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Social determinants of long-term institutional and hospital care use at the end of life

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Background on long-term institutional care

- Long-term care costs are almost 50% of all health care cost of the elderly, and institutional care is not the preferred living arrangement of the elderly
- With population ageing the demand and costs of long-term care are expected to grow rapidly
- %1 of GDP in many OECD countries currently; expected to rise to over 2%
- At the proximate level entry is determined by health and cognitive and physical functional status, but also more distal socio-demographic factors have been shown to be important

Living arrangements (with spouse, alone, others)

- Informal care (material, emotional and task support)
- At older ages and when health fails living with a partner is associated with informal care
- Adequate availability of informal care is an important determinant of independent living in the community and postpones entry into institutional care
- The importance of informal care is amplified because of deteriorating dependency ratio and potential shortage of care staff in the formal care system

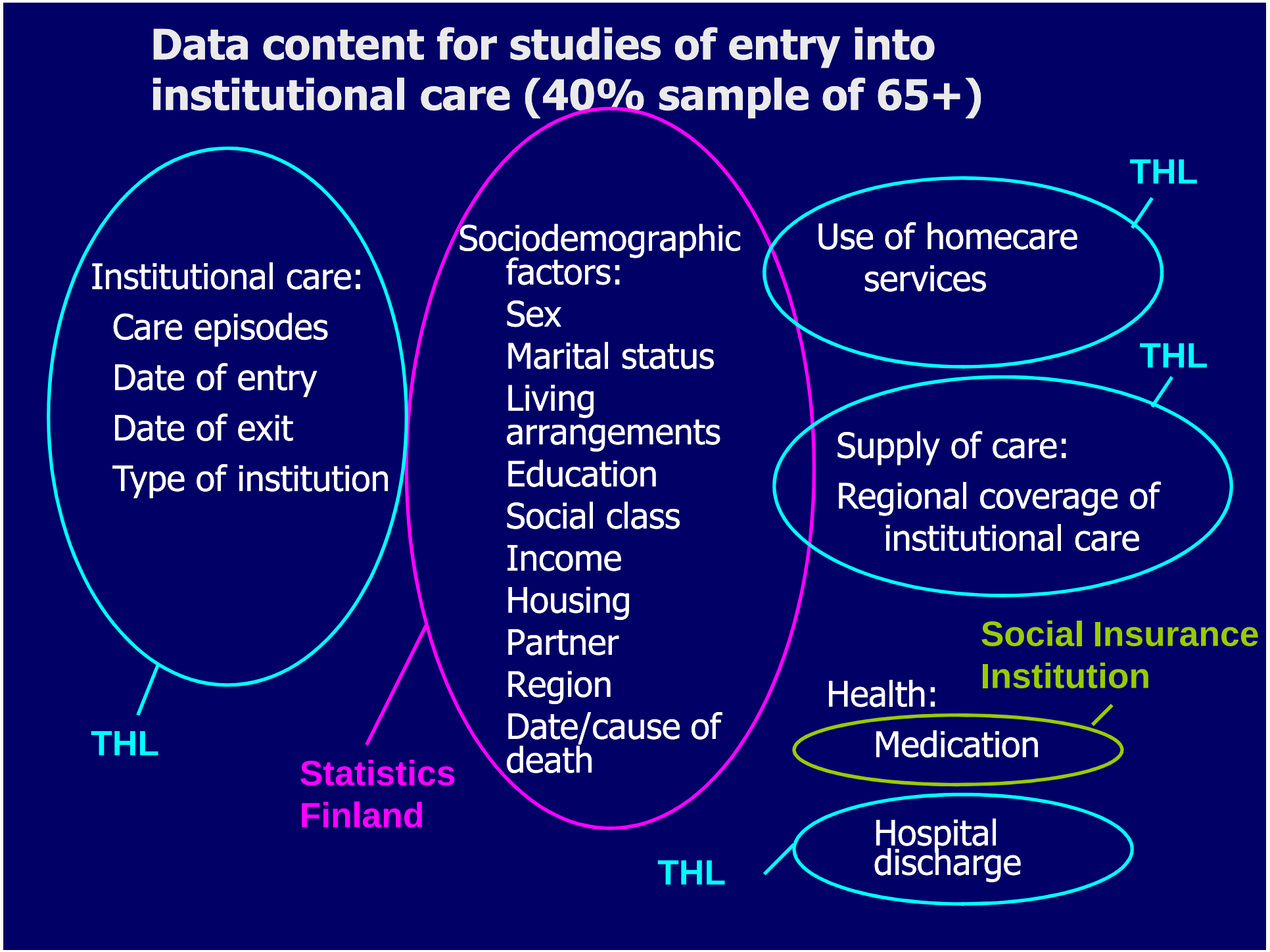
Income and home ownership

- Well established effects of SES on long-term care in previous literature
- Income and home ownership may be particularly relevant
- The independent effects of income may relate to e.g. the ability to pay for private home care services before entry or when planning for return to the community
- In addition to be a general SES measure home ownership is also a measure of financial status and security, and accumulated wealth (security of returning to owner-occupied dwellings)

