The Association between Homecare Use and Mortality: Variations by Intensity, Type of Care, and Socio-Economic Status

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Introduction

In low-mortality countries, most deaths occur at ages 85-90 (Bergeron-Boucher et al., 2015) and a large share of these deaths are characterized by extensive use of elderly care services in the years leading up to death (Ebeling et al., 2023; Meinow et al., 2020). As the population in old age continues to grow, expected to increase by 33 % in the next 25 years in Sweden (SCB, 2025), more individuals will need care services in the coming years. Previous research has examined late life dependency measured by combining homecare and living in a care home facility during the last years preceding death by some socio-economic status (SES) gradients (Brändström et al., 2022; Ebeling et al., 2023; Kelfve et al., 2023a, 2023b). In this study, I advance understanding of care trajectories by examining the complete period from onset of care until death and determining how homecare intensity and type predict mortality, and how these patterns are shaped by previously overlooked SES dimensions.

Use of elderly care services varies in both intensity and type, and this variation may be stratified by SES. The amount of homecare ranges from a few hours a month to round-the-clock assistance, and the type of care may include practical activities (eg., shopping, cleaning), personal services (eg., help with showering) or both (Meyer et al., 2022; Socialstyrelsen, 2025). The amount and type of homecare received are determined by an assessment of the individual's level of frailty and dependency. Thus, the intensity and/or type of homecare are likely to predict mortality with varying degrees. A large body of research has found SES gradients in both mortality and health outcomes some of which is thought to stem from differences in healthcare-seeking behaviour (eg., OECD, 2009). It is still unexplored whether this is also the case for the relationship between SES, homecare, and mortality. Therefore, this paper aim to examine the relationship between homecare and mortality by SES to understand whether SES modify the underlying meaning of care intensity and its relationship to mortality. In this study, I use novel and highly detailed data on all homecare users in Sweden, linked with sociodemographic information for the entire Swedish population. This study contributes to the understanding of elderly care use and mortality in the context of an aging society.

Homecare in Sweden

Homecare is provided by municipalities, and each case is needs assessed by a case worker. The cost is generally low as there is a cap which in 2024 was 235 EUR per month. However, the services included in this cost vary between municipalities, with some charging extra fees for things such as meals and safety alarms, leading to regional variations in provision and costs (Socialstyrelsen, 2025).

Homecare services can be divided into two groups: practical care including help with grocery shopping or cleaning, and personal care including help with activities such as taking a shower. There is an overall policy intention that homecare should enable individuals to "age in place" meaning in their own home, as long as possible. Therefore, homecare is provided for individuals who are independent enough to live by themselves with assistance. Once individuals no longer can do so, they may move to a care home. However, the average waiting time to get a place in a care home was 66 days for women and 57 days for men in year 2024 (Socialstyrelsen, 2025). This means that

individuals may stay in their own home longer than what is optimal for their health status and that homecare sometimes is provided to more vulnerable elderly than intended.

Previous Research

In 2024, 3% of the population aged 65-79 and 17.5% of those aged 80 or older received homecare, with higher shares among women (20% >80) than men (14% >80) (Socialstyrelsen, 2025). This may be compared to that 1.3% and 10% in the respective age groups lived in care home facilities. Because a larger share of the population receives homecare than live in a care home it is important to establish the specific relationship between homecare and mortality to understand the trajectories that form late life. Homecare is most common in the oldest age groups, the mean age for those receiving both homecare and living in a care home was 84 years in 2022 (Meyer et al., 2022) and 57% of individuals above age 90 receive homecare (Brändström et al., 2022). While these proportions may suggest that the use of elderly care services are uncommon in Sweden when viewed in relation to the entire population, two thirds of all deaths above age 70 is characterised by extensive use of elderly care services during the last years of life (Ebeling et al., 2023).

In addition to gender differences in proportions using elderly care services, there is a gender gap in time spent with care. The median time in care for women is 3.3 years compared to 1.9 years for men and the length shortens by later entry into care (Kelfve et al., 2023b). Apart from these gender differences previous research has found small to no differences between educational groups in terms of elderly care use. Tertiary educated individuals are less likely to use elderly care during the last two years leading up to death than their primary educated peers, but this difference is largely explained by age at death and cohabitation (Kelfve et al., 2023a). Taking a cross-sectional perspective among those receiving care, there are small to no differences between groups by SES and childlessness. What seems to explain higher care use is living alone and the lack of support from household members (Brändström et al., 2022).

Previous research has not considered the potential SES variation in hours of take-up and/or type of homecare received nor has it considered other SES dimensions than education or childlessness. In sum, this study contributes by exploring the relationship between homecare intensity, type of homecare, and mortality. Furthermore, it adds SES dimensions that were previously overlooked to previously examined sex and education by also including income and time-varying family status variables. This study also leverages full population longitudinal data with monthly precision, which allows me to examine time-varying associations within an Event-History framework. In particular, I will investigate three distinct research hypotheses:

H1. More hours of homecare increase the mortality risk to the same extent for all SES groups.
H2. More hours of homecare increase the mortality risk, but patterns differ depending on SES.
H3. More hours of homecare increase the mortality risk, but this association varies by type of care.

