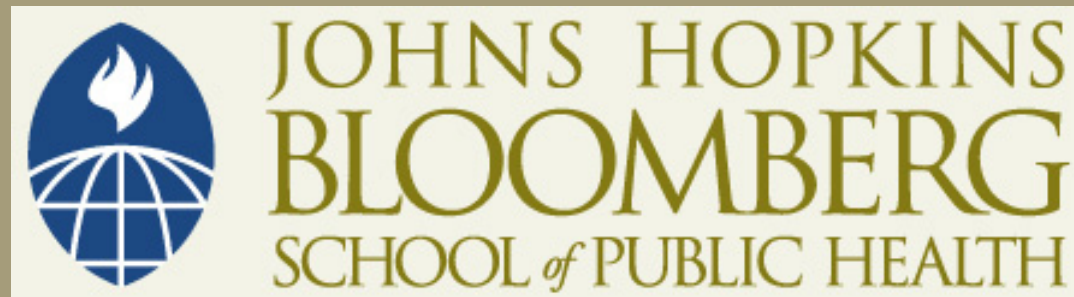


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Section C: Identifying and Quantifying Risk Factors

Adnan Hyder, MD, PhD

Risk Factors for Injuries

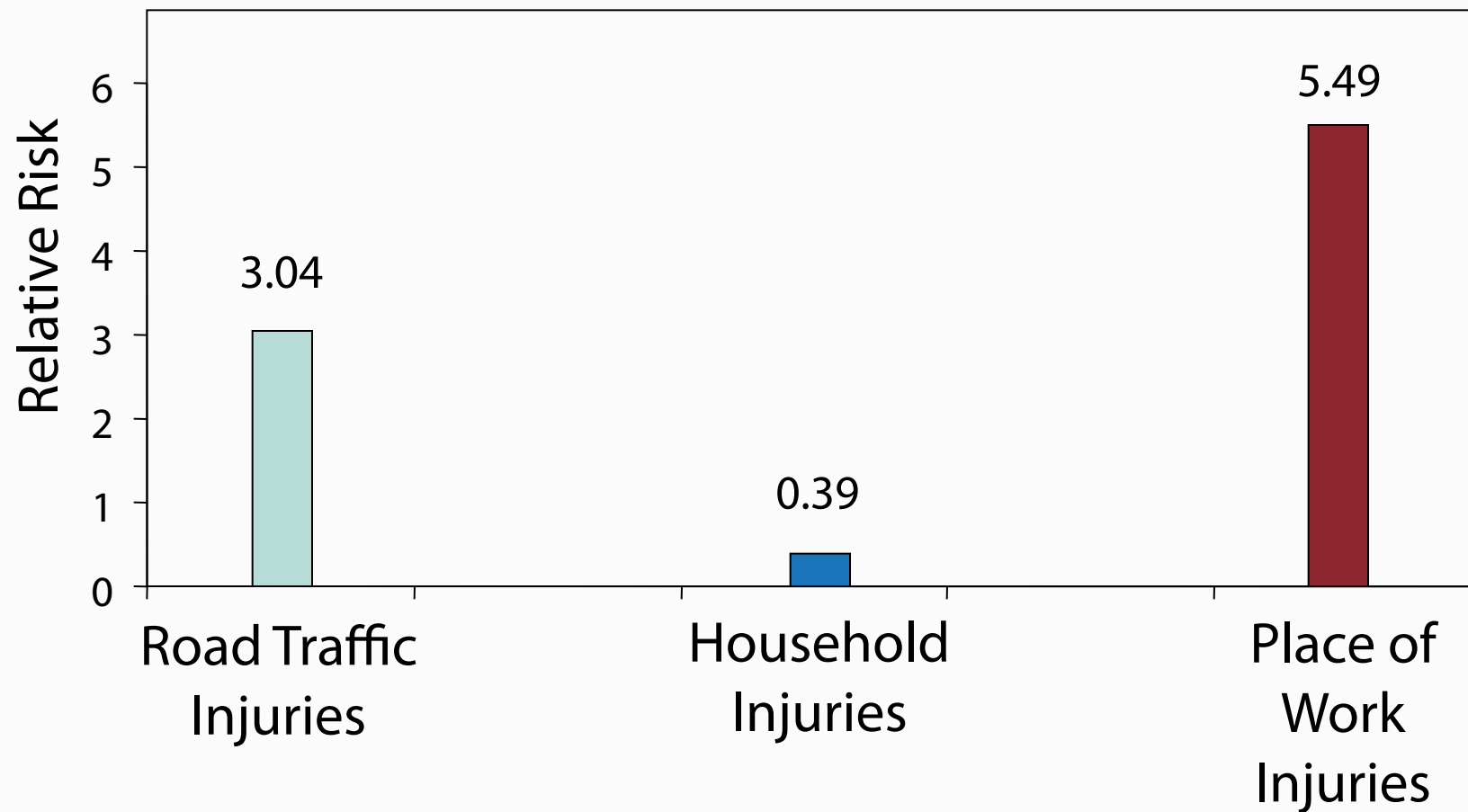
- Not modifiable
 - Gender
 - Age
 - Time
- Modifiable
 - Site
 - Behavior
 - Environment
 - Equipment

