

# Health decline in Poland after 2002: response to a recent analysis of the changes in disease burden in Poland

Witold A. Zatoński<sup>1,2</sup>, Kinga Janik-Koncewicz<sup>1,2</sup>, Mateusz Zatoński<sup>2,3</sup>, Andrzej Wojtyła<sup>1</sup>

<sup>1</sup>Institute – European Observatory of Health Inequalities, Calisia University, Kalisz, Poland

<sup>2</sup>Health Promotion Foundation, Nadarzyn, Poland

<sup>3</sup>Tobacco Control Research Group, Department for Health, University of Bath, United Kingdom

## ABSTRACT

In March 2020 “PLoS One” published a paper by Gańczak and colleagues exploring the trends in years of life lost (YLLs), years lived with disability (YLDs), and disability-adjusted life years (DALYs) in Poland between 1990 and 2017, concluding that health in Poland is improving. Our research demonstrates that for the last 18 years Poland has experienced a public health crisis culminating in a health recession. In the period between 2003 and 2018 health growth in Poland first slowed down, and then came to a halt. Finally, between 2017 and 2018 life expectancy in Poland was declined. It is becoming increasingly obvious that one of the main causes of this health recession in the first decades of the 21<sup>st</sup> century has been the sudden and very pronounced increase in causes of death wholly attributable to alcohol consumption in Poland.

**KEY WORDS:** health crisis, Poland, life expectancy, alcohol-attributable death.

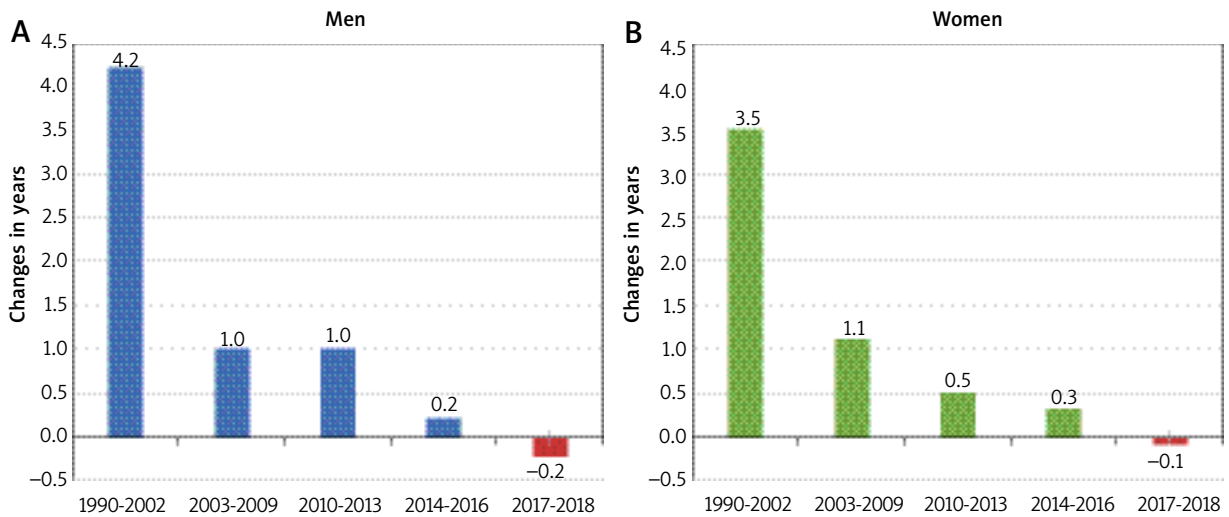
**ADDRESS FOR CORRESPONDENCE:** Witold A. Zatoński, Institute – European Observatory of Health Inequalities, Calisia University, Nowy Świat 4, 62-800 Kalisz, Poland, e-mail: [wzatonski@akademikaliska.edu.pl](mailto:wzatonski@akademikaliska.edu.pl)