Focus and aims

- **How institutional care is determined by living arrangements (or marital status) and socioeconomic position**

- We have three main focuses of interest:
  - First entry into institutional care
  - Exit from care and duration of care
  - Care over the life course


Data content for studies of entry into institutional care (40% sample of 65+)
Institutional care:
Care episodes
Date of entry
Date of exit
Type of institution
THL
Sociodemographic factors:
Sex
Marital status
Living arrangements
Education
Social class
Income
Housing
Partner
Region
Date/cause of death
Statistics Finland
THL
Use of homecare services
THL
THL
Supply of care:
Regional coverage of institutional care
Social Insurance Institution
Health:
Medication
Hospital discharge
THL

What these data can offer?

Most previous studies are:

- based on US data
- based on populations in special need
- based on data with entry and exit for separate populations
- suffer from attrition and non-continuous follow-up
- on small samples

Definition of long-term institutional care

- 24-hour care in nursing homes, service homes, hospitals and health centers lasting for over 90 days or confirmed by a long-term care decision.
- The over-90-days criterion was met if a patient had stayed in the same institution or successively in different institutions for the time required.
- Approximately 75 per cent of first stays begun in hospitals or health centres

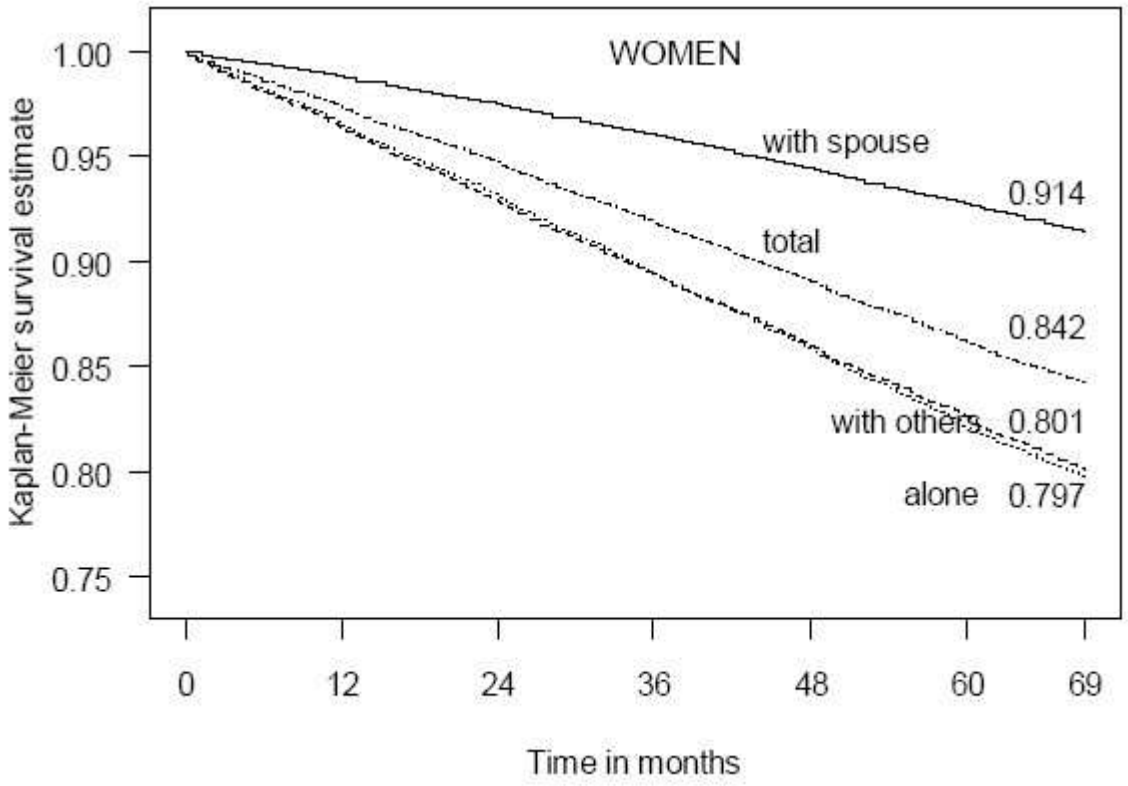
Living arrangements, home ownership, income and health at baseline

