# Transitions in Disability Among Older Singaporeans: 1995-1999

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# Background

- Dramatic improvements in mortality in Southeast and East Asian societies over the past century.
- Mortality does not fully capture population health, particularly in aging societies.
- Decreases in mortality can sometimes cause worsening population health (Verbrugge 1984).
- E.g., in US, increased longevity accompanied by increases in disability from 1970s to 1980s (Crimmins, Saito, and Ingegneri 1997).

# Population measures are a sum of individual-level transitions

- Changes in disability levels are an outcome of individual-level disability transitions (Liu, Liang, Muramatsu, and Sugisawa 1995).
- Understanding determinants of disability transitions important for forecasting and intervention.
- Policy implications: the more years an individual spends disabled, the higher the long-term care costs for the individual, family, and society.

# Singapore

- Useful setting for comparative purposes.
- Non-Western setting allows testing of hypotheses related to predictors of disability developed mainly in the West.
- Test case for compression of morbidity hypothesis.
- Current life expectancy: Females: 81 years, Males: 77 years.
- In 2000: 19% of population 60+.
- In 2030: 29% of population 60+.

# Research Questions

Has the probability of becoming disabled declined in Singapore over time (1995 - 1999)?

What are the determinants of health status transitions in Singapore?

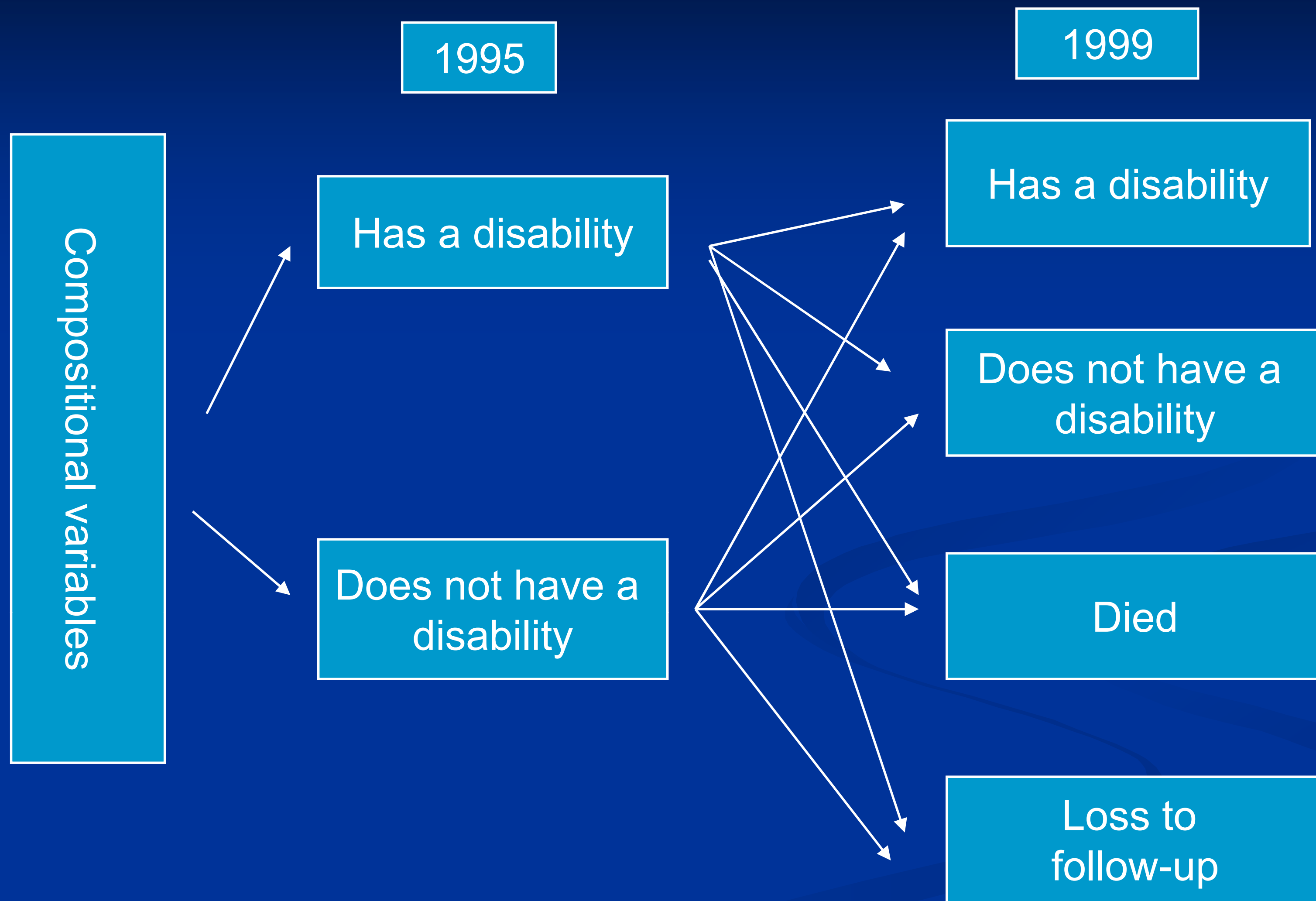
# Data

- 1999 Transitions in Health, Wealth, and Welfare of Elderly Singaporeans: 1995-1999
- Sample size 1,977 (59+)
- Disability = Any ADL (bathing, feeding, toileting) or IADL (clean house, prepare meals, use public transport, shopping, marketing). In 1999, 17% reported a disability (+2%).
- Independent variables measured at Time 1: Demographic (gender, age, ethnicity), Socioeconomic (educational level, income, work status), Social support (marital status, living arrangements).

# Methods

- Logistic regression using pooled sample to test for changes in disability levels between 1995 and 1999, controlling for compositional characteristics.
- Multinomial logistic regression to examine determinants of disability transitions.
- Analysis takes into account mortality and attrition as potential outcomes.

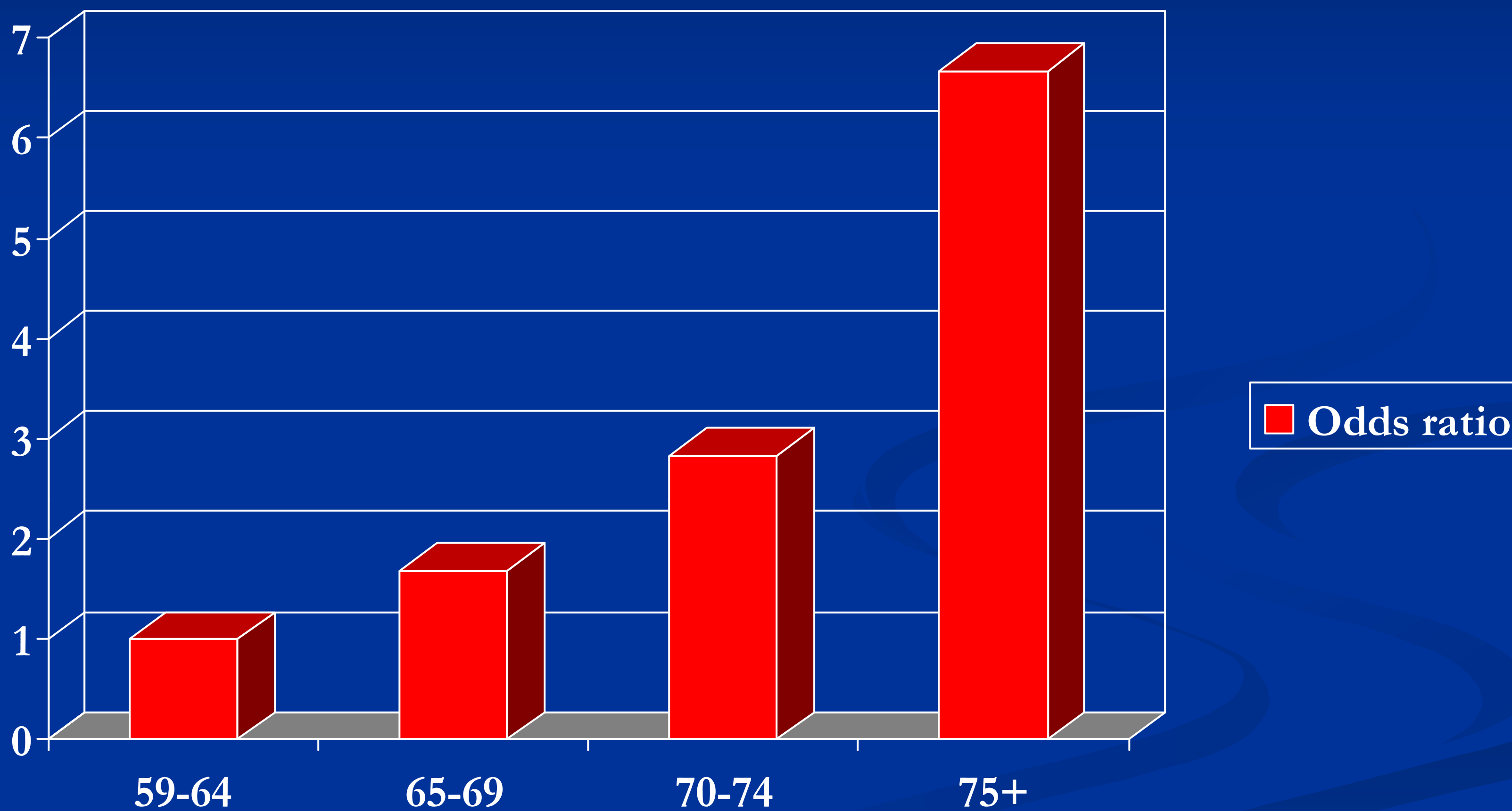
# wo-Wave Model of Transitions in Disability among Older Singaporeans



