
# EDUCATION AND EMPLOYMENT STATUS WITH RESPECT TO CARDIOVASCULAR MORTALITY IN CROATIA OVER A TEN-YEAR PERIOD

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# INTRODUCTION

**According to mortality due to cardiovascular diseases (CVDs), Croatia, with its standardized mortality rate of 401/100,000 in 2008, belongs to European countries with medium high mortality rates.**

**The CVD group is based on ICD-10 codes I00-I99**

**Ischemic heart diseases (IHD): I20-I25,**
**Cerebrovascular diseases I60-I69.**

# STUDY OBJECTIVE

**This paper analyzes possible causal connection between socioeconomic determinants of health (education and employment) and mortality due to selected CVDs in Croatia in the period of 2000-2009 .**

**Study objective is to ascertain, based on mortality data, whether Croatia is experiencing inequalities in the burden of CVDs on given population subgroups.**

# METHODOLOGY

- **Data for mortality analysis were from the Central Bureau of Statistics of the Republic of Croatia, documentation for the period 2000-2009 and Croatian National Institute of Public Health.**

- **For every case of death, data on age, sex, ICD-10 coded cause of death, education, employment and marital status of the deceased were processed.**

- **The data was analyzed using EpiInfo3.3 program support.**

# RESULTS

- **The analysis included data on the overall 263,140 deaths due to CVDs for the monitored ten-year period (2000-2009).**

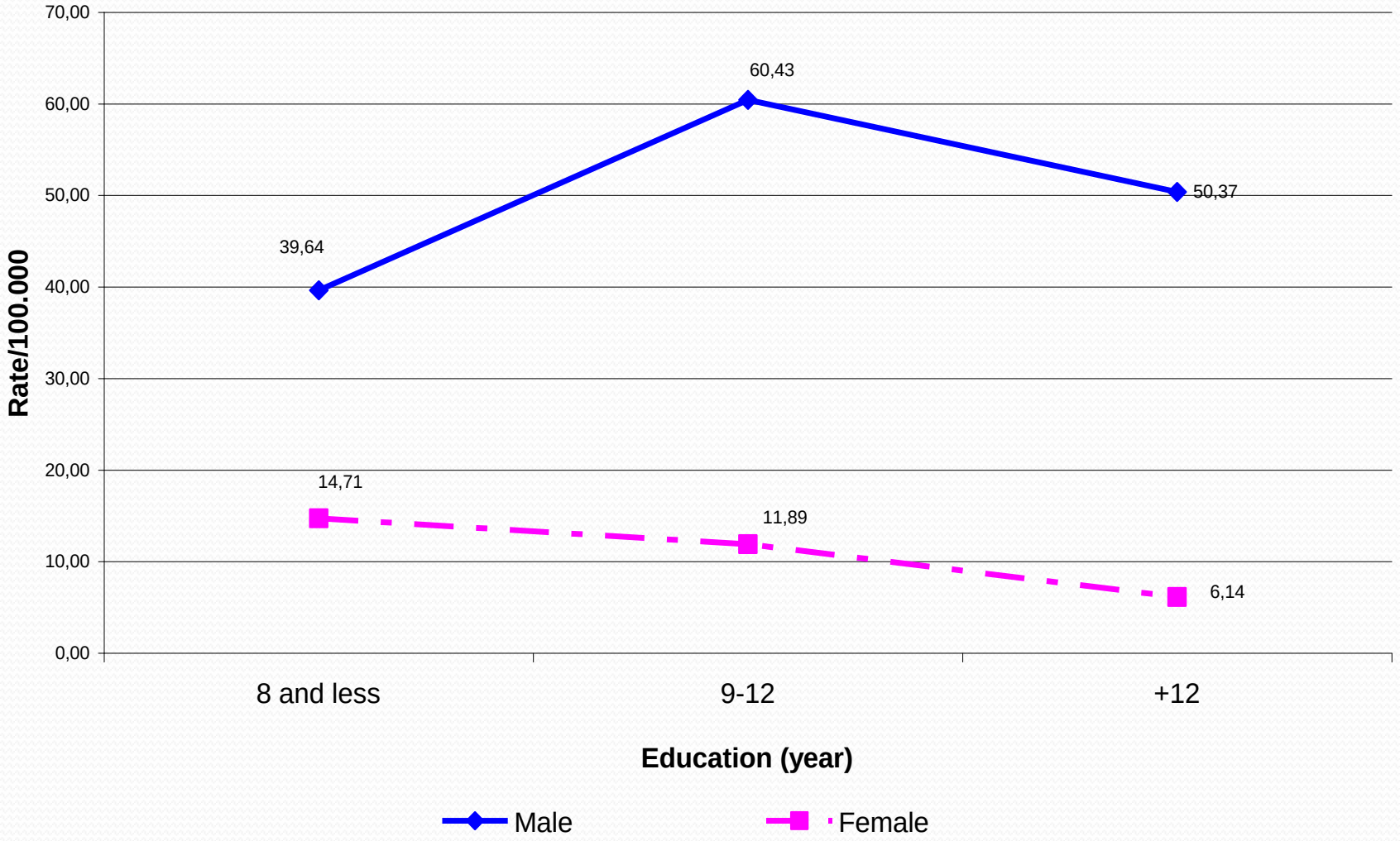
- **According to *years of schooling*, the number of deaths for both sexes and both disease groups decreased in inverse proportion to the length of schooling.**

