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Malnutrition in Mexico

Malnutrition

Malnutrition encompasses the range of problems that can occur when dietary energy and/or nutrient intake are insufficient, excessive, or simply imbalanced. When you hear the word “malnourished,” you think of the gaunt little boy on the television, his clothing dirty and torn just enough that his ribcage, protected only by a thin layer of flesh, is visible. Picture instead the woman in front of you as you wait for your order at McDonalds. Notice the unnatural swing in her walk, and listen to her pant as she slowly advances in the line. Recently, the word “malnourished” has taken on a new persona - obesity.

For the first time in human history, the number of overweight people equals the number of underweight people. While the world’s underfed population has dropped slightly, the world’s overfed population has surged, both averaging 1.1 billion people.

This year’s topic for the World Food Prize 2005 Youth Institute is “Understanding Trends in Global Nutrition: The Paradox of Hunger and Obesity.” I have chosen to focus on the nutritional tribulations of Mexico. The problem of hunger seems to be somewhat under control, as long as current efforts remain intact. The real task in the country at this point is to tackle the growing epidemic of obesity and diabetes. I have tried to look at factors that may be causing this health scare and what may be the best options for the future.

- **The Undernourished**

The undernourished still hold a prominent place in our global population. In the developing world, there are 150 million underweight children, nearly one in three. Hunger affects children the most; it increases their vulnerability to infectious diseases, and conditions such as diarrhea, which often lead to permanent mental and physical impairments, even death. Ironically, hunger seems inevitable. Eighty percent of the world’s hunger exists in countries with food surpluses.

“While the myth persists that hunger results from a scarcity of food, inequitable distribution of resources and gender discrimination prevent most of the world’s hungry from getting enough to eat.”

— *Brian Halweil, coauthor of “Underfed and Overfed: The Global Epidemic of Malnutrition”*

- **The Overnourished**

Excess weight gain takes its greatest toll in adulthood, posing a major risk for chronic diseases including type 2 diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer such as: breast, colon, prostate, endometrium, kidney, and gallbladder. But excess weight creates serious consequences for children as well. Worldwide, 22 million children under the age of five are estimated to be overweight. In North Africa and Latin America, one in five children aged four to ten is overweight. Overweight children are more than twice as likely to have high blood pressure or heart disease as children of normal weight. Type 2 diabetes, which is often associated with obesity, was once

known as adult-onset diabetes until it started afflicting so many children; it puts kids at risk for a range of disorders including: blindness, nerve damage, kidney failure, and cardiovascular disease.

Surprisingly, overweight and obesity are advancing rapidly in the developing world. Obesity related non-communicable chronic diseases (NCCD) now cause close to 60 percent of all deaths worldwide, and nearly 80 percent of these deaths occur in developing nations. The issue of obesity has not been given much attention in developing countries because of the more compelling problems associated with undernutrition. However, the consequences of obesity can be just as serious.

“The hungry and overweight share high levels of sickness and disability, shortened life expectancies, and lower levels of productivity - each of which is a drag on a country’s development.”

— Gary Gardner, co-author of *“Underfed and Overfed: The Global Epidemic of Malnutrition”*

Obesity and diet-related diseases are reaching epidemic levels in countries that are still struggling to eliminate hunger and poverty, creating a double health burden. The public health impact is huge: more than half of the world’s disease burden, measured in “years of healthy life lost” is attributed to hunger, overeating, and widespread vitamin and mineral deficiencies. Obesity-related ailments alone afflict more than 115 million people in the developing world, and by 2030 these diseases, as a group, are projected to be the No. 1 killer of poor people around the world.

“Sadly, it seems that we have somehow managed to bypass good health, moving from hunger to obesity in a single generation in many parts of the world.”

— Marie Ruel, interim director of IFPRI’s Food Consumption and Nutrition Division

Causes

There are many factors other than genetic make-up that are causing the obesity epidemic. Global economic development, higher incomes, shifting diets, and a range of changes in work and leisure are just a few. These factors are what scientists refer to as the “nutrition transition.” The transition reflects changes in society and in behavioral patterns of communities over recent decades.

