MedicalXpress

Soda taxes: Weight loss benefit linked to household income

December 13 2010

Imposing higher taxes on sodas and other sweetened drinks may generate a lot of money – but would lead to only minimal weight loss among most people and would have no effect on weight among consumers in the highest and lowest income groups, according to new research from Duke-National University of Singapore (NUS) Graduate Medical School.

The study, led by Eric Finkelstein, PhD, associate professor of health services at Duke-NUS, looked at the differential impact on calories and weight of a 20 percent and 40 percent tax on sodas and other sweetened beverages (SSBs) among different income groups.

The research, appearing in the *Archives of Internal Medicine*, comes at a time when health policy makers are considering additional taxes on sweetened drinks as a means of improving health and raising revenue to offset budget deficits. Some studies show that excess consumption of sugary drinks leads to weight gain and contributes to the epidemic of obesity in the U.S.

The researchers relied on information in a database of U.S. households that tracked their store-bought food and beverage purchases over the course of a year. The database includes information on household size, demographics and the cost and quantities of foods and beverages purchased by brand and UPC code.

The research team examined store-bought purchases of carbonated and non-carbonated drinks, including sodas, diet carbonated beverages,

sports/energy drinks, fruit drinks, fruit juice and skim and whole milk and used statistical techniques to quantify how changes in prices affected household buying habits.

Unlike prior analyses, the study calculated both weight losses resulting from reductions in soda purchases as a result of the tax and weight gains due to switching to other beverages. "If consumers switch from Coke to Diet Coke or water there would be no offsetting gains, Finkelstein said. "If they switch to other high calorie drinks, the effects of the tax would be diluted."

Researchers estimated that were the government to impose a sales tax that raised the price of SSBs purchased by 20 percent, this would generate about $1.5 billion per year in tax revenue in the U.S.; a tax that raised prices by 40 percent would generate $2.5 billion per year, at a cost to the average household of about $28.

Study coauthor Chen Zhen, PhD, a research economist at RTI International, says these taxes are regressive in the sense that the tax paid as a percentage of household income is greater for lower income households than for higher income households. "However, because poor households purchase far more generic brands that are significantly cheaper, they pay a smaller share of the total tax revenue." The study found that the tax paid by lower income households would end up accounting for 20 percent of total tax revenue whereas those in each of the two middle income and high income groups would contribute 25 and 30 percent of the total, respectively.

But would these taxes reduce weight? Results show that because of switching from SSBs to other beverages, the effect on total calories and weight is relatively small. A tax that raises SSB prices by 20 percent generates a daily average reduction of 6.9 calories. Over the course of a year, this equates to no more than 0.7 pounds per household member. A

40 percent tax would reduce daily calories by 12.5 calories and generate annual weight losses of up to 1.3 pounds per person per year.

"Although small, given the rising trend in obesity rates, especially among youth, any strategy that shows even modest weight loss should be considered," Finkelstein said. He further noted that due to data limitations this analysis is limited to SSBs purchased from stores. "Extending the tax to restaurants and vending machines would generate more tax revenue and perhaps greater weight losses."

The researchers also found that nearly all of the weight losses were generated from middle income groups. "Higher income groups can afford to pay the tax so they are unaffected, and lower income groups likely avoid the effects of the tax by purchasing generic versions, waiting for sales, buying in bulk, or by other cost-saving strategies," Finkelstein said. However, he notes that there may be a secondary benefit of the tax, even for lower income households, if the revenue is used to fund obesity prevention efforts.

When it comes to whether he supports such a tax, Finkelstein noted that because of generous subsidies to farmers, high fructose corn syrup, the prime ingredient in SSBs, is cheaper than it would be otherwise. "Therefore, either removing the subsidies or implementing a tax that increases prices on products that contain this ingredient is justifiable", he said. He noted, however, that removing the subsidy altogether, as opposed to taxing specific products such as SSBs would have the strongest effect on containing rising rates of obesity.

Provided by Duke University Medical Center

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