Published in final edited form as:

Curr Opin Endocrinol Diabetes Obes. 2011 October ; 18(5): 328–331. doi:10.1097/MED.0b013e3283471c74.

Is The Obesity Epidemic A National Security Issue Around The Globe?

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Abstract

Purpose of review—To understand how obesity affects national security by focusing on three case study countries—the United States, China, and Mexico.

Recent findings—While in the United States and Mexico, over two-thirds of adults are overweight and obese compared to about 29% of Chinese, large increases in the prevalence of overweight and obesity have occurred in all three countries in the past two decades. National security is affected in the US ranges both from an economic perspective-- increasing health care problems and costs to the point where our labor costs have reached uncompetitive cost levels, and from a military preparedness perspective, namely our overweight soldiers are unable to perform normal activities and functions required of soldiers. In both Mexico and China, it is the economic and health system costs that are dominant concerns, both the costs of obesity-related medical care and the productivity of the work force are creating potential long-term effects on economic competitiveness.

Summary—Obesity is adversely affecting the welfare, economic, and in some cases military security of these three countries.

Keywords

obesity; national security; health care costs; functional health of military

INTRODUCTION

For the community of scholars and practitioners involved with diabetes and other cardiometabolic problems, obesity represents a major threat to the health of the populations in a large number of countries across the globe. But is this a threat to our national security and is this such a threat that it is imperative that we take drastic action to address the problem? National security encompasses protecting a nation from danger, be it economic or military. In the US these can range from increasing health care problems and costs to the point where our labor force is so expensive and unproductive that we cannot compete against other countries or it can be as simple as having overweight soldiers who are cannot undertake the daily activities and functions soldiers must handle. For countries like Mexico, the costs can overwhelm the entire economic system. For others like China, reduced health can begin to affect productivity of the skilled labor force, further affecting competitiveness.

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CONFLICTS OF INTEREST

The author has no conflict of interests of any type with respect to this manuscript.

Military danger is easy to measure by issues such as terrorist attacks and increased capability of those nations or organized groups who wish to do harm to other nations. In contrast, economic danger is more imprecise and difficult to quantify. For instance, as the US healthcare costs as a proportion of gross national income (GNP) increases, at what point is this a major vs minor threat? When does worker absenteeism or reduced productivity while at work (presenteeism) represent a major threat to that company's survival?

I select three countries—the United States, Mexico, and China—to show the impacts obesity is having on their economy and overall well-being. We cannot and do not attempt to say when this has or will become an economic threat to national security. In this paper I show the impact of this problem in different ways in each country but cannot delineate its impact on national security. For each country, background data on changes in diet, overweight status and cardiometabolic problems are provided as well as many of the economic ramifications. The data are not identical and we do not compare and contrast them but can tell by the actions of some countries relative to others that leaders perceive the problem is a major threat to the national security of Mexico but less so to the other two countries.

THREE COUNTRIES

We select the United States, China, and Mexico as our three case studies.

The United States

Underlying patterns in the US—This readership is well aware of the broad changes which have occurred in the US. The way we eat, drink and move has changed dramatically over the past half century and with it has emerged major increases in weight, adiposity and extreme adiposity [1**] (This represents a very broad perspective on how dietary and activity patterns have changed around the world, the reasons for this, and the health consequences of these changes.) This is the best option for understanding the full context for these health issues. Thousands of studies have [2] activity and high levels of inactivity [3, 4].

Equally important has been the change in the way we eat, what we eat, when we eat, and the surprising increase in daily caloric intake. Depending on the source of information, trends in daily caloric intake have increased by 150–300 kcal/day between the 1970's and today across all age-gender groups. USDA and NHANES series provide slightly different levels of increase; however both show that the largest contributor has been the large increase in calories from beverages without any decrease and a smaller increase in calories from food [5, 6]. We have shifted from eating three times a day to six times with snacking emerging as a major source of calories. At the same time the bulk of our food intake is prepared prior to our purchase and cooking is losing out to purchases of food across all age groups [7]. As an example, we report that we eat half of the fast food purchased at home [7].

The food supply has changed markedly. Whereas in 1950, a very small proportion of food was purchased as processed food (e.g., ready-to-eat cereals) and the food supply measured in the thousands, today we consume over 600,000 foods sold in our convenience stores, small and large and mega supermarkets and an additional set of foods prepared in restaurants and stores of all types [2]. A third of the food we consume is excessively high in added caloric sweeteners and saturated fats [8]. These changes are reaching the entire globe with supermarkets and convenience stores across the globe selling much of the same set of foods [9, 10].

With these shifts has come a marked increase in overweight and obese individuals of all ages. Most importantly this has also been marked by very large increases in the BMI levels

at the higher level deciles [11*]. Having 8–10 year olds with BMI levels in the 25–30 range is found about 4–10% of each race-ethnic subpopulation and is part of the rapid shift toward type 2 diabetes found among children and adolescents [12]. (This is a comprehensive examination of the effects of child and adolescent obesity on their health.)

The economic implications of increased adiposity in the US—The types of effects of obesity range from direct medical costs to the vast array of indirect effects. Dozens of economists have shown that being overweight and obesity doubles and triples, respectively, health care costs. All of these are based on current health care financing, which excludes a large proportion of the most overweight individuals. For instance, about a third of those with diabetes in the US are not diagnosed. More important are the sets of costs we exclude from standard medical care cost work, namely the loss in terms of absenteeism, presenteeism (reduce productivity while at work), early disability, early retirement and early use of nursing home. A large and emerging literature exists on all of these costs. These represent the first and foremost threat to the US—namely significantly reduced productivity losses from our trained work force. Two recent papers summarize these costs [13, 14]. Finkelstein notes that for absenteeism presenteeism, and direct medical costs, the annual health cost of a normal-weight employee is about \$10,000. But for the most extremely obese workers -- those about 100 pounds overweight -- the cost is about \$16,000 [13]. Essentially while we might be losing up to a fifth of our GNP to medical care costs with a significant component of this from obesity; a very important issue is not direct costs but also all the major reductions in productivity. These have not been fully measured for the US; however, I present below an analysis conducted for China and several international organizations on a full quantification of these costs for China.

