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Health development of Poles in 2000-2019. Tobacco smoking and alcohol consumption influence assessment

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Abstract of the PhD dissertation

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After a significant increase in life expectancy in Poland since the early 1990s (resulting, among others, from a steady decline in cigarette consumption and a change in the structure of fat consumption), unexpectedly pace of increase in life expectancy first slowed down in the early 2000s, and then it halted from 2014 until 2019.

This doctoral thesis presents a description of the ongoing epidemiological changes in Poland in the years 2000-2019 at the background of the history of the adult Polish population's health changes since the beginning of the 20th century. It contains a detailed epidemiological analysis of the two main health risk factors (tobacco and alcohol) and the associated health burden. The assessment of health burden was based on the analysis of the absolute numbers and rates of deaths from lung cancer and 100% alcohol-attributable diseases. The study presents the results of the mortality analysis in the context of changes in trends of life expectancy in Poland. This dissertation assumes that in the years 2000-2019, the underpinnings of public health policy were weakened in Poland, and the resulting changes in tobacco and alcohol consumption significantly contributed to the change in the health status of adult Poles and, among others, to the frozen growth of life expectancy in Poland.

The conducted research confirms that both tobacco smoking and alcohol consumption have been significantly determining the health of Poles. Poland is an example of the positive impact that primary prevention can have on the reduction of tobacco-caused morbidity and mortality. In Poland, the pace of decline in smoking prevalence was one of the fastest in Europe, and after the introduction of comprehensive legislation in the 1990s, at the beginning of the 21st century, Poland was indicated by the World Health Organization as an example of comprehensive tobacco control efforts for other countries.

The prevalence of smoking in Poland has been decreasing since 1973 in men and since 1982 in women, and in the years 2000-2019 in the age group of 15 years old and more it decreased from 44% to 26% in men and from 24% to 17% in women. This positive trend led to a halt and then a decrease in morbidity and mortality due to tobacco-related diseases. In the observed period, lung cancer mortality among men aged 45-64 decreased from 161/100,000 to 79/100,000 (-51%). For women of the same age, the mortality rate in 2002 was 38 deaths per 100,000 population, then increased to 47/100,000 in 2014, and then began to decline, reaching again 38/100,000 in 2019.

In Poland, there are significant gender and age-related differences in the epidemiological picture of lung cancer mortality, which are related to the size and time lag of the smoking phenomenon. The most significant and fastest change in mortality in men concerned the youngest group of adults (20-44 years old) from 6.7 to 1.0 per 100,000 (in the years 1981-2019). In women, however, the time lag in tobacco exposure caused a delay in the reversal of the lung cancer mortality trend. In the youngest group of adult women (20-44 years old) and middle-aged women (45-64 years old), a significant decrease in lung cancer mortality was observed in the years 1999-2019. On the other hand, the epidemiological effects resulting from the decrease in the number of Polish women smoking in the oldest age group have still to be observed.

In the present thesis, it has been shown that despite a steady and significant decrease in smoking cigarettes, the prevalence of ENDS use among adults in Poland is low and has not increased in recent years. The frequency of regular use of ENDS in Poland in 2019 was 3% among men and less than 1% among women. On this basis, it was estimated that in the general adult population (aged 20 and over) in Poland in 2019, there were about 700,000 people using ENDS regularly (560,000 men in a total population of 14.6 million men) and 140,000 women (in a total population of 16 million women). From the public health point of view, the use of ENDS in Poland is not a significant problem, especially due to the incomparably greater extent of health consequences of smoking conventional cigarettes. However, ENDS are becoming a growing problem for children and adolescents. The frequency of smoking cigarettes in this group is decreasing, and the interest in ENDS is growing. In contrast to countries such as the United Kingdom, ENDS in Poland do not seem to play a significant role in smoking cessation in adults. Instead, they are a way for the industry to attract new nicotine consumers, especially among children and adolescents.

Until the end of the 20th century, deaths due to alcoholic liver cirrhosis in Poland were less frequent than in other European countries, e.g. in Hungary, Lithuania, or Estonia. However, since 2002, changes in alcohol consumption have been associated with a significant increase in mortality from alcohol-attributed liver cirrhosis.