Population-Based Cohort Study: Gender Differences

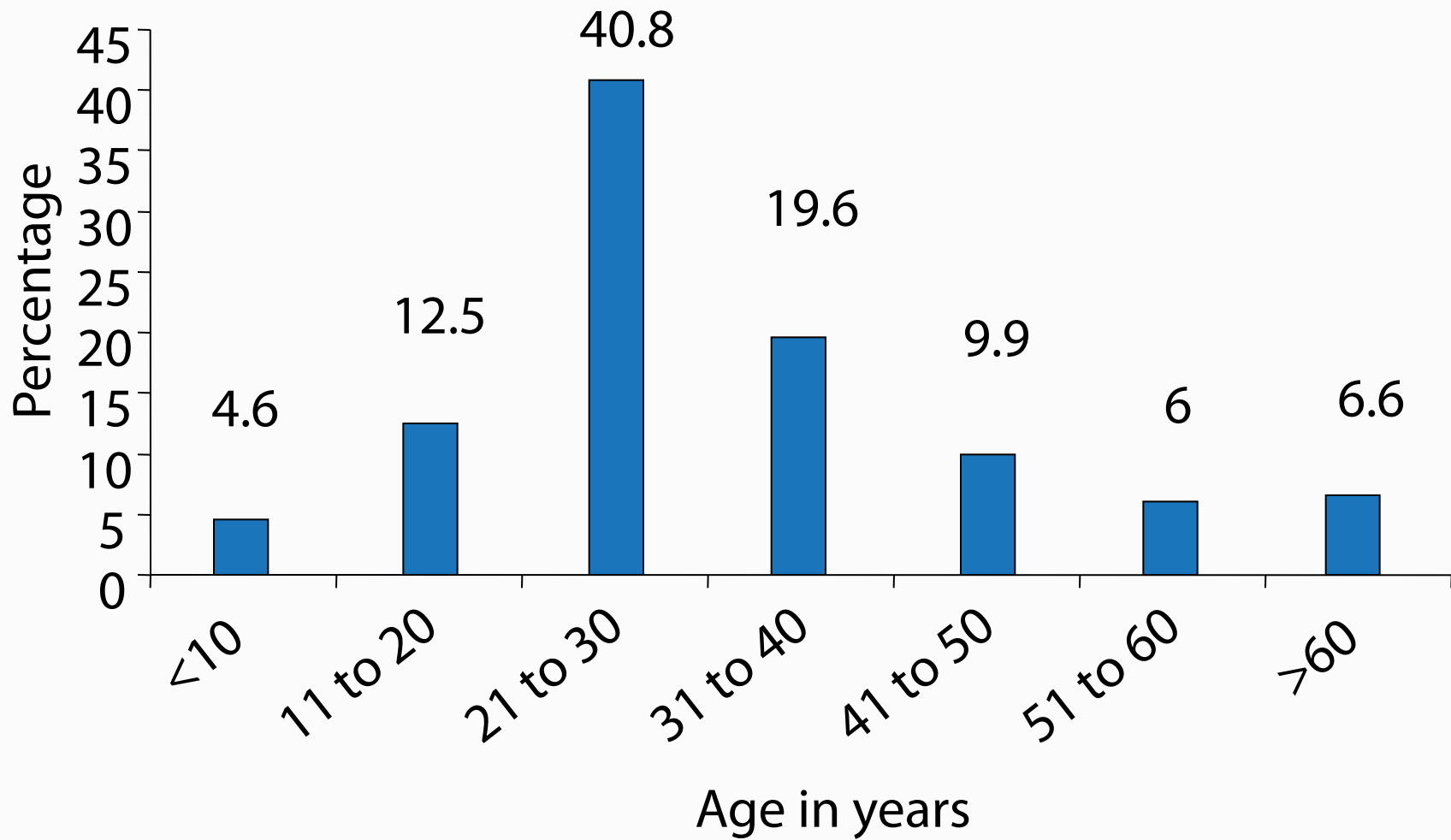
- Population-based cohort study of injuries—gender differences
 - Madras City
 - Incidence
 - Overall: 127/1000 persons
 - Males: 137/1000 persons
 - Females: 118/1000 persons