- Living with a spouse / alone / others
- Owner-occupied dwelling / other
- Household income per consumption unit
  - Incomes of all household members, including wages, capital income and taxable income transfers and accounts for taxes and non-taxable income transfers. Adjusted for household composition (OECD, 1982)
- 18 dichotomous indicators of chronic health conditions assessed during a 2-year period preceding the baseline

Methods

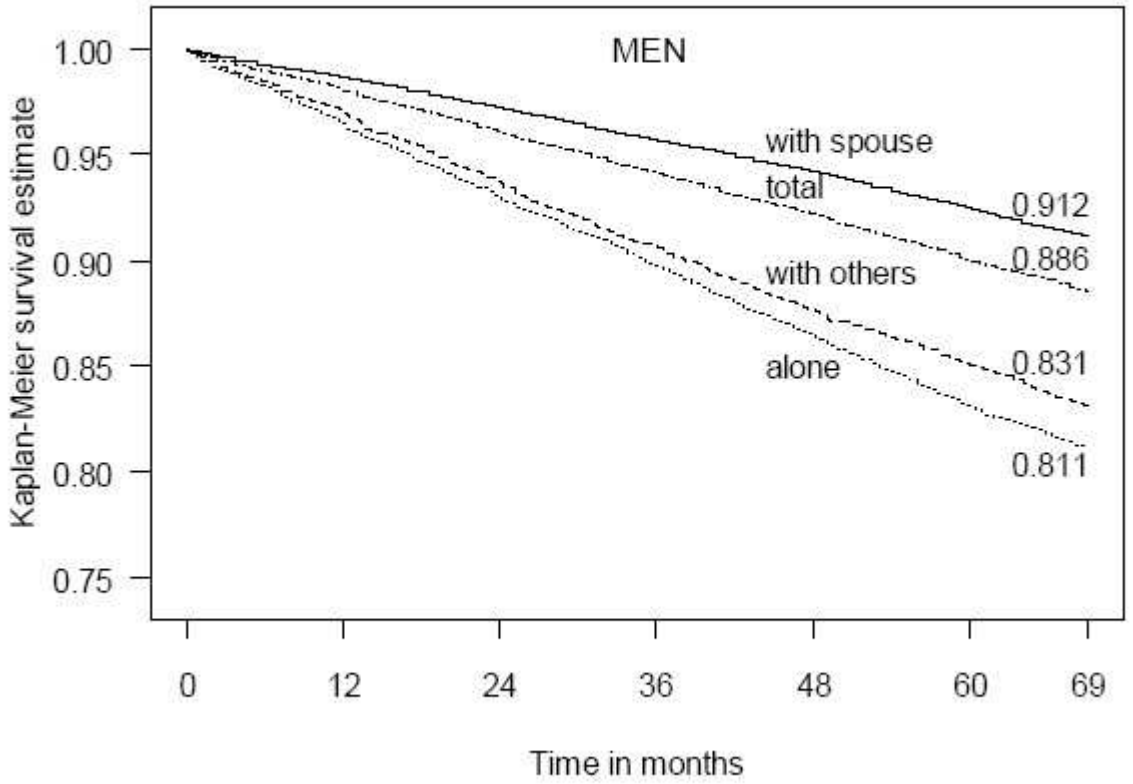
- Cox regression for entry and exit
- Weibull regression for duration
- Multistate life-tables
- Growth curve models

Probability of survival without institutionalisation by living arrangements among Finnish women 65+ living in the community at baseline



