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# Hundred years of cigarette smoking in Poland: three phases of the tobacco epidemic

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After the World War II Poland experienced a rapid growth of cigarette consumption. Between 1949 and 1980, tobacco sales increased from 21.8 billion cigarettes per annum to 94.2 billion. By the 1970s cigarette production, per capita sales, and smoking prevalence among Poles aged 15+ were among the highest in the world. The tobacco industry became a strategic branch of the economy. By the early 1980s circa 15 million Poles smoked (10.5 million males and 4.5 million females). This prolonged exposition to tobacco smoke after several decades led to an explosion of tobacco-related diseases.

Between 1980 and 2000 Poland first experienced stagnation in smoking rates, and then a sustained decline in both sexes. This has been attributed to the collapse of the tobacco industry in the 1980s, and the intervention programmes stemming from the Polish Anti-tobacco Law of 1995, as well as the activity of pro-health civil society groups and medical associations.

Smoking prevalence in Poland declined between 1970s and 2014 from 73% to 28% among men and from 30% to 19% in women. The annual decline rates in Poland in this period belonged to the fastest in the world. This positive trend led to the curbing, and later fall in rates of tobacco-related diseases. In the years 1990–2015 lung cancer mortality rates among middle-aged men (35–54 years) declined from 60/100,000 to 20/100,000 and in female population between 2005 and 2015 from 15/100,000 to 11/100,000.

**KEY WORDS:** tobacco, consumption per capita, smoking prevalence, Poland.**ADDRESS FOR CORRESPONDENCE:** Witold A. Zatoński, Professor of Medicine, Health Promotion Foundation, 51 Mszczonowska Street, 05-830 Nadarzyn, Poland, phone: +48 22 378 00 22, e-mail: [wazatonski@promocjazzdrowia.pl](mailto:wazatonski@promocjazzdrowia.pl)**INTRODUCTION**

Smoking has historically been, and continues to be, one of the key factors shaping the health of adult Poles. The aim of this article is to document and analyse cigarette sales and per capita consumption rates between 1923–2015, and the prevalence and epidemiology of smoking in both sexes between 1974 and 2015. Data suggest that the hundred years of cigarette smoking in Poland can be divided into three main periods: first, a slow increase in smoking from a very low level in the period before the World War II, second, an explosion of cigarette consumption, especially among men, after the Second World War, and third, a rapid decline in smoking rates in the 1990s. This paper discusses these developments.

**MATERIAL AND METHODS**

Smoking statistics for Poland are relatively comprehensive. This article is based on two principal sources of data – sales and per capita consumption statistics between 1923 and 2015, and smoking prevalence and socio-demographic of statistics from 1974–2015 [1–27].

**STATE SALE STATISTICS**

Data on cigarette sales in Poland between 1923 and 1989 were derived from the data of the Central Statistical Office of Poland [9, 14, 16, 18, 19, 21, 23, 24, 26, 28, 29]. These data are accurate, because until 1989 tobacco production, import, and sale were managed almost exclusively by the state. The state data after 1989 are less accurate,

also because the newly privatised tobacco companies disclosed them rather reluctantly for tax-related reasons [30].

### SMOKING PREVALENCE STATISTICS

Smoking prevalence statistics were drawn from research conducted by the Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology (Warsaw Cancer Centre), with two exceptions. The first exception, the 1974 survey on smoking in Poland, was an inaugural study conducted by the newly-opened public opinion research centre (OBOP) [1]. The second exception was a study conducted in 2015 by the Chief Sanitary Inspectorate [25]. Among the studies conducted by the Warsaw Cancer Centre, the first was carried out by Maria Jokiel in 1976 [2]. The studies conducted in the years 1982-2014 were carried out, developed, and published by the Warsaw Cancer Centre's Division of Cancer Epidemiology and Prevention, led by Professor Witold Zatoński, with the collaboration of Krzysztof Przewoźniak. They were invariably based on a representative sample of the adult Polish population (15 years old and over). The three-degree, proportionally stratified, randomized sampling design has not essentially changed since the first study. All of the studies were based on the same concept, survey questionnaire, sampling methods, etc. The sample sizes were usually 1000 individuals. The response rate has always been higher than 70% (80-90% on average). The questionnaire has changed little with time. Smoking categories were defined according to WHO recommendations [31-32]. Almost every year the studies have been prepared and conducted by the same research team from the Division of Cancer Epidemiology and Prevention and carried out by public opinion research centres. Their results were published in numerous scientific journals, books, monographs, reports, etc., in both Polish and English [1-27].

### RESULTS

After the World War II Poland experienced a rapid growth of cigarette consumption. Between 1949 and 1980, tobacco sales increased from 21.8 billion cigarettes per annum to 94.2 billion. The 1976 survey showed that cigarettes accounted for more than 99% of all tobacco products used in Poland [2]. Smoking prevalence among men aged 15+ stood at 73% with a total of 10.5 million men smoking. In the male population, there were no significant differences in smoking frequency by age group, place of residence or level of education.