As incomes rise and populations urbanize, sedentary jobs draw people to quick unhealthy foods. Even manual labor is less demanding due to the aid of machines. Farmers are now choosing to plant one cash crop instead of multiple crops that provided a balanced diet on their former subsistence farms. As more women work away from home, traditional patterns of food preparation are lost. Evolved to endure times of famine, people’s preference of taste leads them to foods high in fat and sugar, but with a surplus of these foods, the calories add up.

In developing countries, the obesity epidemic is spreading even faster. Nutritionists in these countries used to believe that if people had enough energy in their diet, they would get enough vitamins, minerals, and other micronutrients. But by cheaply providing them with large quantities of food high in saturated fat, sodium, and added sugar, their calorie intake is sufficient, but they still lack nutrients that they would obtain from whole grains, fiber, fruits, and vegetables. These countries now have the double burden of undernutrition and obesity. Studies show that people who were undernourished in early life and then become obese in adulthood develop high blood pressure, heart disease, and diabetes at a younger age than those who were never undernourished.

Cost of Malnutrition

A poor diet's impact on health creates a large economic price on a country by reducing the people's ability to work and by cutting into the scarce resources for healthcare. For nations who already have small economic and social resources, widespread epidemics caused by poor diet could be disastrous. The economic cost of obesity accounts for an estimated 6-8% of total health care expenses in developed countries. The economic impact is likely to be even higher in developing countries.

Mexico

As a country still battling undernourishment in large rural regions, most Mexicans are unaware of the obesity epidemic sweeping the country.

- **The Undernourished**

About 10-12 percent of the Mexican population suffers from malnourishment. Research on micronutrient deficiencies revealed that iron deficiency is the most widespread in rural areas, followed by Vitamin A and Iodine deficiencies. Malnutrition is most prevalent in the southern rural areas where access to food rather than food availability is the problem. More than 80% of the malnourished live in rural areas and 80% of those living in rural areas are malnourished.

Fortunately, the percentage of Mexicans suffering from malnutrition has been decreasing. Infant mortality has also decreased. In 1930, 178 of every 1,000 babies did not live to their first birthday. In 2001, 24 of every 1,000 babies died in that same 12-month period. Diarrheal diseases, which used to be the leading cause of death in preschool aged children, have declined because of oral rehydration therapy, universal vaccination programs, and the "Clean Water Program." The most recent data shows a reduction in stunting, underweight, and wasting in children.

However, if they follow the example set by their neighbor to the north, obesity and obesity-related disorders will reverse any health gains made in the reduction of malnutrition.

- **The Overnourished**

In a startlingly short time, Mexicans have become among the heaviest people on earth! The problem first officially surfaced in a 1999 government nutrition survey that found that the percentage of women considered obese had risen 160 percent between 1988 and 1999.

A health poll taken in 1999 found that 35 percent of women were overweight, 24 percent were technically obese, a combined figure of 59 percent. The combined figure for men was 55 percent. Only the United States has higher rates, with combined figures of over 60 percent. And the figures in Mexico seem to be rising; the combined figure of women 11 years previous to the study was only 33 percent.

The rate of childhood obesity, a phenomenon that barely existed 20 years ago, is soaring as well. A 2002 municipal government study in Mexico City found that 30 percent of elementary school children and 45 percent of adolescents were overweight or obese. The same study found that 81 percent of adults did no exercise.

The Nutrition Transition

Mexico along with other Latin American countries is going through a nutrition transition. The transition is characterized by a shift from high infectious disease mortality to high non-communicable chronic disease mortality.

Diabetes

The transformation caused by obesity is most noticeable in the prevalence of diabetes. Mexico has the highest rates of diabetes in the world; 6.5 million out of a population of 100 million are diabetic, a national rate of 14.9 percent. Statistics show that the number of patients with diabetes grew seven times over the past 20 years. In 1968, diabetes placed 35th in the leading causes of death in Mexico, it is now placed 4th.

The cost of caring for diabetic patients has grown to \$317 million annually; that is equivalent to 34 percent of the budget allocated for public health insurance in Mexico in 2005.

At an American Diabetes Association session in 2002, it was indicated that children of mothers who had diabetes during their pregnancy were much more likely to develop diabetes themselves. So if the onset of type 2 diabetes occurs prior to or during a woman's child-bearing years, then the incidence of diabetes would accelerate from one generation to the next.