- **The largest share of IHD deaths (53.6%) were related to persons who had received eight or less years of schooling, 21% had 9-12 years, while 3.3% 12 or more yrs.**

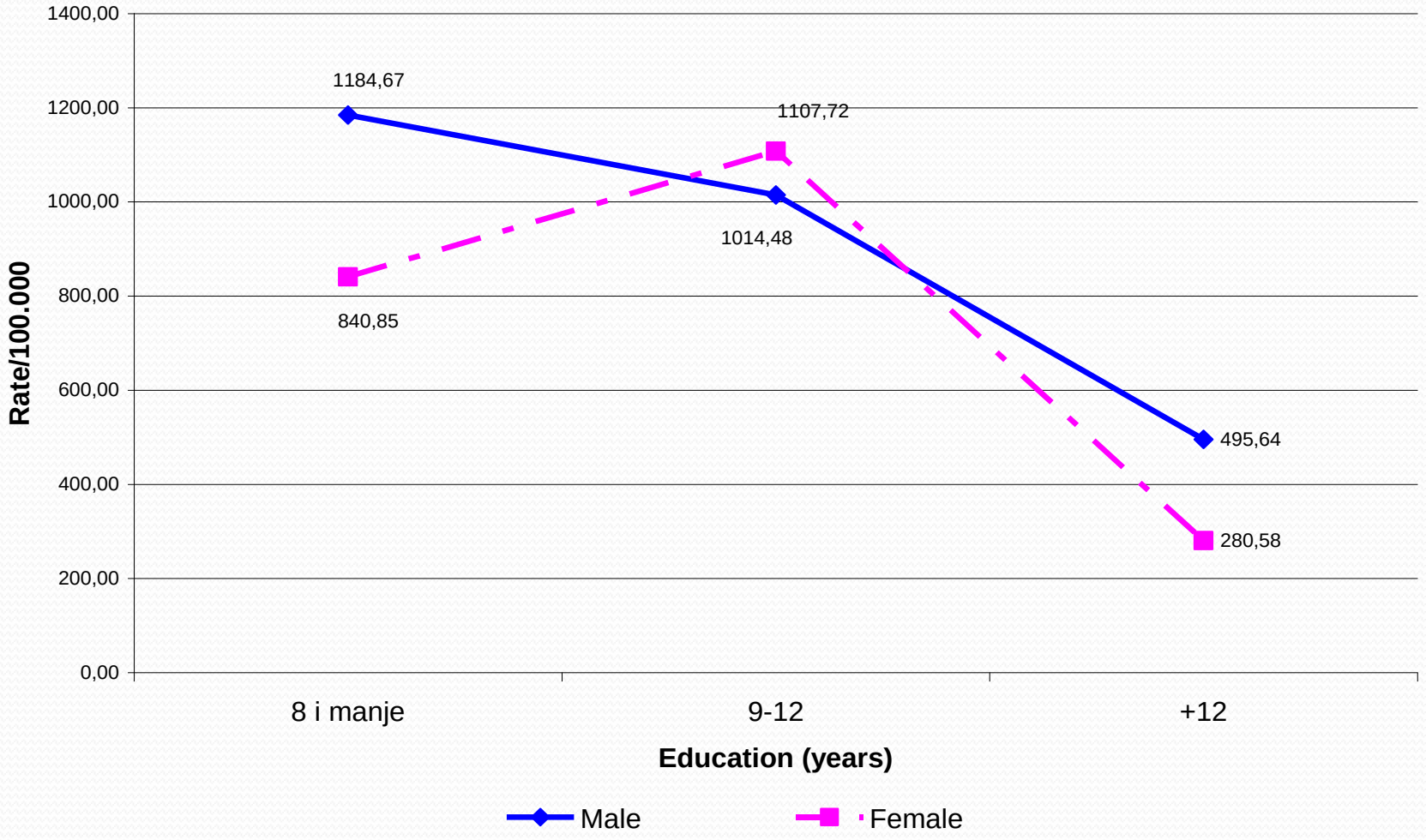
- **If analyzing the level of education by sex and age groups ≤64 and 65+, the IHD mortality rate of younger men was highest at 9-12 yrs of schooling (60.43/100,000), medium in the group with 12 or more years of education (50.4/100,000), and lowest in persons with elementary school diploma or less (39.6/100,000). (Figure 1a,b).**

