

Growing Challenge of Obesity in the Insurance Industry

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Abstract

This paper highlights the menace of overweight and obesity which are on the rise. Health care systems and insurance industries are directly affected. Liability claims are on waiting. The food related damage claims are costly. Insurers are therefore driven to find a solution: classify overweight and obesity as a group, adjust their premium to reflect the cost, and justify the classification and the adjustments.

Key Words: Obesity Effects, Liability Claims, Insurance Cost

1. Introduction

It is postulated that overweight and obese persons may be categorized as a distinct group for insurance purposes. There are many reasons to support the suggestion, and a number of examples to follow up. In the first part of this paper the growing menace of consuming unhealthy food products, the trend of over-consumption of food, and the exposure of such consumers to diseases and disorders are considered. In the next section, the risk of floodgates in food related damage claims, various legal principles under which damage claims relating to food products could be maintained, and the insurers' dilemma in catastrophic exposures are discussed.

The underwriters make distinctions based on genders – males and females – and behaviors – smokers and non-smokers. The rate of premium reflects the degree of exposure by each category. It is reasonable that the group posing low risks pays lower premium and the one with greater exposure pays more in proportion. The group distinction and premium adjustments to match the

risks are long recognized legal rules. For the same reasons and in line with the same rule, overweight and obese people may be segregated as a group. They are high-risk subjects for insurance since their exposure to injuries, diseases, and complications are greater than those of average weighted persons. The categorization is a medical and statistical exercise using technological tools and scientific data. This article includes statistical reasons that favor grouping of over-weighted persons for insurance purposes.

2. Prevalence of Overweight and Obesity

Obesity was the top health story of 2003. Overweight and obesity have become major public health concerns. They also affect other sectors of life: community, social, economic, environmental, industrial aspects. Thus the interest in containing them is holistic. Statistically, the rate of increase in overweight and obese population is on the rise all over the world. The matter is of grave concern for the industrialized countries. The impact is being felt by the insurance industry.

The prevalence of overweight and obesity have reached epidemic proportions across the US, cutting across the boundaries of age, race, class, ethnicity, and culture. According to the data compiled in the 2003-2004 National Health and Nutrition Examination Survey (NHANES), around two-thirds of adults in the United States are either overweight or obese. In specific terms, the data reveal 33 percent of US adults between the ages of 20 and 74 are overweight and an additional 33 percent obese. The Centers for Disease Control and Prevention (CDC) predicts that 40 percent of the US population will be obese by 2010. The data recently published by the Centre for Disease Control compares the rise in obesity over the last three decades among the US adults between the ages of 20 and 74 years,

	1976-1980	1988-1994	1999-2000	2001-2002	2003-2004
Overweight	32.0	32.7	33.6	34.4	33.3
Obese	15.0	23.2	30.9	31.3	32.9

The prediction raised alarm calling for immediate intervention, and the government and organizations have stepped up preventive and remedial measures. Any preventive action should begin early in age. The survey also found that the rate of increase in overweight and obesity in children and adolescents surpasses that of adults. The NHANES estimates the number of overweight children between the age of 6 and 11 years and adolescents between 12 and 19 years have doubled during the last two decades. The number of obese children and adolescents in the same age groups tripled during the same period. The statistics of overweight children between the ages of 2-5, 6-11, and 12-19 recently published by the CDC is given below:

Age	1971-74	1976-80	1988-94	1999-00	2001-02	2003-04
2 – 5	5	5	7.2	10.3	10.6	13.9
6 – 11	4	6.5	11.3	15.1	16.3	18.8
12 – 19	6.1	5	10.5	14.8	16.7	17.4

