

# COMPARISON OF ISCHEMIC STROKE INCIDENCE RATES IN HUNGARY AND EUROPE BASED ON DATA FROM THE GLOBAL BURDEN OF DISEASE STUDY

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## OBJECTIVES

This study aimed to provide a comparative analysis of ischemic stroke occurrence indicators in Europe and Hungary using Global Burden of Disease Study data.

## METHODS

This retrospective, quantitative study used publicly available data from the Global Burden of Disease Study 2021 database. The data were analyzed over the past 30 years, from 1991 to 2021, in Europe and Hungary. We compared the prevalence and incidence of ischemic stroke in the two regions, by gender and age group.

## RESULTS

In 1991, the age-standardized prevalence of ischemic stroke (IS) per 100,000 population in the European region (EU) was 961.7, while in Hungary (HU) it was higher, 1270.6. By 2021, the incidence rate was estimated to be 754.9 in the EU and 785.9 in Hungary, which represents a 21.5% decrease in prevalence in the EU and a 38.1% decrease in Hungary compared to 1991 (*Figure 1&2*). The trend in incidence also showed a favorable trend: in the EU it decreased by 43.6% between 1991 and 2021 (1991: 147.5; 2021: 84.7), while in Hungary the decrease was 53.8% (1991: 203.6; 2021: 94.016) (*Figure 3*). Based on age group breakdown, the highest incidence in both regions was in the 65–69 age group (EU: 306.3; HU: 351.2) and increased with age (*Figure 4*). In terms of gender, prevalence was higher in men in both regions in 2021 (*Table 1*).

## CONCLUSIONS

Between 1991 and 2021, age-standardized ischemic stroke prevalence and incidence declined substantially in both Europe and Hungary. Although Hungary showed less favorable baseline values in 1991, by 2021 prevalence levels had converged considerably toward the European average. In both settings, ischemic stroke occurrence was concentrated in older age groups and increased with age. The consistently higher prevalence among men suggests a stable sex disparity. Overall, despite favorable trends, the findings indicate that stroke prevention and care should continue to prioritize older populations, particularly men.

