

Abstract

Background: Traffic accidents can cause physical, mental and social burdens. Japan places sixth in the number of bicycle owners in the world, and expected to grow while the government promotes cycling to improve the environment, traffic, and health. Meanwhile, among all traffic accidents, the proportion of bicycle-related accidents are increasing. A public health approach is necessary to understand the current situation of bicycle-related injuries. The aim of this study is to analyze trends and risk factors for bicycle injuries and deaths in Japan, in order to suggest preventive measures.

Methods: Impact and trends among cyclist-involved casualties and mortality in Japan were assessed. Vital statistics and report from the National Police Agency were analyzed for incidence rate ratios, age-standardized mortality rates, and annual percent changes, by ten-year interval age-groups. Data from the Japan Trauma Databank was analyzed for demographical data.

Results: The risk of casualties were high in the younger generation and lower in the elderly population. However, the risk of bicycle-related mortality increases rapidly with age, with people over 70 years old having higher orders of magnitude in mortality risk than younger age-groups. Despite the decreasing trend in casualties and deaths per population, mortality in age 0 to 79 year-old showed no improvement over the years when the rate was examined over the number of casualties.

Conclusion: Bicycle-related mortality has not decreased per casualty in Japan. More efforts are needed, especially for ages 20s, 30s, and over 70 year old, to ensure that bicycle transportation is safe for all road users.

Keywords: Bicycle, incidence, trend, casualty, mortality