2.1 Measuring Overweight and Obesity

Overweight is defined in simple terms as weighing too much, and obesity as having too much body fat. The overweight scale begins where there are a few extra pounds, and it extends to clinically severe obesity, when a person is 100 pounds or more overweight. The standard measure of overweight or obesity is by the use of Body Mass Index (BMI). It is calculated by dividing a person’s weight in pounds by the square of his or her height in inches, multiplied by 703. Under the metric scale, BMI is arrived at by dividing a person’s weight in kilograms by square of his or her height in meters. According to recognized scientific and medical organizations, including the US National Heart, Lung, and Blood Institute (NHLBI), persons with BMI of 25-29.9 belong to the category of overweight and those with 30 and higher to obesity. However, these cut-off points cannot be adhered to in strict terms. For, the risk factors do not increase in proportion to the number of rise in the BMI. Moreover, BMI does not show the difference between excess fat and muscle. As a result, a very muscular body may show high BMI with no adverse effects of overweight, but indeed fit and healthy. On the other end, it is not a reliable measure in the elderly who demonstrate normal BMI but remain in poor health and

weakness. However, as a general guideline BMI is closely associated with the measure of body fat and therefore a useful common tool.

There are other means to assist in categorizing overweight and obesity. The preferential areas for fat tissue deposits are empty spaces in the body mass. The abdominal cavity, subcutaneous tissue and the area under the chin have large spaces for fat deposit. The deposited fat volume within the abdomen, under the chin, under the subcutaneous skin, and in other parts of the body can be measured scientifically. Also there are other forms of measurements indicative of body fat content. Total body weight, waist circumference, waist-hip ratio, visceral fat assessment, subcutaneous fat thickness, and liver fat content are some of the overweight and obesity indicators. They can be used in conjunction with the BMI. With these combined tools of measures, it is possible to avoid ambiguity and to draw a demarcating line between healthy and unhealthy weight patterns. It is therefore possible to separate overweight and obese persons from others and consolidate them as a distinct group for insurance purposes.

2.2 Effect of Overweight Upon Health

Body weight is an individualized make-up, composed of genetic, metabolic, hormonal, behavioral, environmental, cultural and socioeconomic factors. Emotional and psychological elements also play a part. In the industrial countries behavioral and environmental factors are main contributors in the weight-building process. Human body, as a basic functional unit, is made for physical activities in daily living. However, lifestyle changes in recent decades reduced the nature and volume of physical activities. Move from rural to urban life, sedentary work, long working hours, extended TV shows, comfortable car rides, and convenient fast food are some of the common daily routines for accumulating weight.

The direct and indirect damaging effects of obesity on the health of individuals have long been documented. Unlike smoking, which is mainly a respiratory hazard, and drinking, a liver hazard, obesity is a universal hazard because of its impact on all systems of the body. The excess fat in the body burdens all tissues and organs, causing ‘metabolic syndrome.’ The syndrome refers to

damages caused to various functional units of the body, some affected more than others, through their interrelationship. The damage is progressive and exponential as the BMI reaches higher levels.

Obesity increases the risk of chronic medical conditions. Overworked and overloaded heart damage leads any or many of the followings: angina, heart attack, raised cholesterol, high pressure, stroke, peripheral vascular disease, and eventually death. Obese person's overstretched body defense (immune) system gives in to the development of cancer in the organs: esophagus, stomach, colon, liver, gall bladder, breast, uterus, cervix, ovary, pancreas, and kidney. The excessive demand of the body mass for insulin hormone results in diabetes with eventual complications: nerve damage, blindness, infection, tissue death, amputations, and kidney failure. Persons with overly heavy body mass easily become lethargic, inactive, and depressed: emotional and psychological toll aggravates existing physical conditions.

Considering the diseases and disorders attributable to obesity, and the complications associated with them, it is deducible that obese persons face premature death. According to the National Institutes of Health (NIH), obesity increases the risk of early death by 50-100 percent. On average obesity reduces the lifespan by seven years. The Surgeon General estimates that 300,000 US deaths a year are related to obesity and overweight.

2.3 Cost of Obesity

The healthcare costs are heavy on obese and overweight persons. Rand Corporation study states that obese persons use 36 percent more healthcare services than normal weighted persons. Surgeon General estimates that the rising healthcare costs of overweight and obese persons had taken up 10 percent of the total healthcare costs in the year 2000. Apart from the excessive use of healthcare resources and the costs, financial implications for insurance industry arise in many other ways.

Insurers suffer financial loss with the premature death of life insured. With the death and the immediate payment of policy limits, the life policy terminates. The termination of the policy

deprives the insurer of continued collection of future premium. Had the death not occurred prematurely, the payment of premium would have continued on the life of the insured.