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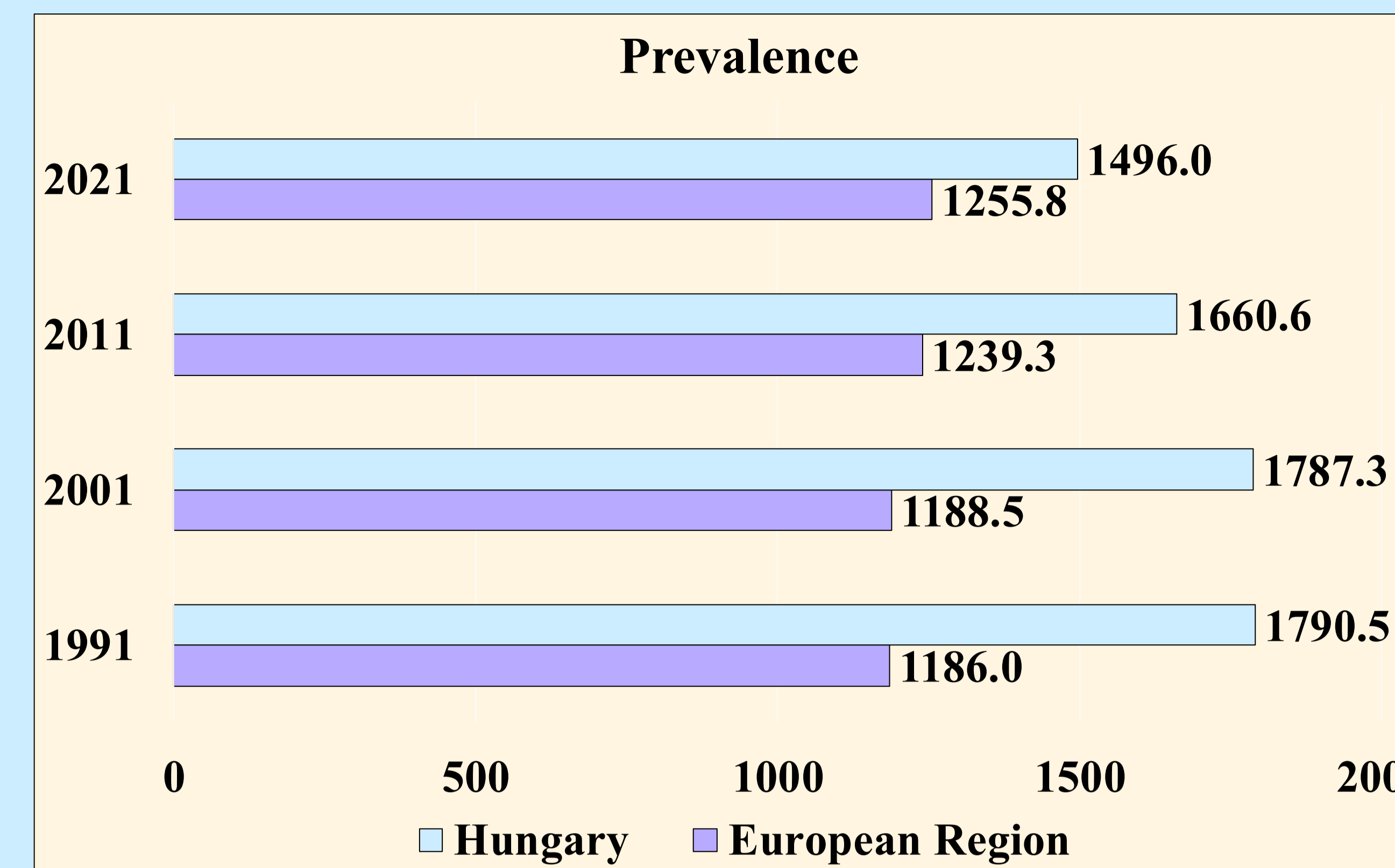