Causes

There is no single explanation for the speed of the transition in Mexico; some nationalist groups blame the United States and the spread of fast-food chains in Mexico in the past decade, but the reality is much more complex. The transition has been associated with:

- **The rapid process of urbanization and economic growth.** As more people move to the cities, fast-food replaces home cooking, and regular daily exercise is lost. In Mexico City, pollution and crime have progressively driven people out of the parks and streets, so most now walk as little as possible.
- **Technological changes and innovations** that lead to reduced physical activity in the work place and in leisure.
- **Changes in food patterns and dietary intake** including increased consumption of energy dense processed foods. The traditional Mexican diet, based on corn and beans, and supplemented by fruits and vegetables and sparse in meat and dairy products, has always been considered sound, but it has changed dramatically! Classic foods are vanishing, particularly beans. Even the staple corn tortilla is giving way to cheap white bread.

In a study of the Mexican diet conducted over 15 years, 4 elements were discovered that have changed substantially.

- Consumption of fruits and vegetables has declined 29 percent
- Consumption of milk derivatives has declined 26 percent
- Consumption of carbohydrates has increased 6.25 percent
- Consumption of soft drinks has increased 37 percent

Soft drinks may be a major cause of problems in Mexico, mainly diabetes. People who drink large amounts of soda are 80% more likely to get diabetes than those who drink less than 1 a month. Mexicans drink a lot of soda; they consume an average of 101 liters of cola drinks per person per year. In rural communities, soft drinks are widely available, while basic staples such as rice, milk, and meat are not.

“People still do not have much awareness of the importance of nutrition. They still think it’s good to be fat.”

— *Dr. Aldo Chavez, a researcher at the national nutrition institute.*

Mexican-American Border

One cause of obesity is evident when you look at the situation geographically. A study published by the Pan American Health Organization in 2004 showed that in the mostly Hispanic population that lives on either side of the Mexican-American border, rates of overweight, obesity, and diabetes are higher than national averages in both countries. 74 percent of men and 70 percent of women are either overweight or obese. Sixteen percent were diabetic compared to a 14.9 percent national rate in Mexico and the United States rate of 13.9 percent.

Poverty

A widespread misconception in developing countries is that obesity is a problem associated with wealthy populations. Most decision makers view obesity and non-communicable chronic disease as low priority health problems when compared to undernutrition or diseases associated with the poorest populations, but results show that the sum of overweight and obesity declines as socioeconomic conditions increase. In Mexico, overweight used to be a sign of wealth; it now often marks poverty. The increased availability of foods at lower prices mean the poor have access to cheap, convenient, and filling, if nutritionally-devoid food. While the elite can choose to adopt a healthy lifestyle, the poor have fewer food choices and more limited access to nutrition education.

Mexico is a large middle income country that has achieved important progress in many health outcomes; it has the largest Latin American income in terms of gross national product. But data on poverty and health in Mexico show that income distribution has generated a marked polarization and inequity between the poorest and wealthiest groups in the country. There is a high prevalence of poverty and malnutrition in the south and in the rural areas, and a high prevalence of overweight and obesity in the North and in urban areas.

Mexico has definite social classes. As of 2003, 3 percent of the population belonged in the upper class, and 7 percent lived in the upper-middle class. This richest 10 percent of the population held 42 percent of the nation’s income in 1998. Twenty percent belong to the middle class, 50 percent to the working class—which is essentially synonymous to what the U.S. refers to as the working poor. And the bottom 20 percent of the population is in extreme poverty, that is, they do not have adequate shelter, clothing, diet, or health, and they are outside both the formal education and employment systems.

By combining the extreme poor and the lower percentage of the working class, an estimate of 44.7 million people in Mexico live in poverty, or about half of the population. 17.6 million of those are indigenous people.

Mexican-Americans

The Hispanic population is the 2nd largest and fastest growing minority population in the U.S. In March 1993, the Hispanic population numbered approximately 22.8 million persons, or 8.9 percent of the total U.S. population. Mexican-Americans accounted for 64.3 percent of the Hispanic population.