Disability coverage carries greater burden to the insurer since obese persons suffer from chronic illnesses. Benefit payments under the coverage are prolonged due to slow recovery. The chronicity leads to repetitive disability claims, result in loss of working days, and end up with financial burden.

Overweight and obese persons are prone to accidental injuries. Workplace accidents compel payments for sick days, reimbursement of expenses for treatment, recuperation, and rehabilitation, and compensation for permanent damages sustained. Additionally, such injured persons become more vulnerable to further injuries and insults. Based on the study published in the Journal of the American Medical Association, Weisbart (2008) cites the medical claims costs as 6.8 times higher for the most obese workers and their indemnity costs as 11 times higher (see below).

Table 3: Medical & Indemnity WC Claims Costs by BMI:

Body Mass Index BMI	Medical Claim Costs Per 100 FTE	Indemnity Claim Costs Per 100 FTE
BMI: less than 18.5	\$ 7,109	\$ 3,924
BMI: 18.5 – 24.9	\$ 7,503	\$ 5,396
BMI: 25 – 29.9	\$ 13,338	\$ 13,569
BMI: 30 – 34.9	\$ 19,661	\$ 23,633
BMI: 35 – 39.9	\$ 23,373	\$ 34,293
BMI: greater than 40	\$ 51,091	\$ 59,178

3. Food Related Damage Claims

Apart from the health hazards that they suffer, overweight and obese persons drive the insurance industry to face new challenges. Potential for fast food liability claims are building up. There

were a number of food related law suits since the year 2001. In 2002, a group of obese teenagers filed a lawsuit in New York against McDonald's. The claim alleged that McDonald's acted negligently in selling them food containing high cholesterol, fat, salt and sugar. The court dismissed the case in January 2003 for lack of clarity and specificity. It stated that the plaintiffs failed to show that McDonald's food are "so extraordinarily unhealthy that they are outside the reasonable contemplation of the consuming public or that the products are so extraordinarily unhealthy to be dangerous in their intended use." In dismissing the claim, the court granted leave to file an amended version of the claim. The amended claim accused McDonald's of "deceptive practices in the promotion, distribution, advertising, processing and sale of certain products." Chicken McNuggets, Filet-o-Fish, chicken sandwiches, French fries, and hamburgers were cited as examples. The court dismissed the amended claim stating that the claimants did not establish a link between McDonald's food and their health problems, and that they failed to isolate the particular effect of McDonald's foods on their obesity and other injuries.

In May 2003 a non-profit organization, BanTransFats.com Inc. sued Kraft Foods in California. It alleged that Oreo cookies, a product of Kraft Foods, contained trans fat and the company unfairly targeted children in marketing its products. It asked the court to order Kraft to cease from selling Oreo cookies containing trans fat to children in California. Kraft agreed to make changes, and the organization in turn withdrew the case. Following the court challenge, Kraft Foods took positive steps toward improving its food products. It cut the fat and sugar contents in many of its products, and refrained from marketing its products in schools. Kraft even went to the extent of advertising to the children about good eating habits and lifestyles.

In 2001 McDonald's faced its first food related lawsuit. The case was not about fat and sugar and injury to the health. Three vegetarians accused McDonald's of failure to disclose that its French fries were precooked in beef fat. McDonald's apologized for its failure and settled the case for \$12.5 million. In a law suit settled by McDonald's in 2005, the allegation was McDonald's failure to use less fat in cooking. McDonald's announced that it was going to use less fat in cooking and then failed to do so without informing the public. There are several food related cases pending decision by the courts. These cases prove the potential future exposure of the players in the food and insurance industries. These cases are instrumental in propagating

awareness of the link between food and obesity and prompting remedial measures by the food industry, alerting the insurance industry of exposure to potential claims. They also stimulated the interest of the legal community on research, discussions and conferences and the development of strategies for future food related claims. It is expected that food related litigation will start flowing as it happened to other products in the past such as insults resulting from asbestos, tobacco, and environment.