Relative Risk of Injuries to Males Compared to Females

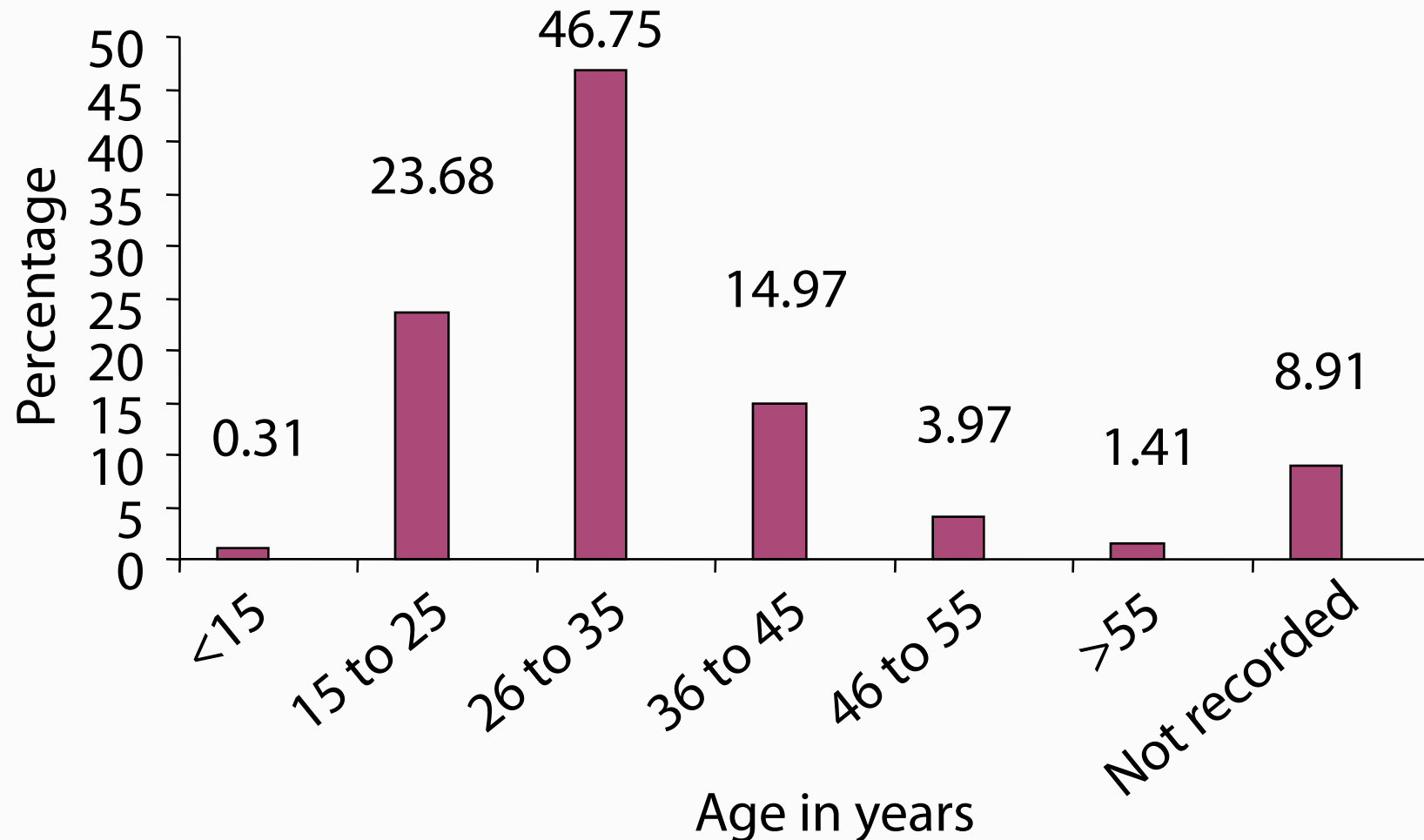
- Ranked by place of occurrence



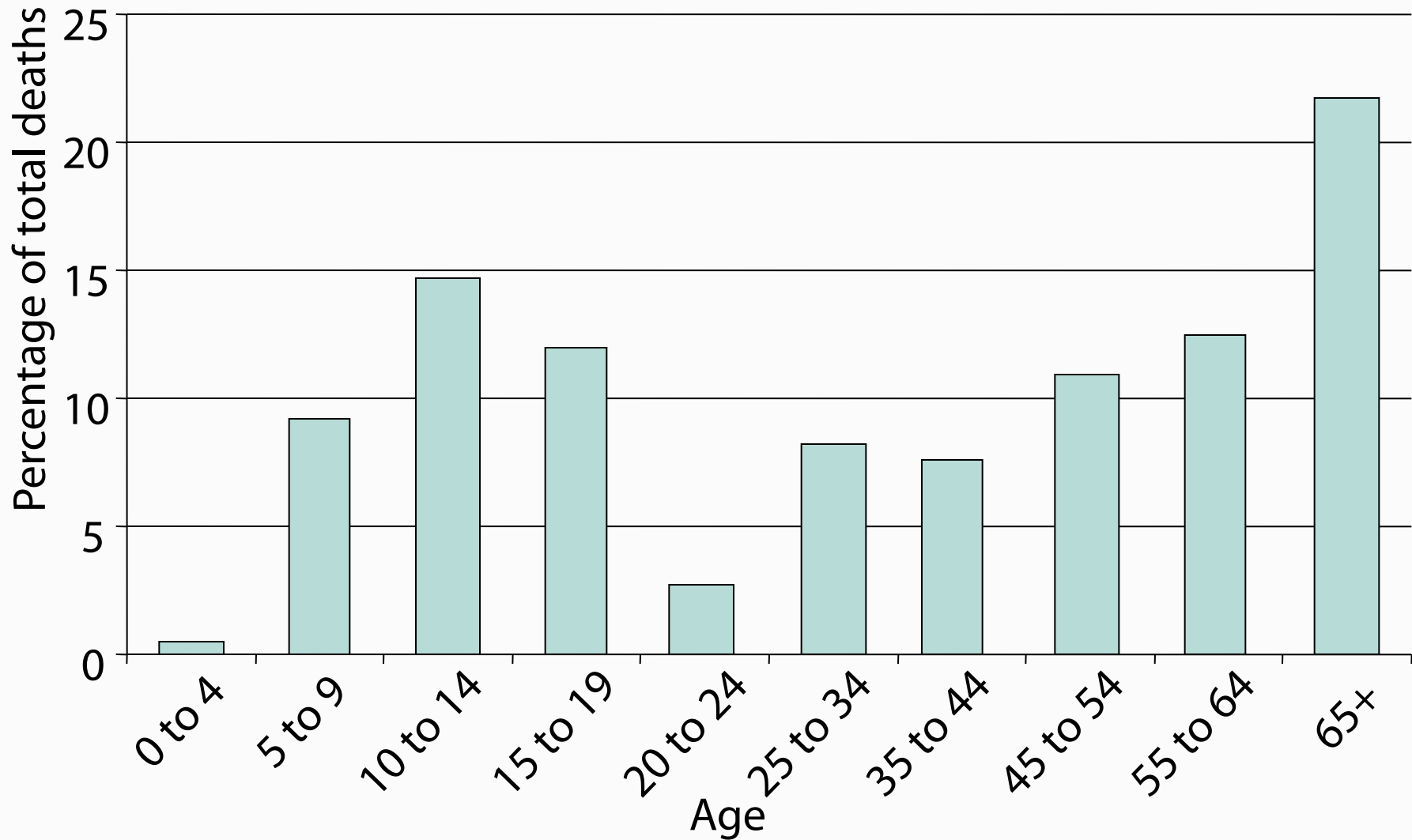
Sao Paulo Brazil Age of Traffic Accident Victims 1995