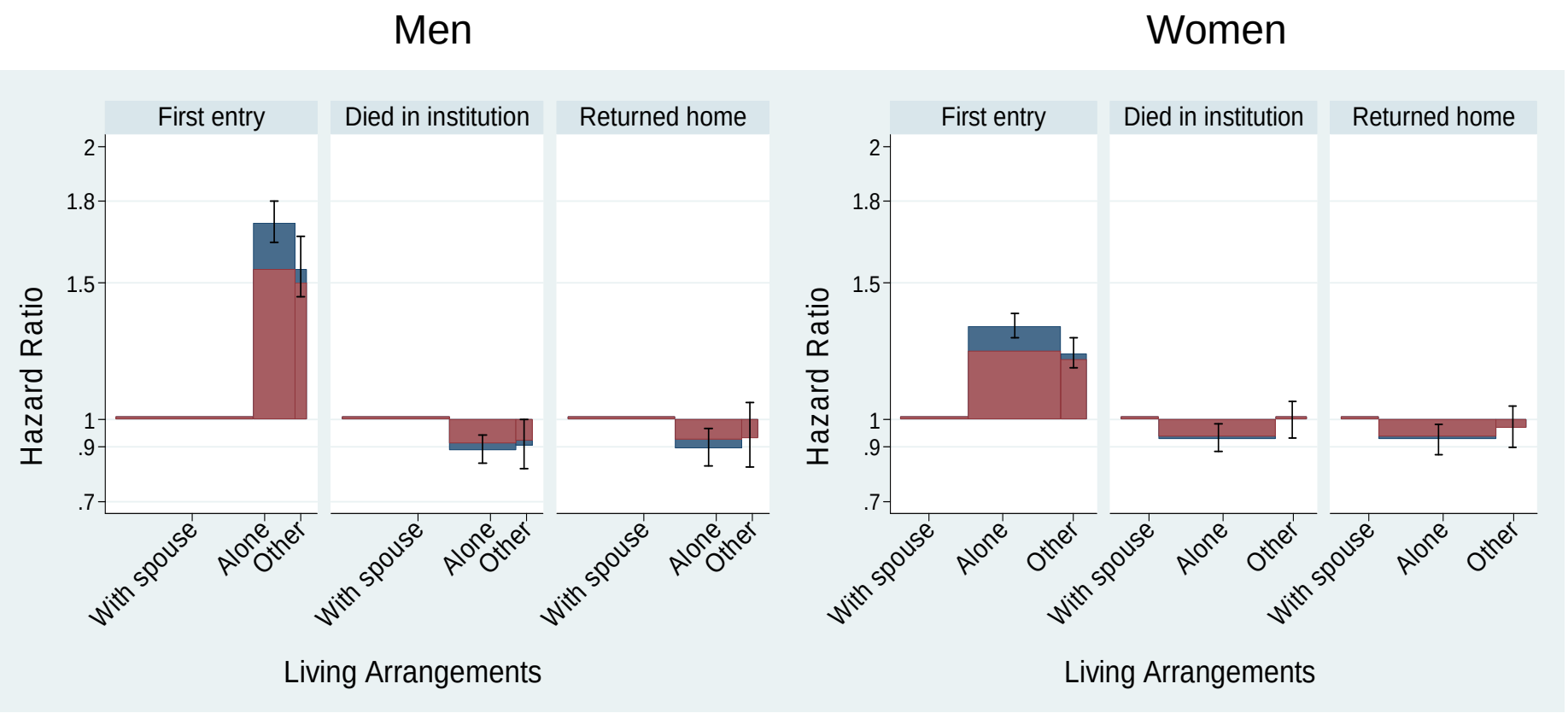
Nihtilä & Martikainen, Scandinavian Journal of Public Health 2008

Probability of survival without institutionalisation by living arrangements among Finnish men 65+ living in the community at baseline



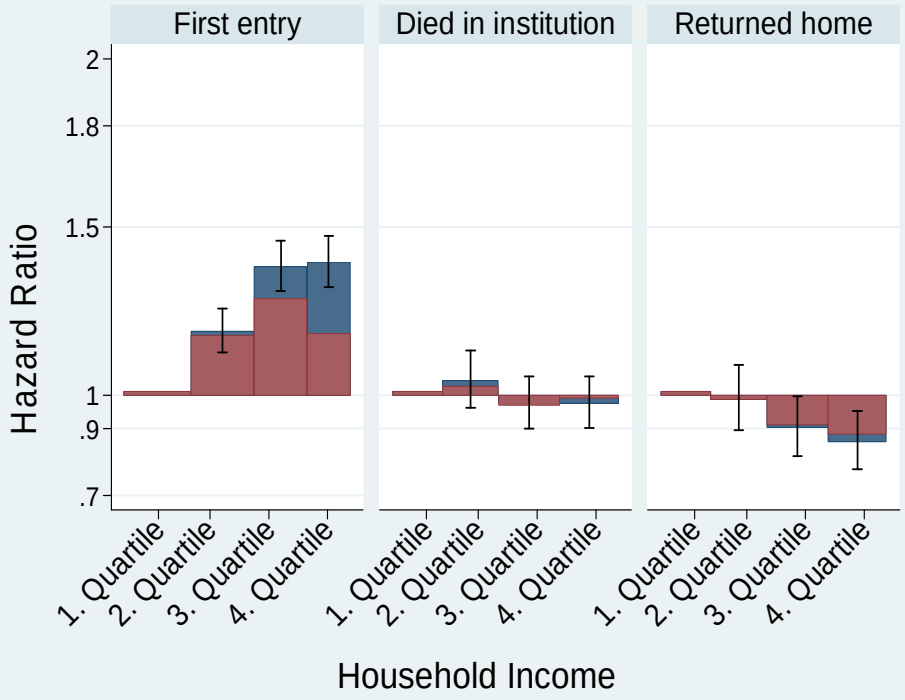
Nihtilä & Martikainen, Scandinavian Journal of Public Health 2008

