

No. 31, October 2014

Societal Trends, Obesity and Wellness Programmes

By Roland Sturm⁺

Introduction

Behavioural risk factors, chief among them smoking, heavy drinking and obesity, are known causes of chronic diseases, which in turn drive health care expenditures, disability and eventually mortality. Behavioural risk factors are potentially modifiable, through smoking cessation programmes, taxation and regulation of tobacco and alcohol products, or programmes that encourage healthy diets or increase physical activity. Health promotion and wellness programmes have been the fastest growing areas among employer benefits in the U.S. for several years and similar programmes are developed by health insurers in other countries.

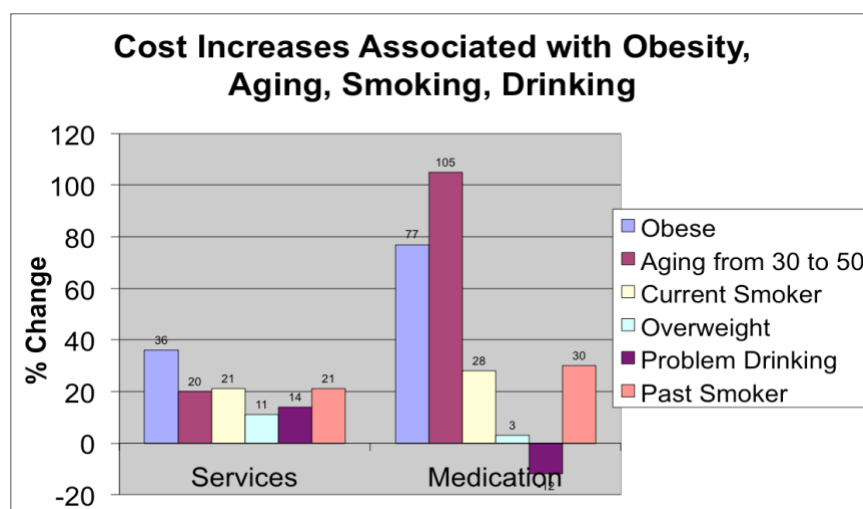
I summarise results in two areas relevant for insurance. The first is the association between different risk factors and costs, which is noticeably different from mortality effects. The second is what wellness programmes can realistically achieve.

What do behavioural risk factors mean for insurers?

Smoking, heavy drinking and obesity are all prevalent risk factors, although only obesity has dramatically increased over the past 25 years. Understanding the relative contributions of risk factors to poor health allows better targeting of health promotion programmes to make prevention efforts more cost-effective.

Figure 1 contrasts the effects of body mass index (BMI) category, smoking status, heavy drinking and ageing 20 years from 30 to 50 on health services and medication. In relative terms, the point estimates suggest that obesity (all levels) increases health-care service costs by about a third to being in a normal weight range; ageing from 30 to 50 increases service costs by 20 per cent; current or past smoking increases service costs by 20 per cent. For all risk factors, the increase is larger for medication costs than for services.

Figure 1. Effects of BMI category, smoking status, heavy drinking and ageing



Source: Author's calculations using Healthcare for Communities survey data (1998–2002).

⁺ Senior Economist, RAND, Santa Monica, California U.S.A.

There are two important pieces missing for obesity in Figure 1. First, the average in a population obscures the fact that obesity has only a small effect among younger adults (who have not developed chronic conditions with or without obesity), but comes in strongly for middle-aged adults. The second is that severity of obesity has a highly nonlinear effect—and severe obesity is increasing at a much faster rate than moderate obesity.

We have calculated the relative impact of moderate and severe obesity on medical costs for 54–69 year olds in two different countries (the U.S. and South Africa), in different insurance schemes (general population in the U.S., privately insured in South Africa) and in different time periods (late 1990s in the U.S., 2010 in South Africa)—and the results are remarkably similar (see Table 1)! For the U.S., it is the average of the general population, the majority in employer-sponsored health plans, followed by government plans (in particular Medicare for the elderly). There are few individually purchased plans and also some uninsured. In contrast, the South African data includes only people who have individually purchased health insurance plans (the source of our data). Private insurance accounts for about one-sixth of the South African population, generally high-income households, and the majority of South Africans rely on an underfunded public sector.

