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Research highlight

The financial burden of physical inactivity

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According to the World Health Organization, "physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million (annual) deaths globally."[1]

In the Research Highlight of the first issue of this journal, I reviewed the evidence which supports the notion that physical inactivity can cost lives, in terms of longevity and quality of life, especially in the last few years of our lives.[2] Here, I would like to review the literature that reveals the financial burden due to physical inactivity.

In a classic paper, Katzmarzyk and Janssen[3] estimated that the health care cost due to physical inactivity is about 2.6% of the total health care cost or $5.3 billion, for the year 2001 in Canada. Thirty percent of this $5.3 billion was direct health care expenditure, and the rest was indirect cost due to related work disability and premature death. Janssen[4] followed up their previous estimation a few years later, when the total cost had increased to $6.8 billion, which represents 3.7% of the total Canadian health care cost in 2009.

Rising health care costs due to physical inactivity is not unique to Canada. It is a major cost to governments in both developing and developed countries. Zhang and Chaaban[5] studied the health care cost of the five most prevalent non-consumable diseases (NCDs), coronary heart disease, stroke, hypertension, cancer, and type 2 diabetes in China. The prevalence of these diseases is highly correlated to the rise in physical inactivity. They concluded that more than 15% of the cost of NCDs in China was due to physical inactivity during 2007, to the tone of $6.7 billion. The Department of Health in the United Kingdom[6] estimated that the cost of physical inactivity in England was £8.2 billion (roughly $15 billion at the time) annually for 2004, including the direct costs of treatment for the major lifestyle related diseases, and the indirect costs caused through absence from work due to sickness.

There are several major methods for estimating the cost of physical inactivity. Birmingham and co-workers[7] estimated the cost of obesity due to physical inactivity using population attributable risk and disease-specific health care cost in their 1999 publication. Katzmarzyk and Janssen[3] based their computation on this method with some improvements. This method depends on the accuracy of the prevalence estimation for the specific disease, but the estimation of the prevalence is often not entirely factual. More accurate prevalence data can improve the accuracy of this method. The cost-of-illness method was first developed by Oldridge in 2008.[8] This method estimates the economic impact of a specific chronic disease due to physical inactivity using the drop in economic performance due to the disease. The Chinese data reported by Zhang and Chaaban[5] in 2005 used this method. This method might under-estimate the total cost, since it does not account for the individual and societal burdens introduced by physical inactivity. There are other methods to estimate the cost of physical inactivity, but the results of the different methods are converging to about the same level.

No matter what country that data came from or what method was used to estimate the share of the health care cost

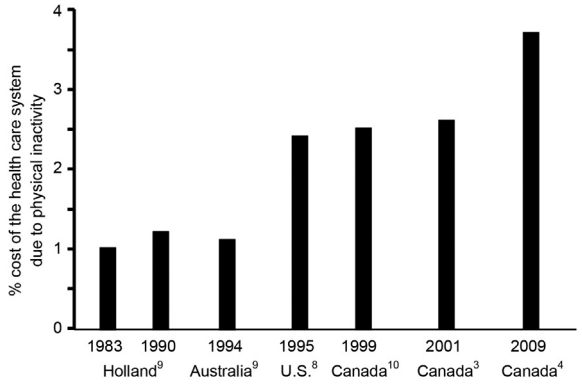

Fig. 1. Exemplar data for the cost of physical inactivity to the health care systems in various countries. The share of the health care cost due to physical inactivity increased from 1% to approximately 4% during the last two decades in selected counties.

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due to physical inactivity, it is clear that the percentage of health care cost due to physical inactivity has been increasing over the last 20 years (Fig. 1). Based on the review from Pratt and colleagues,[9] about 1% of the health care in Holland and Australia was due to physical inactivity between the early 1980s and early 1990s. The data from the US and Canada in the next decade more than doubled this rate at about 2.5% of the total health care cost.[3,9,10] The latest data published by Janssen[4] revealed that nearly 4% of the Canadian health care costs were due to physical inactivity in 2009.

Apart from the physical and psychological discomfort and the cost of longevity, physical inactivity adds major financial burdens to the health care systems in many countries, and brings undue financial stress to the individual, family, community, governments, and the world. Promoting physically activity will help to reduce this burden, in addition to improving people's quality of life.

References

1. *World Health Organization. Health topics: physical activity.* Available at: http://www.who.int/topics/physical_activity/en/ [accessed 30.11.13].
2. Li L. People can live longer by having more physical activity. *J Sport Health Sci* 2012;**1**:7−8.
3. Katzmarzyk PT, Janssen I. The economic costs associated with physical inactivity and obesity in Canada: an update. *Can J Appl Physiol* 2004;**29**:90−115.
4. Janssen I. Health care costs of physical inactivity in Canadian adults. *Appl Physiol Nutr Metab* 2012;**37**:803−6.
5. Zhang J, Chaaban J. The economic cost of physical inactivity in China. *Prev Med* 2012;**56**:75−8.
6. *Department of Health of United Kingdom. Publications policy and guidance: at least five weeks: evidence on the impact of physical activity and its relationship to health*. Available at: http://webarchive.nationalarchives.gov.uk [accessed 30.11.13].
7. Birmingham CL, Muller JL, Palepu A, Spinelli JJ, Anis AH. The cost of obesity in Canada. *CMAJ* 1999;**60**:483−8.
8. Oldridge NB. Economic burden of physical inactivity: healthcare costs associated with cardiovascular disease. *Eur J Cardiovasc Prev Rehabil* 2008;**15**:130−9.
9. Pratt M, Norris J, Lobelo F, Roux L, Wang G. The cost of physical inactivity: moving into the 21st century. *Br J Sports Med* 2012. http://dx.doi.org/10.1136/bjsports-2012-091810 [Epub ahead of print]. Q2
10. Katzmarzyk PT, Giedhill N, Shephard RJ. The economic burden of physical inactivity in Canada. *CMAJ* 2000;**163**:1435−40. Q1

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