Saudi Arabia—Age of Traffic Accident Victims, 1993



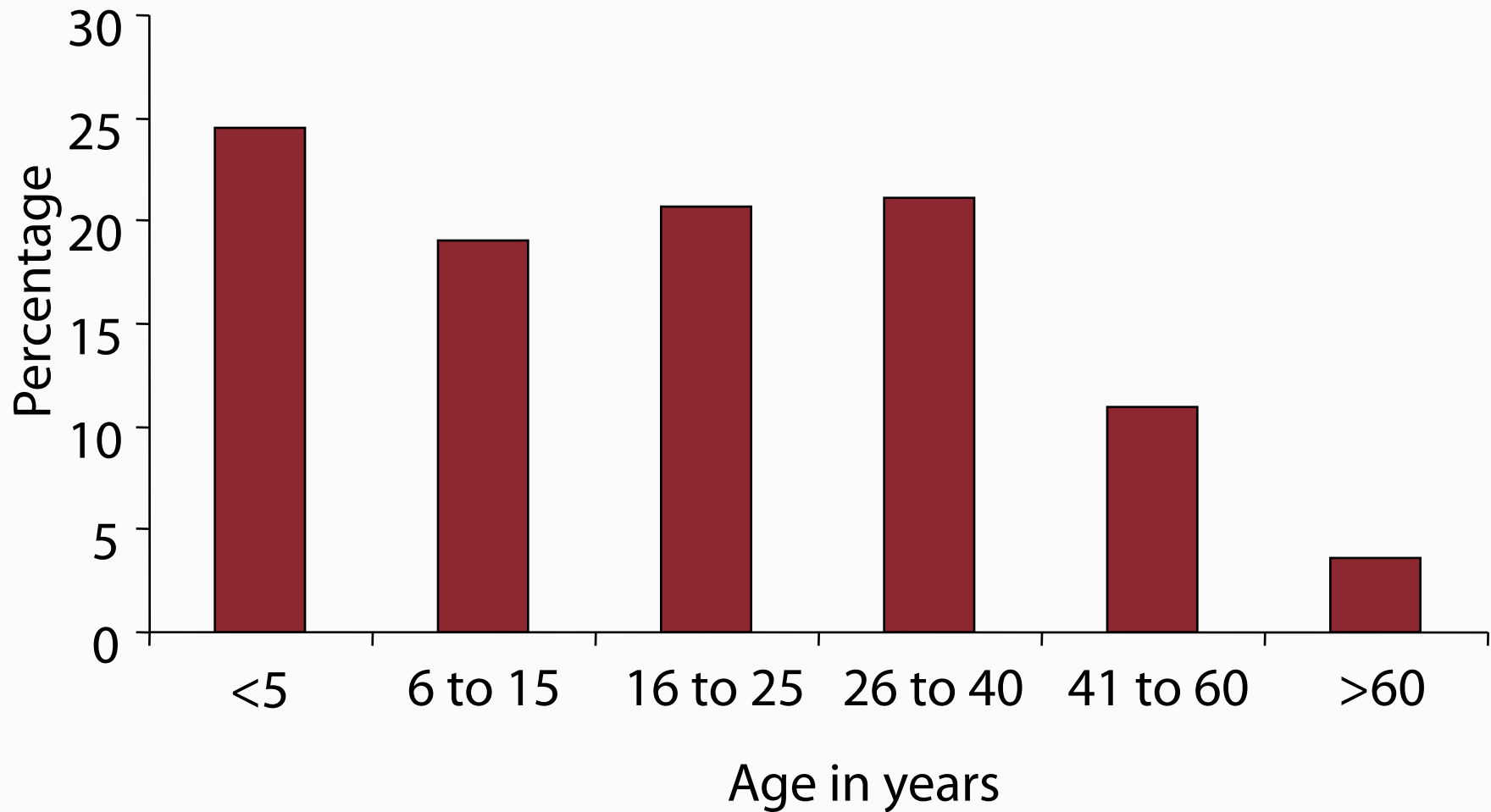
Deaths from Bicycle Injuries by Age: 1979–1990, Israel