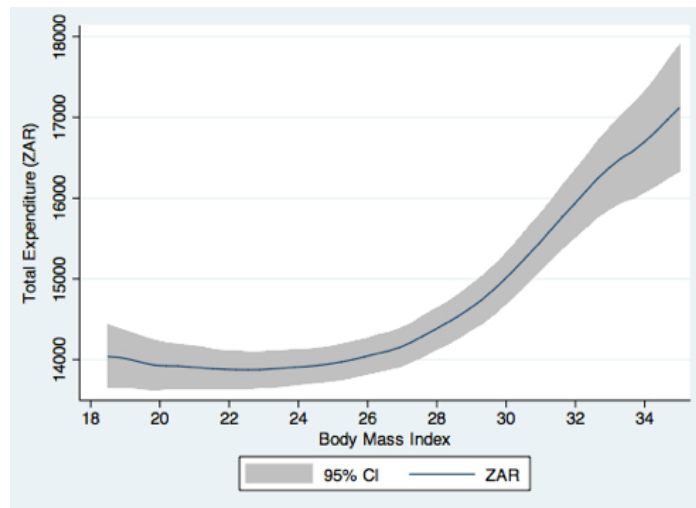
Table 1. Increase in annual health-care costs by obesity status relative to similar individuals in normal weight category

	Moderate obesity (30<=BMI<35)	BMI>=35	BMI>=40
54–69 year old Americans	24%	50%	100%
54–69 year old South Africans	21%	51%	Not available

Source: Andreyeva et al. (2004) ; Sturm et al. (2013a)

This nonlinearity in health-care cost increases as a function of obesity is clearly seen in Figure 2, based on 2010 claims among members in Discovery/Vitality in South Africa.

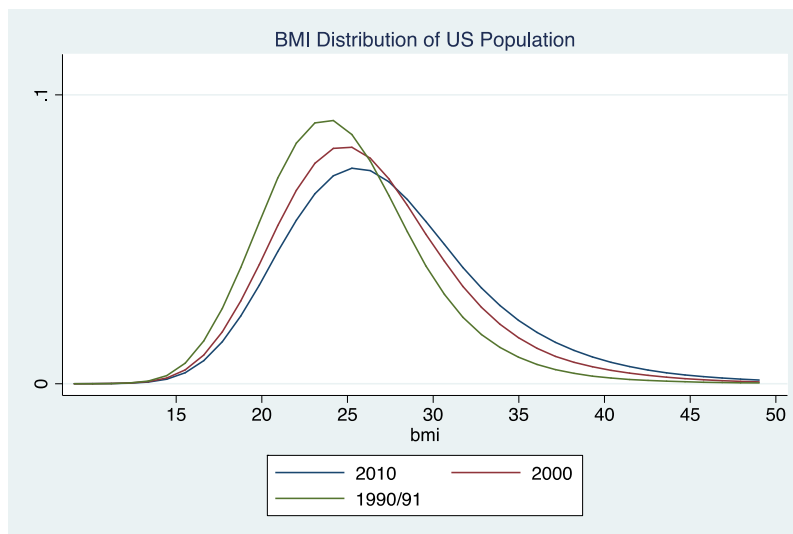
Figure 2. Medical expenditures increase rapidly with BMI—South Africans with private health insurance



Source: Sturm et al. (2013a).

The obesity epidemic is a phenomenon over time. What is particularly disconcerting is not just that the median person gains weight, but that the population becomes more heterogeneous. In other words, the BMI distribution not only shifts to the right, but also becomes flatter, with more people in the severe obesity tail (see Figure 3).

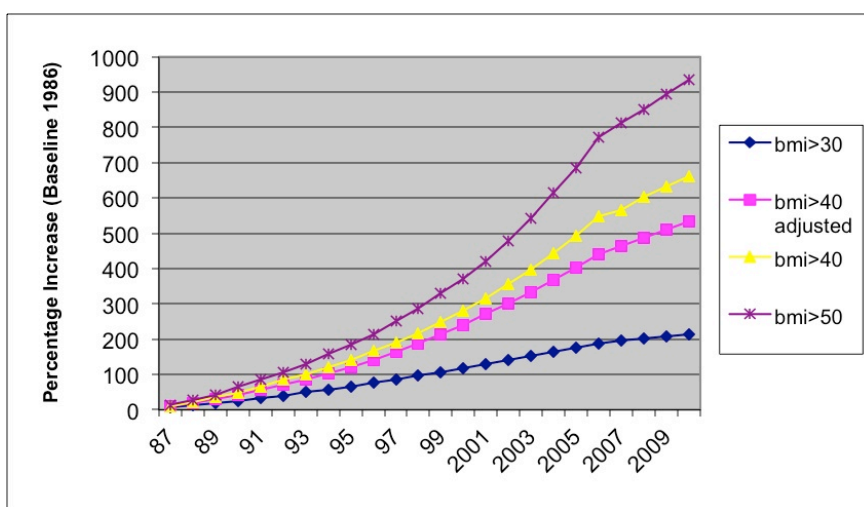
Figure 3. BMI distribution



Source: Author’s calculations using Behavioral Risk Factor Surveillance System (BRFSS) data.