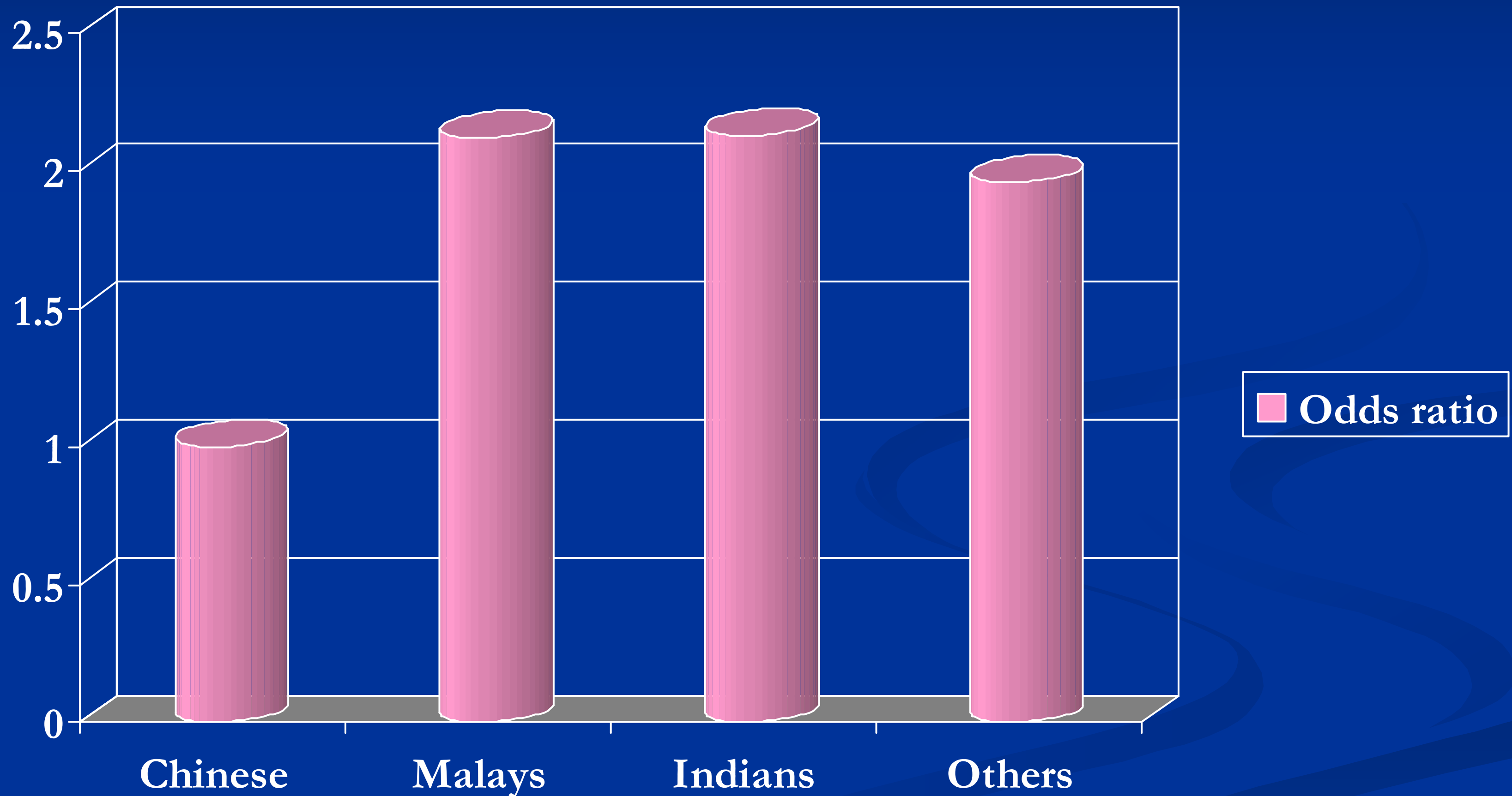
# The probability of becoming disabled has increased over time