A study comparing diets of Mexican-, Cuban-, and Puerto Rican- Americans was completed in 1995 with findings from the Hispanic HANES Health and Nutrition Examination Survey.

Mean intakes of total fat and saturates and monounsaturated fatty acids was significantly higher for Mexican men than Puerto Rican men. Mean cholesterol intakes were significantly higher for Mexican women than Puerto Rican women. Fruit consumption among Mexican-Americans was reported to be irregular, and the consumption of dark green and yellow vegetables, frequently absent. Of the 3 groups surveyed, Mexican-Americans had the highest prevalence of overweight, high serum cholesterol, and gallbladder disease.

Acculturation is known to affect dietary behaviors; dietary changes made by Mexican-Americans after migration to the U.S. were reported to be less positive and more negative. A 2004 study by the International Life Sciences Institute found that 70 percent of Mexican-Americans are overweight or obese. Relative to other ethnic groups in the United States, Mexican-Americans have the highest prevalence of overweight and the second highest prevalence of obesity. Given these statistics in Mexican-Americans, it is possible that prevalences will continue to increase in Mexico and other Latin American countries unless public health programs are implemented soon.

Solutions

Dealing with Undernutrition: PROGRESA

PROGRESA one of the major programs of the Mexican government, is working in conjunction with other programs in Mexico to develop the human capital of poor households. In August of 1997 PROGRESA began an effort to break the entangling web of poverty where malnutrition, morbidity, high infant mortality rates, high fertility, high school dropout rates, and unhealthy living conditions prevail.

PROGRESA has proven to be an effective program that is serving as a model and beginning to take hold across Latin America. By the end of 1999, it reached approximately 2.6 million families, about 40 percent of all rural families and one-ninth of all families in Mexico. Its budget was approximately \$777 million, equivalent to .2 percent of Mexico's GDP. It operated in 50,000 localities, 2,000 municipalities, and 31 states.

PROGRESA'S goals are: 1.) to substantially improve the conditions of education, health, and nutrition of poor families, particularly children and their mothers 2.) to make it so educational achievement is not affected by poor health or malnutrition, or work that makes school attendance difficult and 3.) to ensure the means and resources, and encourage the responsibility and participation of parents and family members in improving the health and education of their children.

It is made of 3 components:

- Educational grants to facilitate educational aspirations, and improve the quality of education in the schools.
- Basic health care for all family members, and reorientating individuals and health services toward taking preventative actions toward health care and nutrition.
- Monetary transfers and nutritional supplements to improve the food consumption and nutritional state of poor families, particularly the women and children who are generally perceived to suffer most from nutritional deficiencies.

PROGRESA seems to be a good, effective program for Mexico, but problems still exist. When questioned, 1/3 of doctors working with PROGRESA families complained about the unavailability of medicines and the scarcity of supplies and equipment. They mentioned difficulties with men's reluctance

to participate, mainly because of the attempts to inform them on the effects of domestic violence and alcoholism. Women had trouble discussing family planning and the preventative Pap smear to detect cervical cancer with male doctors. The main problem, however, was patient nonattendance at scheduled doctor visits. The doctors also believed there was a problem in the selection of beneficiaries, and that this primary healthcare package should be received by the entire population.

Dealing with Overnutrition

The problem of undernutrition seems to be slowly declining and attention is now being placed on the problems of overnutrition.

School menus are being changed to become more nutritious, and a city pilot program is introducing aerobic exercises into preschools and elementary schools. The government is preparing its first set of dietary guidelines, "The Plate of Good Eating."

These are small starts but many more efforts must be made. The first step is that the country must realize that it is in the grip of an epidemic. Mexico can then look at successes made by other countries in reducing malnutrition and modify them into a strategy based on the current situation of the food industry, food market, and of Mexican dietary patterns.

Examples include:

- A 1999 analysis of malnutrition in 63 nations showed that improvements in women's education, access to healthcare, and living environment were responsible for 75 percent of the reductions in underweight children. Since women, for the most part, have control over what is consumed in the household, boosting their status and improving their education could have the same results in reducing overweight in Mexican children.
- The WHO program to iodize salt in 47 countries between 1994 and 1997 cut the prevalence of iodine deficiency from 29 percent to 13 percent. Improving nutritional values in other foods could reduce other nutrient deficiencies.
- Cuba and the Indian state of Kerala have successfully reduced malnutrition by targeting the nutritionally vulnerable population. They both also provide broad health care.