The prevalence of smoking among men remained frozen since the mid-1970s. In contrast, among women it rose significantly, from 18% in 1974 to 30% in 1982

[3]. By 1982 4.5 million Polish women smoked [3, 16]. However, this figure concealed the significant differences between the different age groups/births cohort. In the oldest age cohort, 60+ (born before 1916) smoking prevalence in 1976 was around 5%. Among women aged 40-59 (cohort born between 1917-1936), it stood at 20%. In age groups 16-39 years (birth cohort 1937-1960) smoking prevalence was around 40%.

In 1982 the prevalence of smoking among women (30%) was the highest Polish in history [3]. Circa 15 million Poles smoked (10.5 million males and 4.5 million females). Through the 1980s cigarette consumption levels remained stagnant in both sexes (Fig. 1). The proportion of young male never-smokers rose slightly while rates of smoking among women kept increasing [12].

A rapid change started in the 1990s. For the first time in Polish history, smoking

rates fell both among men and women (Fig. 2). In the male population, the decrease could be observed in all age groups, with the pace fastest among the elderly. The decline occurred among all socio-demographic groups, but was much more pronounced among those better educated, better-off and more religious [12]. In women, smoking rates fell only in the younger age groups. The reduction has been most marked in the youngest (20-29) age group; over the last decade, smoking rates among women have fallen by half (Fig. 2). The greatest reduction has occurred among young, well-educated women [12].

Overall, smoking prevalence in Poland declined between the 1976 and 2014 from 73% to 28% among men and from 30% to 19% among women. This positive trend led to the curbing, and later fall in rates of tobacco-related diseases. In the years 1990-2015 lung cancer rates among middle-aged men (35-54 years) declined from 60/100,000 to 20/100,000 [33].

### DISCUSSION

Data indicate that the history of smoking in Poland could be divided into three broad epidemiological periods. In the first period, which stretched throughout the inter-war years, 1918-1939, smoking prevalence was at a low level in comparison to Western Europe, and it was increasing at a moderate pace until World War II (Fig. 2) [26, 34].

The second period began after the end of the World War II, when a rapid increase in the sale of cigarettes began in Poland, lasting until the 1980s. Cigarettes by far dominated the Polish market, and no other tobacco products became prominent [9]. By the 1970s cigarette production, per capita sales, and smoking prevalence among those aged 15+ in Poland were among the highest

This article is dedicated to the eminent British epidemiologist Sir Richard Peto. He was one of the first scientist to demonstrate the enormous burden of smoking-attributable mortality in Poland. His work allowed tobacco control to become a political priority in the country. Peto's continuous guidance and support helped Polish anti-tobacco advocates to develop pioneering research and intervention programmes in the 1990s.

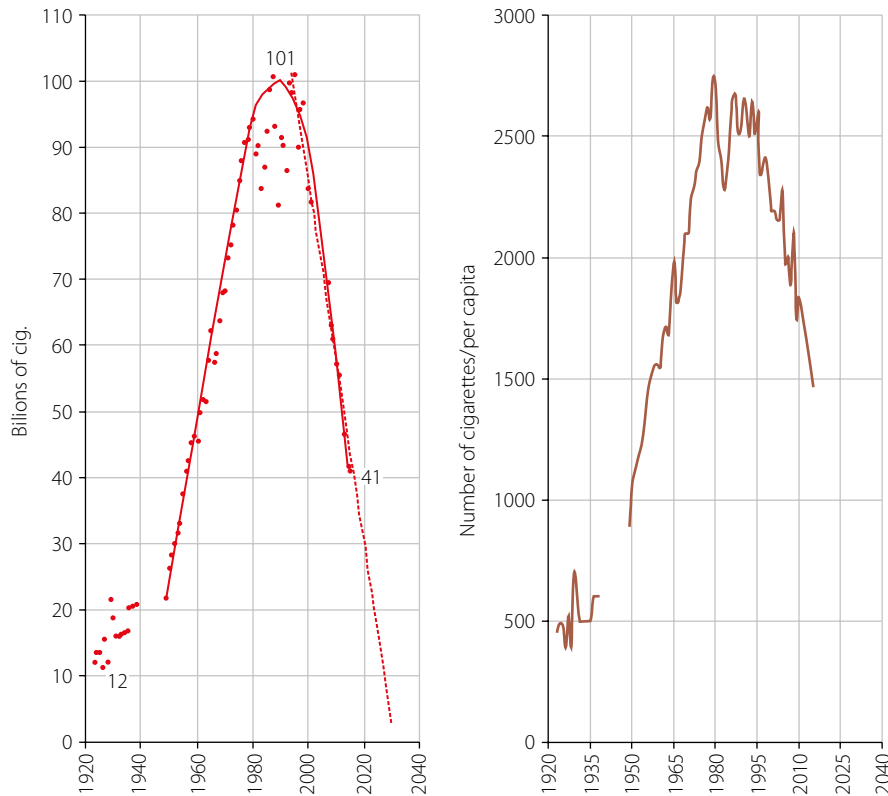


FIG. 1. Tobacco sale and tobacco consumption per capita in Poland, 1923–2015. Sources: [9, 14, 16, 18, 19, 21, 23, 24, 26, 28, 29]