Older adults 1.3 times more likely to report being disabled in 1999, with compositional variables controlled.

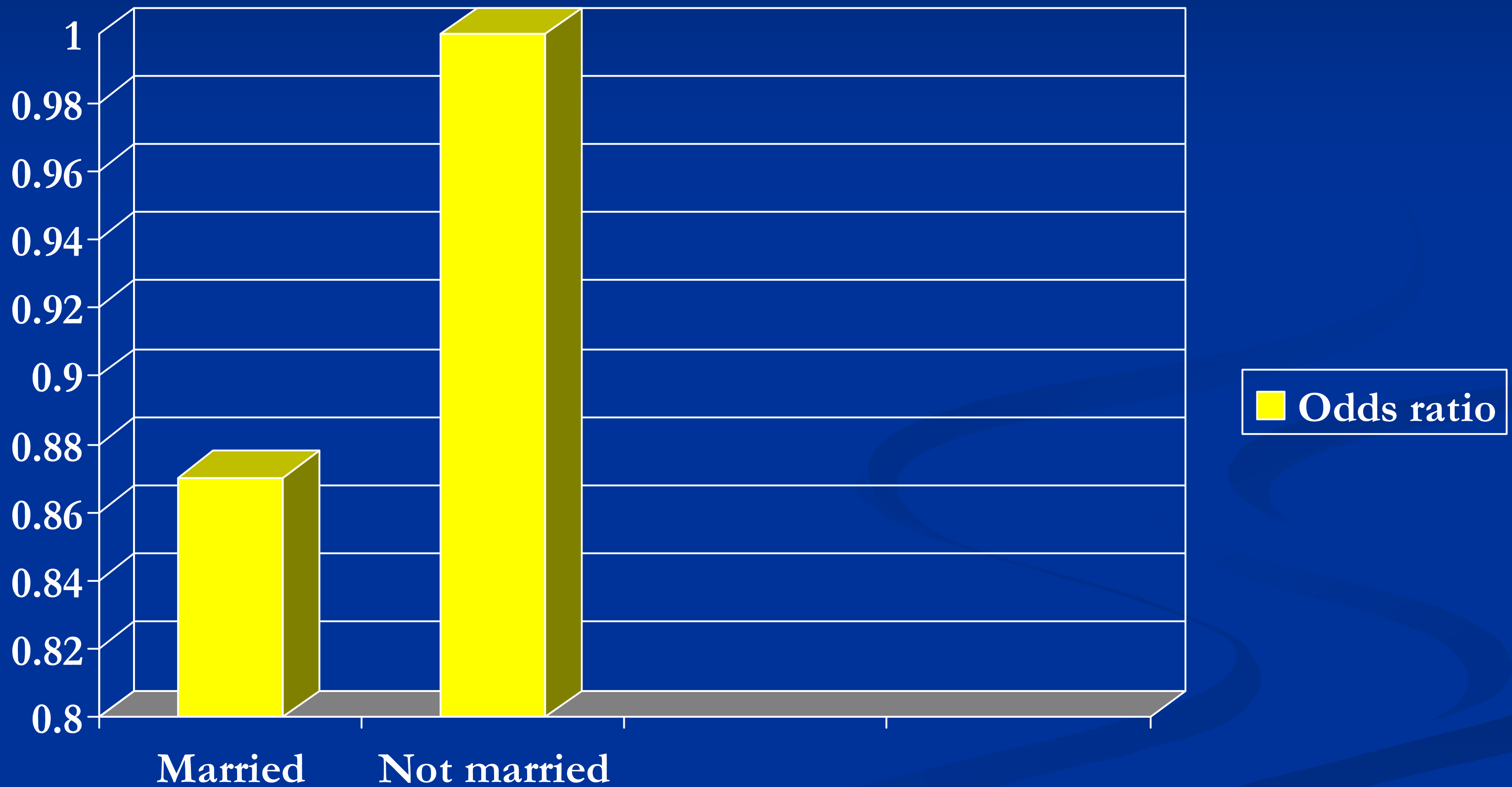
# Becoming older associated with increased probability of becoming disabled



