

# **Challenges in the Period of Epidemiological Renewal in Hungary: Relationship between Smoking and the unfavourable Mortality Conditions of middle-aged and older Women**

András Wéber<sup>ab</sup>

## **Extended abstract**

Due to the epidemiological crisis characteristic of socialist systems, societies in Central and Eastern Europe entered much later the fourth era of the epidemiological transition than western countries. Following the regime change, the cardiovascular revolution occurred with delay, life expectancy started to increase and a renewal can be experienced in the epidemiological development. In terms of life expectancy at age 40, Hungarian men are catching up with men in western countries, but in case of women, the rising trend has slowed down and the differences are entrenched. The aim of the research is to study the tobacco-related mortality conditions of the vulnerable middle-aged and older female population by, age and causes of death, adapting the internationally recommended method<sup>c</sup> (updated in 2013) of the CDC<sup>d</sup> for the circumstances in Hungary, from the 2000s to our days. In case of women the value of the smoking-attributable trachea, bronchus, lung cancers SDR/100000 dramatically increased by 60%. This is mainly due to the rising mortality trend of the 50-70 year-old smoker females. The tobacco consumption undoubtedly play a role in the unfavourable slow mortality improvement among women in Hungary. The risk of widowhood resulting from the earlier death of men, in respect of lifestyle, the decreasing differences in the health behaviour of the two sexes, as well as the extra burdens resulting from the reconciliation of career and family all justify the further examination of the changing social roles of women.

## **1. Results**

The international comparison shows that in Hungary, mortality conditions of the 40–59 age-group defined as middle-aged people are still critical. The life expectancy of Hungarian men at age 40 is only 33,7 years. Despite the improving mortality conditions, the population of Hungary still bears the signs of the serious epidemiological crisis in the last

---

<sup>a</sup> Hungarian Central Statistical Office - Population and Social Protection Statistics Department - Population Statistics Section

<sup>b</sup> Doctoral School of Demography and Sociology, University of Pécs

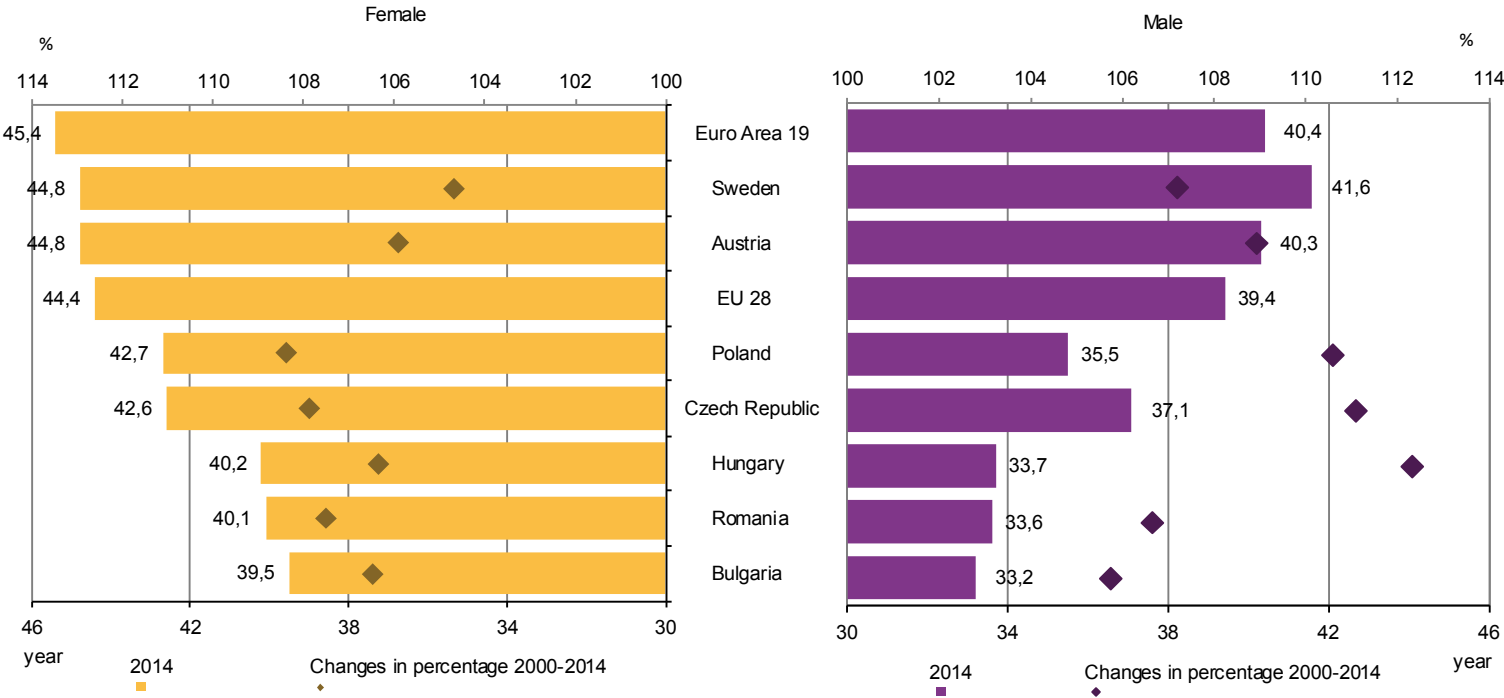
<sup>c</sup> U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health [2014]