3.1. Damage Claims under Different Legal Principles

Insurance industry may encounter obesity related liability claims under various categories. The producer of food products, the promoter of consumption and over consumption of them, and the marketer and the distributor of the products, and the advertisers of food items may be held liable for damages caused by food products. There are other industries associated with them in promoting particular food products -- sporting organizers, hotels, and restaurants—may also be held liable. There are a number of legal doctrines under which food related damage claims may be made. (see ---)

Product liability: The manufacturers may be accused of producing dangerous food products. They may be held liable for overweight and obesity, which caused injuries to the health. Example is the use of trans fat, which predisposes the consumer to increased cholesterol, thickening of blood vessels, deposits of fat bodies, blocking of the vessels in the heart. The ultimate result is heart attack. It has long been established that tras fat gives taste to the food, but adds weight to the body with its high calories and cause serious harm to the health. The food industry focuses on marketing palatable supplies leaving the consequential fate in the hands of the consumers. The fattened consumers can turn against the producers of dangerous food with tras fat.

Personal injury: Food products have beneficial effect as well as injurious consequences. Injuries may be attributable to the intake of particular food products. Food industry adds various chemical additives to preserve food, enhance taste, and alter certain qualities of the food

products. Manipulation of food products can cause unforeseen damages. Their consumption may result in diseases or disorders, or aggravate the conditions which are already there.

Negligence: Innovative and intrusive technological tools and skills are being developed. With the profit motive on the focus their use in food industry has become common. With the use of new technology and profit motivation, negligence claims would rise. The producer and the distributor will be held liable for knowingly produced the hazardous food. They are expected to maintain a standard of care toward their customers. If they fall below the expected standard of care, they will be liable for failing to exercise reasonable care to avoid hazardless.

Strict liability: Any food product that caused serious and severe damage may be brought under the strict liability claim. Under the strict liability rule, there is no question whether the dangerous quality of the food product is know or not known. The defense that ‘there is no way of knowing the risk of danger’ is not available to strict liability food products.

Failure to warn: As marketing strategy to promote the sales the producer or the distributor may fail to warn some inherent injurious risks in their food products. Failure to disclose the risk of harm or the limits in the consumption of particular food product or the danger of its over-consumption has the potential for liability claims. To be effective the warnings should be clear, prominent and understandable by the common people.

Breach of warranty: If the food product does not match the purported use or consumption, the producer or the promoter of the product will treated to have breached the undertaking on the suitability of the product for its intended use. They will be held liable for the breach. Certain food products are recommended for specific health conditions. The products should serve the purpose for which the consumer is invited to use them.

Misrepresentation: To knowingly make false or incorrect statement about a food product – may it be about its contents, quality, quantity, characteristics -- amounts to misrepresentation. Generally marketers use emotive, enticing language to attract customers. There is a gray area between embellishment of a product’s quality for the promotion of sale and misrepresentation. If

the purchaser relied on the alleged qualities which turn out to be untrue, the perpetrator will be liable for misrepresentation.

Negligent/reckless marketing: Recklessness refers to any harmful act with total disregard to its outcome. Distributing certain food products without caring whether or not it leaves harmful effects on the consuming public is recklessness. It is thoughtless acts of harm and willful negligence. In negligence claims the producer or distributor can raise the defense of having taken reasonable care in his actions. However, this defense of 'standard of care' does not apply to claims under recklessness or willful negligence.

Vicarious liability: Under vicarious liability in addition to the perpetrator of the injury, others who are connected or associated with the perpetrator will be held liable for damages. When an injury results, a chain of relationship is traced regarding the cause and effect. For instance, certain food products caused obesity; obesity led to unhealthy heart conditions; the attending physician missed to detect the failing heart; the heart conditions led to a heart attack while driving a motor vehicle; the heart attack caused an accident involving another vehicle; and the driver of the other vehicle died in the accident. Under rule of vicarious liability, dead victim's parents can sue the participants in the chain of events, including the driver of the vehicle, the physician, and the producer and distributor of the food products that led to obesity and unhealthy heart conditions

Advertising liability: People are generally misled by advertisements. Food products are advertised day in and day out over the media. The advertisers use evocative terms and phrases to describe their food products, display attractive dishes and bowls filled with food items, and portray eye-catching display of their benefits. Not only the sale of food products are promoted but the advertisements also target special interest groups-- youth and adults and vulnerable groups-- children and the elderly. The potential risk of harm to the children and to the old and feeble is very high. Although the advertisers resort to disclaimer to protect them, the liability claims against them may prevail.

