Obesity Is Global; BP and Cholesterol Are Local

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FROM THE LANCET

Body mass index rose in all parts of the globe over the past 3 decades, and the proportion of obese people worldwide doubled.

Meanwhile, mean systolic blood pressure dropped worldwide, and total cholesterol levels stayed roughly the same, but with huge regional differences.

Cholesterol levels fell in some regions, particularly in the United States and other English-speaking nations, and increased in others, such as East Asia, according to three papers by collaborating research teams.

Blood pressure was similarly variable by region, with upward trends in parts of Asia and Africa that were countered by downward trends in North America, Australia, and much of Europe.

"We've got this massive wave of obesity happening, but particularly in English-speaking countries we have had this really large decline [in cholesterol and blood pressure]. The good news is, we are mitigating some of the obesity effects," Majid Ezzati, Ph.D., of Harvard School of Public Health, Boston, and Imperial College London, the papers' senior author, said in an interview. But obesity "is a serious rise that we should become serious about combating."

Dr. Ezzati and colleagues' research, which was funded by the World Health Organization and the Bill and Melinda Gates Foundation, sought to map global trends for the main cardiovascular disease indicators – BMI, systolic blood pressure, and total serum cholesterol – in 199 countries and territories during 1980-2008.

The BMI team used data on 960 country-years with 9.1 million people aged 20 years and older (Lancet 2011 Feb. 4 [doi:10.1016/S0140- 6736(10)62037-5]). Dr. Ezzati and colleagues found that in 2008, 9.8% of men and 13.8% of women worldwide were obese (defined as having a BMI greater than 30 kg/m^2), compared with 4.8% of men and 7.9% of women in 1980.

Mean BMI worldwide increased by 0.4 per decade for men and 0.5 per decade for women. A group of countries in the tropical Pacific region saw an increase of 2 per decade for women, and higher still for men. A handful of countries in South Asia, sub-Saharan Africa, and Europe, meanwhile, registered very slight or no increases, or even declines.

Among high-income countries, the English-speaking countries – including the United States, the United Kingdom, Australia, and New Zealand – saw some of the most pronounced increases, which put them in sharp contrast to some Western European nations.

The United States had both the highest worldwide BMI among high-income countries (mean, 28 for both men and women) and the highest rise in BMI over 28 years (1.1 per decade), followed by male BMI in the United Kingdom (1 per decade) and Australia (0.9 per decade). In 2008, mean BMI in men was highest in North America (28.4) and Australia and New Zealand (27.6). Also among high-income countries, the United States, New Zealand, and Australia saw the most gains in female BMI over 30 years, with increases of 1.2 per decade.

Changes in blood pressure and cholesterol in these nations, however, did not correspond to these trends but rather seemed to run counter to them.

The English-speaking countries that saw substantial increases in BMI also recorded significant decreases in total cholesterol levels and blood pressure over the same period, according to a linked study, suggesting an effect from cholesterol-lowering drugs. And Asian countries, which had some of the world's lowest cholesterol levels in 1980, saw dramatic rises.

The cholesterol study examined published and unpublished records encompassing 3 million participants aged 25 years and older in 199 countries (Lancet 2011 Feb. 4 [doi:10.1016/S0140-6736(10)62038-7]). Worldwide, the mean, age-standardized, total serum cholesterol level was 4.64 mmol/L for men and 4.76 mmol/L for women, a slight decrease of 0.1 mmol/L per decade since 1980.

Cholesterol fell in Australia, New Zealand, North America, and Western Europe by 0.19 mmol/L per decade for

men and by 0.21 mmol/L for women.

However, levels remained high in these regions, with a mean of 5.24 for men and 5.23 for women in 2008, with Germany, Greenland, and Iceland having mean, age-standardized levels of 5.5 or greater.

Mean total cholesterol increased in East and Southeast Asia by 0.08 mmol/L per decade in men and by 0.09 mmol/L per decade in women, and was lowest in sub-Saharan Africa at 4.08 for men and 4.27 for women. Cholesterol levels in Japan, which were relatively low in 1980, were close to levels in Western Europe in 2008. Singapore and China also registered substantial increases.

Globally, the news on blood pressure was also mixed. Mean, age-standardized, systolic blood pressure decreased by 0.8 mm Hg per decade in men and by 1.0 mm Hg per decade in women since 1980, with Western Europe, Australia, New Zealand, and North America seeing steep declines, according to a study of 5.4 million people aged 25 years and older in 199 countries. (Lancet 2011 Feb. 4 [doi:10.1016/S0140- 6736(10)62036-3])

However, blood pressure rose in the tropical Pacific, East Africa, and South and Southeast Asia for both sexes, and in West Africa for women in the same period. Female systolic blood pressure was highest in some East and West African countries in 2008, with means of 135 mm Hg or greater – numbers that, the investigators noted, were not unlike those seen in Europe and North America at the beginning of the study period in 1980.

"The decline we have seen is [primarily] in high-income countries and also parts of Latin America, so really we are dividing the world into the high-income nations that are mitigating the effects," Dr. Ezzati said. "Middle-income countries, such as those in Latin America, have shown that they can do it, too, but in lower-income countries the infrastructure is really absent."

The good news on blood pressure and cholesterol, he said, should be interpreted with caution. With drug interventions, "we are either mitigating or delaying the effects of obesity – we don't know," he said.

Dr. Ezzati and colleagues are now working on a diabetes study of similar global scope.

Two researchers reported holding stock in Johnson & Johnson and Pfizer. ■