<sup>d</sup> Centers for Disease Control and Prevention, <http://www.cdc.gov/>

century. The crisis lasting from the mid 1960s until 1993 affected middle-aged men the most negatively, and this ‘bad inheritance’ can be detected even in today’s data as well. However, in contrast to the most significantly prolonged life expectancy of Hungarian men in the region, the catching up of women with western countries is slowed down dangerously. Among the region’s post-socialist countries the Hungarian womens’ life expectancy at age 40 increased the least by 6,3% between 2000 and 2014, and in 2014 reached only 40,2 years.

Figure 1.°

Life expectancy at age 40 in selected European countries



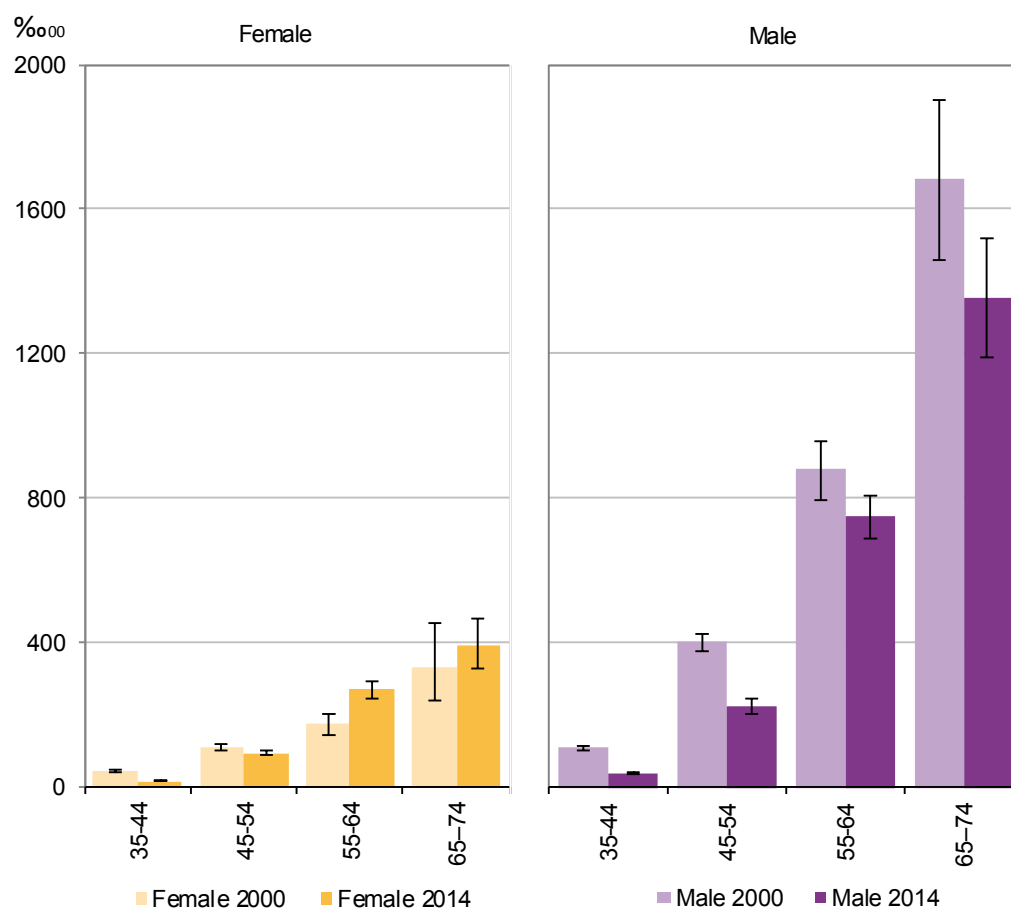
**2. Smoking-attributable mortality**

Comparing the smoking-attributable relative mortality weight of the ten-year age groups above 35, it is visible that the nicotine addiction demands more and more victims with the progress of age. Between 2000 and 2014 the tobacco-related SDR significantly decreased in the 35-44 and 45-54 age groups regardless of gender: in case of younger men by 63%, among the older by 44%, in case of women by 67% and 15% respectively. In contrast, the value of the indicator regarding the older 55-64 year-old women notably increased by 56%.