Data and Methods

This study used several linked Swedish administrative registries of the total population above age 65 between 2014-2019. Elder care usage was collected from the Social Service Register (SSR). The SSR includes individual level monthly data on the number of hours, type of elder care usage, municipality, and whether individuals live at home, in care home facilities, or in temporary care homes (Kelfve et al., 2023a). The available information on homecare ranges from January 2014 until December 2019. Gender, birthyear, and time of death were collected from the Total Population

Register (RTB). Income and highest level of education were collected from the Longitudinal integrated database for health insurance and labour market studies (LISA) and from population censuses (FoB) for some of the older cohorts.

I employ Event-History Analysis (EHA) as I am interested in whether the event happens (death) and the timing of it. EHA also allows for censoring for when individuals leave the risk set, for example when moving to a care home facility. Exposure starts in January 2014, and individuals enters the risk set if they are older than 65 in January 2014 or turns 65 sometime between January 2014 and November 2019. Individuals exit the risk set the year and month when they die, year and month when moving to a care home facility, or in January 2020, whichever comes first. Two sensitivity analyses are performed, one where moving to a care home is treated as a time-varying covariate, and one where it is treated as a competing risk.

Preliminary Descriptive Results and Next Steps

In Figure 1 first results show the proportion with homecare and mean hours of homecare for those with care by sex and educational level (three categories), across age (top-coded at age 100). In line with previous research the share of individuals that received homecare increased substantively with age for both sexes, and a larger share of women received homecare compared to men from age 70 and onwards. In terms of educational differences there were slightly smaller shares of individuals with tertiary education with homecare. For men the difference between tertiary and secondary educated individuals increased substantively beyond age 90, while the differences diminished between those with tertiary and primary education. This is likely due to selection – those with primary education surviving to these ages likely have a survival advantage. For women the differences were small throughout, but slightly larger in the younger ages (75-85).

The bottom panel shows the mean hours of homecare per month by sex and educational level across age. Mean hours of homecare increased for both sexes after age 90, but women received on average more hours than men. There were very small educational differences in mean hours of homecare received for both sexes. If anything, tertiary educated individuals seem to receive slightly more hours of homecare in the oldest ages (>95).

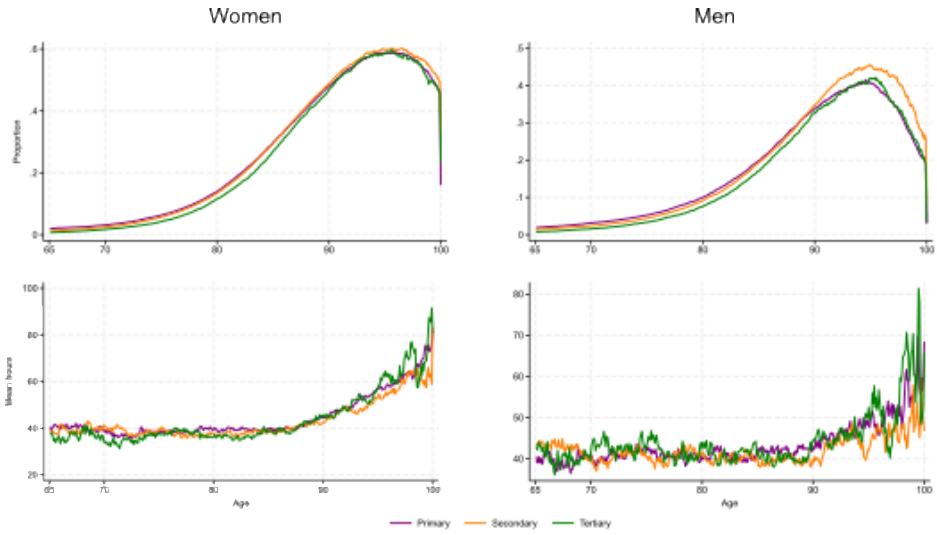

Figure 1, Proportion with homecare (top panels) and mean hours of homecare (bottom panels) by sex and educational level. Note that the y-axes have different scales.

These first results are in line with previous research and suggest that publicly funded elderly care is used quite equitable in Sweden. Currently I am exploring the additional SES dimension of income, and two proxies for the possibility to receive informal care: cohabitation status, and whether a child lives in the same municipality. I also examine the distribution of hours with homecare within each group. Next steps include analysing how number of hours and type of homecare predict mortality and how it varies by SES through EHA. The following variables are included as time-varying: death of spouse, cohabitation, moving to a temporary care facility, and whether a child is living in the same municipality. Life-time income and education of the oldest child are included as time-constant. Lastly, I examine an interaction between hours and type of homecare. Results from the parametric model(s) will be presented at the conference.

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