, Oaxaca, Tabasco and Chiapas. The frequency rate in the remaining States is between 25% and 35% in the general population.⁴

This increase in the prevalence of overweight and obesity, as previously mentioned, has been particularly dramatic in women between thirty and seventy years of age. Prevalence is over 80% in the 50 to 59 age group. An increase has also been noted in children from 5 years of age upwards and in teenagers. Indeed, one out of every three is overweight or obese. This increase has been greatest in the adult population: 7 out of every 10 suffer from one of these problems.⁵

The cost of obesity today is equivalent to 0.5% of the GNP and accounts for 9% of healthcare costs. Furthermore, between 8% and 10% of premature deaths in Mexico today are attributed to obesity and the cost of this premature mortality associated with obesity is estimated to be 1,390 million dollars.

But which factors have led to such a rapid spread of this epidemic in the last 20 years? There are several factors but two are of particular importance: changes in dietary habits and the reduction in physical exercise.

During the last five years of the last century food purchasing behavioural patterns were characterised by a reduction in the purchase of fruits and vegetables by 29.3%, in milk by 26.7% and in meat by 18.8%, combined with an increase in the purchase of refined sugars by 6.3% and soft drinks or sweetened drinks by 37.2%. Eating habits have changed and we tend to consume much more fast food. In general this contains more calories, more saturated fats, more added sugars and more salt. Furthermore, this type of food usually comes in large portions, with a considerable increase in calories consumption.⁶⁻⁹

It has also been shown that physical activity is low and progressively diminishes with age in both men and women. National surveys have shown that the prevalence of physical activity in young men aged 12 to 14 is 64%, but this drops to 34% in the 25-29 age group. The case for women is worse: 48% of girls aged between 12 and 14 carry out physical activity but this rate drops to 15% in the 25-29 age group. Other surveys have shown that at primary school the majority of children prefer to eat and chat during break time rather than do physical activity. These children frequently consume up to 1,200 calories solely in the morning because they have breakfast, then one or two snacks during break times and when they leave school the first thing they do is eat before arriving home to sit down to their actual midday meal.^{10,11}

As a result, it has been important to promote nutritional education in schools, to establish guidelines regarding the

types of food sold at schools and those prepared at schools with emphasis placed on the consumption of water alone instead of sugary and hypercaloric drinks, on smaller portions and for pre-packaged or non-prepared foods to contain lower amounts of calories, sugars, salts, trans fats and total fats.¹²

We could imagine that this overweight and obesity problem would only occur in those sectors of the population with the highest income but studies conducted in 1999 and 2006 show that, with the exception of the first fifth of the income bracket population, which is a little below the other 4, the problem is greater in the other sectors and particularly so in the 2nd and 3rd fifth of the population. It is a fact, therefore, that obesity is now a cause of impoverishment and chronic poverty in many Mexican households as a result of its incidence and the need for healthcare for non-communicable chronic diseases, especially that of diabetes.

The natural history of non-communicable chronic diseases (NCDs) is the result of a combination of genetic factors, sedentary lifestyle and a diet excessive in calories, saturated fats and simple sugars, which progressively leads the individual to suffer from overweight or obesity. This is associated with other alterations such as low cholesterol linked to high density lipoproteins (HDL) in 60.5% of cases, raised triglycerides in 30.8% of cases, high blood pressure and glucose intolerance which finally leads to diabetes mellitus type 2. When a patient suffers from 3 or more of these abnormalities they present with a multi-complicated metabolic syndrome, mainly with cardiovascular problems such as heart attacks or strokes.^{13,14}

Obesity has been shown to be a risk factor in the presentation of diabetes mellitus type 2. For example, compared with people who have a normal body weight, those with a body mass index (BMI) of between 25 and 30 double their risk of developing diabetes, those with a BMI of between 30 and 35 triple their risk and those with a BMI over 35 are 6 times more likely to develop it. Another fact is that compared with people who do not gain weight within a time period of 10 years, those who gain between 6 and 9 kilos within that same time period duplicate their risk of developing diabetes type 2, and those who increase their weight by 20 kilos quadruple the risk. In Mexico, from 1980 onwards, the number of cases of diabetes has increased by 30% and this is mainly due to the growing rise of overweight and obesity in the Mexican population.