° Source: <http://ec.europa.eu/eurostat/data/database>

Figure 2.<sup>fg</sup>

**Smoking-attributable standardized death ratio (SDR/100000) by age-groups and gender, Hungary, 2000, 2014 (taking into account the 95% confidence interval)**



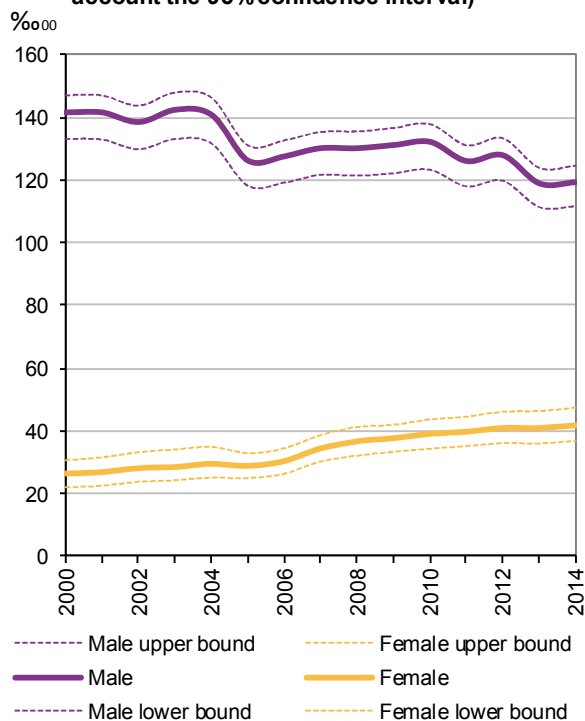
Between 2000 and 2014 the value of the Standardized Death Ratio (SDR/100000) caused by smoking-attributable trachea, bronchus, lung cancer excess mortality significantly decreased among men by 16%, and dramatically arisen among women by 60%. While in the case of the former this decline was interrupted often, regarding the latter the increase was continuous. It is visible by the examination of the age-specific death ratio per 100 thousand capita, that for the mentioned decrease among men the decline of the tobacco-related mortality of 35-75 year-old age group was responsible. In case of women for the observed significant increase, the dangerously deteriorating nicotine addiction related mortality contributed in the 50-70 year-old age group.