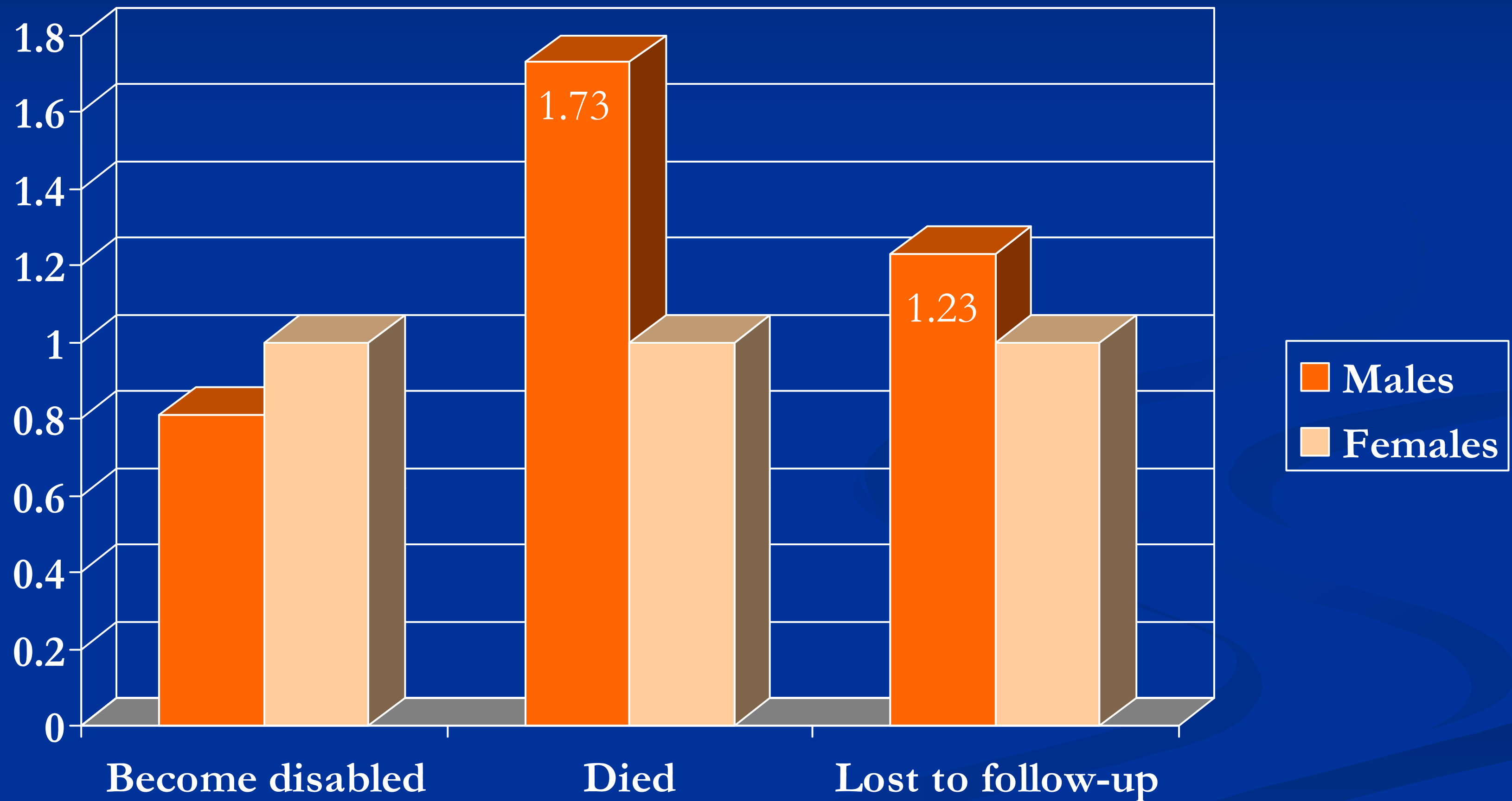
# Minorities have a higher probability of becoming disabled