There is therefore a parallel relationship between an increase in weight and the possibility of developing diabetes mellitus type 2 (insulin-resistant related) and other metabolic syndrome changes such as high cholesterol levels and high blood pressure, among others.

In 1994, 4% of the Mexican population was medically diagnosed with diabetes type 2. This percentage has progressively increased, rising to 5.8% in 2000, 7.2% in 2006 and 9.2% in 2012. However, if we add non diagnosed cases to these figures the percentage in 1994 would be 6.7%, in 2000 9.2% and in 2006 14.4%, which means that over 10 million Mexicans suffer from this disease. The OECD itself has established that of all its member states, Mexico is the one with the highest incidence of diabetes type 2, with all of its repercussions stemming from complications, costs, and effect on life expectancy and quality of life.¹³

Frequency studies in Mexico have shown that 22% of the population with diabetes is under 40, and that the frequency of diabetes increases with age up to the age of seventy when, according to ENSANUT 2012 (National Survey on Health and Nutrition) over 25% of the population presents with this disease. In fact diabetes mellitus and ischaemic heart diseases are the main causes of death in Mexico. The number of deaths from diabetes has risen from 46,525 in 2000 to 89,914 in 2012. In other words, it has practically doubled in a period of only 12 years.

Metabolic syndrome in Mexico presents with greater frequency in women (47.4%) than in men (34.7%). With regards to traits, in women the most frequent is a drop in HDL cholesterol molecules by 83%, followed by a 61.4% increase in waist measurement, a 39.1% increase in high blood pressure, a 32.8% increase in hyperglycaemia and finally a rise in triglycerides by 29.3%. In men the most frequent trait is the drop in HDL cholesterol, followed by high blood pressure, a rise in triglycerides, hyperglycaemia, and finally an increase in waist measurement.¹⁴

Two large-sample research studies on cardiovascular risks in both Mexico and Latin American have reported that apart from a tobacco habit, which was the most prevalent factor in men in Mexico (31.9%), in women it was obesity in general (26.6%) and abdominal obesity (49.7%). In this study which was conducted with a sample who had the right to access the Mexican Social Security Institute healthcare, it was observed that there was a high prevalence of hypertension in men and women (29.7% and 28.8%, respectively) and high cholesterol levels (13.81% and 12.36%, respectively).¹⁵

The Latin American study which was conducted in 7 large cities in different countries and also with a large sample (11,550 individuals) reported an average prevalence for high blood pressure of 18% (range between 9%-29%), high cholesterol levels of 14% (6%-20%), diabetes rates of 7% (4%-9%), metabolic syndrome of 20% (14%-27%), obesity of 23% (18%-27%) and a tobacco habit of 30% (22%-45%). The outstanding facts were that high cholesterol was highly prevalent even in countries with different socio-economic levels and diabetes rates were similar to those in developed countries.¹⁶

Major challenges to be met in NCDs are: the high number of risk subjects, since 41.65% have metabolic syndrome; that half of cases are NOT diagnosed (7,316,900 diabetics are recognised and 3,591,010 are not diagnosed) and most particularly that therapy is ineffective since only 25.4% of diabetics have glycated haemoglobin under 7 and the percentage of cases with controlled blood pressure is only 23.3%. Given that this is an ever increasing problem with chronic complications, the panorama is therefore highly complex.^{17,18}

The most frequent complications of diabetes and its percentages at 5, 10, 15 and 20 years are: heart attack (8.8, 15.9, 21.6 and 25.9), heart failure (3.9, 6.9, 9.4 and 11.2) Cerebrovascular disease (3.5, 6.3, 8.5 and 10.1) and death (16.2, 29.2, 41.7, 53.8).^{19,20}

Treatment for obesity requires a multi-disciplinary approach as it is a complex and multi-factorial disease. Although a major part of treatment consists of getting the right balance between intake and expenditure of energy, there are other decisive factors such as environment, availability of foodstuffs and their types and the culture of diet, in addition to factors which include age, sex, ethnicity,

foetal programming, genetic programming, metabolism and physical activity. In short, environmental factors combine with a biological predisposition.²¹

Treatment management requires participation from several health professionals, including the clinical dietician, endocrinologist, psychologist, psychiatrist, the doctor specialising in sports medicine, the endoscopic surgeon and the bariatric surgeon. This team should put forward an overall evaluation, interpret information, establish treatment strategies, identify modifiable factors and, above all, provide individualised treatment.