In March 2020 “PLoS One” published a paper by Gańczak and colleagues exploring the trends in years of life lost (YLLs), years lived with disability (YLDs), and disability-adjusted life years (DALYs) in Poland between 1990 and 2017 [1]. However, the paper has a fundamental shortcoming, namely the choice of just two time points – 1990 and 2017 – around which the analysis is focused. Treating the period between 1990 and 2017 as a homogenous whole has unfortunately led the authors of this otherwise important publication to misleading conclusions<sup>1</sup>. These are encapsulated by the opening sentence of the Conclusion: “Health in Poland is improving [...]”. In fact, our research demonstrates that for the last 18 years Poland has experienced a public health crisis culminating in a health recession [2-11].

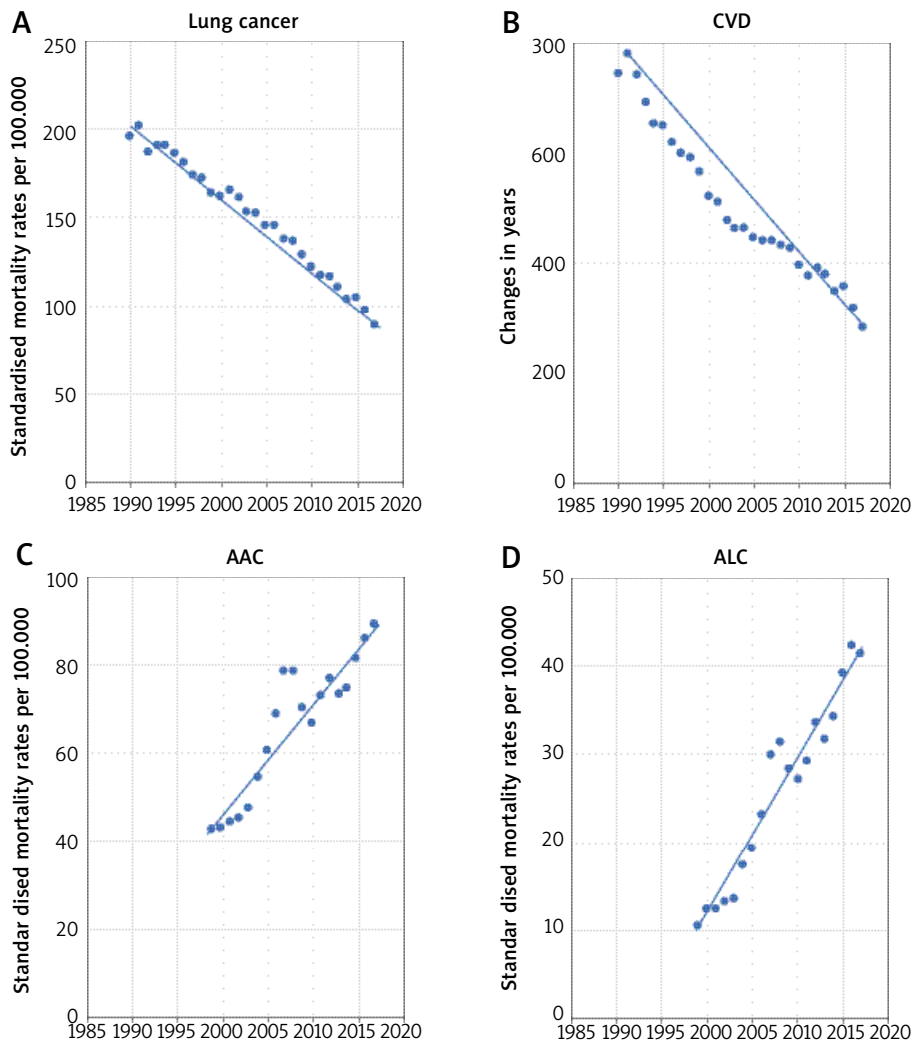
A more nuanced look at the health trends between those dates in Poland shows that they are characterised by two very distinct periods, which merit to be analysed separately. First, between 1990 and 2002 Poland has experienced one of the steepest rates of health gain in Europe, which is reflected in almost all health indicators, including the best synthetic indicator – life expectancy. In this period life expectancy has grown by 4.2 years among Polish men and 3.5 years among Polish women [7-9, 12] (Fig. 1).