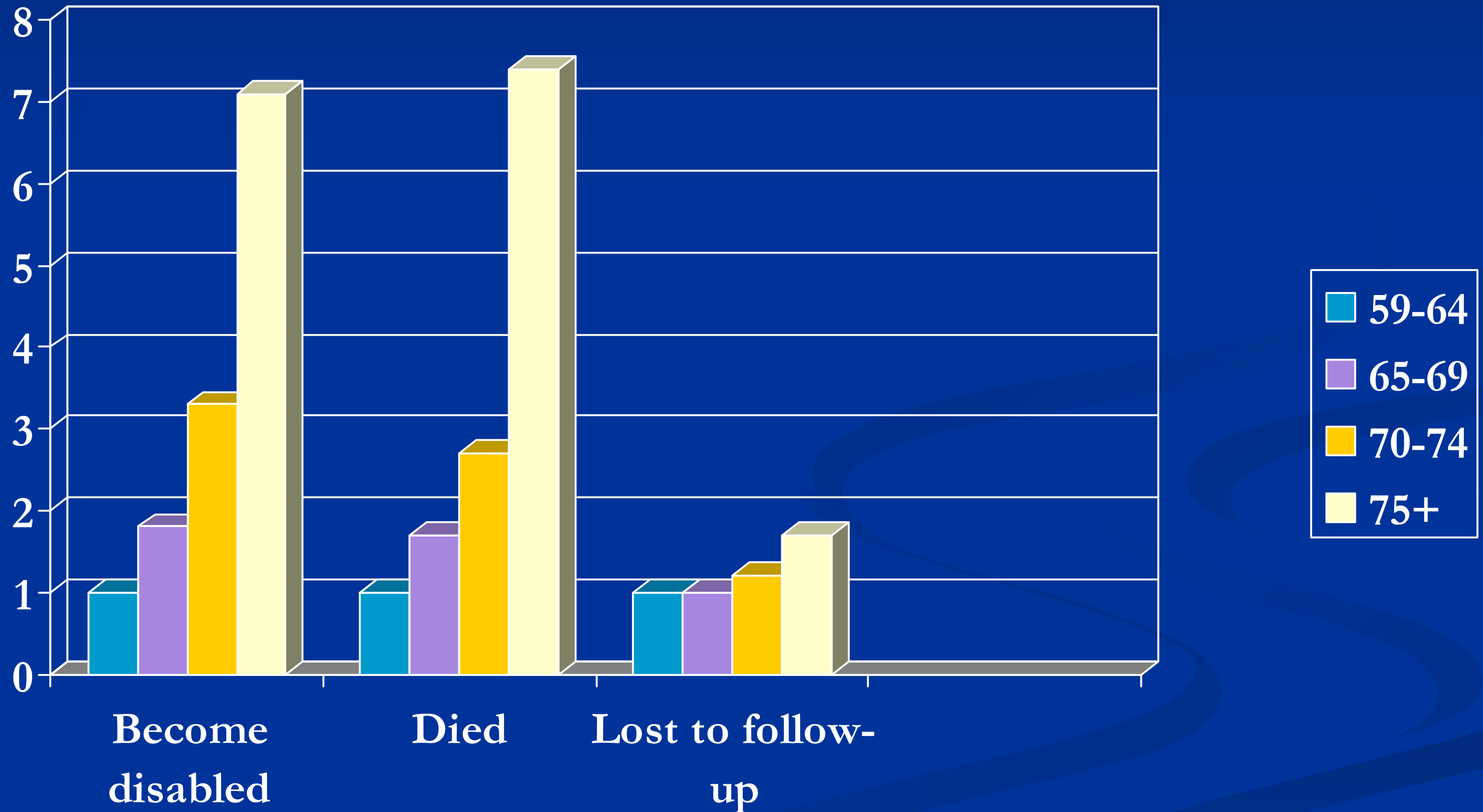
# Marriage has a protective effect