- **In cerebrovascular mortality, 61.6% was associated with the group with 8 or fewer years of schooling, 17% with 9-12 years, and 2.2% with 12 or more years of education. (Figure 2)**

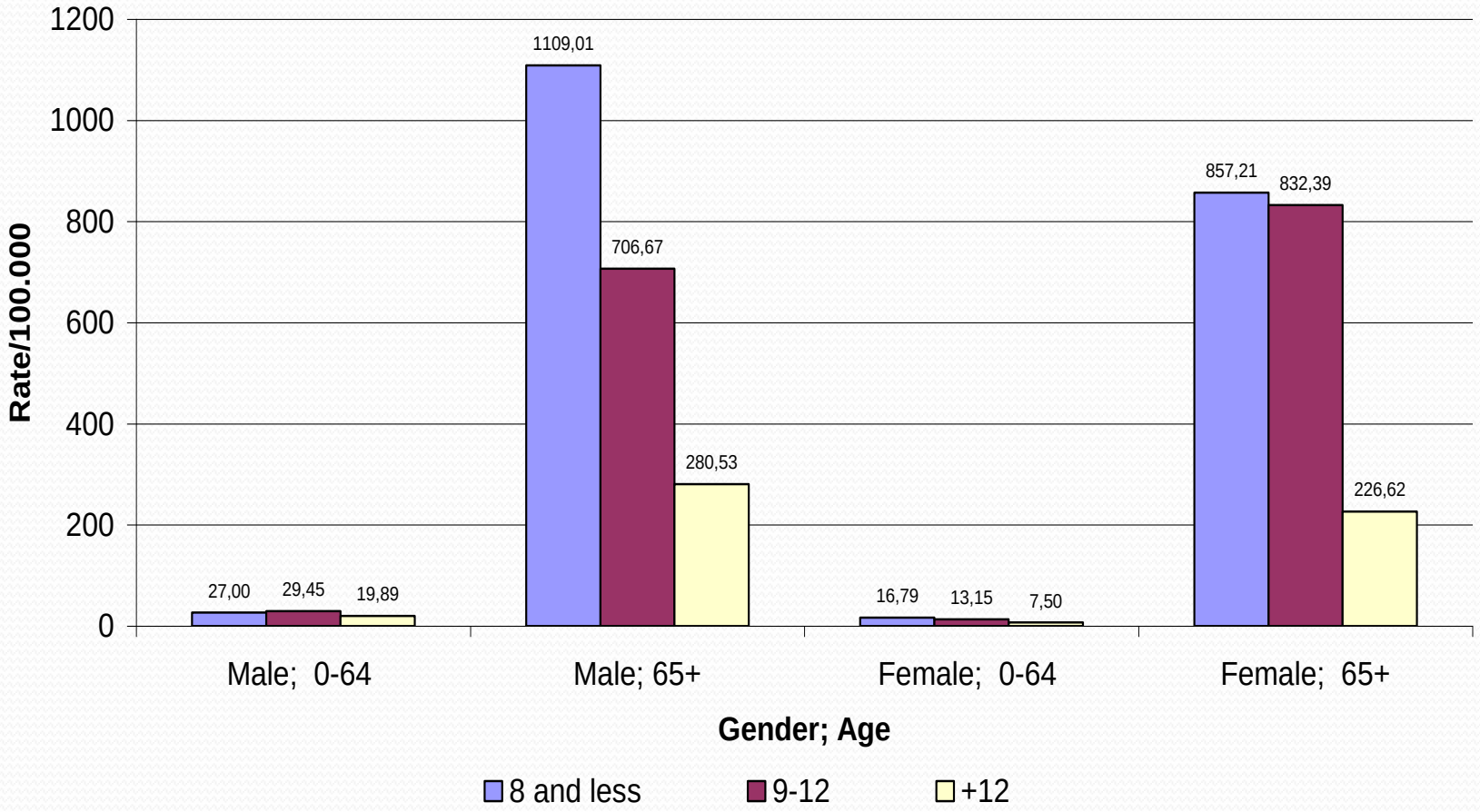
# Figure 1.a. IHD mortality rates by education level and sex at the age of 0-64



