

The health burden of smoking in Finland: Evidence from disability adjusted life years (DALYs)

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SHORT COMMUNICATION

1 Introduction

Smoking is a big risk factor for health, and it causes for example early deaths. The most significant diseases that are caused by smoking are cancer and the diseases of respiratory and circulatory system. Smoking also impairs the effectiveness of the treatment of diseases and increases the risk of complications for example after surgical operations. Smoking also weakens the effectiveness of many pharmaceutical therapies. (Sosiaali- ja terveystieteiden tutkimuskeskus 2018, 13.)

Tobacco and nicotine addiction is a serious condition and prevention of smoking should be especially focused on 10-16-year-olds. Smoking causes many diseases and lifetime of smokers is on average 10 years less than non-smokers. Instead of that the particles of smoke accumulate in the environment and morbidity of prone increases. (Duodecim 2019.)

The Ministry of Social Affairs and health guides and develops the tobacco policy. Smoking is the essential cause for health inequalities between demographic groups. It is also the biggest separate health risk. Tobacco products contain toxic components and causes serious addiction. Legislation and specifically The Tobacco Act is an essential tool for tobacco policy. (Sosiaali- ja terveystieteiden tutkimuskeskus 2020.) Finnish Tobacco Act aims at helping to achieve the goal that in Finland the use of tobacco products will end by the year 2030.

2 Smoking and the aims for the future

In Finland a lot of work has been done to reduce smoking and nowadays the aim of tobacco policy is to end the use of cigarette and other nicotine products (Sosiaali- ja terveystieteiden tutkimuskeskus 2020). In 1920's cigarettes were consumed most in the whole world in Finland per capita and today the situation is different from that. In 1950 there was a research done in USA about the connection of smoking and lung cancer and during 1950's in England the research indicated that smoking increases the risk of lung cancer. In 1980's in Finland 34% of men and 17% of women were smokers. In 1990's the percentage of those men who smoke was 33% and the percentage of those women who smoke was 20%. Smoking in workplaces was forbidden during 1990's and the age limit for buying cigarettes was raised from 16 to 18. In year 2000 smoking of men was decreased to 27% and the percentage of women smokers has increased to 23%. The directive of cigarette products (2001/37/EY) was accepted in EU and after that cigarette packages got new in-line health warnings. In 2003 the directive (2003/33/EY) which restricted cigarette advertising was accepted. In 2007 the restaurants in Finland became smokeless. In 2008 Savuton Suomi 2040 -project was incorporated and later it became Savuton Suomi 2030. The year in the name of the project indicates that year, which is hoped that Finland is smokeless. The animation of the Cancer Registrar of Finland demonstrates that reduction of smoking has decreased the cases of men lung cancers. Only every third lung cancer is found in women, but their percentage has increased because the women's smoking has become

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common later than men's. In 2010's 23% of men and 16% of women were smokers. Both percentages have decreased. The aim of the Cigarette Act was resettled from reducing the harms into the cessation of cigarette products in Finland by the year of 2040 (so-called endgame-thinking). In 2014 there needed to be the picture and texts of the health warnings in cigarette packages. In year 2015 16% of men and 12% of women were smokers. The work which has been done for health promotion and thus for the health-economic has produced results. (Savuton Suomi 2030 2020.)

If the aim of Tobacco Act will come true, less than 5% of population in Finland will use tobacco and nicotine products daily. (Savuton Suomi 2030 2020.) The burden of diseases because of smoking is big, but aim is that it gets smaller year by year as a result of this long-term work.

Taxation, smoking restrictions, smokeless areas, restrictions in marketing tobacco products, text and picture warnings in cigarette packages and global conventions for example are the tools to lead towards the smokeless aims. Many countries in the world are committed to decrease smoking and they have national guidelines in achieving these goals. (Murray, Forouzanfar & Gakidou 2017.)

3 Efficiency and cost-effectiveness

The definition of efficiency means that service causes results. They are usually the changes in client's life. When the aims are reached, it can be called efficient. It is called impact assessment when the aspect is expanded into side effects. Impact assessment is a tool for developing working methods. (Kettunen 2017, 6.)

Cost-effectiveness means reporting costs as money and efficiency is seen for example in the quality of life, changes in health or health behavior. Cost-benefit means that both investments and benefits are reported as money. (Stahl 2017, 971.)

Efficiency is dependent on how intensive the care is and the client's compliance. Efficiency comes into existence when few resources are in an optimal use. There can be different methods, analyses and aspects in impact assessment. The aim of the evaluation is to systematically consider utilities and utilities. Time makes difference when talking about quality and effectivity. If the output is good and high-class, it doesn't automatically mean that it is also efficient. Efficiency is later seen for example as a return to good condition. (Konu, Rissanen, Ihantola & Sund 2009, 286.)