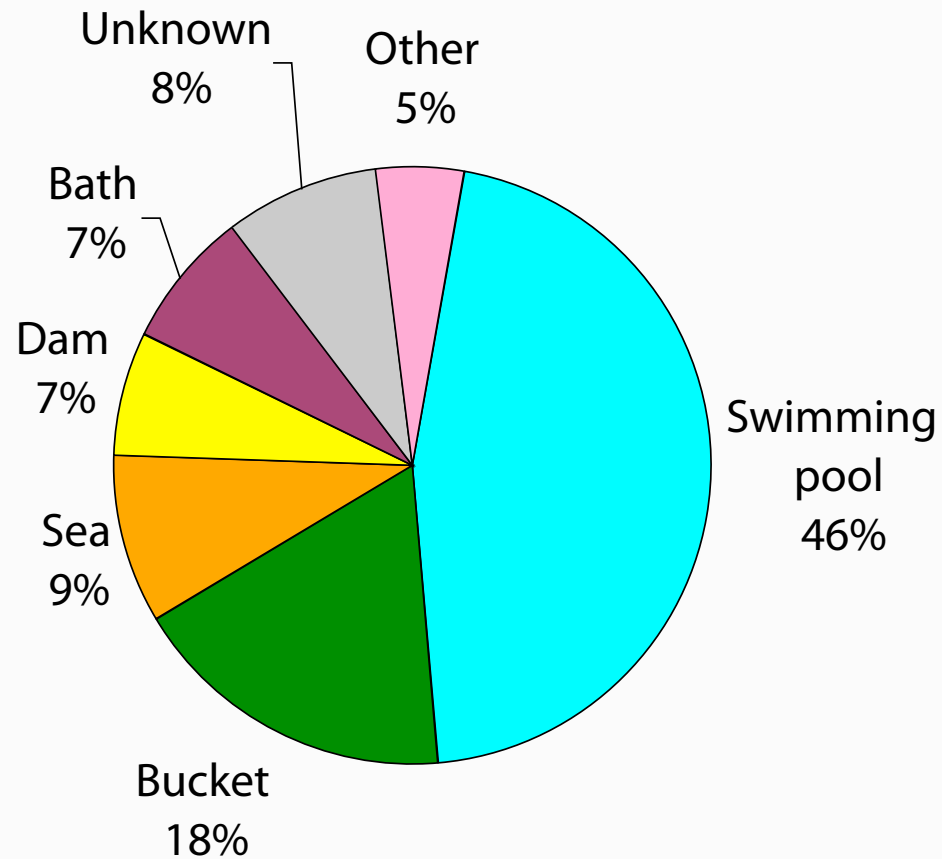
Source: Ginsberg, G. M. et al. (1994). *A J Public Health*, 84, 653–656.

Percentage Distribution in Burn Care Center in Teheran

- According to age of patient admitted



Sites of 107 Near Drownings, 1976–1987, South Africa



Risky Behavior of Bus Commuters in Karachi, Pakistan

- Disembarking passengers
 - 33% did not wait for bus to stop
 - 54% stepped off into the center of the road
 - 84% did not look out for traffic
- Embarking passengers
 - 38% got on moving bus
 - 83% waited for buses on the street

Risky Behavior of Bus Drivers in Karachi, Pakistan

- At the bus stop, 30% of the bus drivers did not stop completely
- 46% stopped away from the stop
- 79% stopped in the center of the road

Young Drivers' Lifestyle and Accident Risk in Athens

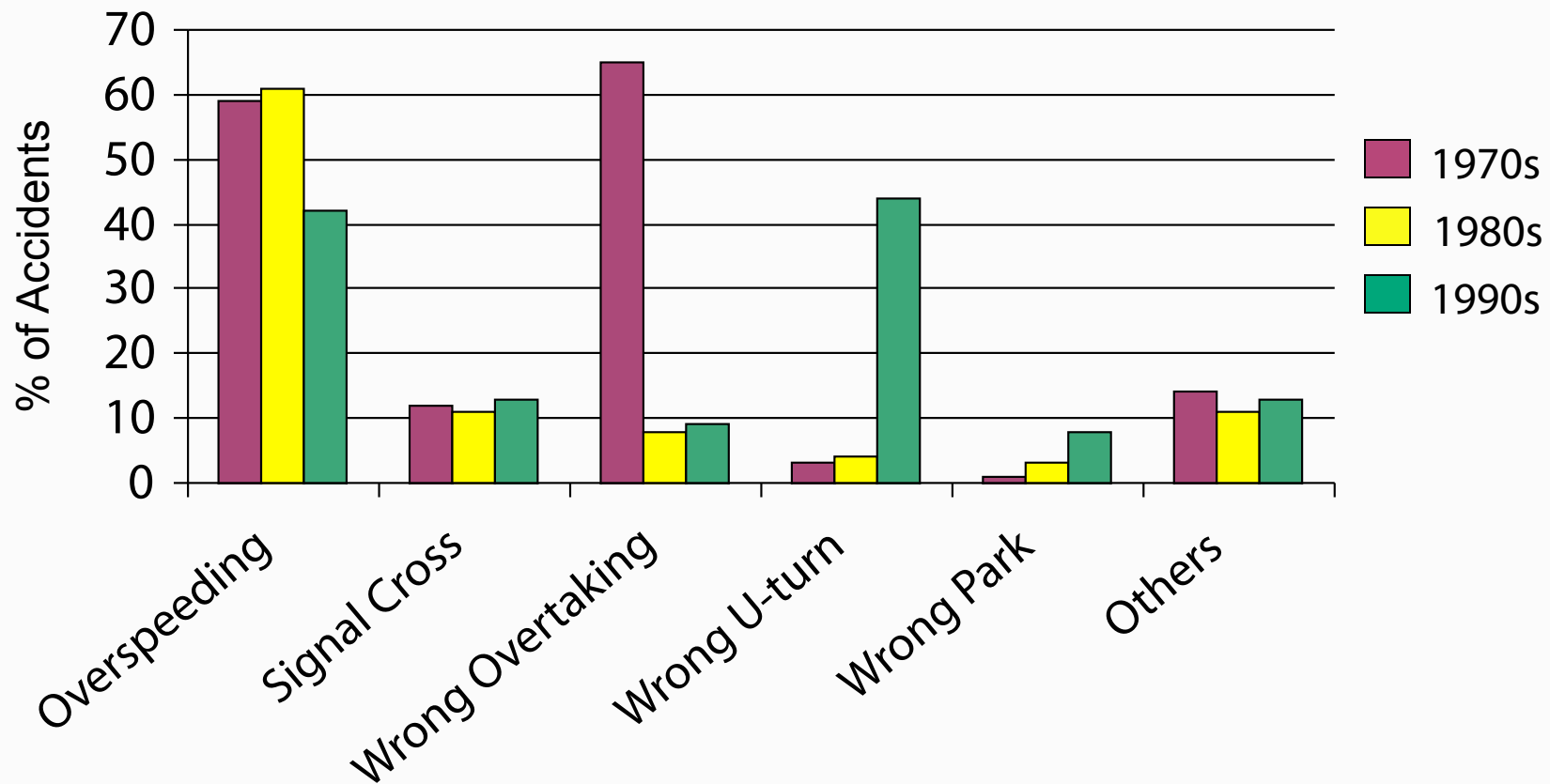
- Young drivers' lifestyle and road accident risk in Athens
 - Logistic regression analysis showed
 - ▶ Young drivers whose dominant lifestyle trait is alcohol consumption or driving without destination have a higher risk of road traffic accident

