TOO BIG TO IGNORE

The impact of obesity on mortality trends

Over the last two to three decades, the prevalence of obesity has increased two to threefold in most developed countries. In the United States, this growing epidemic could overtake smoking as the leading cause of premature death. For the life insurance industry, obesity represents a wake-up call.

With links to cardiovascular disease, hypertension, diabetes and many types of cancer, the effects of obesity on public health are becoming an increasing concern worldwide. Left unchecked, this growing epidemic will be highly detrimental to our life expectancy, our children’s life expectancy, our standards of health, and the global economy more widely. As an example, to put the health risks into context, it has been estimated that non-smoking 40-year-old adults could have their life expectancy cut by six to eight years due to obesity.

Obesity is defined by the World Health Organisation (WHO) as a Body Mass Index (BMI) greater than 30. Over the last two to three decades, the prevalence of obesity amongst the general population has increased two to threefold in most developed countries. In the United States, where almost one quarter of the population is obese (Figure 1), the condition is expected to overtake smoking as the leading cause of premature death.

In complete contrast, while the prevalence of obesity has been increasing, the past couple of decades have seen a gradual overall improvement in mortality: medical advances and a decline in cigarette smoking have brought reductions in deaths caused by heart disease. This raises some interesting questions:

- Will these, or other sources of mortality improvement, continue to conceal the impact of obesity on mortality levels in the future?
- Could past mortality improvements have been higher (resulting in a steeper decline in mortality) if the prevalence of obesity had been stable over the same time period [see Figure 2]?
- Is it possible to quantify these ‘lost’ mortality improvements attributable to the increasing prevalence of obesity?

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**FIGURE 1**

prevalence of obesity, 1990s

Source: International Obesity Task Force (IOTF)
OBESITY – WHY, WHO AND WHERE?

The fact that the increase in the obese population has been so rapid suggests that the trend is largely due to external factors rather than genetic or other biological changes. It is, of course, possible that obesity may be genetically linked: research may one day identify gene mutations that could indicate a predisposition towards obesity. However, a genetic or biological relationship is unlikely to explain the mammoth rise in obesity levels on its own.

Rather, the very fact that the increase in the obese population has been so rapid in developed countries over the last 20 to 30 years suggests that the trend is largely due to external factors linked to changes in energy intake and energy expenditure. It is likely that the rising prevalence of obesity is a natural by-product of environmental, lifestyle-related influences.

Poor dietary habits are considered to be a chief cause of rising obesity. Possible reasons for changes in diet can be attributed to lifestyle choices, such as an increase in eating outside the home, where the food may have higher fat content; greater access to low-cost, nutritionally unbalanced ‘junk’ food and a general failure of people to regulate their diets in a healthy way.

The decline in daily energy expenditure can, to a great extent, be linked to technological change. There are more private cars, and more machines and gadgets at home and in the office - meaning that less time is spent on physical exercise. Many children and adolescents prefer watching television, playing computer games and surfing the internet rather than physical recreation, which more than likely explains the marked increase in obese pre-teens and teenagers.

A significant risk attaches to the younger generation. Perhaps the most serious complication arising from obesity is Type 2 (non-insulin-dependent) diabetes. This was once unheard of in children and adolescents. Today, however, the incidence of this disease is reported to be on the increase in this age group in some populations. Recent studies have also shown that the likelihood of overweight children continuing to be obese in adult life increases with the age of the child, and there is evidence of a link between increased adult cardiovascular disease mortality and prior childhood obesity.

Obesity is no longer confined to only developed countries of Western Europe and North America, but also in other countries including the Far East where the prevalence of overweight (defined as BMI 25 to 30) is a current and growing problem.

IMPACT ON THE LIFE INSURANCE INDUSTRY

The correlation between mortality, health and socio-economic levels is well known. There is no exception in the case of obesity. Studies have found that poorer communities in developed countries - particularly in urban and inner-city areas - tend to have a higher-than-average prevalence of obesity.

But if the greatest impact of obesity is amongst lower socio-economic classes, why does its growing prevalence have such an impact on life insurers? Insured populations are generally considered to be from the higher socio-economic classes within a population group,

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Footnotes:


6 Philip J et al, Obesity Research Vol.9, November 2001
and insurers have the benefit of medical underwriting to screen out impaired lives. It is therefore reasonable to assume that an insured population will typically have a lower prevalence of obesity.