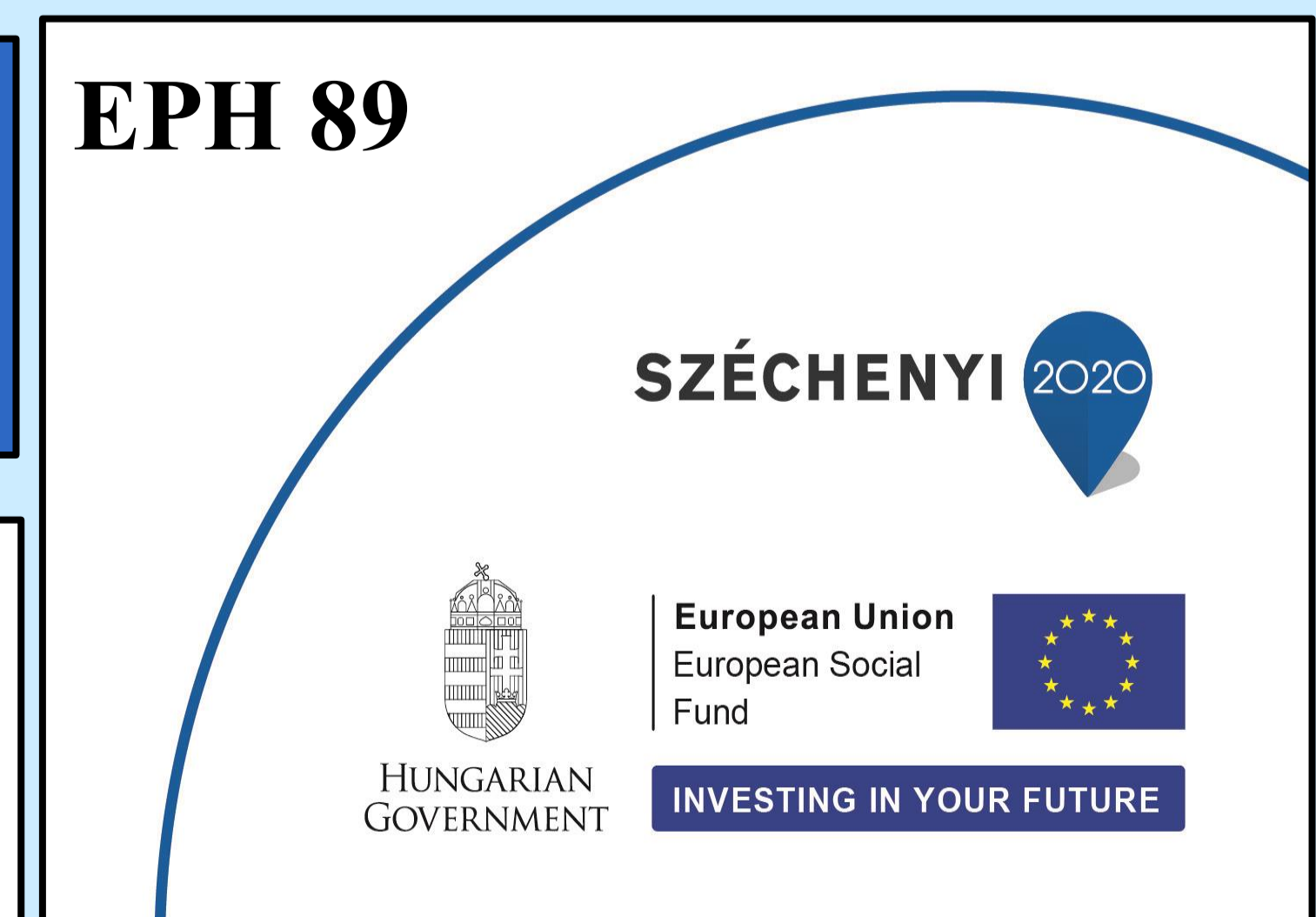
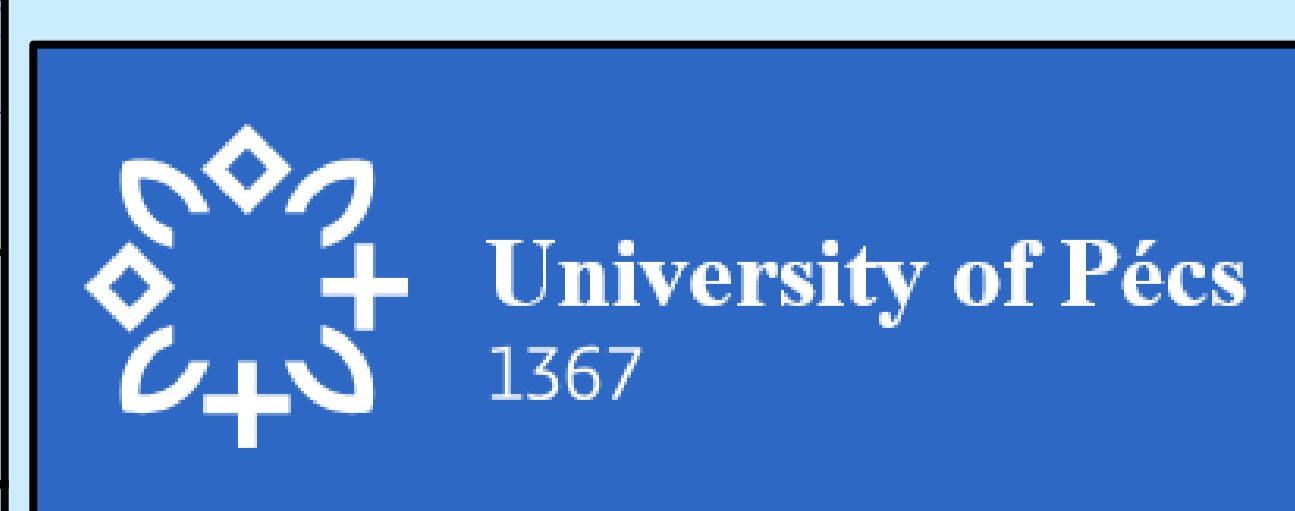


