

Education and debate

Tobacco and obesity epidemics: not so different after all?

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Campaigns to promote healthy eating are undermined by the ubiquity of processed, energy dense foods. A global strategy is now needed to tackle the rising prevalence of obesity

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Smoking and obesity are two of the most important global health risk factors. Extensive evidence is available on the broader global determinants of tobacco consumption such as trade liberalisation,¹ the global marketing of tobacco,² and smuggling.³ This has led to a comprehensive response from the global public health community, culminating in the Framework Convention on Tobacco Control. At first glance the consumption of food is very different from that of tobacco. After all, food is not a deadly product and people need to eat every day to satisfy basic physiological requirements. Perhaps this is why the public health response to overnutrition has been largely based on the need for individuals to change their behaviour. But this approach is generally ineffective.⁴ We argue that an analysis of the broader global determinants of overnutrition will lead to a more comprehensive and effective global response.

Trends in obesity

In the United States, obesity has risen by 74% in the past decade, with at least one in five adults now classified as obese.⁵ Similar trends are seen in most Western countries.⁶ In the Middle East and North Africa, and in much of Eastern Europe and Latin America, levels of overweight and obesity in women are similar to, or exceed, those of the United States.⁷

Total energy (calories) supplied by food and beverages has increased as food has become more processed and more energy dense. In North America, fat and sugar account for more than half the total dietary energy intake.⁸ These changing dietary patterns are becoming mirrored in developing countries. For all developing countries combined, the per capita supply of beef, mutton, goat, pork, poultry, eggs, and milk rose by an average of 50% between 1973 and 1996.⁹ The transition towards a more energy dense diet is also occurring at much lower income levels than previously.¹⁰

Obesogenic environment

Small changes at a population level have an immense impact. For example, it has been estimated that the rise in obesity in the United States during 1980-94 could be explained by an average daily increase in consumption of only 3.7 kcal above maintenance energy require-



Epidemic proportions?

ment for 35 year old men and 12.7 kcal for 35 year old women.¹¹ Propelling these changes is a sociocultural environment in which most of the forces lead towards gaining weight. About 170 000 fast food restaurants and three million soft drink vending machines have encouraged Americans out of their homes. A recent survey found that only 38% of meals eaten were home made, and many people have never cooked a meal from basic ingredients.¹²

Increasing numbers of people in developing countries are also finding themselves in such environments. The transition towards a high fat diet that took more than five decades in Japan has occurred in less than two in China.

The expenditure on advertising by the food industry dwarfs even that by the tobacco companies. In the United States alone the food industry spends over \$30bn (£16.5bn, €25bn) on direct advertising and promotions—more than any other industry. Food advertising is rising in developing countries as well; it has tripled in South East Asia, for example. Within a few years of their introduction, 65% of the Chinese population recognised the brand name of Coca Cola, 42% recognised Pepsi, and 40% recognized Nestle.¹³ Mexicans now drink more Coca Cola than milk.¹⁴

Global marketing and the systematic moulding of taste by giant corporations have been argued to be a central feature of the globalisation of the food industry. However, just as for tobacco companies, these investments in global brands are being re-enforced by active promotion and use of the opportunities arising from the increasing liberalisation of trade to develop new markets. The growth of the transnational food industry is intricately linked to the processes of globalisation.

Globalisation and diet

An important feature of global food systems has been the consolidation of agricultural, food, and retail companies into large transnational corporations. More than half the market in most main foodstuffs in Europe and America is produced by a handful of corporations such as Unilever. The challenge for these corporations is how to continue to make profits when the market for food is so saturated in developed countries (the food supply already contains 15.9 MJ (3800 kcal) for every adult and child in the United States—that is, nearly twice what is needed on a daily basis). The corporations are approaching this in several ways:

- By convincing people to consume more, and more highly energy dense, foods through relentless advertising and ubiquity of outlets
- By increasing serving size and adding price inducements to order the larger sizes
- By opening up markets in transitional and developing countries, and
- By substitution.