<sup>f</sup> Population standard: Eurostat, 2012

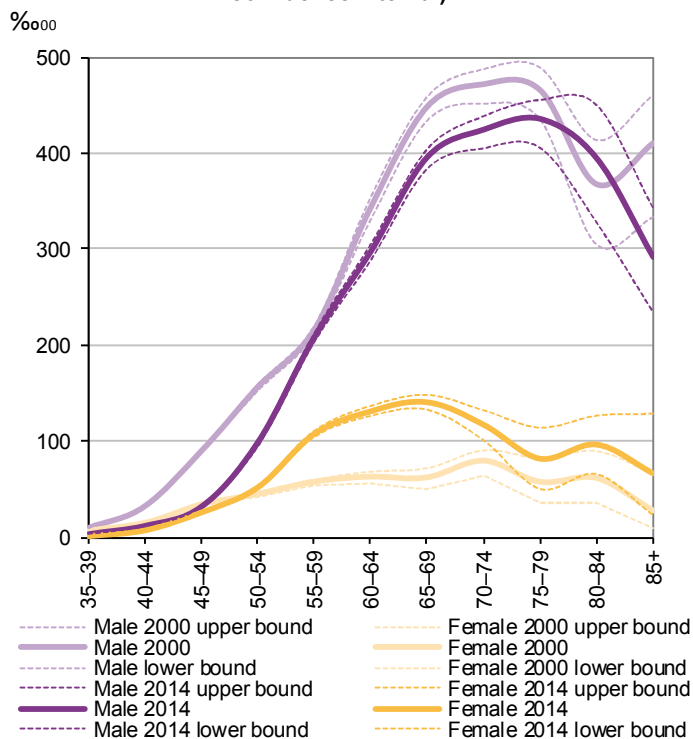
<sup>g</sup> Own calculations

Figure 3.<sup>hi</sup>

Standardized death ratio (SDR/100000) caused by smoking-attributable trachea, bronchus, lung cancer excess mortality by gender, 2000-2014 (taking into account the 95% confidence interval)<sup>hi</sup>



Age-specific death ratio per 100 thousand capita caused by smoking-attributable trachea, bronchus, lung cancer excess mortality by gender, 2000, 2014 (taking into account the 95% confidence interval)<sup>i</sup>



### 3. Future analysis plans

According to the results, the smoking-attributable mortality increased between 2000 and 2014 among Hungarian older middle-aged and elderly women, and this phenomenon is definitely in connection with their unfavourable slow mortality improvement. Therefore, it is justified to further study the vulnerable smoker female population older than 40 years by educational attainment, marital status and regional variables. In Hungary, the major reserves of epidemiological renewal are connected to the older middle-aged (50–59 year-old) population, and the improvement of their mortality conditions may result in a further increase of life expectancy.

I really appreciate the advices of Dr. Péter Józán.

<sup>h</sup> Population standard: Eurostat, 2012

<sup>i</sup> Own calculations

## References

Bakacs M., Balku E., Bodrogi J., Demjén T., Joó T., Vámos M., Vitrai J., Vokó Z., Szerk: Vitrai J. (2012): A dohányzás társadalmi terhei Magyarországon. Kiemelt megállapítások. (The Burden of Smoking in Hungary. Emphasised findings.) Országos Egészségfejlesztési Intézet, Budapest

[http://www.oefi.hu/dohanyzas\\_tarsadalmi\\_terhe\\_OEFI\\_2012.pdf](http://www.oefi.hu/dohanyzas_tarsadalmi_terhe_OEFI_2012.pdf)

Methodological description:

<http://www.oefi.hu/halalozas/DTHmodszertan.pdf>

Bóti E., Koncz B., Vitrai J., Szerk: Demjén T. (2011): A felnőttek dohányzására vonatkozó magyarországi felmérések adatai, 2000–2009. (Hungarian surveys on adult tobacco use, 2000-2009) Országos Egészségfejlesztési Intézet, Dohányzás Fókuszpont, Budapest