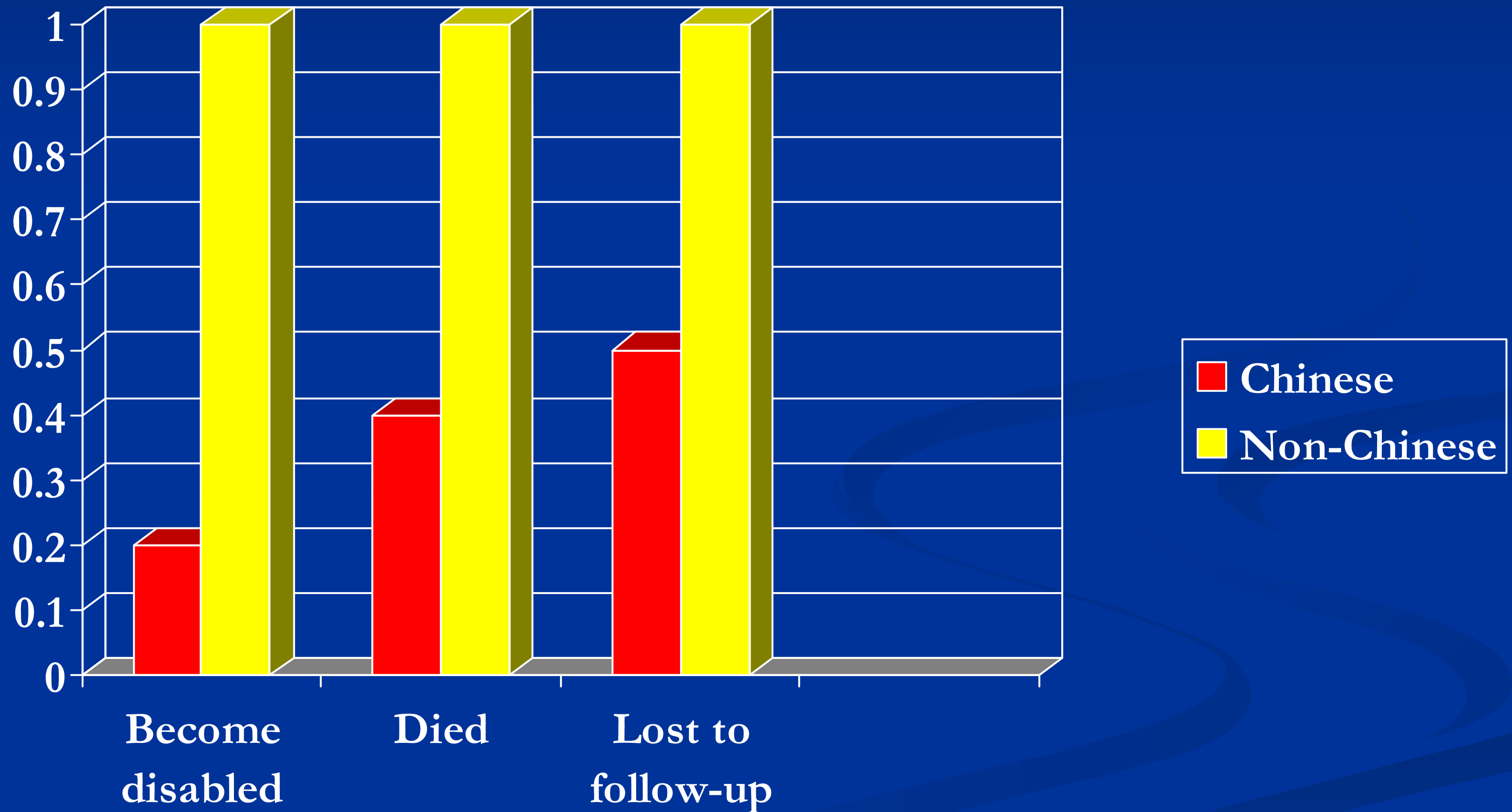
# Gender differences in health transitions