Interventions in practice for efficiency and cost-effectiveness of promoting smokelessness are prevention to start smoking especially when talking about adolescents, rising the prices of tobacco products, increasing the restrictions of sale by rising the age limit for selling

tobacco products and intensified controlling of sale (Kiiskinen, Vehko, Matikainen, Natunen & Aromaa 2008, 14).

4 Disability adjusted life years (DALYS) for smoking

Financial evaluation of health promotion is difficult. Changes in health are seen in a long interval, which causes challenges in relation between impacts and benefits. Indicators which measure intermediate results can point out effectivity. They can be used to some extent when examining for example cessation of smoking. (Kiiskinen et al. 2008, 20.)

Those indicators which measure the outcome are essential in evaluation. There are both health and sickness specific indicators in use. The measures which are related to health, can give information both in clinical use and in impact assessment. In cost-effectiveness analyses, there are quality of life in use. World Health Organization (WHO) assesses the population's health with disability adjusted life years (DALYs). In cost-effective analyses value is understood as an increased well-being as a result of the intervention and years with well-being. The amount of quality-adjusted life years (QALYs) is used to measure the value, it considers both length of life and quality of life. (Konu et al. 2009, 286.)

Total disadvantages caused by diseases can be described as burden of diseases. Disability adjusted life years (DALYs) are used as indicators of the disease burden. The idea of DALYs is to count in the life years lost and morbidity because of early death by considering severity and duration of disadvantage. This gives a comprehensive picture of a disease burden. This indicator could be used more in Finland in addition to the traditional incidence numbers. (Reinikainen, Lehtomäki & Gissler 2020.)

Examples of non-sickness specific indicators are for example improved health, experienced social well-being and health, patient's complacency to care and the use of health care. Sickness specific indicators are for example the impacts on symptoms and physical performance, reducing of symptoms in a long interval, physical capacity, impacts on operational environment, recovery, return into good condition, decreasing of restrictions and possible side-effects. (Konu et al. 2009, 288.)

Controlling smoking and accepting the guidelines for tobacco control has been successful in health promotion and health worldwide. Still smoking is a biggest risk factor around the world for disability and early deaths. It is profitable to continue policy for reducing smoking. Worldwide there are 25% of men who are daily smokers and 5,4% of women who smoke daily. Those numbers have been decreasing since 1990. There are four countries where the smoking prevalence have been raising: Congo,

Azerbaijan, Kuwait and Timor-Leste. In 2015 11,5% of all the global deaths were connected to smoking. 52,2% of those deaths were in China, India, the USA and Russia. Smoking was categorized along five leading risk factors for

DALYs in 109 countries. The growth of population and the ageing of the population or a combination of them increased DALYs in smoking. In Australia, Brazil, China, Denmark, Dominican Republic, Iceland, Kenya,

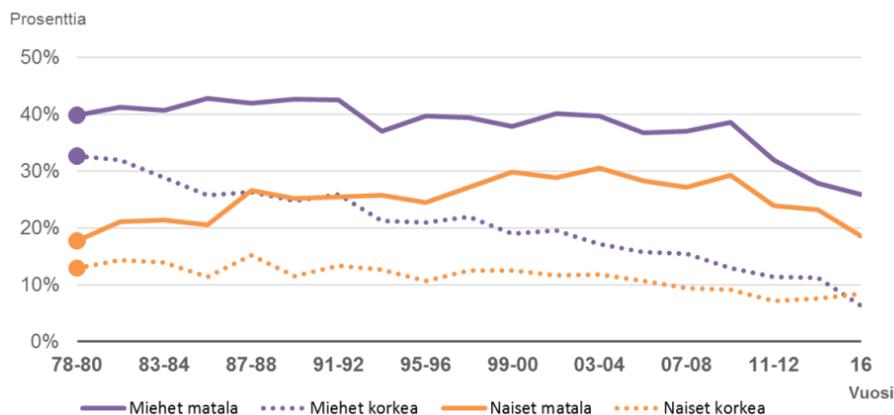


Figure 1. The proportions (%) of 25–64-year-old men and women who smoke daily, according to the educational state in years 1978-2016. (Terveyden ja hyvinvoinnin laitos 2020.)