Unfortunately, this was followed by negative developments between 2003 and 2017, when the health growth in Poland has first slowed down, and then come to a halt. Finally, in the past two years life expectancy in Poland has been slightly declining [10] (Fig. 1).

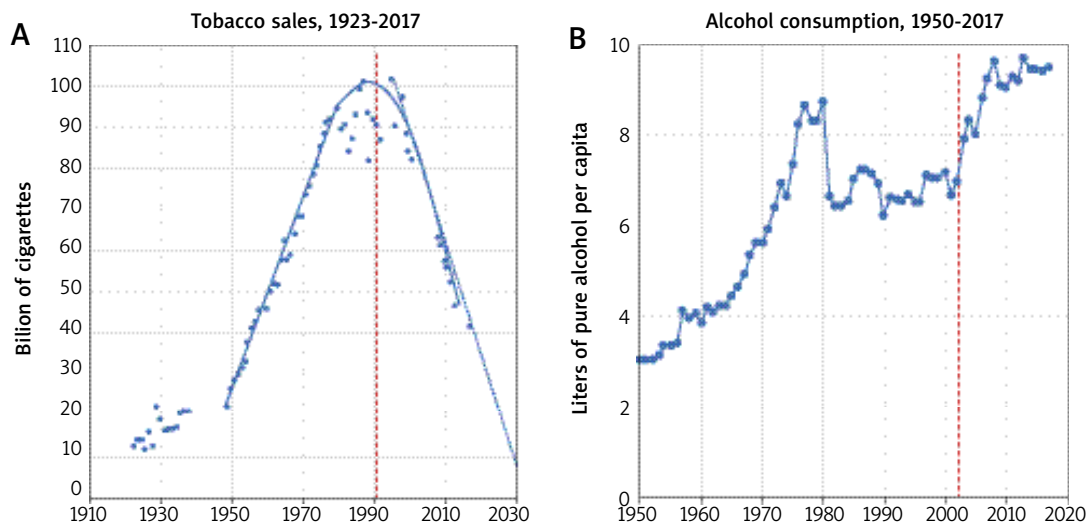
<sup>1</sup> In May 2020, we sent the editors of “PLoS One” a paper commenting on how the published analysis reached misleading conclusions regarding the health developments in Poland in the last 18 years. After corresponding with the editors for over 3 months – an exchange focused on technical aspects rather than substantive problems with the paper – “PLoS One” refused to publish our paper in their journal.



**Figure 1.** Changes in trends of life expectancy in selected time periods between 1990 and 2018 in Poland



**Figure 2.** Time trends in mortality rates in men aged 45-64 between 1990 and 2017 in Poland due to lung cancer (A), cardiovascular diseases (CVD) (B), causes of death wholly attributable to alcohol consumption (AAC) (C) (including alcoholic liver cirrhosis) and alcoholic liver cirrhosis (ALC) (D)



**Figure 3.** Trend in tobacco sales (A) and alcohol consumption (B) per capita (0+) in Poland

It is becoming increasingly obvious that one of the main causes of this health recession in the first decades of the 21<sup>st</sup> century has been the sudden and very pronounced increase in causes of death wholly attributable to alcohol consumption (AAC) in Poland [13-15]. AAC in the 20+ age group doubled among men and more than tripled among women (from 22.8/100,000 in 2002 to 45.8/100,000 in 2017 in men, and from 2.8/100,000 to 10.4/100,000 in women) [4]. A particularly steep rise has been recorded in alcoholic liver cirrhosis in men aged 45-64 (Fig. 2) [4, 16, 17]. This increase has been among the steepest in Europe (in fact in most European countries alcohol-related mortality has been declining) [15, 18-20].