Young Drivers' Lifestyle and Accident Risk in Athens

- Logistic regression analysis showed
 - Those whose dominant lifestyle is “culture” face low risk of RTA
 - Young drivers who were “religious” also seem to have low accident risk

Causes of Road Accidents in Saudi Arabia

- For the decades 1970s, 1980s, 1990s



Risky Behavior and Injuries

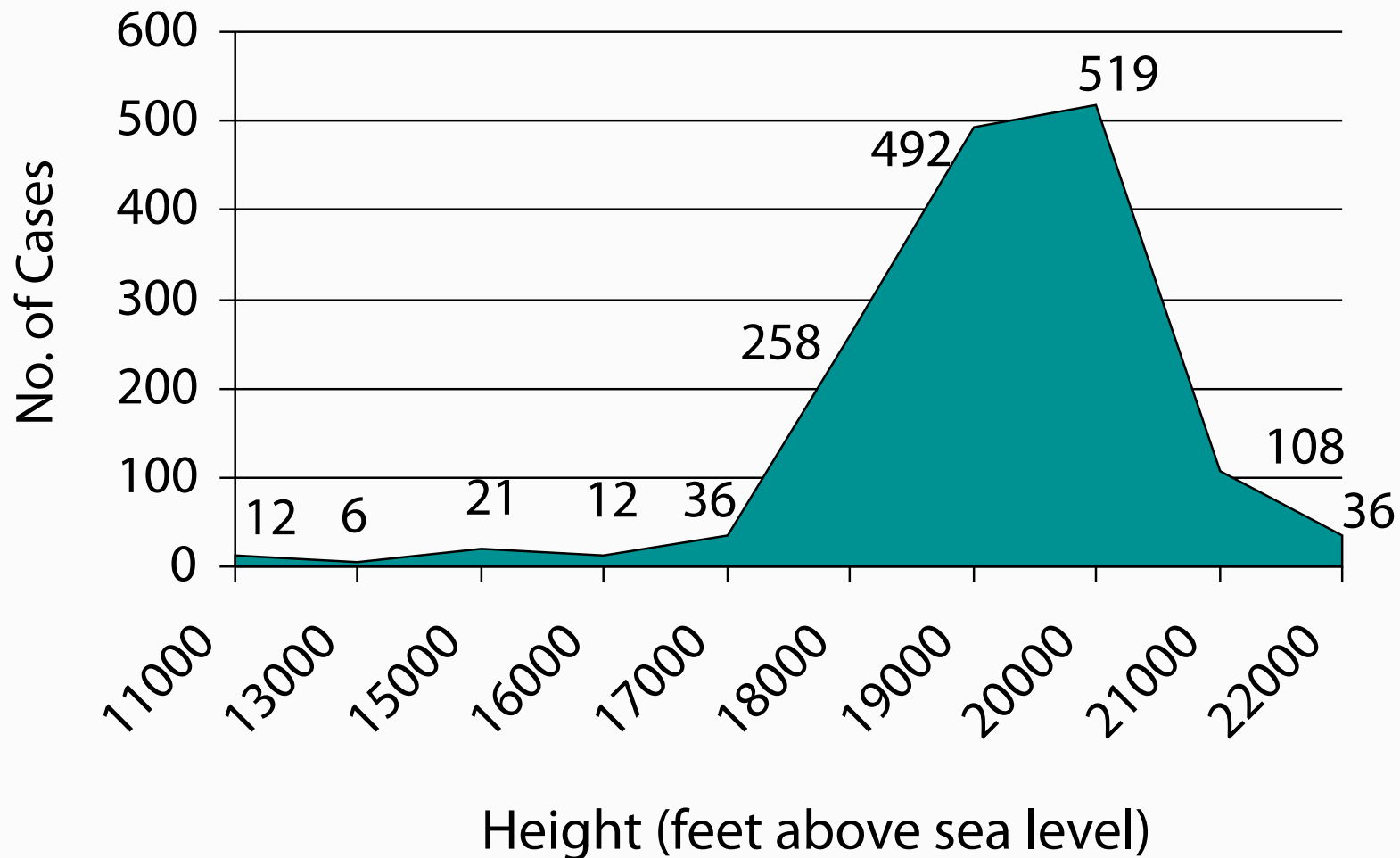
- Drowning
 - Study in Barbados found that 37% of visitors who were victims of a near drowning experience had evidence of alcohol intoxication