4. Insurers' Dilemma

Insurers adopt various adjustments in their methods of underwriting, investigating, processing, and settling liability claims with a view to reflect the cost of providing insurance coverage and to contain insurance costs. They are in a difficult situation when claims are made many years later for injuries that occurred previously. Insurance coverage is provided on “occurrence basis” where the particular insurer is liable for damages that occurred during their specific coverage period. In food product claims the injurious effects of the products consumed or over-consumed may become evident after some years. The seriousness of the injuries may be learned many more years later. In law the right to make a claim for damages begins on the date the person becomes aware of the injuries. The “awareness date” and the “occurrence date” are far apart by many years. The insurers have to bear the enormous costs of meeting claims that relate to injuries that occurred, or injurious effects that began, many years ago.

Extra pounds in the body tax the physical and mental aspects of the person. In insurance terms these extra pounds should cost extra dollars for coverage. This seems to be the basic justification for classifying obese persons as a distinct category for fixing insurance premium. For the purpose of insurance exposures, overweight and obesity are falling as a disease condition, not merely a lifestyle issue. Insurers have counted obesity as a contributor to or a precipitator of diseases such as heart-disease, diabetes, and many others. Once the industry diagnostically views obesity as a disease condition, insurers may want to group obesity and overweight persons into a distinct category. They may claim that because of the degree of insult on the body’s functional systems attributable to excess weight, separate grouping of weighty persons for premium rates is abundantly justifiable.

5. Allegation of Discrimination

There may be some disagreement over the method of separating overweight and obese persons from others. In demarcating them as a group the industry may use as many measuring tools as possible in conjunction with the generally accepted BMI scale. Overweight and obese persons may raise objections on the basis of discriminatory treatment against them. There may be protests by the rights groups. Their allegations have merits when there are no scientifically

accurate methods to differentiate and classify overweight and obese persons as distinct groups. On the other hand, the industry's risk classification is totally discriminatory based on all shades of differences between peoples and groups. In that light, separating weighty persons from others would not be different from other existing classifications in the industry. Moreover, once overweight and obesity are accepted as a disease condition, the industry may hold the right to set up special premium rates for them, and consequently categorizing them as a distinct group.

Underwriters of life insurance categorize the applicants under the grouping of males and females and smokers and non-smokers. Under each category other factors are taken into consideration: age, lifestyle, family history, medical conditions of the past and present, age of death of parents, and their cause of death are some the considered factors. Factors are flexible but groups are not. The categorization into major groups has the advantage of certainty. It also serves as benchmark for premium rating. The premium for a male or for a female at certain age is fixed under a schedule. Similarly, insurers have established the premium for different age groups under the categories of smokers and non-smokers. However, there is no fixed rate for factors that affect the rating. As an example, in considering diabetes as one of the factors the status of the disease -- mild, moderate or severe -- influences the premium rating. As a factor, it gives room for premium adjustment, but at the expense certainty. Thus, factors determine the premium level according to the level of their affliction on the person.

Obesity may be considered as one the factors causing negative impact on the person's life and living. The amount of premium may be adjusted according to the numerical reading of the BMI. Indeed, some insurance companies have already begun doing it. The question is whether the insurance industry can conveniently accommodate the conditions within the purview of a "factor" in its numerous forms of coverage and protection. Overweight and obesity have become major epidemics, and proliferated at an exponential rate in the past decades. It is a growing concern for adults, but the risk and harm are greater for the children and adolescents, who begin their life as overweight and obese. The impact on human life and living is huge and immense. Thus, the need for separate treatment as a category in insurance matters!