The key factor driving these negative changes in Poland has been the growth in consumption of alcohol, from 6.5 litres per capita per annum in 2002, to almost 10 litres in 2017 [11] (Fig. 3). Poland, unlike Mediterranean and Balkan countries, until the late 20<sup>th</sup> century had moderately low levels of alcohol-attributable diseases, including alcoholic liver cirrhosis [5, 14, 15, 21]. Since 1982, as a result of pressure from the Solidarity movement [22, 23], alcohol control in Poland was based on a comprehensive programme of limiting the health effects of alcohol, based on Scandinavian models [24]. In the last two decades of the 20<sup>th</sup> century alcohol consumption in Poland fluctuated on a moderate European level, between 6 and 7 litres of pure spirit per capita per annum [11, 14, 15, 18]. At the dawn of the 21<sup>st</sup> century alcohol consumption in Poland stood at 6.5 litres, which placed it on the lower end of the spectrum of consumption in European countries [14].

The increase in alcohol consumption followed the weakening of Polish alcohol control regulation in the early 2000s [25]. In 2001 beer advertising returned to TV and in August 2002 the excise tax on vodka was lowered by 30% [11, 26, 27]. From 2010 the alcohol industry has

launched a massive marketing push, promoting small bottles (100-200 ml) of flavoured vodka available in thousands of retail outlets, in many of them for 24 hours/day, 7 days a week. Every day 3 million such bottles are sold in Poland, including around 600,000 between 6 am and noon. This amounts to over 1 billion small vodka bottles sold every year, which in 2017 accounted for over half of all vodka sold in Poland [11, 28, 29].

Another important omission in the Gańczak *et al.* paper is the fact that the authors have not highlighted the astounding divergence between the two key risk factors of non-communicable diseases in Poland – alcohol and cigarette consumption – in the analysed period (Fig. 3). The case of alcohol is outlined above. At the same time, since 1990 the consumption and sale of cigarettes in Poland, as well as smoking prevalence, have seen some of the fastest rates of decline in the world [30-40]. The consumption of cigarettes decreased from almost 4,500 cigarettes per annum per capita in the 1980s (one of the highest levels ever recorded globally) to under 1,500 cigarettes in 2015 [31-33]. Since alcohol and tobacco are both additive and competing risk factors for many non-communicable causes of death, diverging developments in these behaviours might precipitate misleading conclusions concerning the changing impact of alcohol on mortality [4, 13, 18, 33, 41-45].

Finally, while the impact of the reduction in smoking rates on the epidemiology of lower respiratory infections and COPD in Poland is mentioned in the Gańczak *et al.* paper [1], the same is not the case for other leading disease groups, most prominently cardiovascular diseases. This is a significant omission given that smoking in Poland is a fundamental risk factor for cardiovascular diseases [12, 46-51]. The huge decline in smoking rates in Poland is responsible for at least 1/3 of decrease in cardiovascular mortality between 1990 and 2017 [7-9, 12] (Fig. 2).

As is clear from the above, in order to understand the developments in health in Poland in the last 30 years any study must acknowledge the specificity of the country's epidemiological trends. On one hand, Poland has been the country with one of the world's fastest and largest declines in smoking, and smoking-related diseases, especially among men. On the other, the lack of coherent alcohol control policy led to an alcohol epidemic and a surge in premature deaths attributable to alcohol consumption, especially among young and middle-aged adults [2, 23, 52-56]. In result, in contrast to the conclusions of the paper by Gańczak and colleagues [1], in the last 15 years health improvement in Poland has stalled, culminating in a health recession in the last two years, in which life expectancy levels have actually declined.

## DISCLOSURE

The authors report no conflict of interest.