[http://www.fokuszpont.dohanyzasvisszaszoritasa.hu/sites/default/files/dohanyzasra\\_vonatkoz\\_o\\_felmeresek\\_adatai\\_2000\\_2009.pdf](http://www.fokuszpont.dohanyzasvisszaszoritasa.hu/sites/default/files/dohanyzasra_vonatkoz_o_felmeresek_adatai_2000_2009.pdf)

Caselli, G. – Meslé, F. – Vallin, J. (2002): Epidemiologic transition theory exceptions. *Genus*, 58(1): 9-51.

Doll, R.; Hill, A. B. (1950). "Smoking and Carcinoma of the Lung". *BMJ* 2 (4682): 739–748

Jasilionis, Domantas – Shkolnikov, Vladimir – Andreev, Evgueni – Jdanov, Dmitri – Vágerö, Denny – Meslé, France – Vallin, Jacques (2014): Do Vanguard populations pave the way towards higher life expectancy for other population groups? *Population*, 2014. 4. sz. 531–556.

Józan, Péter (2008): Válság és megújulás a második világháború utáni epidemiológiai fejlődésben Magyarországon (Crisis and renewal in the epidemiological development after the 2<sup>nd</sup> World War in Hungary) – Magyarország az ezredfordulón - Stratégiai tanulmányok a Magyar Tudományos Akadémián – Műhelytanulmányok, Budapest 2008, MTA Társadalomkutató Központ

Józan, Péter – Radnóti, László (2002): A dohányzás hatása a halandóságra Magyarországon (Effect of smoking on mortality in Hungary), 1970–1999. Nemzeti Népesedési Program, Központi Statisztikai Hivatal, 2002

Józan, Péter (2005) – Rákepidemiológiai viszonyok Magyarországon (Cancer epidemiological conditions in Hungary) – Onkológia 2005 – Magyar Tudomány, 2005/8 931.o.

Levin ML. The occurrence of lung cancer in man. *Acta Un Intern Cancer*. 1953;9:531-41

Mackenbach J. P. (2013): Convergence and divergence of life expectancy in Europe: a centennial view. *European Journal of Epidemiology*, 28: 229-240

Shultz JM, Novotny TE, Rice DP. Quantifying the disease impact of cigarette smoking with SAMMEC II software. *Pub Health Rep* 1991;106:326-33.

Smoking-Attributable Morbidity, Mortality, and Economic Costs – Chapter 12, In: The health consequences of smoking – 50 years of progress: a report of the Surgeon General. – Atlanta, GA. (2014): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, pp. 647-680.

[http://www.cdc.gov/tobacco/data\\_statistics/sgr/](http://www.cdc.gov/tobacco/data_statistics/sgr/)

Thun MJ, Carter BD, Feskanich D, Freedman ND, Prentice R, Lopez AD, Hartge P, Gapstur SM. 50-year trends in smoking-related mortality in the United States. *New England Journal of Medicine* 2013;368(4):351–64.

Wéber, András – Faragó, Miklós (2014): A haláloki struktúra változása Magyarországon, 2000–2012 (Changes in the structure of causes of death in Hungary, 2000-2012), (2014. május), Központi Statisztikai Hivatal, Budapest

<https://www.ksh.hu/docs/hun/xftp/idoszaki/pdf/halalokistruk.pdf>

Wéber, András - A középkorú népesség halandósága az epidemiológiai krízist követő két évtizedben (The mortality of the middle-aged population after two decades of the epidemiological crisis), Statisztikai tükör, Központi Statisztikai Hivatal, Budapest, 2015  
[http://www.ksh.hu/docs/hun/xftp/stattukor/kozepkoru\\_haland.pdf](http://www.ksh.hu/docs/hun/xftp/stattukor/kozepkoru_haland.pdf)

World Health Organization (WHO) – European health for all database (HFA-DB)  
<http://data.euro.who.int/hfad/>