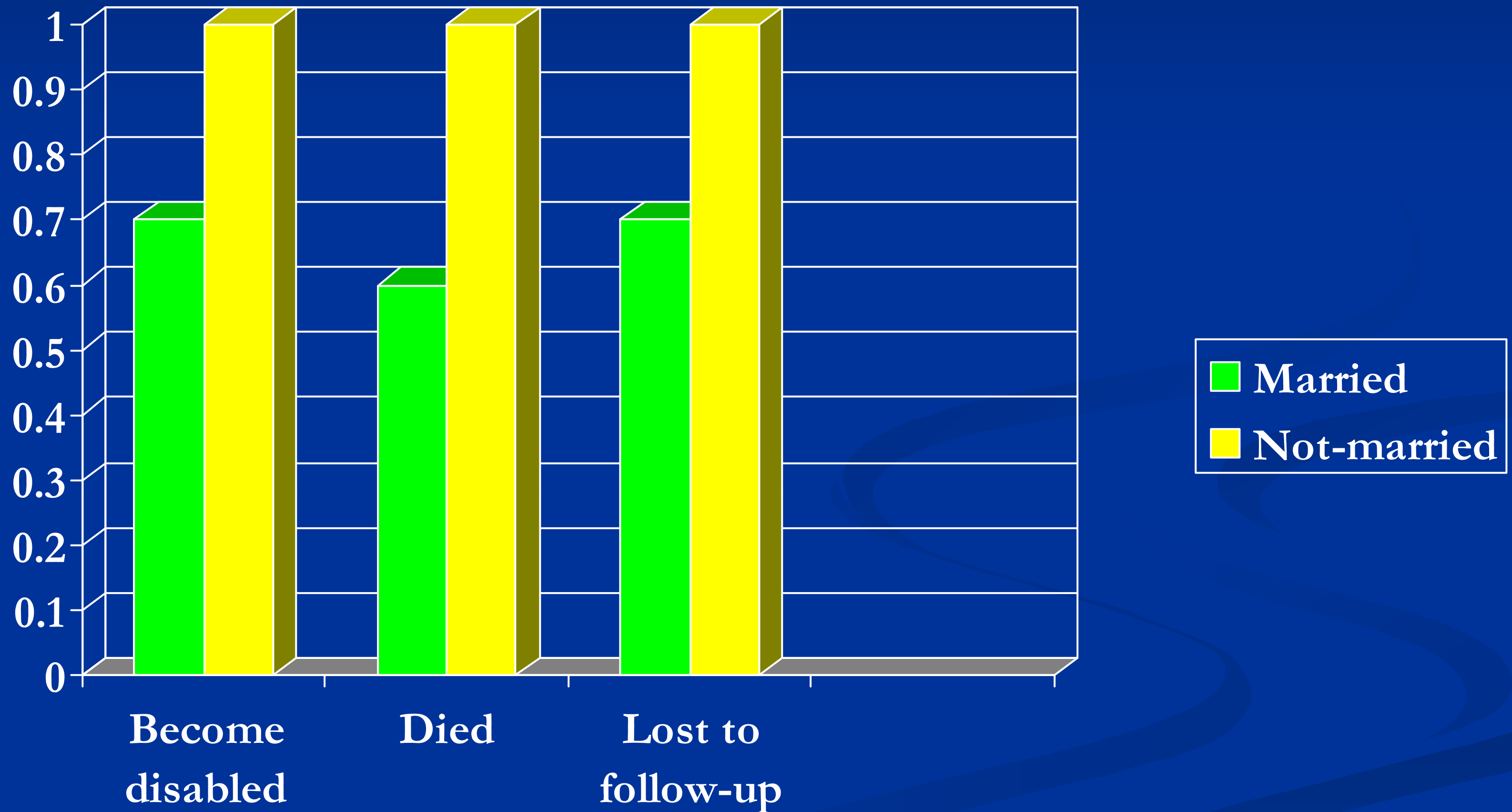
# Age effects on health transitions



# Effects of ethnicity on health transitions



# Marital status effects on health transitions



# Conclusions

- The probability of becoming disabled increased 1.3 times between 1995 and 1999 among older Singaporeans (59+).
- This may be attributed to better diagnosis and reporting as the State rapidly industrialized.
- Older adults, minorities, and individuals who are not currently married are more likely to become disabled.
- Interestingly, education, income and living arrangements have no significant effects.
- May be due to differences in health infrastructure and family management of health of older adults

# Conclusions (continued……)

Among older adults who start out without any disability:

- Oldest-old, Malays, Indians, Others, and not currently married, are more likely to become disabled.
- Males more likely to die.

Among older adults who start out with a disability:

- Males and Chinese are more likely to recover.

# Policy implications

- Results for ethnicity suggest minorities need to be targeted for more preventive and curative health measures.
- Gender differences in the probability of recovery from disability suggest there may be gender differences in access to resources, or health care, or in terms of how disability is managed.
- Since disability is a product of the interaction between the social environment and individual health we need to understand the perception of disability and how disability is managed in particular cultural settings and families.