## References

- Gańczak M, Miazgowski T, Kozybska M, et al. Changes in disease burden in Poland between 1990-2017 in comparison with other Central European countries: a systematic analysis for the Global Burden of Disease Study 2017. *PLoS One* 2020; 15(3): e0226766.
- Zatoński WA, Sulkowska U, Zatoński MZ, et al. Alcohol taxation and premature mortality in Europe. *Lancet* 2015; 385(9974): 1181.
- Zatoński WA, Zatoński MZ, Janik-Koncewicz K, McKee M. Alcohol-related liver cirrhosis in Poland: the reservoir effect. *Lancet Gastroenterol Hepatol* 2020; 5(12): 1035.
- Zatoński WA, Zatoński MZ, Janik-Koncewicz K, Wojtyła A. Alcohol-related deaths in Poland during a period of weakening alcohol control measures. *JAMA* 2021 [in print].
- Pikala M, Janik-Koncewicz K, Zatoński WA. Educational inequalities in mortality due to alcoholic liver disease in Poland. *J Health Inequal* 2020; 6(2): 134-138.
- Nicholls J. Alcohol policy in global context. In: *The SAGE Handbook of Drug & Alcohol Studies. Social Science Approaches*. Kolid T, Thom B, Hunt G (eds.). Available from: [https://www.researchgate.net/publication/314146543\\_Alcohol\\_policy\\_in\\_global\\_context](https://www.researchgate.net/publication/314146543_Alcohol_policy_in_global_context) (accessed: 20.05.2020).
- Zatoński WA, Bhalra N. Changing trends of diseases in Eastern Europe: Closing the gap. *Public Health* 2012; 126(3): 248-252.
- Zatoński WA, Zatoński M. Democracy is healthier – health in Poland in the late 1980s and 1990s. *J Health Inequal* 2016; 2(1): 17-24.
- Zatoński WA. One hundred years of health in Poland. *J Health Inequal* 2019; 5(1): 11-19.
- Zatoński WA. The alcohol crisis in Polish public health. *J Health Inequal* 2019; 5(2): 122-123.
- Zatoński WA, Młodziński I, Zatoński M, Gruszczynski Ł. Small bottles – huge problem? A new phase of Poland's ongoing alcohol epidemic. *J Health Inequal* 2019; 5(1): 86-88.
- Zatoński W and the HEM project team. Closing the health gap in European Union. The Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology, Warsaw 2008.
- Rehm J, Baliunas D, Borges GLG, et al. The relation between different dimensions of alcohol consumption and burden of disease – an overview. *Addiction* 2010; 105(5): 817-843.
- GBD 2016 Alcohol Collaborators. Alcohol use and burden for 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 2018; 392(10152): 1015-1035.
- GBD 2017 Cirrhosis Collaborators. The global, regional, and national burden of cirrhosis by cause in 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet Gastroenterol Hepatol* 2020; 5(3): 245-266.
- Bosetti C, Levi F, Lucchini F, et al. Worldwide mortality from cirrhosis: an update to 2002. *J Hepatol* 2007; 46(5): 827-839.
- Zatoński WA, Sulkowska U, Mańczuk M, et al. Liver cirrhosis mortality in Europe, with special attention to Central and Eastern Europe. *Eur Addict Res* 2010; 16(4): 193-201.
- World Health Organization. Global status report on alcohol and health 2018. Available from: [https://www.who.int/substance\\_abuse/publications/global\\_alcohol\\_report/en/](https://www.who.int/substance_abuse/publications/global_alcohol_report/en/) (Accessed: 14.04.2020).
- Popova S, Rehm J, Patra J, Zatoński W. Comparing alcohol consumption in central and eastern Europe to other European countries. *Alcohol Alcohol* 2007; 42(5): 465-473.
- Rehm J, Zatoński W, Taylor B, Anderson P. Epidemiology and alcohol policy in Europe. *Addiction* 2011; 106 (Suppl 1): 11-19.
- Mackenbach JP, Kulhanova I, Bopp M, et al. Inequalities in alcohol-related mortality in 17 European countries: a retrospective analysis of mortality registers. *PLoS Med* 2015; 12(12): e1001909.
- Moskalewicz J. Lessons to be learnt from Poland's attempt at moderating its consumption of alcohol. *Addiction* 1993; 88 (Suppl): 135S-142S.
- Świątkiewicz G, Wieczorek Ł, Allamani A. What influences changes in alcoholic beverage consumption over time? Poland is the light of the European Union Amphora Study. *Subst Use Misuse* 2014; 49(12): 1601-1610.
- Act of 26 October 1982 on Upbringing in Sobriety and Counteracting Alcoholism. Available from: <http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19820350230> (Accessed: 17.03.2020).
- Zatoński M, Hawkins B, McKee M. Framing the policy debate over spirits excise tax in Poland. *Health Promot Int* 2018; 33(3): 515-524.
- Act of 27 April 2001 regarding Upbringing in Sobriety and Counteracting Alcoholism, the Broadcasting Act, and the Stamp Duty Act. Available from: <http://www.parpa.pl/download/ustawaang.pdf> (Accessed: 18.06.2019).
- Ordinance of the Minister of Finance of 01.08.2002, no. 1065. Available from: <http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20021251065> (accessed: 18 June 2019).
- Synergion. Where is the little vodka flowing? Report on the 'little vodka' market and the changes it causes in consumer behaviour. Available from: <https://www.slideshare.net/synergion/synergion-raport-dokad-plynie-mala-wodka-2019> (accessed: 18 June 2019).
- Silczuk A, Zatoński WA. Assessment of the current drinking pattern in Poland. A study among people hospitalized at the Institute of Psychiatry and Neurology in Warsaw. *J Health Inequal* 2020; 6(1): 7-10.