Since the beginning of the 21st century, a weakening of public health policy towards alcohol has been observed in Poland. In early 2002, the excise duty on spirits was reduced by 30%, and in 2001, beer restrictions were loosened and beer advertising was reintroduced to television. Then in 2010, the alcohol industry launched an uncontrolled marketing campaign leading to

a dramatic increase in sales of small bottles of vodka. This has led to an increase in alcohol availability and consumption, as well as a change in the style of drinking alcohol. Recorded alcohol consumption per capita (aged 15 and over) increased from 8.1 liters of pure spirit in 2002 to 11.0 liters in 2019.

As a consequence, since 2002, Poland has been observing a growing burden of alcohol-related diseases. Since the early 2000s, mortality from 100% alcohol-attributable causes (AAC) has increased in both men and women across all age groups. The leading cause of death among that 100% alcohol-attributable was alcoholic liver cirrhosis (ALC). In 2019, it accounted for 50% of AAC deaths in men and 69% in women. Between 2002 and 2019, ALC mortality increased in both sexes and in all adult age groups.

In men, standardized death rates increased from 13.1 in 2002 to 45.8/100,000 in 2019 in the 45-64 age group, from 6.3 to 40.4/100,000 in the 65 and older group, and from 2.9 to 8.9/100,000 in the youngest adult age group (20-44 years). In women, the rates increased from 2.1 to 15.8/100,000, from 0.6 to 9.9/100,000, and from 0.6 to 3.3/100,000, respectively. The annual absolute number of deaths due to alcoholic cirrhosis in adult Poles (aged 20 and over) in 2019 compared to 2002 was 4.5 times higher in men and 9 times higher in women. However, the largest increase in the number of deaths was recorded in the oldest age groups.

In the observation period, the trends in the exposure of the population to carcinogenic factors of tobacco smoke and alcohol ran in opposite directions. This was reflected in decreasing trends of lung cancer mortality and increasing trends in mortality from alcohol-attributable diseases. Growing trends in alcohol-attributable mortality were accompanied also by a decline in cardiovascular and other tobacco-related mortality. In face of the declining trends in smoking and mortality from cardiovascular diseases and lung cancer, it seems that alcohol could have mainly contributed to the observed deterioration of Poles' health and frozen life expectancy until 2019. This is a serious challenge for public health in Poland.

Poland is an example of the huge success of the tobacco control policy leading to a decrease in lung cancer mortality. On the other hand, it is a country experiencing a weakening of public health policy towards alcohol and a growing epidemic of alcohol-related deaths, which is reflected in the highest alcoholic liver cirrhosis mortality rates ever recorded in Poland.

Despite this significant progress, still much remains to be done in tobacco control in Poland. Yet, about 7 million Poles smoke cigarettes every day. Nevertheless, the continuation of the existing effective anti-tobacco intervention programs may help further to reduce the health effects of tobacco smoking in Poland. In particular, a comprehensive strategy for tobacco control should be rebuilt, and Polish tobacco control legislation should be updated, taking into account good practices from around the world (i.e. the complete ban on smoking in public places, plain cigarette packs, and significant increases in cigarette excise tax adjusted to the level of inflation). It is necessary to restore systematic and good-quality scientific research on the basis of which the level of tobacco smoking in the population could be monitored and further effective preventive actions could be taken.

Moreover, Poland should urgently reintroduce the comprehensive alcohol control program dismantled at the beginning of the 21st century. A national strategy should be created, which would include, among others, an anti-promotional alcohol pricing policy, a ban on advertising, measures to limit the availability of alcohol, well-funded and effective educational campaigns, a continuous and significant increases in taxes on alcohol (taking into account constantly rising inflation), and a system of monitoring alcohol-related harms.

The obtained research results are an important contribution to understanding changes in the health status of the Polish adult population in recent decades and planning the necessary further research, which would be the basis for preparing recommendations for public health policy towards alcohol and tobacco in the next years.