The consequences of this flattening or increased population heterogeneity become more obvious when we graph growth rates by BMI categories in the U.S. as shown in Figure 4.

Figure 4. Growth rates for severe obesity are much higher than for moderate obesity



Source: Author’s calculations using Behavioral Risk Factor Surveillance System (BRFSS) data.

The faster growth rate for severe obesity is not limited to the U.S., but seems to happen in other countries as well: Basterra-Gortari (2011) report a tripling of morbid obesity in Spain over 14 years.

Much of the media coverage on obesity focuses on mortality, but that creates a misleading picture of the impact of obesity. The “signature” conditions associated with obesity (type 2 diabetes) and smoking (lung cancer) indicate why mortality and morbidity effects can differ: type 2 diabetes leads to long-run medical care to manage it, whereas lung cancer is a rapidly progressing condition with 5-year survival rates below 50 per cent even with early stage detection. Obese people will spend a larger part of their life with disability than smokers. For the Netherlands, life expectancy at age 55 differed by 1.4 years among groups defined in terms of BMI, 4.0 years by smoking status and 3.0 years by alcohol consumption (Klijs *et al.*, 2011). Obese persons could expect to live more years with disability (5.9 years) than smokers (3.8 years) and drinkers (3.1 years).

The fundamental drivers of obesity are broader societal trends that are difficult to change (Sturm and An, 2014). Even if they fuelled the obesity epidemic (such as historically low food prices relative to disposable income), that does not mean that those trends themselves were undesirable, but it poses challenges for health promotion or wellness programmes.

Wellness programmes and lifestyle management

RAND recently completed the most comprehensive analysis of U.S. wellness programmes to date (Mattke *et al.*, 2013). Those programmes, in some form or another, have become almost universal among large employers. Workplace wellness takes advantage of employers' access to employees at an age when interventions can still change their long-term health trajectory. The Patient Protection and Affordable Care Act (PPACA) has encouraged further adoption of wellness programmes.

Lifestyle management interventions as part of workplace wellness programmes can reduce risk factors, such as smoking, and increase healthy behaviours, such as exercise, and those effects are sustainable over time and clinically meaningful. The RAND study found statistically significant and clinically meaningful improvements in exercise frequency, smoking behaviour and weight control, and those improvements were sustainable over an observation period of four years (Mattke *et al.*, 2013). However, what remains uncontrolled are unobservable differences between programme participants and non-participants, such as differential motivation to change behaviour.

Even when there are meaningful improvements in health behaviours, it is far from clear that wellness programmes result in net savings to employers. The RAND study only saw a minor decline that was well within the margin of error and would be offset by the costs of a programme. That should not be surprising: wellness-sensitive acute events account only for a very small fraction of costs and would be the only ones amenable to short-run (within a few years) changes. Preventing obesity in 30-year olds will not reduce costs until those people are in their 50s. Then, there are big differences between obese and normal weight individuals as shown in Table 1. Having a population 54–69 with 10 percentage-point lower obesity rates could lead to costs that are 2.5–5 per cent lower.

The relative modest and statistically insignificant cost-savings reported in the RAND study are quite different from what has been claimed by programme advocates. Until a few years ago, wellness programmes covered a specialised niche, both in world of employer benefits and the world of academic research, that escaped scrutiny. This led to a proliferation of implausible and often impossible success claims by advocates, vendors and affiliated consultants. Lewis (2012) provides an accessible account why such claims are not credible.

The marketplace for wellness programmes is very dynamic. After a wave of irrational exuberance about wellness programmes, the pendulum is now swinging the other way. "Get well quick" schemes that promise employers substantial cost savings are unlikely to stay around for very long because they will simply fail to deliver.

As programmes develop and become more evidence-based, there are good reasons to believe that a reduction in direct medical costs could materialise in the long run. Long-run engagement is the key, as health problems associated with poor health behaviours neither appear nor disappear overnight.