Needed Research

There needs to be more research into the nutrition transition, studying how diets are changing among households and individuals in developing countries. The belief that obesity is a problem afflicting only affluent countries and households has held back research in poorer countries. This means that policymakers don't have the detailed local information they need to evaluate the threat of increasing obesity and related chronic diseases, and to work on reversing these trends.

Research should also be done on differences in consumption and food choice among regions and socioeconomic classes. Nutritionists and dieticians could then use that information to customize nutritional counseling, program planning, and nutrition education.

Agricultural Technologies

There are many ways to ameliorate the situation by changing the people's behavior, but behavior change alone will not help the poorer population. If money is spent on nutritional education, then healthy food must be accessible--no matter what the income level.

One way to encourage the population to consume healthier food would be a nutrition tax. Fatty and sugary foods low in nutrients and high in calories could be taxed at a higher rate than fruits and vegetables, which might escape taxation entirely.

Another approach is one that has been used successfully for years all around the globe. Bioengineering a population's traditional food crops so they offer better nutrition. As of yet, not much is being done to increase the nutritional content of Mexican crops.

The International Maize and Wheat Improvement Center (CIMMYT) is working with partners in Mexico to promote a type of maize that, through a natural mutation, has double the levels of normal maize of lysine and tryptophan, two key amino acids involved in protein synthesis. This quality protein maize, QPM, makes 7.5 percent (as opposed to the normal, 5 percent) of maize's protein bio-available. This maize could greatly improve the nutrition of poor farmers whose diets are based on maize. It has also been proven to accelerate the growth and productivity of pigs and poultry when used as an ingredient in animal feeds.

A global initiative known as HarvestPlus is also working to increase the nutritional value of staple food crops. They are working specifically to increase the zinc and iron content in wheat and iron and vitamin A in maize.

These are good programs, but there are many more technologies that could be used. Mexico has many internal agricultural problems resulting from poor policies and a general lack of concern, or even scorn, on the part of urban dwellers and politicians toward the Mexican countryside and its inhabitants.

Conclusion

I believe that the problem in Mexico is getting worse not because it is impossible to amend, but because people don't realize what is happening, or don't care. While labs are working on modifying foods to be more nutritious, major work has to be done to integrate the country's population. Those in power need to acknowledge the entire population as part of the same nation if they want either of their health conditions to improve.

The whole population needs to be educated about nutrition, but first, the country needs to make sure that everyone *can* get educated. Many of the extremely poor are illiterate, most of them speaking only their indigenous language. Less money needs to be spent on quick fixes to overweight such as gimmicky diets and liposuction, and more needs to be spent on nutritional education. The cost of education to prevent obesity would be many times repaid by the reduction of healthcare costs for treating diabetes and NCCDs. In the absence of a substantial and committed governmental nutrition education effort, most people will derive their nutrition practice from food company advertising, which attempts to sell products no matter what the nutritional content.

Something also needs to be done about the country's great disparity in income. If income is distributed evenly, everyone would have the same opportunity to better their nutrition. Programs like PROGRESA are making great advances, but the unequal income distribution needs to be lessened for it to fully succeed.

Research should be done to better understand what nutrients are lacking in the Mexican diet and why. Efforts then can be made to make food more nutritious and to cut down on the consumption of nutritionally devoid foods, particularly soda. An effort to reduce the consumption of soda could greatly cut healthcare costs for treating diabetes.

Not all of the research and educational burden should fall on Mexico itself. Obesity is a problem in developed and developing countries; therefore, it is a suitable field for international cooperation. Then, local efforts could undertake an integrated approach that would incorporate national food, agriculture, industrial, and healthcare policies, as well as family civic institutions, and the Mexican lifestyle.

Mexico is in the grip of an epidemic, but it is not irreversible. If steps are taken now, the problem can be successfully combated. Enough healthy food is grown for the entire population. It is a matter of nutritional awareness; food and lifestyle preferences, and the ability of the population as a whole to afford good choices.

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