6. Conclusion

Food related lawsuits are on waiting. The injuries and insult to the body caused by Food propaganda and promotion is a daily occurrence. The media of television, magazines, newspapers, flyers carry them. The agriculture industry, food processors, manufacturers, producers, distributors, grocers, beverage makers, restaurants and franchisers take part in many ways. Sporting events, entertainment industry, and many other event organizers play different roles in the process. Advertising agencies involve themselves in a big way. Fast food is catered for convenience. Food is promoted with various promises of slim-ness, youth-ness, happiness and taste-ness. Manufacturers and producers manipulate the taste to attract consumers. Toys are gifted with children's food. The lifestyle changes made in response to these promotions and propaganda end up as the burden of body weight. All those who submit themselves to this lifestyle should bear the extra pounds and pay the extra dollars.

References

Abdominal Fat Linked to Higher Death Rate in Men, New study Shows, (April 2006). Available at the web site <http://www.sciencedaily.com/releases/2006/04/>.

A Timeline of Trial Lawyers and Obesity Lawsuits, (Sept. 2004). Available at the web site http://www.consumerfreedom.com/article_detail.cfm/article/

Barclay, L., Obesity Increases Risk of Cancer Mortality, (April 2003). Available at the web site <http://www.medscape.com/viewarticle/>.

Bhattacharya, J. and Sood, N., Health Insurance and the Obesity Externality, (2006) *RAND Health Working Paper- WR 340*.

CDC: Obesity Approaching Tobacco as Top Preventable Cause of Death, (April 2004). Available at the web site http://www.doctorslounge.com/primary/articles/obesity_death/.

Chung, R., Obesity Weighs Heavily on Health care Costs: rising costs related to obesity could overwhelm our health care system, (August 2005), *Island Scene*. Available at the web site

<http://www.islandscene.com/article/>

Ferrucci, L. and Allet, D., Obesity, Disability and Mortality: A Puzzling Link, *JAMA: Intern Med.* 167, (2007): 750-751.

Hartwig, R. P. and Wilkinson, C., Obesity, Liability and Insurance. *Insurance Information Institute*: (i.i.i. White Paper:obesity). Available at the web site <http://www.iii.org>

Keshian, R. J., Obesity Claims - The New Frontier, *For the Defense*, March 2005.

McGovern, D. and Reitz, S. Keeping Pace with Social and Demographic Changes of an Aging Population.... You Have to be fast on Your Feet. *The Actuary* (2006): 40- 43.

Mello, M. M., Studdert, D. M. and Brennan, T. A., Obesity- The New Frontier of Public Health Law, *The new England Journal of Medicine*, 354 (2006): 2601-2610.

Obesity Still a Major Problem, *National Center for Health Statistics*, April 2006.

Obesity Increases Risk for Death from Cancer, (July 2003). Available at the web site

<http://www.healthandage.org/Home/>.

Obesity Increases risk of Kidney Failure Seven Fold, (January 2006). Available at the web site

<http://www.news-medical.net/>.

Obesity Linked to Shorter Lifespan, Higher Blood Pressure in Kids, (October 2006), *Heart and Stroke Foundation of Canada*. Available at the web site <http://ww2.heartandstroke.ca/>

Ostbye, T. Dement, J. M. and Krause, K. M., Obesity and Workers Compensation: Results from the Duke Health Safety Surveillance System, *JAMA: Intern Med.* 167 (2007): 766 – 773.

Pinchuk, L. S., Are Fast Food Lawsuits Likely to be the Next ‘Big Tobacco’, (February 2007).

Available at the web site <http://www.law.com/jsp/>.

Sturm, R., The Effects of Obesity, Smoking, and Problem Drinking on Chronic Medical Problems and Health Care Costs. *Health Affairs*, 21, (2002): 245-253.

Sturm, R. and Wells, K. B., Does Obesity Contribute as Much to Morbidity as Poverty or Smoking?, *Public Health*, 115, (2001): 229-235.

Thorpe, K. E., Florence, C. S., Howard, D. H. and Joski, P., The Impact of Obesity on Rising Medical Spending. *Health Affairs*, (October 2004). Available at the web site <http://www.content.healthaffairs.org/cgi/content/full/hlthaff.w4.480/DCI>.

Zimmerman, S., Obesity and Health Insurance. Available at the web site http://www.all-about-obesity.com/obesity_and_insurance.html.

Weisbart, S., Mega-Trends Influencing the Workers Compensation Insurance Industry, 5th *Annual National Workers' Compensation Insurance ExecuSummit*, (February 2008), New York.