# Figure 1.b. IHD mortality rates by education level and sex at the age of 65+

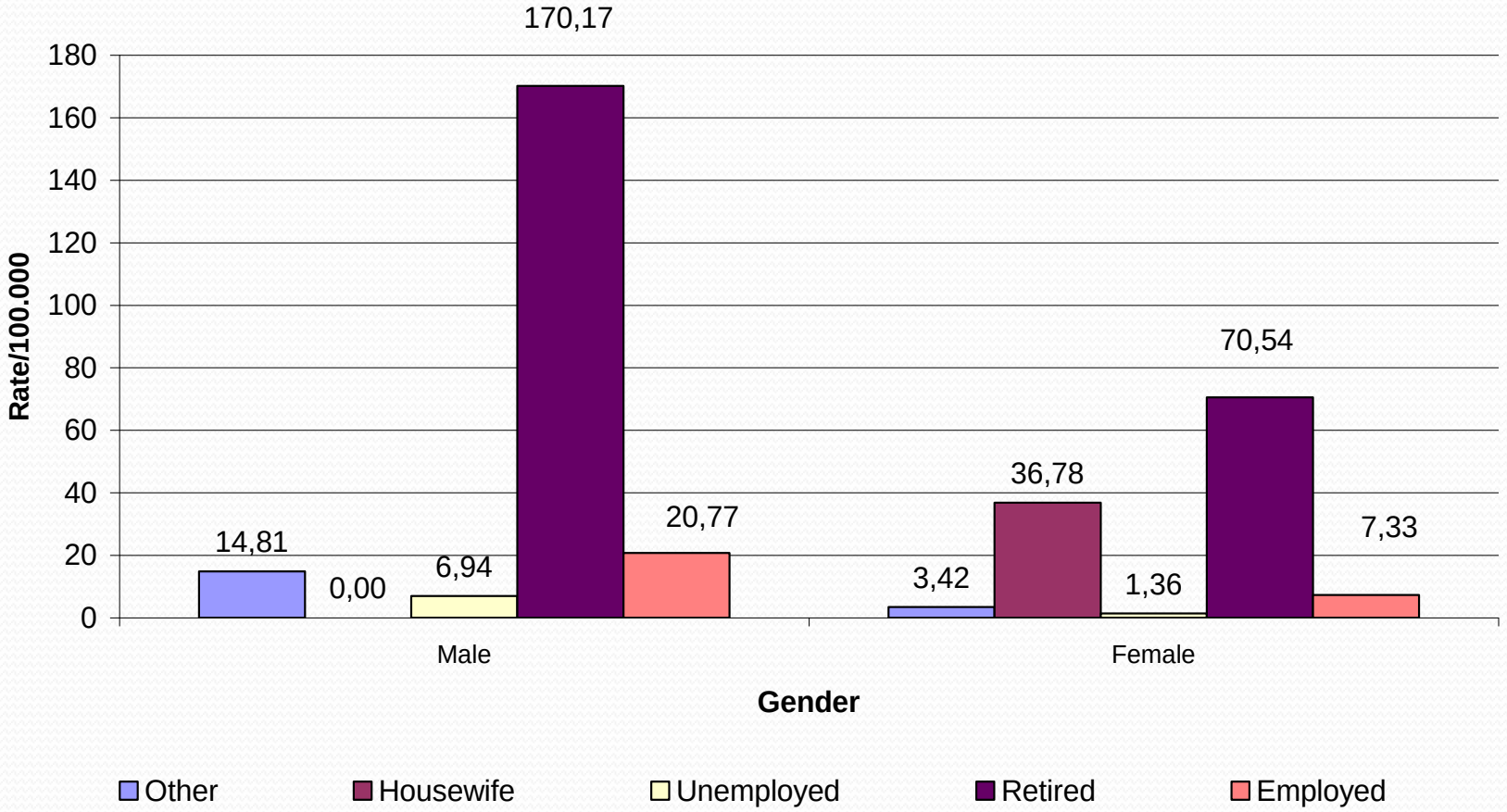


# Figure 2. Cerebrovascular mortality rates by education level, age and sex



- **If analyzing cerebrovascular mortality by *employment*, sex and age under 64, the predominant male group were retirees (mortality rate: 170.2/100,000), though still at an occupationally active age, followed by the unemployed population (20.8) and other (farmers and freelancers). (Figure 3).**
- **The highest mortality rate in women under 64 was also registered among retirees (70.5/100,000), though significantly lower than in men of identical age, followed by housewives (36.9) and unemployed women (7.3).**