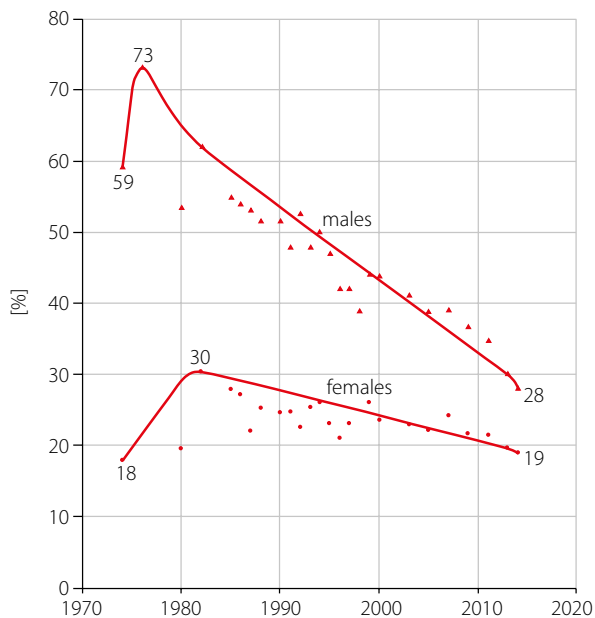


FIG. 2. Daily smoking by gender 15+, 1974-2014. Sources: [1-27]

was introduced as a result of the shortage of consumer goods on the market. Everyone, smokers and non-smokers, received their quota of cigarettes. As a result, there was a steep rise in the number of both everyday and occasional smokers by more than one million, while the absolute number of cigarettes consumed stagnated, or even declined [9]. Prolonged exposition to tobacco smoke after several decades led to an explosion of tobacco-related diseases. Adult premature mortality (deaths in age group 15-60) belonged to the highest in the world. The probability of a 15-year-old Polish boy to die before the age of 60 was twice higher than in Western Europe, but also higher than in China and India [27, 36-37].

The third period came, unexpectedly, in the 1990s. The social attitudes towards smoking began to change and for the first time in the 20<sup>th</sup> century cigarette consumption in Poland declined. This public health success was attributed to intervention programmes stemming from the Polish Anti-tobacco Law of 1995 [38], as well as the activity of pro-health civil society groups, the medical community, religious institutions, as well as national and local administration, in developing and conducting a comprehensive tobacco control programme [39, 40]. According to the GBD study [41] annualised rates of change in smoking prevalence between 1990-2015 was a decrease of 1.7% in Polish men and 0.9% in Polish women, placing them among the fastest declines in the world. Among European

in the world [35]. The tobacco industry became a strategic branch of the economy. In the 1980s tobacco sales stagnated due to an economic crisis brought about by political developments [12]. In 1981 cigarette rationing

countries, only Sweden, Denmark and Netherlands witnessed quicker smoking declines in males.

Overall, between 1990 and 2015 tobacco sales fell from 100 billion cigarettes to 40 billion (Fig. 1). This was accompanied by a decrease of tobacco-related diseases [33, 39]. This positive trend continues today.

## CONCLUSION

In the last years two important papers analysing the prevalence and trends of smoking in the years 1980-2012 [35] and 1990-2015 [41] have been published. Both of them ranked Poland in the top 10 countries around the world with quickest annual declines in smoking prevalence in both sexes. Between end of 1970s and 2015 the smoking prevalence in both sexes in Poland has declined by around 50%. The epidemiological analysis presented in this paper documents a century of tobacco control developments in Poland.

Despite this significant progress, much still remains to be done in tobacco control in Poland. As many as 8 mln Poles are still everyday smokers. Nonetheless, the experiences of the last decades indicated that a firm commitment to continuing the existing anti-smoking intervention programmes could help decrease premature mortality (dying before 65 years of age) in Poland by half, to under 10%. This would allow Poland to catch up with Europe's public health leaders such as Sweden [42, 43].

## DISCLOSURE

Authors declare no conflict of interest.

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#### AUTHORS' CONTRIBUTIONS

WAZ prepared the concept of the publication. MZ prepared the first draft of the article. All authors contributed to preparing the final version of the text and figures.