Figure 1. Trends in the prevalence of ischemic stroke in Hungary and the European region (1991–2021)

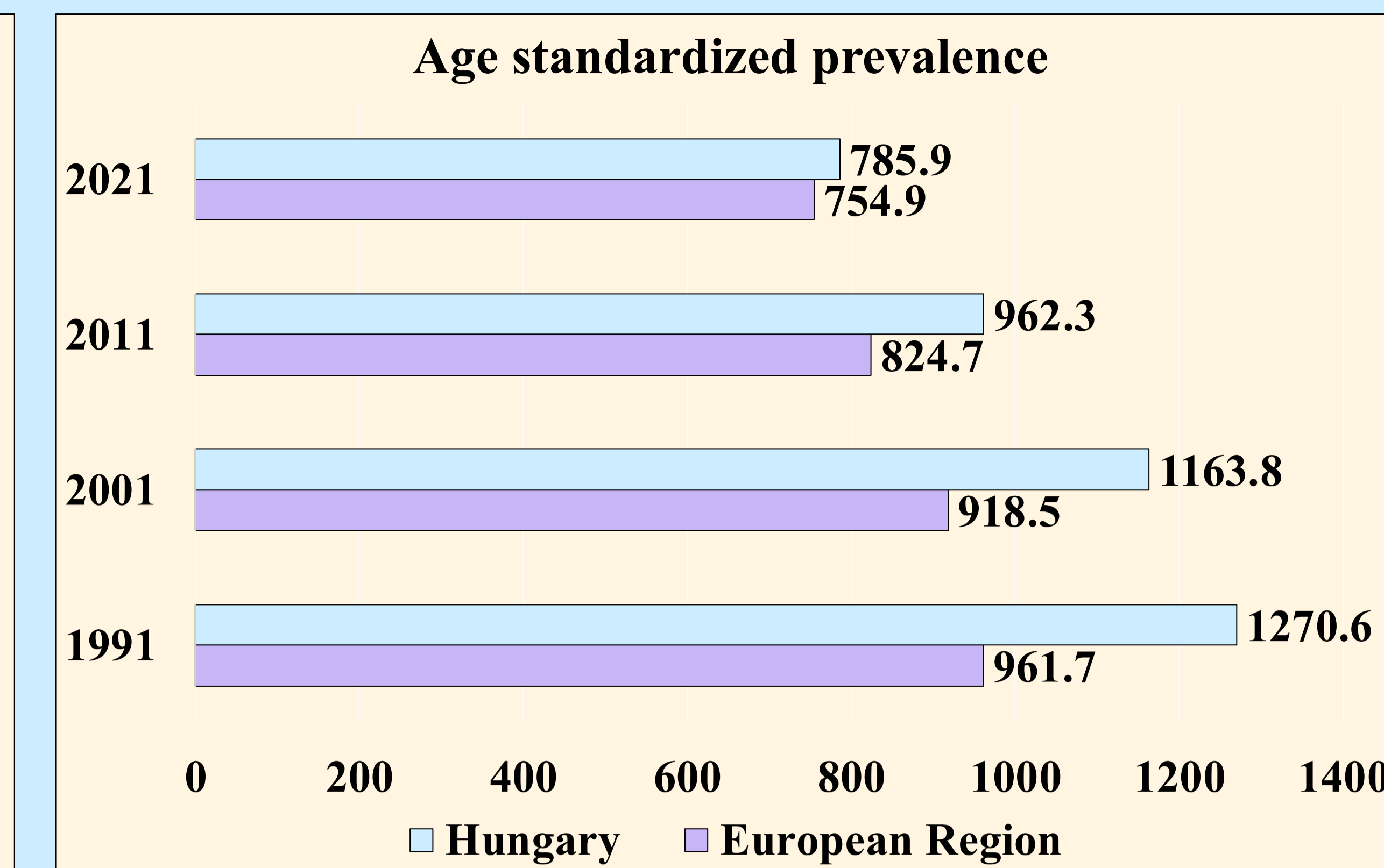


Figure 2. Trends in the age standardized prevalence of ischemic stroke in Hungary and the European region (1991–2021)

	Hungary		European Region	
	Men	Women	Men	Women
2021 prevalence / 100 000	1624,6	1377,9	1380,4	1137,8
(%)	1,70	1,41	1,46	1,17
age-standardized prevalence / 100 000	995,4	652,9	916,5	633,9
(%)	1,07	0,69	1,00	0,67
incidence / 100 000	191,9	179,7	150,5	149,2
(%)	0,05	0,05	0,04	0,03
age-standardized incidence / 100 000	118,6	75,2	99,3	71,8
(%)	0,03	0,02	0,02	0,02