Institutionalisation and mode of exit in 1998-2003 by living arrangements

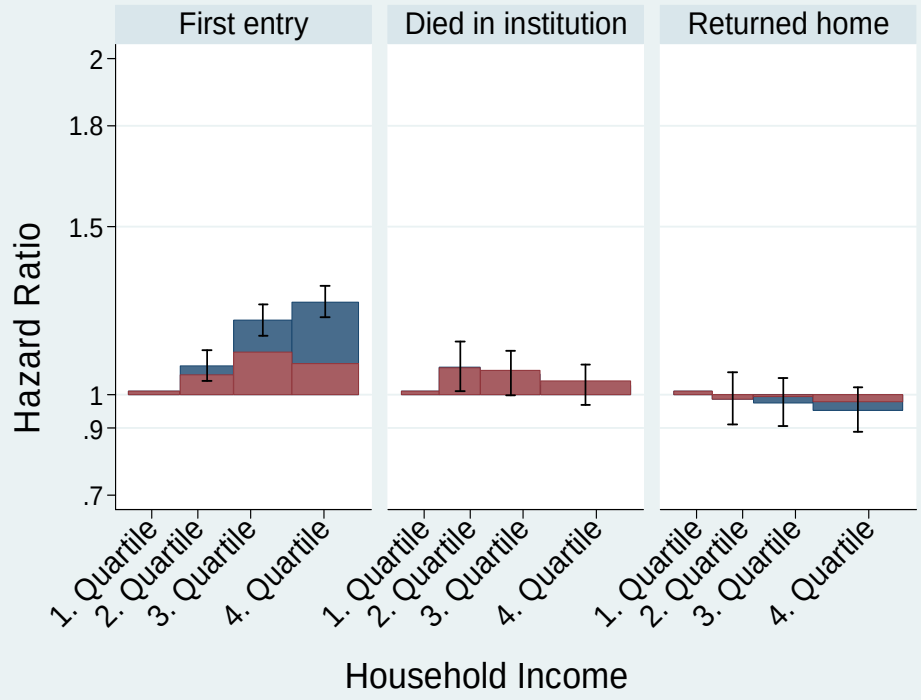


Institutionalisation and mode of exit in 1998-2003 by household income

Men



Women



Hazard ratios (women vs. men) of institutionalisation and mode of exit from institution

	Total (N=280722)	Those institionalised (N=35926)		
	First entry	Died in institution	Returned home	Total exit
Model	Hazard ratio	Hazard ratio	Hazard ratio	Hazard ratio
unadjusted	1.42	0.70	0.81	0.74
age-adjusted	1.12	0.66	0.89	0.75
age+living arrangement	0.97	0.68	0.92	0.77
age+household income	1.10	0.67	0.90	0.75
age+home ownership	1.09	0.66	0.90	0.75
age+health status	1.08	0.67	0.88	0.75
full model	0.94	0.68	0.91	0.77

Martikainen, Moustgaard, Murphy, Nihtilä, Koskinen, Martelin, Noro, The Gerontologist 2009

Table 1. Life expectancy (in years) at age 65 in institutions and at home. Finnish men and women.

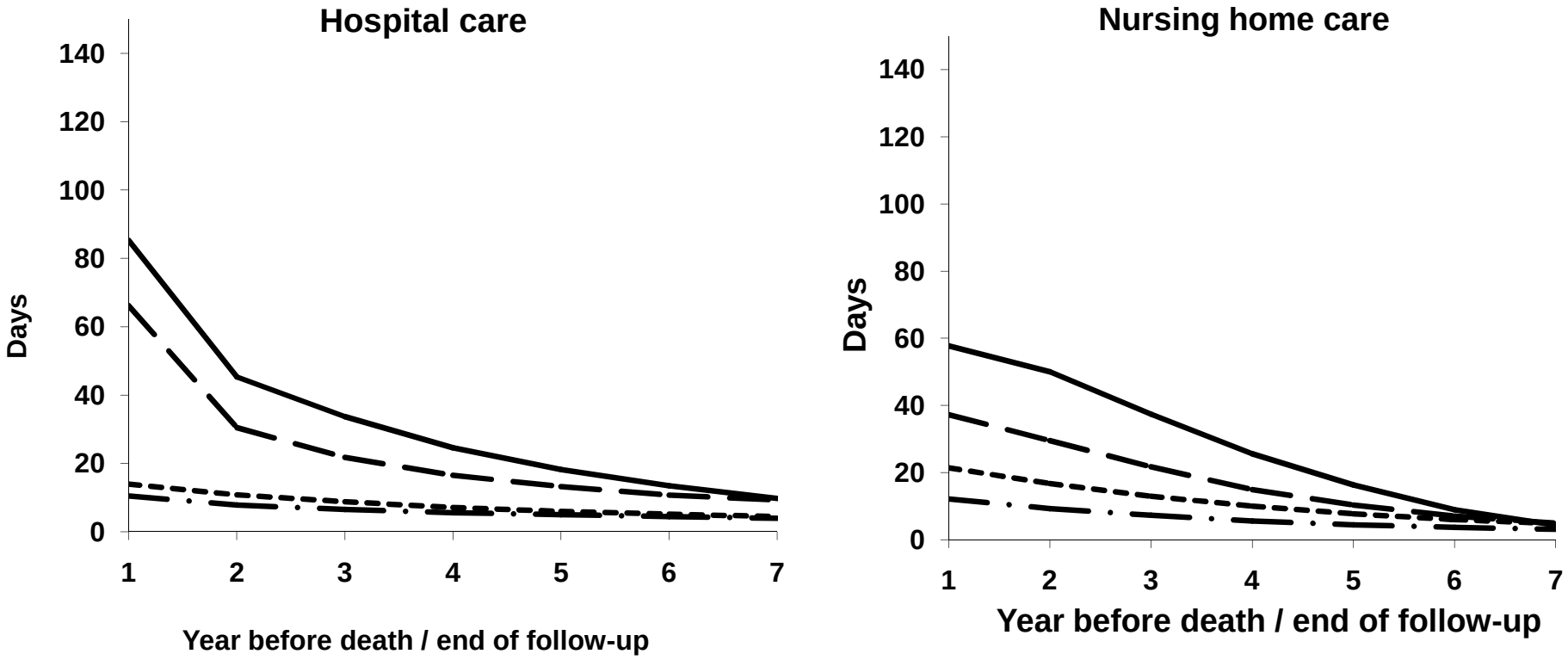
	Women	Men
At home	17,73	14,60
In institution	2,25	1,25
Total	19,98	15,84