Risky Behavior and Injuries

- Poisoning
 - In India, more than 200 people died in New Delhi after drinking alcohol mixed with methanol during the Hindu festival of Deepawali

Frequency of Frostbites

- According to height (environment) in the Karakoram Mountains, Pakistan



Rural and Urban Environment: China

- China
 - Rates of suicide and drowning are much higher in rural areas
 - Death rates for the elderly (from falls) are much higher in urban areas

Rural and Urban Environment: Papua New Guinea

- Papua New Guinea
 - Rates of suicide among women and of drowning among men are significantly higher in remote rural villages than in periurban villages

Equipment Factors

- Burns
 - From May 1995 to December 1996, 40% of patients admitted to the burn unit of Ain Shams University (Cairo, Egypt) sustained injuries from kerosene stoves

Equipment Factors

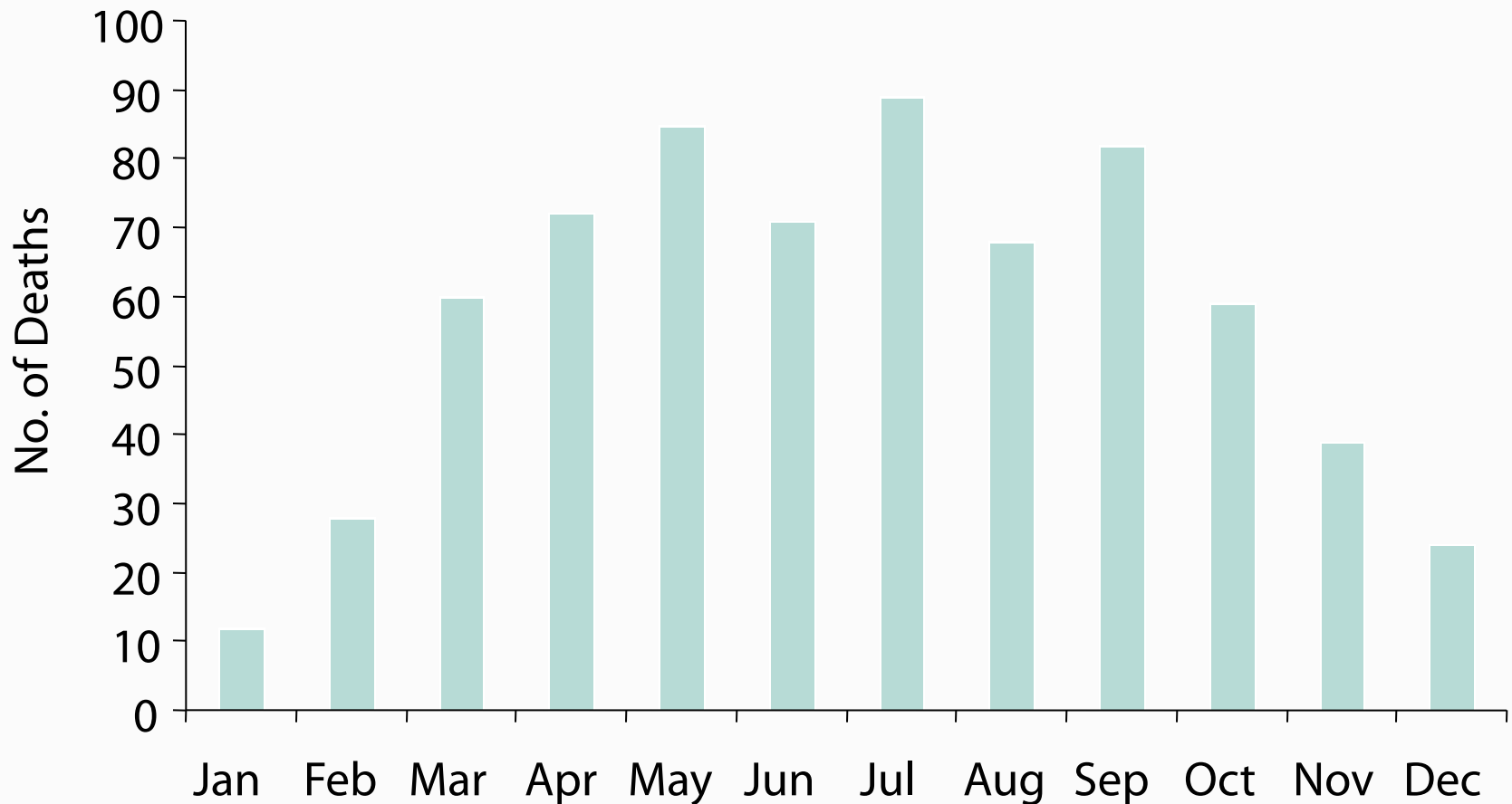
- Burns
 - In developing countries, hot tap water is a main cause of severe burns in children
 - 63% of all burn cases among children aged less than 15 years in Casablanca, Morocco, were scalds from water