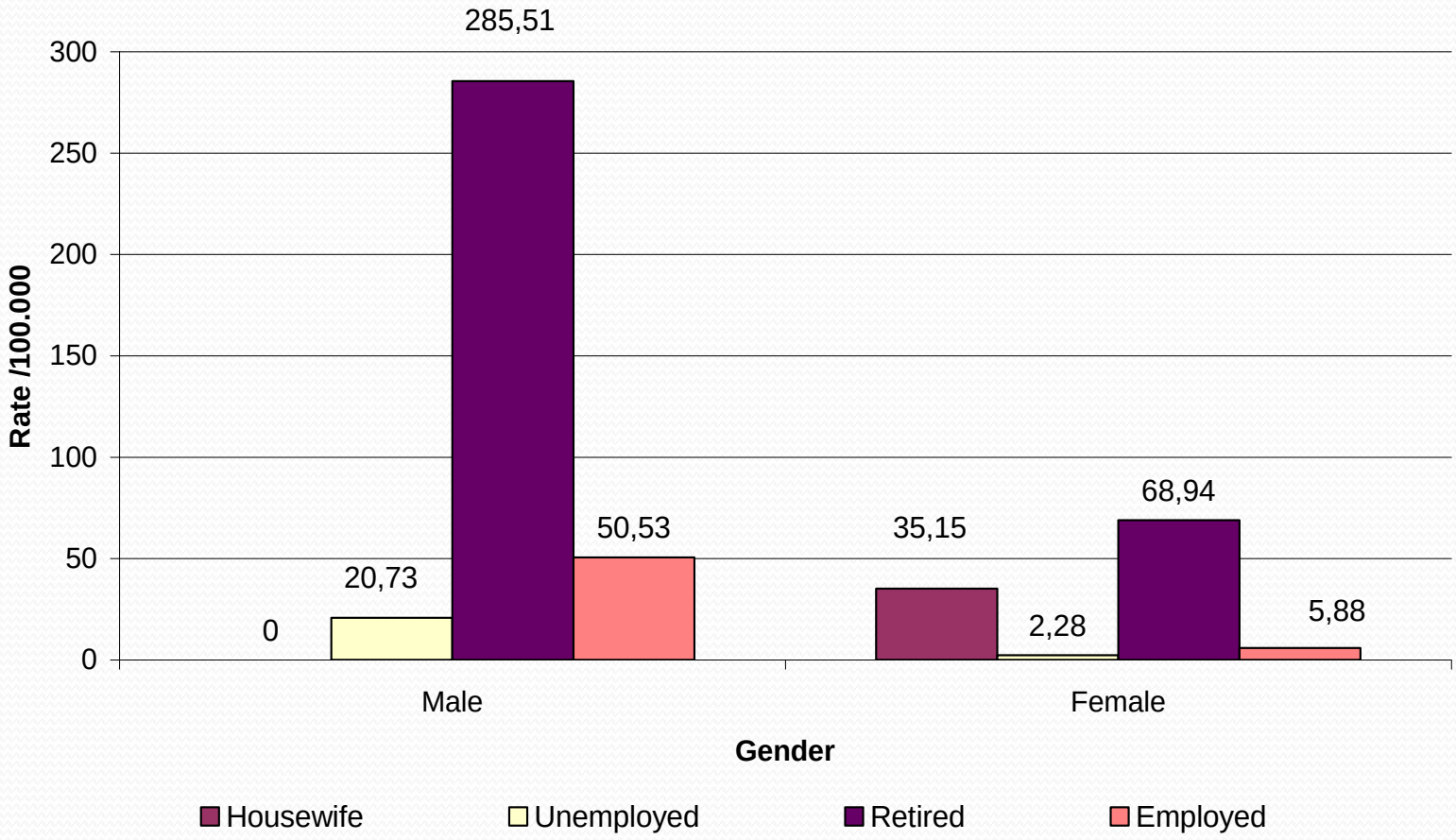
# Figure 3. Cerebrovascular mortality rates by employment and gender at the age of 0-64



- **An analysis of IHD mortality with regard to gender and age under 64 in men yielded the finding that pensioners (285.5/100,000) (though still at an occupationally active age) again had the highest mortality rate, considerably higher than in the case of cerebrovascular mortality. The employed listed second, with a multiply lower rate (50.5/100,000), and the unemployed third (20.7/100,000) (Figure 4).**

- **In women under 64, the highest IHD mortality rate was also documented in retirees (68.9/100,000), though dramatically lower than in men of same age, followed by housewives (35.2) and the unemployed (5.9/100,000).**

# Figure 4. IHD mortality rates by employment status and gender at the age of 0-64



# CONCLUSIONS

1. **The overall standardized CVD mortality rate for Croatia since 2000 has shown a continuous decrease.**
2. **An analysis of the *level of education* showed that the share of deaths in both sexes for both ischemic heart disease and cerebrovascular diseases has dropped in inverse proportion to the length of schooling.**
3. **Another important observed health determinant was *employment status*. Of the total deaths from cerebrovascular diseases and ischemic heart disease the largest mortality share and rate were, as expected, that of retirees for both types of diseases, followed by housewives. According to gender, in men the second place was taken by employed persons; housewives in women.**

4. **Unemployment is a risk factor for both IHD and cerebrovascular diseases. High incidence of deaths among pensioners of the occupationally active age is partly a reflection of retirement for health reasons (an early retirement often has a variety of other reasons which could cause additional stress). A high share of housewives in the recorded death cases could be explained by some of them being unemployed, but also by the low value ascribed to managing a household, thus further increasing the stress in a homemaker.**

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