

Age pattern of drowning mortality across 44 countries

Dr Tsung-Hsueh Lu¹ and Dr Philippe Lunetta²

Institute of Public Health, National Cheng Kung University, Tainan, Taiwan¹, Department of Forensic Medicine, University of Helsinki, & Injury Prevention Unit, National Institute For Health and Welfare, Helsinki, Finland²

Background

Drowning mortality rates vary across age groups and countries owing to differential exposure to bodies of water and water-based activities.

Objective

This study aimed to examine the age pattern of drowning mortality across countries in order to make a global assessment of death by drowning.

Methods

We used data for the most recent years contained in the WHO mortality database to calculate the age-specific drowning mortality rates for each country. In order to identify the age pattern and determine whether mortality was higher for any particular age group, 95% confidence intervals of mortality rates were computed.

Results

We identified five patterns of drowning mortality by age group. Of the 44 countries analyzed, high mortality rates were identified in seven countries among children, 12 among the elderly, seven among both children and the elderly, and 12 (all in Eastern Europe) among adults of working age, while in six countries no significantly high rates were identified in any particular age group. Within each age pattern group, huge differences in mortality, the proportions and nature of the bodies of water involved, and mechanisms of drowning were found between countries. For example, the mortality rate for children aged 0–4 years was 49.7/100,000 in China but only 0.8/100,000 in Germany; the proportion of drowning deaths that occurred in a bathtub among the elderly aged 65 years or above was 72% in Japan but only 2% in Finland; and among the deceased aged 45–64 years in The Czech Republic, Finland, The Netherlands and Taiwan, a greater proportion drowned following a fall into a natural body of water than drowned while already in a natural body of water.

Conclusion

The diverse age patterns observed in the drowning mortality rate, natures of the bodies of water involved, and mechanisms of drowning across countries suggest that different country-specific strategies to reduce death by drowning should be designed to take into account the differences in geographic environment, climate, and cultural activities.

Corresponding Author

Dr Tsung-Hsueh Lu
Director
NCKU Research Center for Health Data
No. 1, Dah Hsueh Road
Tainan City Tainan Taiwan 701
Email: robertlu@mail.ncku.edu.tw
Telephone: +886 6 3317993