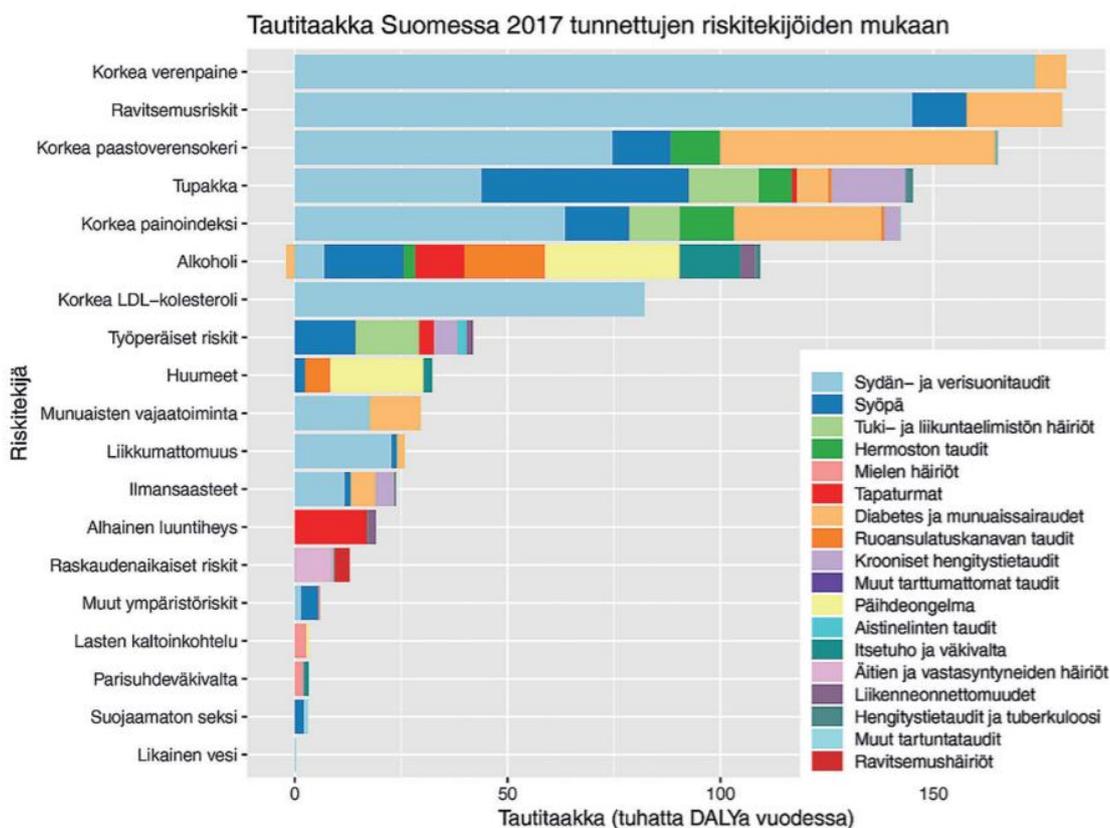


Figure 2. Burden of disease in Finland when classified according to risk factors. (Tuomisto & Lehtimäki 2019, 57.)

Netherlands, New Zealand, Norway, Sweden, Switzerland and the USA smoking has decreased significantly during 1990-2005 and 2005-2015, which indicates continuing progression in tobacco control (Murray et al. 2017).

In 2015 smoking was the second most common risk factor for early death and invalidity globally. Since 1990 more than five million people have died because of smoking annually. The smoking-caused disease burden is increasing. It is seen in lower income countries even more. Reducing smoking is cost-effective. Smoking increases health care costs and causes lost productivity. Though incidence of smoking has decreased, and DALY rates have fallen, population growth and ageing have compensated these wins. Intensified prevention of smoking is needed also in the future. (Murray et al. 2017.)

According to the international project, Global Burden of Disease, tobacco causes 116 640 with disability adjusted life years (DALYs) in Finland. In comparison to alcohol, which DALYs is 93 860 and environmental pollution, which DALYs is about 50 000. (Hänninen, Kutvonen, Rumrich, Asikainen, & Tuomisto 2014, 58.)

5 Conclusion

Prevalence of smoking has decreased during decades, but it has not happened without work. This systematic work will continue worldwide. Nowadays there are knowledge available for smokers, sometimes the problem is how to reach proper audience. For example, adolescents are the group that should have the support and knowledge in health promotion and the risks of smoking. Luckily there are projects and campaigns which take adolescents along to promote health and thus reduces disease burden in the future.

There are a lot of research done about smoking, its risk factors, socioeconomic aspects, global situation, and smoking between genders and from many other aspects. Health economical aspect gives one more aspect how to observe it. If financial and economic aspects become more common also in health care field, it is good progress and hopefully makes health impact assessment more common in decision making. Disability adjusted life years (DALYs) is an interesting tool to measure disease burden and gives financial and economical aspect on health burdens. It should be used systemically in health economic decisions and issues.

During last decade there have been strengthening of tobacco controlling (Murray et al. 2017) and it is needed, because the disease burden is not treated in a long time. With interest we will wait the smoking rates and percentages in 2030. Has Finland achieved its goals in Smokeless Finland-campaign? Do we have only 5% of

smokers by 2030? What more we could do to reach these goals?

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