Equipment Factors

- MVA
 - On the main highway between Delhi and Bombay, India, it was found that 25% of all fast-moving vehicles did not have a proper brake system

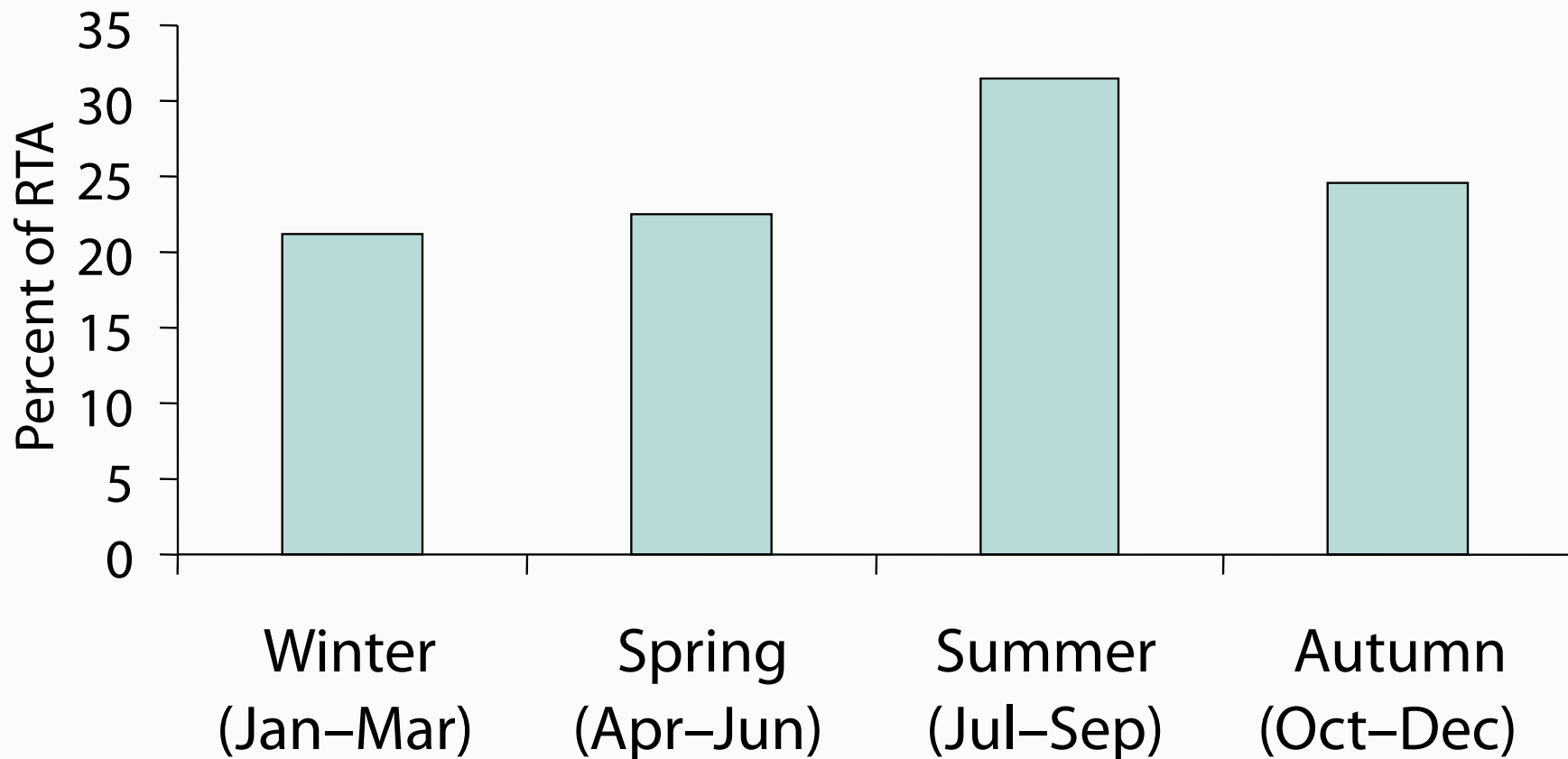
Seasonality of Children Drowning Deaths Aged 1–4

- Data collected in Matlab from years 1983–95



Seasonal Averages for Road Traffic Accidents

- Annual seasonal average percentages of road traffic accidents for the period 1989–1993 in Saudi Arabia



Injuries and Socioeconomic Development

- Injuries used to be commonly viewed as the “disease of development”
- E. Kopits and M. Cropper (2003) showed a sharp increase in fatalities per head of population with increasing GDP per capita up to a peak of \$6100–\$8600, after which the fatalities began to decline

Injuries and Socioeconomic Development

- Their study also showed that fatalities per vehicle decline sharply with income per capita in excess of \$1180
- Overall, the results display how economic development relates to increased motorization and increased exposure to risk