Substitution is the progressive reduction of agricultural products to simple industrial inputs that allows replacement by increasingly non-agricultural components. Margarine, manufactured from cheaper intermediate ingredients as a substitute for butter, is an early example of substitution. Sugar, salt, fats, and oils are the most commonly added ingredients to increase the added value of foods (taking advantage of the biological fondness for sweetness and the easier to overcome satiety of sweet and fat foods).¹⁵ In 2002, more than 11 300 new food products were introduced in the United States alone.¹⁶

Global production of diet

The concentration of ownership, and the resulting economies of scale for the major food producers and retailers, is allowing greater flexibility with production of foods. For example, consumption of chicken has risen by more than 1000% in five decades in the United States. This has been made possible by the control of broiler production by a few massive vertically integrated corporations (the top four corporations accounted for 45% of US broiler output in 1990). Chickens are now genetically uniform and programmed to reach market weight in as little as 40 days, assisted by the supply of chemically manipulated feeds, antibiotics, and hormones. Such concentration allows the food corporations to create and market multiple products from chickens. Tyson Foods, one of the leading food corporations, has 4600 different chicken products.¹⁷

The promotion and availability of prepackaged high energy foods is further aided by the rapid spread of supermarkets. In Latin America supermarkets account for 50-60% of national food retail. This is being strongly driven by the large multinationals. Three out of every 10 pesos that Mexicans spend on food are now spent in Wal-Mart. The attraction for the global supermarket chains is strong; Carrefour reports that it earns three times higher margins in its Argentine stores than its French operation.¹⁸

Food industry's response

Diets across the globe are being shaped by a concentrated and global food industry that is continually battling to increase demand and sales. Public health attempts to restrict this are being resisted fiercely. The food industry tactics are similar to those used by the tobacco industry—supplying misinformation, use of supposedly conflicting evidence, and hiding negative data.

Firstly, there is the half true contention that there is no such thing as an unhealthy food, only unhealthy diets. Presumably, an unhealthy diet is more likely to be made up largely of unhealthy foods than healthy foods. Healthy foods might be defined as those foods having characteristics that contribute to a diet that is in line with national dietary guidelines. Secondly, the industry

Strategies used against the tobacco industry and possible similar responses against food industry

Tobacco strategy	Possible analogous response to promote healthier diets
Accumulate and publicise evidence of health effects	Reports and advice to government from national expert groups (such as medical associations); multilateral organisations such as WHO take lead on identifying avoidable health risks of continuing overconsumption of unhealthy diets and lack of physical activity
Exposure of industry advertising tactics	Release and dissemination of marketing strategies used to target young children; alternative sources of funds to support sports and similar events
Litigation	Parents could sue schools providing unhealthy diets; litigation against companies aggressively targeting young children
Labelling of cigarette packets	Health warnings on high fat foods and high sugar soft drinks
Taxing of cigarettes	Taxes on high sugar soft drinks and perhaps targeted high fat foods
Publicise the social, economic, and environmental impact of tobacco production	Campaigns by national, international, and non-governmental consumer groups; use of freedom of information disclosure; multilateral organisations such as WHO take lead on identifying, and naming, the effect of obesogenic environments
Increase awareness of role of industry in supporting researchers	Vigilance by peer reviewed journals, and other media, on noting industry links and possible conflicts of interest when publishing articles; increase publication of articles addressing the issue
Expose foreign governments that are enforcing the introduction and marketing of new brands of cigarettes into a country	Exposure of the practice; pressure by consumer associations; use of World Trade Organisation rules that are in place to protect public health

Summary points

Large multinational companies control much of what we eat

The convenience and availability of energy dense foods is contributing to the obesity epidemic

The food industry is resisting public health attempts to change current practices

Global strategies are needed similar to those used against the tobacco industry

contends that the problem is not the excessive diet but the reduction in physical activity. Again this half truth ignores two factors: that a healthy diet (with an energy content appropriate to the reduced energy needs but still providing adequate micronutrients and other food constituents) can mitigate the weight gaining effect of reduced activity and the evidence showing that dietary composition can predict body weight and waist and hip circumference.¹⁹

Thirdly, the industry uses a smoke screen of apparently conflicting scientific data about sugars and different types of fats. Although scientific knowledge is still incomplete, it is less divided than the industry would have the public believe. This is shown by the recent World Health Organization's technical report on diet, nutrition and the prevention of chronic diseases; both food industry and civil society groups were able to comment on the draft document, and compromises were made in the final report.²⁰

Fighting back

Advocates for tobacco control have used a variety of tactics in their campaign that could have relevance for the fight against unhealthy diets (table). Such approaches are becoming more relevant because the experience of using voluntary codes of conduct with the food industry has been disappointing. The continuing flouting of the code of conduct for breastmilk substitutes is but one example.²¹

It will be much more difficult to establish internationally binding instruments or conventions like those achieved in tobacco control. Nevertheless, their importance in bringing about changes in national behaviour should not be under-rated.²² Potential international standards might cover issues such as marketing restrictions for unhealthy food products, restrictions on the advertising and availability of unhealthy products in schools, standard packaging and labelling of food products, or potential price or tax measures to reduce the demand for unhealthy products.²³ The public attention generated by the discussion and formulation of such standards may set general standards for corporate conduct without being politically unacceptable and even generate enough political capital for national legislation.