Use of care and proximity to death

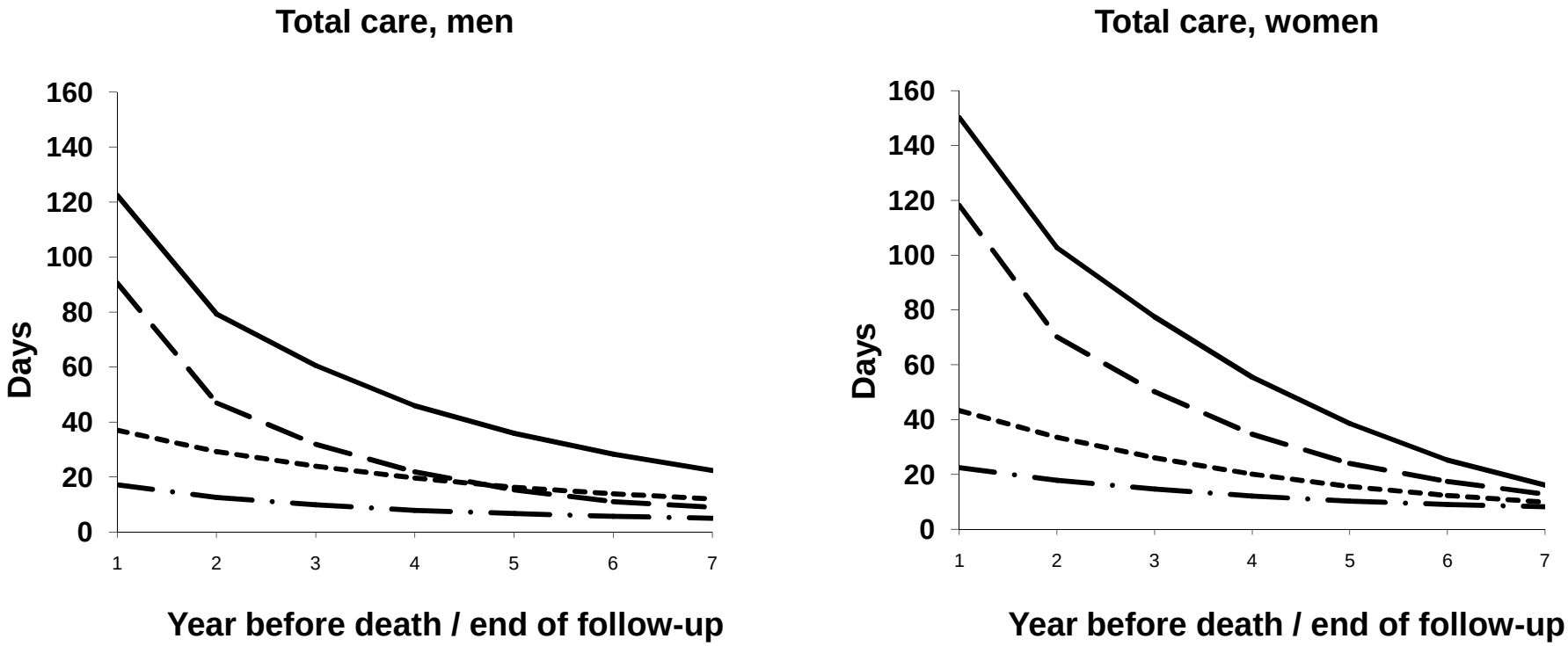
- Age and people's proximity to death are the most significant determinants of health status and health needs
- Acute health care costs are strongly associated with proximity to death.
- More than a quarter of all acute health care costs are incurred in the last year of life.

