Epidemiology of dementia

With particular focus on time trends and methodology

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i Arvid Carlsson, Medicinaregatan 3, Göteborg, den 28 april 2023, klockan 13.00

av Hanna Wetterberg

Fakultetsopponent: Prof. Katarina Nägga,

Linköpings universitet, Sverige

Avhandlingen baseras på följande delarbeten

I.   Wetterberg H*, Rydén L*, Ahlner F, Falk Erhag H, Gudmundsson P, Guo X, Joas E, Johansson L, Kern S, Mellqvist Fässberg M, Najar J, Ribbe M, Rydberg Sterner T, Samuelsson J, Sacuiu S, Sigström R, Skoog J, Waern M, Zettergren A, Skoog I. Representativeness in population-based studies of older adults: five waves of cross-sectional examinations in the Gothenburg H70 Birth Cohort Study. *BMJ Open* 2022;12:e068165. *HW and LR are joint first authors.

II. Wetterberg H, Najar J, Rydberg Sterner T, Skoog I. The effect of diagnostic criteria on dementia prevalence – A population-based study from Gothenburg, Sweden. (*Submitted*).

III. Wetterberg H, Najar J, Rydén L, Ribbe M, Rydberg Sterner T, Zettergren A, Guo X, Falk Erhag H, Sacuiu S, Kern S, Skoog I. Dementia remains the major predictor of death among octogenarians. A study of two population cohorts of 85-year-olds examined 22 years apart. *European Journal of Epidemiology.* 2021;36(5): 507-17.

IV. Wetterberg H, Najar J, Rydberg Sterner T, Rydén L, Falk Erhag H, Sacuiu S, Kern S, Zettergren A, Skoog I. Decreasing incidence and prevalence of dementia among octogenarians. A population-based study on three cohorts born 30 years apart. *The Journals of Gerontology: Series A*, 2023; glad071.

SAHLGRENSKA AKADEMIN
INSTITUTIONEN FÖR NEUROVETENSKAP OCH FYSIOLOGI

GÖTEBORGS
UNIVERSITET

Epidemiology of dementia

With particular focus on time trends and methodology

Hanna Wetterberg

Avdelningen för neuropsykiatrisk epidemiologi, sektionen för Psykiatri och neurokemi, Institutionen för Neurovetenskap och fysiologi, Sahlgrenska akademin, Göteborgs universitet, Sverige, 2023

Abstract

Dementia is a clinical syndrome characterised by deterioration in cognitive functions, which causes personal suffering and societal challenges. Studies investigating the incidence, prevalence, and mortality of dementia are needed for the understanding of the societal and economic burden of the disease. Epidemiological studies of dementia face methodological challenges. This thesis examined the time trends in dementia epidemiology among octogenarians, an age group rapidly increasing and where dementia is common. Methodological considerations, such as selection bias and the impact of the choice of diagnostic tools, were also studied. Data used in the papers was derived from the population-based Gothenburg H70 Birth Cohort Studies, and the Prospective Population Study of Women in Gothenburg, Sweden. The cohorts included were born in 1901-02, 1923-24, and 1930. Findings from Paper I showed that participants in general, had a lower prevalence of disorders, higher educational level, and were more often married than refusals. There were fewer differences in comparison with the target population of same-aged individuals in Gothenburg. In Paper II, we found that the diagnostic criteria in ICD-10 yielded the lowest prevalence of dementia and ICD-11 the highest, followed by the DSM-5. The agreement between the DSM-5 and ICD-11 was substantial. In Paper III, we found that the survival time increased both in those with and without dementia. Dementia was the most important predictor of death in both cohorts. Lastly, in Paper IV, we found a decreased prevalence of dementia at ages 85 and 88. We also found a decrease in the four-year incidence of dementia. The findings from this thesis provide insights into the time trends in the epidemiology of dementia, as well as into important aspects of methodological considerations in dementia research.

Keywords