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- Bettcher D, Subramanian C, Guindon E. *Confronting the tobacco epidemic in an era of trade liberalization*. Geneva: Commission on Macroeconomics and Health, World Health Organization, 2001. (Paper No WG4:8.)
- Collin J. Think global, smoke local: transnational tobacco companies and cognitive globalisation. In: Kelley L, ed. *Health impacts of globalisation: towards global governance*. New York: Palgrave, Macmillan, 2002:61-86.
- Joossens L, Raw M. Cigarette smuggling in Europe: who really benefits? *Tobacco Control* 1998;7:66-71.
- Hardeman W, Griffin S, Johnston M, Kinmonth AL, Wareham NJ. Interventions to prevent weight gain: a systematic review of psychological models and behaviour change methods. *Int J Obes Relat Metab Disord* 2000;24:131-43.
- Mokdad AH, Ford ES, Bowman BA, Dietz WH, Vinicor F, Bales VS, et al. Prevalence of obesity, diabetes, and obesity-related health risk factors. *JAMA* 2003;289:76-9.
- Ebbling CB, Pawiak DB, Ludwig DS. Childhood obesity: public-health crisis, common sense cure. *Lancet* 2002;360:473-82.
- Grummer-Strawn L, Hughes M, Khan LK, Martorell R. Obesity in women from developing countries. *Eur J Clin Nutr* 2000;54:247-52.
- American Institute for Cancer Research. *Food, nutrition, and the prevention of cancer: a global perspective*. Washington, DC: AICR, 1997.
- Pinstrep-Andersen P, Babinard J. Globalisation and human nutrition: opportunities and risks for the poor in developing countries. *Afr J Food Nutr Sci* 2001;1:9-18.
- Drewnoski A, Popkin BM. The nutrition transition: new trends in the global diet. *Nutr Rev* 1997;55(2):31-43.
- Khan MK, Bowman B. Obesity: a major public health problem. *Annu Rev Nutr* 1999;19:xiii-xvii.
- Gardner G, Halweil B. *Underfed and overfed: the global epidemic of malnutrition worldwide*. Washington, DC: Worldwide Watch, 2000.
- Lang T. Trade, public health and food. In: McKee M, Garner P, Stott R, eds. *International co-operation in health*. Oxford: Oxford University Press, 2001: 81-108.
- Jacobsen MF. *Liquid candy: how soft drinks are harming Americans' health*. Washington, DC: Center for Science in the Public Interest, 2000.
- Egger G, Swinburn B. An "ecological" approach to the obesity epidemic. *BMJ* 1997;315:477-80.
- Nestle M. *Food politics: how the food industry influences nutrition and health*. San Francisco: University of California Press, 2003.
- Boyd K, Watts M. "Just in time" chicken rearing. In: Goodman D, Watts M, eds. *Globalising food: agrarian questions and global restructuring*. London: Routledge, 1997:180-210.
- Rearidon T, Berdegue JA. The rapid rise of supermarkets in Latin America: challenges and opportunities for development. *Dev Policy Rev* 2002;4:371-88.
- Bhargava A, Guthrie JF. Unhealthy eating habits, physical exercise and macronutrient intakes are predictors of anthropometric indicators in the women's health trial: feasibility study in minority populations. *Br J Nutr* 2002;88:719-28.
- World Health Organization. *Diet, nutrition and the prevention of chronic diseases: a report of a joint WHO/FAO expert consultation*. Geneva: WHO, 2003. (Technical Report Series 916.)
- Aguayo VM, Ross JS, Kanon S, Ouedraogo AN. Monitoring compliance with the international code of marketing of breastmilk substitutes in west Africa: multisite cross sectional survey in Togo and Burkina Faso. *BMJ* 2003;326:127.
- Taylor AL. An international regulatory strategy for global tobacco control. *Yale J Int Law* 1996;21:257-327.
- Chopra M, Galbraith S, Darnton-Hill I. A global response to a global problem: the epidemic of overnutrition. *Bull World Health Organ* 2002;80:952-8.

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Balancing benefits and harms in health care



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