Table 1. Trends in the prevalence and incidence of ischemic stroke in Hungary and the European region (2021)

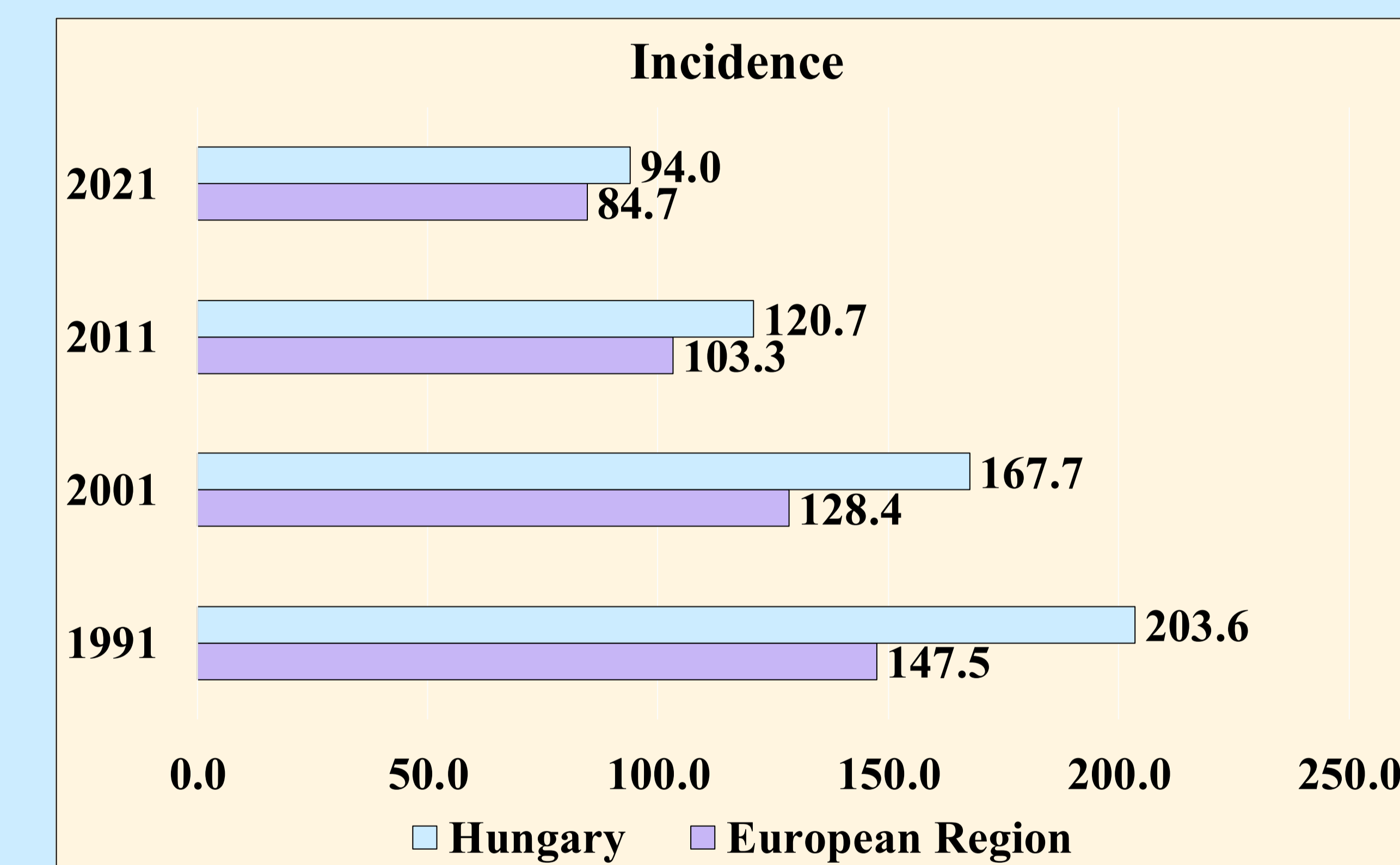


Figure 3. Trends in the incidence of ischemic stroke in Hungary and the European region (1991–2021)

