

COMPARATIVE ANALYSIS OF THE EPIDEMIOLOGICAL BURDEN OF STROKE IN EASTERN, CENTRAL AND WESTERN EUROPE BASED ON GLOBAL BURDEN OF DISEASE STUDY DATA

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OBJECTIVES

Stroke is a leading cause of adult disability worldwide, and estimates suggest that one in four adults will experience a stroke during their lifetime. We compared the epidemiological burden of stroke across Eastern, Central, and Western Europe using Global Burden of Disease (GBD) data.

METHODS

We used the most recent results for 2023 from the Institute for Health Metrics and Evaluation Global Burden of Disease Study database. For Eastern Europe (EE), Central Europe (CE), and Western Europe (WE), we compared prevalence, incidence, disability-adjusted life years (DALYs), years lived with disability (YLDs), and mortality data, stratified by sex and age.

RESULTS

In 2023, stroke prevalence per 100,000 population was 1,755.14 in Eastern, 1,650.75 in Central, and 1,699.8 in Western Europe, corresponding to 1.82%, 1.71%, and 1.78% of total prevalence in the respective regions. Age-standardized prevalence showed a pronounced east–west gradient: EE: 1,072.72 (1.15%), CE: 928.50 (0.99%), and WE: 874.38 (0.95%). Incidence followed the same pattern (EE: 282.75; CE: 247.53; WE: 170.41). DALYs were also highest in Eastern (3,596.21; 8.08% of the region’s total DALY burden), followed by Central (2,789.11; 7.51%) and Western (1,246.82; 3.96%). The proportion of YLDs within total YLD burden was 2.15% in the East, 2.08% in Central, and 1.65% in the West. Stroke-attributable mortality exceeded 10% in Eastern and Central Europe but was 7.35% in Western (Table 2). Across all regions, rates were higher in men (Table 3), increased with age, and peaked at 65–69 years in both sexes (Figure 1).

CONCLUSIONS

Based on GBD 2023 data, there is a marked east-west difference in the burden of stroke in Europe: not only are there more new cases in Eastern and Central Europe, but the public health burden and stroke-related mortality rates are also more unfavorable. Our findings highlight the need for region-specific public health strategies.

Funding:

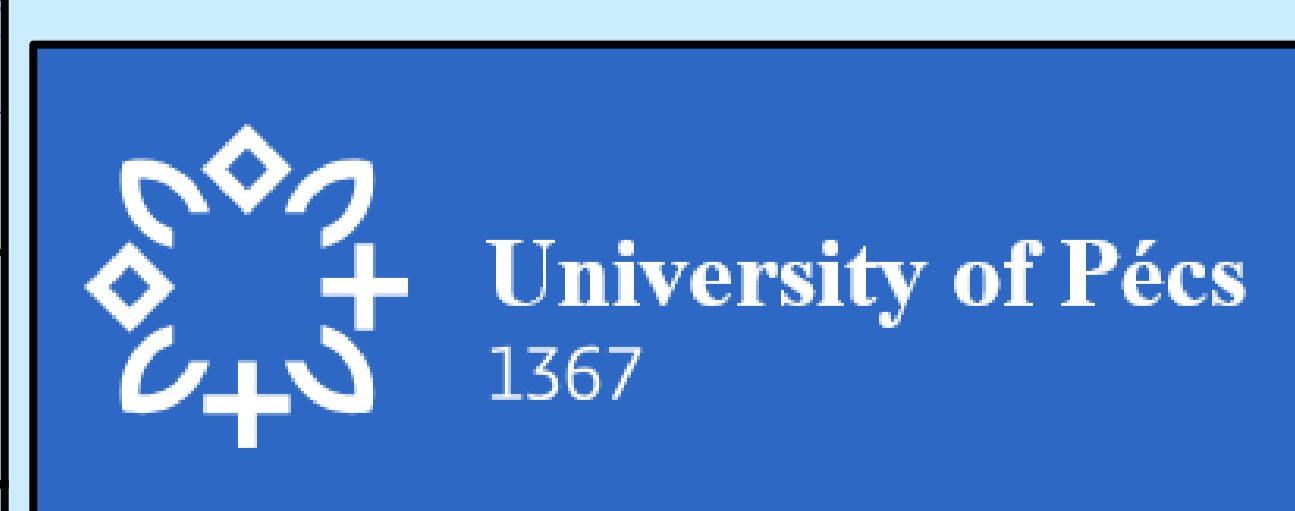
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Eastern Europe	Central Europe	Western Europe
Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, Ukraine	Albania, Bosnia, Bulgaria, Croatia, Czechia, Hungary, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia	Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom

Table 1. List of Central, Eastern, and Western European countries included in the analysis (GBD, 2023)