- Less is known about long-term care
- Less is know about how social factors affect these associations
- The results have clear implications for the patients concerned about quality of life, policy makers estimating care costs, and clinicians responsible for end-of-life care decisions

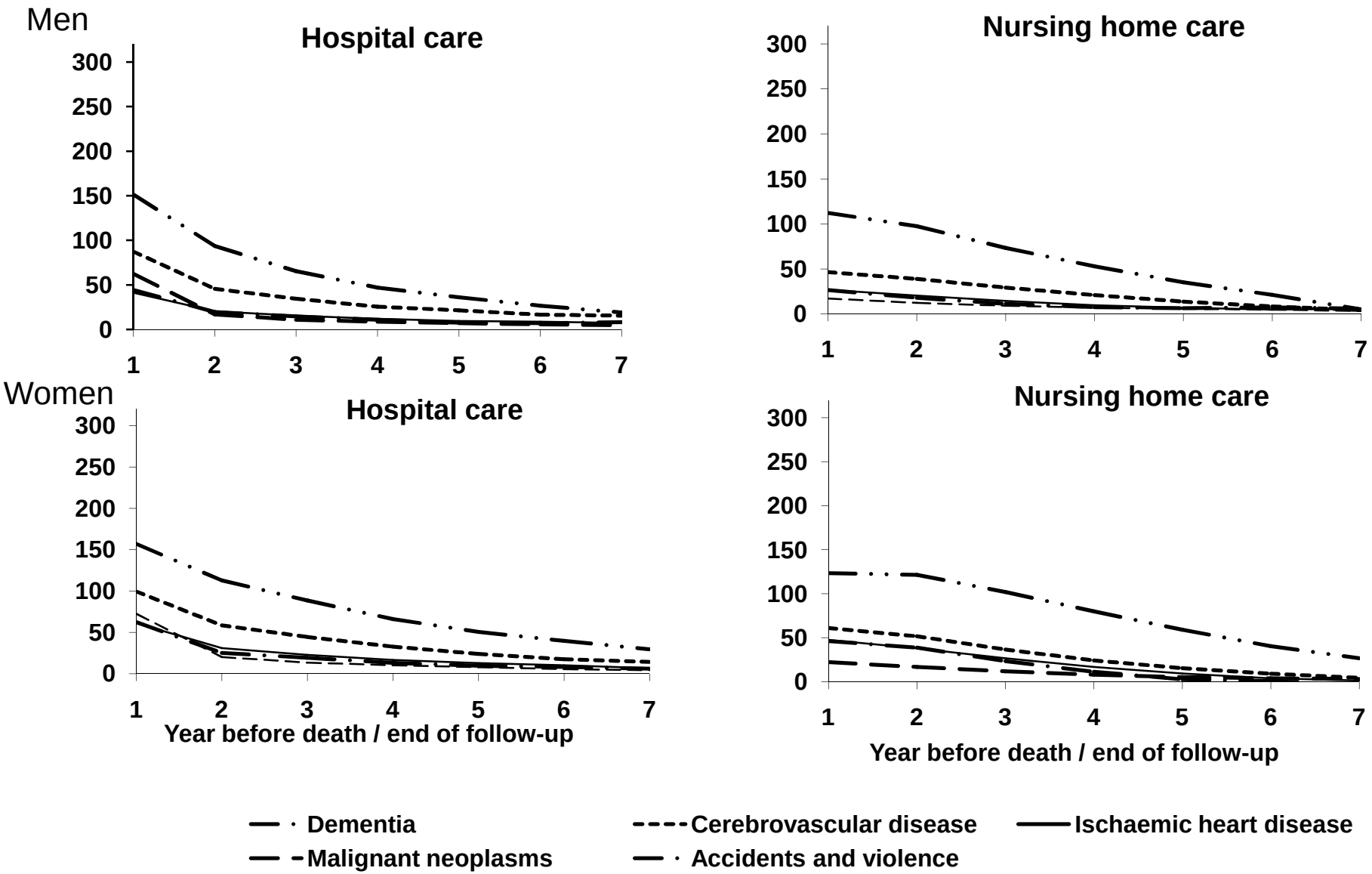
Age-adjusted average number of hospital, nursing home and total care days in the previous seven years among the deceased and the survivors at end of follow-up by sex