Regardless of BMI, treatment has to begin with the recommendation to modify lifestyles, which requires nutritional instruction, cognitive behavioural therapy and expressly prescribed exercise. This may be in combination with pharmacological treatment for obesity and its complications. However, the results of medical treatment have not been very promising. There is an annual probability for a weight reduction of 5% in 12.5% of men and 14.2% of women, but with a regaining of weight in 52.7% in 2 years and 78% in 5 years.²²

There are several options in endoscopic treatment and research for new methods is underway. The use of intragastric balloons has been recommended as a temporary alternative or in those patients who do not respond to medical treatment or who will not be referred for surgery. These temporary treatments have a low rate of complications and are low in costs. Other endoscopic procedures which are still in an experimental phase include: gastric sleeve type endoscopic transoral gastric volume reduction, and endoscopic transoral sleeve gastropasty, but neither may yet be used as standard procedure.

Surgical procedures in current use are the gastric sleeve and the gastric bypass. Both are the most widely used procedures worldwide, with better results and fewer complications, obtaining weight reductions of up to 60% in 12 months. This is also associated with a reduction in comorbidities such as diabetes in over 74%, high blood pressure in at least 67% and dyslipidemias in up to 90%.

Finally, we must consider that the problem of obesity and its consequences is not just one of aesthetics. It is a problem which has adverse effects in both the social and economic development of Mexicans, as well as in their health.

In 2008 the direct annual cost of medical attention for the public health system from 14 complications, originating from four groups of diseases linked to obesity was calculated to be 2,330 million dollars and the indirect cost was calculated at 1,393 million dollars. These diseases were: Diabetes Mellitus type 2, cardiovascular disease, breast cancer and osteoarthritis. It has been estimated that in 2017 the direct cost will fluctuate between 4,330 and 5,611 million dollars and the indirect cost between 4,055 and 5,611 million dollars if the adopted measures have no effect. The sum of these costs exceeds the current annual budget of the Federal Health Secretariat.⁵

What then has been achieved with regard to public policies? For almost a decade a multitude of action plans have been put into practice. Included in these is the establishment of a National Agreement for Food Safety; the strengthening of controls regarding food advertising, especially on children's television; the modification of processed food labelling with regards to total fat content, trans fats,

cholesterol, sugars, sodium and total calories so that it may be better understood; the implementing of regulations regarding the types of food schools may offer (regarding portions and content); the availability of more drinking water, particularly in rural schools; the introduction of programmes promoting breastfeeding exclusively for the first 6 months of a baby's life; the multiplication of programmes for promoting physical activity; the imposition of a tax on sugary drinks; the intensification by health institutions of programmes focused on changes in dietary and exercise habits, in addition to early detection and treatment of chronic diseases to prevent or at least delay the presentation of complications.^{23,24} On 31st October 2013 the current state administration presented a global strategy against obesity based on 3 pillars: Public Health, Healthcare, and Health Regulation and Tax Policy. Statutory reforms were published on 14th February 2014 which led to 3 new regulatory measures: one on advertising material, one governing advertising standards for child audiences, and one on labelling governing the inclusion of a front label and the inclusion of dietary ingredients.²⁵ These actions have already had a certain impact, but there is still a great deal more to be done. Of greatest importance is the accurate assessment of the results of these policies and the reinforcement or reformation of strategies through National Health and Nutrition Surveys.

To conclude:

1. Obesity and all chronic non communicable diseases constitute the real worldwide health pandemic.
2. Greater resource investment is essential for the prevention and treatment of obesity and NCDs. If no investment is made the financial sustainability of the sector will be in grave danger.
3. A more solid culture of prevention must be generated, which would lead to a genuine change in lifestyles.
4. Successful programmes such as PrevenIMSS, PreveniSSSTE and Consulta Segura del Seguro Popular should be reinforced.
5. In addition to prevention, programmes for correct detection and care should be strengthened, in addition to greater access to medical, endoscopic and surgical procedures. All programmes must always be multi-disciplinary.
6. Research into these areas needs to continue, for permanent evaluation of development and of the results obtained with the different strategies employed.
7. Tax measures and health risk control measures must be continued as part of the global strategy against these diseases.
8. The health sector is not solely responsible for a solution. Multi-secretarial participation must be sought to achieve goals, together with the raising of awareness and participation from the entire Mexican society.

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