30. Ng M, Freeman MK, Fleming TD, Robinson M, et al. Smoking prevalence and cigarette consumption in 187 countries, 1980-2020. *JAMA* 2014; 311(2): 183-192.
31. Hoffman SJ, Mammone J, Rogers Van Katwyk S, et al. Cigarette consumption estimates for 71 countries from 1970 to 2015: systematic collection of comparable data to facilitate quasi-experimental evaluations of national and global tobacco control interventions. *BMJ* 2019; 19: 12231.
32. Zatoński WA, Zatoński M, Janik-Koncewicz K, et al. Hundred years of cigarette smoking in Poland: three phases of the tobacco epidemic. *J Health Inequal* 2017; 3(2): 118-122.
33. Berridge V. Tobacco control in the WHO European Region. *Cultural Contexts at a Glance*, No. 2. Available from: <http://www.euro.who.int/en/health-topics/disease-prevention/tobacco/publications/2020/cultural-contexts-at-a-glance,-no.-2-tobacco-control-in-the-who-european-region-2020> (Accessed: 14.05.2020).
34. Zatoński MZ. State, society, and the politics of smoking in Poland, during and after communism (1960-2000). PhD thesis, London School of Hygiene & Tropical Medicine 2019. Available from: <https://researchonline.lshtm.ac.uk/id/eprint/4653914/> (accessed: 14.05.2020).
35. Zatoński MZ. Poland's anti-tobacco advocacy – a historical outline. *J Health Inequal* 2016; 2(1): 26-31.
36. GBD 2015 Tobacco Collaborators. Smoking prevalence and attributable disease burden in 195 countries and territories, 1990-2015: a systematic analysis from the Global Burden of Disease Study 2015. *Lancet* 2017; 389(10082): 1885-1906.
37. Zatoński M, Zatoński WA, Przewoźniak K, Jaworski M. The significance and impact of the Polish Anti-tobacco Law. *J Health Inequal* 2016; 2(1): 32-35.
38. Zatoński W, Przewoźniak K, Sulkowska U, et al. Tobacco smoking in countries of the European Union. *Ann Agric Environ Med* 2020; 19(2): 181-192.
39. Zatoński WA, Tukiendorf A, Zatoński M, et al. Lung cancer mortality decline among middle-aged men and women in Poland and the UK. *J Health Inequal* 2017; 3(2): 123-126.
40. Zatoński WA, Zatoński M. Poland's rapid lung cancer decline in the years 1990-2016. The first step towards the eradication of lung cancer in Poland. *Health Prob Civil* 2017; 11(4): 211-225.
41. Bagnardi V, Zatoński W, Scotti L, et al. Does drinking pattern modify the effect of alcohol on the risk of coronary heart disease? Evidence from a meta-analysis. *J Epidemiol Community Health* 2008; 62(7): 615-619.
42. Praud D, Rota M, Rehm J, et al. Cancer incidence and mortality attributable to alcohol consumption. *Int J Cancer* 2016; 138(6): 1380-1387.