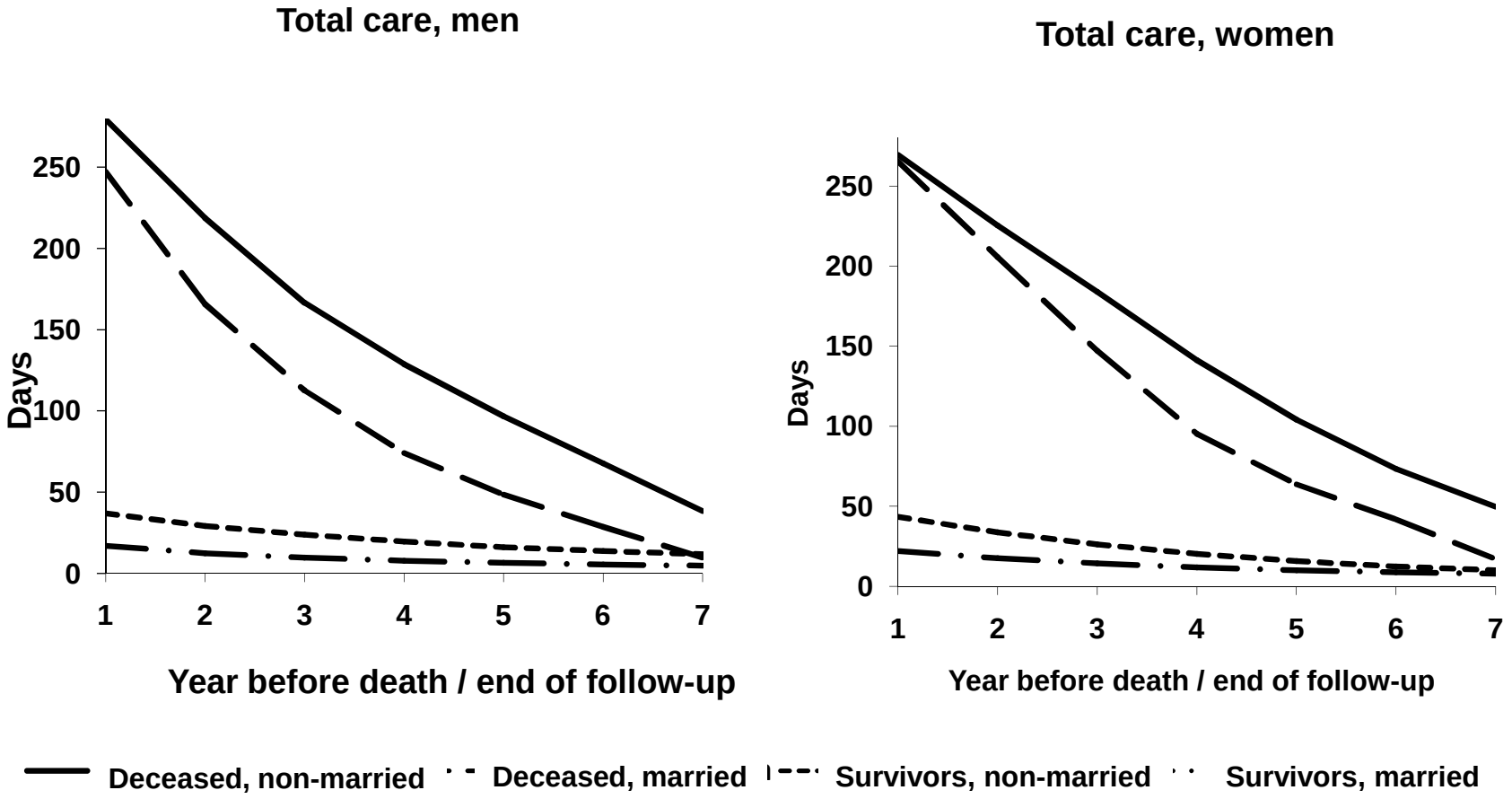
Age-adjusted average number of total care days in the previous seven years among the deceased and the survivors at end of follow-up by sex and marital status



Age-adjusted average number of hospital and nursing home care days in the previous seven years before death by cause of death



Age-adjusted average number of total care days in the previous seven years before death from dementia



Summary

- The consequences of population ageing on long-term care are not simply determined by number and age of people

- The examples presented here show that also social factors - living arrangements, change in living arrangements and socioeconomic characteristics - have important consequences for use of care

Summary continued …

- Other things being equal, increasing longevity coupled with a rising trend of dementia is likely to mean a major shift towards higher long-term home care needs in the future.

- Expected future changes in living arrangement and socioeconomic distributions may be important for projections of elderly use of long-term and hospital care services

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