	Eastern Europe	Central Europe	Western Europe
prevalence / 100 000 (%)	1,755.14 (1.82)	1,650.75 (1.71)	1,699.8 (1.78)
age-st. prevalence / 100 000 (%)	1,072.72 (1.15)	928.50 (0.99)	874.38 (0.95)
incidence / 100 000 (%)	282.75 (0.05)	247.53 (0.06)	170.41 (0.04)
DALY / 100 000 (%)	3,596.21 (8.08)	2,789.11 (7.51)	1,246.82 (3.96)
YLD / 100 000 (%)	318.09 (2.15)	302.25 (2.08)	245.40 (1.65)
Death / 100 000 (%)	182.87 (14.72)	156.21 (13.40)	74.40 (7.35)

Table 2. The epidemiological burden of stroke in Central, Eastern, and Western Europe for the year 2023

	Eastern Europe		Central Europe		Western Europe	
	Men	Women	Men	Women	Men	Women
prevalence / 100 000 (%)	1,802.42 (1.89)	1,714.04 (1.76)	1,797.19 (1.87)	1,511.44 (1.55)	1,876.59 (1.99)	1,529.40 (1.58)
age-standardized prevalence / 100 000 (%)	1,231.87 (1.33)	974.12 (1.03)	1,111.36 (1.19)	803.28 (0.85)	1,025.46 (1.14)	749.40 (0.80)

Table 3. Trends in the prevalence of stroke by gender in Central, Eastern, and Western Europe

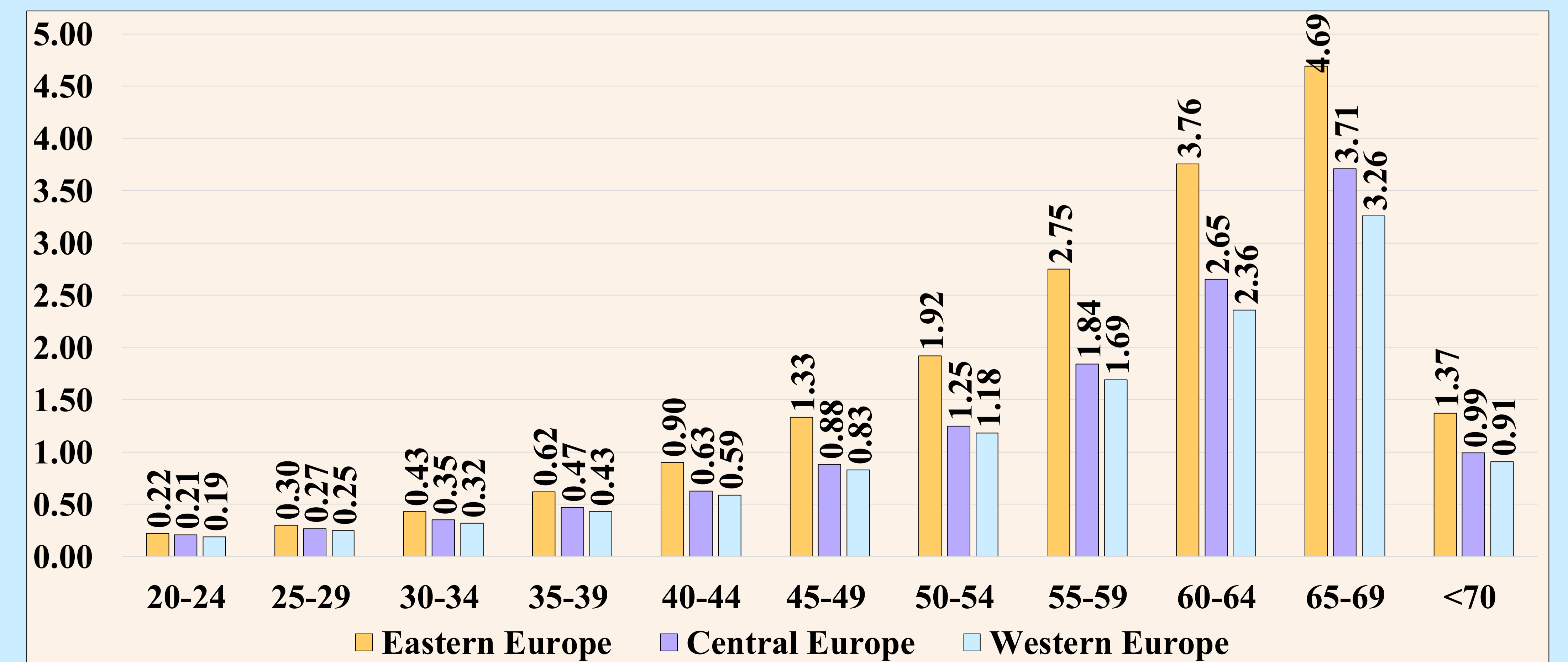


Figure 1. Trends in the prevalence of stroke by age in Central, Eastern, and Western Europe