43. Rehm J, Sulkowska U, Mańczuk M, et al. Alcohol accounts for a high proportion of premature mortality in central and eastern Europe. *Int J Epidemiol* 2007; 36(2): 458-467.
44. Zatoński W. Alcohol and health: what is good for the French may not be for the Russians. *J Epidemiol Community Health* 1998; 52(12): 766-767.
45. Fedak K, Bernal A, Capshaw ZA, Gross S. Applying the Bradford Hill criteria in the 21st century: how data integration has changed causal inference in molecular epidemiology. *Emerg Themes Epidemiol* 2015; 12: 14.
46. McMichael A, Zatoński W. Environmental, behavioral, and socioeconomic influences: tackling the historical jigsaw puzzle of health in Central and Eastern Europe. *Int J Occup Environ Health* 1996; 2: 161-163.
47. Zatoński W, Boyle P. Commentary. Health transformations in Poland after 1988. *J Epidemiol Biostat* 1996; 1(4): 183-197.
48. Zatoński W, McMichael AJ, Powles JW. Ecological study of reasons for sharp decline in mortality from ischaemic heart disease in Poland since 1991. *BMJ* 1998; 316(7137): 1047-1051.
49. Zatoński W, Willett W. Changes in dietary fat and declining coronary heart disease in Poland: population based study. *BMJ* 2005; 331(7510): 187-188.
50. Janik-Koncewicz K, Zatoński WA, Herbeć A, Zatońska K. Unsaturated fat and cardiovascular health in Poland. *J Health Inequal* 2016; 2(1): 63-66.
51. Zatoński W, Campos H, Willett W. Rapid declines in coronary heart disease mortality in Eastern Europe are associated with increased consumption of oils rich in alpha-linolenic acid. *Eur J Epidemiol* 2008; 23(1): 3-10.
52. Bielinska-Kwapisz A, Mielecka-Kubien Z. Alcohol consumption and its adverse effects in Poland in years 1950-2005. *Economics Res Int* 2011; 2011: 1-13.
53. Moskalewicz J, Razvodovsky Y, Wieczorek Ł. East-west disparities in alcohol-related harm. *Alcoholism and Drug Addiction* 2016; 29(4): 209-222.
54. Veryga A. 2008 – Lithuania's year of sobriety: alcohol control becomes a priority of health policy. *Addiction* 2009; 104(7): 1259.
55. Khaltourina D, Korotayev A. Effects of specific alcohol control policy measures on alcohol-related mortality in Russia from 1998 to 2013. *Alcohol Alcohol* 2015; 50(5): 588-601.
56. Aarø LE, Zatoński WA, Zatoński M, Wojtyła A, and advisory group. Declaration from the World Conference on Family Health, Calisia, 2019. *J Health Inequal* 2019; 5(2): 129-132.

#### AUTHORS' CONTRIBUTIONS

WAZ prepared the concept of the article. WAZ, KJK and MZ prepared the manuscript. All authors took part in preparing the final version of the publication.