However, it is important to understand the difference between the prevalence of obesity and the increased relative risks that arise as a consequence of a severe weight problem. The following groups represent the majority of insured lives:

- Young to middle-aged populations (typically aged 30 to 44)
- Individuals who have no previous history of disease
- Non-smokers
- Males

Clinical evidence indicates that the increase in relative mortality risks associated with obesity is more pronounced amongst these population groups. This suggests that insured lives are subject to higher relative risks of mortality associated with obesity (Figure 4) as compared with the general population. Assuming that obesity trends continue, this could have an impact on the profitability of the life insurance industry.

In markets where life insurance is highly competitively priced, even a small increase in risk (in this case resulting from a small increase above the ideal BMI) may have a significant impact on the overall profitability of an in-force portfolio. This is most likely to be true in markets such as the United States, which have a high degree of risk stratification through preferred-life products. A further competitive factor is the degree to which premium rates are guaranteed. Where rate guarantees are in place, there is a risk that the loadings may be inadequate. If no guarantees are given, the risk to the insurer depends on its ability to increase rates if this is necessary.

In relation to new business, increasing obesity is less likely to be a problem if the extra risks can be rated more accurately. As more applicants are expected to fall into the ‘overweight’ or ‘obese’ category, one suggested response has been to extend the BMI baseline at which risks are rated as standard, by increasing the BMI thresholds beyond which premiums are subject to extra mortality ratings. Clearly, however, to take proper account of the underlying change to the insurer’s risk profile due to the increasing prevalence of obesity, extending the baseline would need to be accompanied by an adjustment to the base mortality rates.

This would provide reinsurers with additional flexibility to stratify risks with respect to BMI as a risk factor, to ensure that applicants with lower BMI are charged according to their risk profile.

However, there is competitive pressure within the life insurance industry to apply lower ratings for overweight and obese applicants, despite the medical evidence to the contrary. This highlights the increasing importance for reinsurers to offer evidence to justify rating structures for build.

A further cause for concern for the life insurance industry in the medium to long term is the threat of increasing childhood obesity. If this is not addressed, a ‘cohort effect’ may emerge from current changes in childhood obesity patterns, such that a higher prevalence of obesity in the future adult population may be the result of an increased number of obese children today.
Unless the pricing of mortality risks embraces the possibility of this trend continuing in the future, the industry will be exposed to two key hazards. First and foremost is that the increasing prevalence of obesity will intensify the risk associated with inadequate underwriting ratings. Secondly, pricing bases for these risks may become obsolete in a shorter space of time. The life insurance industry must therefore ensure that prices can be adjusted sufficiently quickly to take account of the potential increasing claims cost.

**Facing the Future**

It is likely that the prevalence of obesity will continue to increase, at least in the short to medium term. This presents challenges for underwriters and actuaries, particularly given the increasingly competitive environment in many markets.

For underwriters, given that obesity and its effects could become more prevalent in future, it is perhaps worth considering whether the prospective risk of the applicant becoming obese could be underwritten at the application stage, compared with the current practice of assessing BMI at the time of application. It may also prove necessary in future to collect a wider range of data. For example, using the waist circumference of the applicant has been suggested as a criteria which, in conjunction with BMI, may prove better than BMI alone in identifying and assessing obesity.

From an actuarial standpoint, the impact of increasing obesity highlights the importance of understanding trends in obesity, and particularly childhood obesity. Actuaries may also need to rethink the risks associated with premium guarantees, and the way mortality improvements are factored into base pricing.

Unless dealt with effectively, in the longer term obesity could materially reduce, or reverse, the overall positive mortality trends being experienced in the major insurance markets. In the context of broader society, the trends and effects of obesity highlight the need for a variety of measures to be put in place to stem the growth of the problem.

Like the health effects of smoking, obesity usually stems from a choice about lifestyle. The fact that so many public spaces are now ‘tobacco-free’ zones is the result of education, persuasion and - in many cases - tough action. Tackling obesity, however, is the sole preserve of neither government, the medical profession, food manufacturers, the insurance industry nor consumers. This global epidemic calls for a combined and determined effort from all parties, who must be alert to this emerging risk and play a role in confronting it.

This article is based on a full report by Swiss Re, Too big to ignore: The impact of obesity on mortality trends. © 2004 Swiss Reinsurance Company, Zurich. All rights reserved.