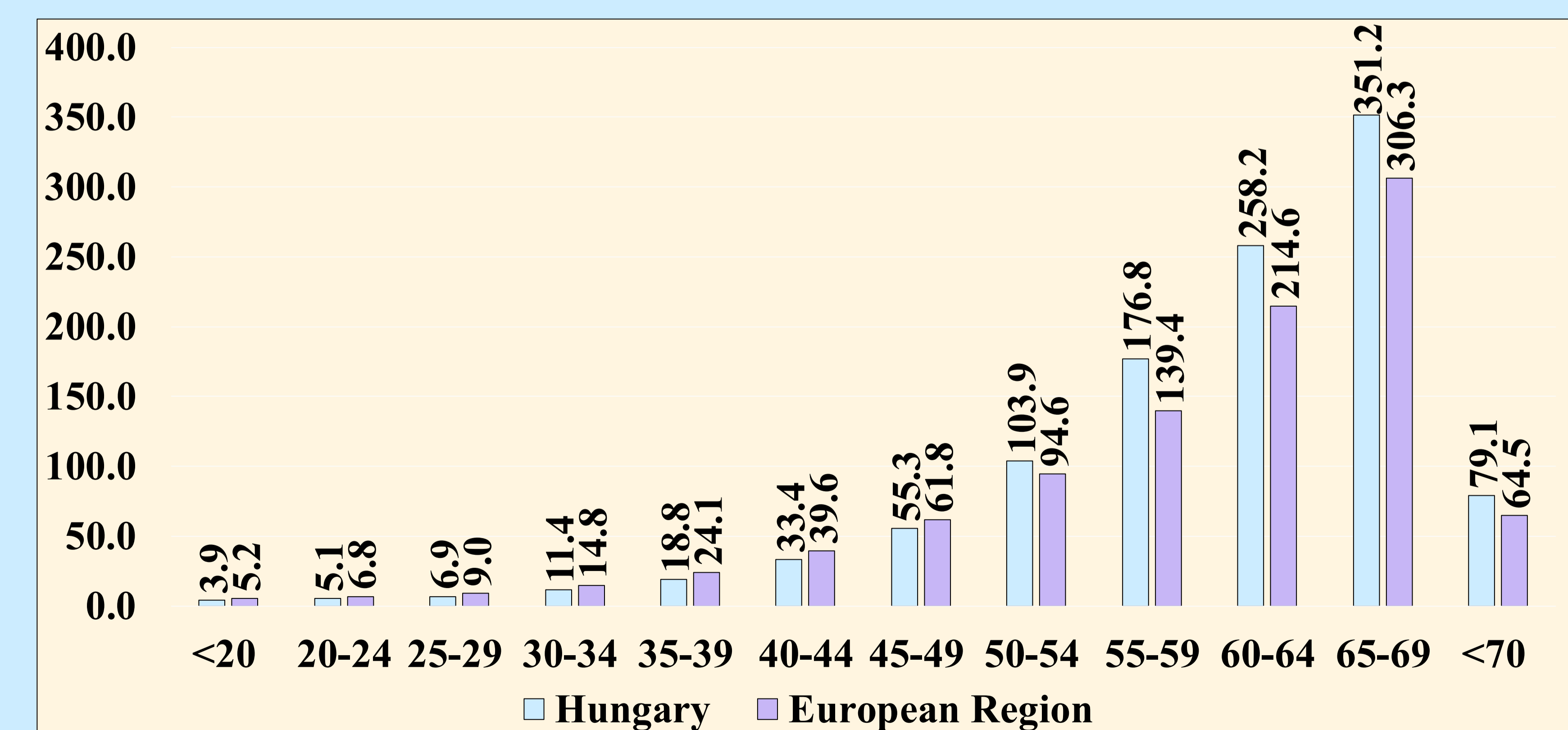


Figure 4. Incidence of ischemic stroke by age group in Hungary and the European region (1991–2021)