Military Preparedness—The proportion of recruits entering the military who are overweight and are physically unable to perform most of the major tasks required of recruits is very high. Most recently a group of more than 50 retired generals and admirals says a growing number of young Americans are too fat to fight. Their most startling conclusion was the "Overall only 1 in 4 of our young adults between the ages of 17 and 24 is eligible for military service" [15**]. Studies have documented this issue in limited populations of the US military [16] (this is one of the few published case studies on the weight status of the US military) and among recruits [17*].

China

Underlying patterns in China—In 1989, few adults and no children in China could be called overweight or obese. In our latest survey in 2009, about 30% of adults have BMI's over 25 with the most rapid changes found among the poor and rural populations. Childhood BMI is accelerating with Chinese children in the 95th centile being 2 BMI units heavier than US children of the same age [11]. Behind this is a well documented set of changes in changes not only in weight but also in diet and activity patterns [18–23].

Overweight and poor diets are shifting to be a greater burden for the poor with subsequent large increases in hypertension, stroke and adult onset diabetes. Related are increases in deaths from cancer and cardiovascular disease (CVD). The causes of this CVD and cancer increases in China are directly linked to diet, activity, and obesity [24, 25].

The economic implications of increased adiposity in China—During the 1978–2002 time period, there was a forty fold increase in personal health costs and more importantly, the national spending on health care has nearly doubled, with a major element being the increased costs of pharmaceuticals [26]. The range of pathways linking the nutrition transition in China to health and economic costs must include the effects of diet

and activity indirectly through obesity, as well as directly on a range of other noncommunicable diseases [27, 28*]. A detailed review of the documentation for each pathway and the relative and attributable risks of each pathway is found elsewhere [28]. Essentially, the bulk of the research in this field has focused on the biological relationships between obesity, hypertension, dislipidemias, and insulin resistance and in turn of these factors on heart disease and cancer. However, there are other equally important ways that childhood factors, nutrition, and physical activity may affect the costs of obesity.

Using earlier 2005 prevalence data for most of the key nutritional, physical activity, and mortality patterns—as well as available retirement age and medical care costs for China—the economic costs were found to be significant. In the Chinese case study, the indirect effects of obesity and obesity-related dietary and physical activity patterns range between 3.58% and 8.73% of GNP in 2000 and 2025, respectively [28]. These assumptions do not include much of the recent rapid increase in use and cost for pharmaceutical products; the full costs are even greater when these are included [26].

Mexico

Underlying patterns in Mexico—Mexico has experienced one of the most rapid shifts over the last decade in the prevalence of overweight, obesity, and type 2 diabetes mellitus in the world [29]. A major increase in diabetes mellitus mortality—greater than that found among U.S. Mexican-Americans—has occurred in Mexico [30, 31]. Nutrition-related noncommunicable diseases are the major health problem facing Mexico today as concerns of undernutrition have faded into localized targeted subpopulations [32, 33*].

The national security dimension of increased adiposity in Mexico—The President of Mexico and the cabinet proclaimed preventing obesity as a major national priority. The government in the past two years transformed its school feeding agenda, changed all welfare and poverty programs so that obesity prevention is a priority, created national beverage guidelines for the country and is moving to create front of the label profiling that will only allow the government to signify the healthfulness of a product and ban all other health-related materials from the front of a package [34]. Most remarkable has been dramatic shifts in the food and beverages provided to the millions covered by its welfare programs. Milk shifted from whole milk to 1.5% fat milk immediately after a large pretest among elderly recipients, the government and food and beverage industries agreed to remove sugar-sweetened beverages and many forms of junk food from all schools, and the government is moving on other initiatives. Both presidential candidates for 2012 have noted their strong interest in continuing this campaign.

DISCUSSION

Of these three countries, major national initiatives have been undertaken only in Mexico. China's Ministry of Health and its government has taken on few national initiatives related to turning around the obesity increases and in the US, aside from school feeding program legislation, most preventive efforts are voluntary such as the Michelle Obama Let's Move Campaign and the food industry's Healthy Weight Commitment Foundation [35].

CONCLUSION

Large increases in the prevalence of overweight and obesity have occurred in China, Mexico, and the United States. National security is affected both from an economic perspective-- increasing health care problems and costs to the point where our labor costs have reached uncompetitive cost levels, and from a military preparedness perspective, namely where overweight soldiers are unable to perform normal activities and functions

required of soldiers. In both Mexico and China, military fitness is not as dominant as are the economic and health care costs of obesity. Overall, in all three obesity is adversely affecting the welfare, economic, and in some cases military security of these three countries.

Acknowledgments

I thank Ms. Frances L. Dancy for administrative assistance and Ms. Jean Kaplan for copy editing.

Funding: Robert Wood Johnson Foundation (Grant 67506); National Institutes of Health (R01 HL104580; R01-HD38700).

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KEY POINTS

- Obesity represents a major national security threat to many countries.
- Rapid increases in obesity in selected countries are creating very large health costs that threaten economic competitiveness.
- Military preparedness is compromised by obese recruits being unable to perform normal daily activity functions as well as meeting any physical fitness standards.