But wellness programmes can do a few things. Framed appropriately, wellness programmes that provide incentives can turn into a mechanism that makes employees (in the U.S. employment-based system) or health plan members feel like they are saving money. It can provide a signal that employers/health plans care about their members and that is an end in itself. Finally, it can substantially affect the health status of the population through two mechanisms. The first is the one touted by programme, namely that they make the enrolled population healthier. The second is that a well-designed programme can create an environment that is attractive to people interested in healthier lifestyles. For employers, creating an environment that is attractive to young, healthy employees is essential to recruit and retain a productive workforce. For health plans, such risk selection is obviously an even more direct factor on profitability. But creating a culture of well-being is much more difficult than buying a wellness programmes.

RAND researchers have started to analyse one programme, developed by South Africa's largest health insurer, Discovery, that is unusual in its scope: the programme Vitality integrates incentives for health promotion and preventive care in one programme, offers substantial discounts for buying healthier foods, offers benefits for physical activity programmes, provides the potential for large financial rewards for participants and uses a reward structure that mirrors insights from behavioural economics. The programme is a voluntary supplement and participants have to pay an additional subscription fee.

Does it work? For Discovery, the answer is yes, and the integration of health promotion into the health plan (or life insurance) is central to its business strategy. How and why it works remains unclear, because both causal effects and risk selection come into play and those two are difficult to separate in naturalistic settings. For a health insurer, there is a very obvious reason to encourage this programme: On average, members in Vitality are seven years younger than other health plan members. Vitality satisfies a key element for long-run success in the market place that is absent in typical employer wellness programmes: People actually like it so much that they pay to be part of it.

There is no collective impact assessment of all the components of the Vitality programme yet, but we have analysed one component of the programme, namely the healthy food benefit, which offers members a 25 per cent rebate on healthy food purchases in participating supermarkets (Sturm *et al.*, 2013b). The healthy food benefit significantly changed purchasing patterns among participants and accounted for about 1/3 of the difference between participants and non-participants. Behaviour changes are proportional to price changes. When people's actual eating behaviours and what nutritionists recommend differ several-fold, even a 25 per cent price change closes just a small fraction of that gap. There were no immediate short-term changes in obesity or chronic conditions as a consequence of the healthy food benefit within the first 2 years of participation, but that should not be expected because preventing chronic disease is a long-term process.

What remains unknown is how the different components of a comprehensive programme like Vitality work together to encourage a culture of well-being among its members and what it finally can achieve in terms of causal health improvement.

References

- Andreyeva, T., Sturm, R. and Ringel, J.S. (2004) "Moderate and severe obesity have large differences in health care costs", *Obesity Research* 12(12): 1936–1943.
- Basterra-Gortari, F.J., Beunza, J.J., Bes-Rastrollo, M., Toledo E, García-López, M. and Martínez-González, M.A. (2011) "Increasing trend in the prevalence of morbid obesity in Spain: from 1.8 to 6.1 per thousand in 14 years", *Revista Española de Cardiología* (Engl. edition) 64(5): 424–426.
- Flegal, K.M., Kit, B.K., Orpana, H. and Graubard, B.I. (2013) "Association of all-cause mortality with overweight and obesity using standard body mass index categories: a systematic review and meta-analysis", *JAMA* 309(1): 71–82.
- Lewis, A. (2012) *Why Nobody Believes the Numbers: Distinguishing Fact from Fiction in Population Health Management*, Hoboken, N.J: Wiley.
- Klijs, B., Mackenbach, J.P. and Kunst, A.E. (2011) "Obesity, smoking, alcohol consumption and years lived with disability: a Sullivan life table approach", *BMC Public Health* 11:378, doi: 10.1186/1471-2458-11-378.
- Mattke, S., Liu, H., Caloyeras, J.P., Huang, C.Y., Van Busum, K.R., Khodyakov, D. and Shier, V. (2013) *Workplace Wellness Programs Study: Final Report*. Santa Monica, CA: Rand Corporation.
- Sturm R and An R. (2014) "Obesity and economic environments", *CA: A Cancer Journal for Clinicians* 64(5): 337–350.
- Sturm, R., An, R., Maroba, J. and Patel, D. (2013) "The effects of obesity, smoking, and excessive alcohol intake on healthcare expenditure in a comprehensive medical scheme", *SAMJ: South African Medical Journal* 103(11): 840–844.
- Sturm, R., An R, Segal, D. and Patel, D. (2013) "A cash-back rebate program for healthy food purchases in South Africa: results from scanner data", *American Journal of Preventive Medicine* 44(6): 567–572.