

# *Do migrants have a mortality disadvantage in the care setting?*

*Living arrangement and mortality among elderly migrants in Sweden before and during the COVID-19 pandemic*

## **Introduction**

Worldwide, previous studies have consistently found that migrants were a higher risk of being hospitalized, and more likely to receive intensive care and to die from COVID-19 than native-born (Andersson et al. 2021, Drefahl et al. 2020, Hayward, et al. 2021, Mazzalai, et al. 2023, Jaljaa et al. 2022, Rostila et al. 2020). These results contrast with the well-established observation that migrants tend to live longer than natives—the 'migrant mortality advantage' (Aldridge, et al. 2018, Honkaniemi et al. 2017). Most of the studies struggled to articulate the underlying reasons for the excess risks among the migrants, with Andersson et al. (2021) concluding that this disparity between native-born and migrant populations are unlikely to be explained by underlying health conditions, and only partly by structural factors.

While immigrant status has been associated with a higher risk of infection, hospitalization and mortality due to COVID-19, research has consistently identified age as the initial and most pronounced factor contributing to mortality inequalities from COVID-19, with elderly individuals being the demographic group most at risk of fatality due to the disease (Drefahl et al., 2020). Several studies have indicated that residence in an elderly care home is among the strongest predictors of COVID-19 mortality (Ballin et al 2021, Modig et al. 2021 Comas-Herrera et al. 2020). Individuals residing in elderly care facilities demonstrated a significantly heightened risk of death due to Covid-19. Importantly, a milder yet still substantial risk is observed among elderly individuals living independently but receiving home care services (Ballin et al 2021, Brandén et al 2020, Modig et al. 2021). For Sweden, Andersson et al. (2021) revealed that older individuals residing in care homes faced an approximate 20-fold increase in mortality risk from COVID-19 compared to their counterparts not in care. This significant disparity in risk remained consistent even after accounting for various sociodemographic variables and several medical risk factors.

Additionally, it is well established that cultural norms and economic possibilities significantly influence choices regarding living arrangement (Angel and Tienda 1982; Kaida et al. 2009, Connidis and Barnett 2019). Consequently, given these influences, we can anticipate disparities in the patterns of selection into elderly care homes versus remaining at home or residing at a family member's residence (Gubernskaya et al. 2017). An extensive body of research has substantiated that migrants, particularly older migrants, are more inclined to live with extended family members than those born in the host country (e.g. Burr et al. 2012; Glick and Van Hook 2002; Kaida and Boyd 2011; Kaida et al. 2009; Wilmoth 2001). This discrepancy remains, albeit to a lesser extent, even when socio-economic factors such as education and income are taken into account. The distinctive patterns of selection based on economic and cultural factors for elderly living arrangements suggest that care status might act as a proxy for underlying severe health issues. In essence, the decision regarding living arrangements may be influenced not solely by personal preference, but also by health-related necessities.

Building on this literature, this paper examines the variability in COVID-19 mortality rates among immigrants compared to the Swedish-born population, taking into account the elderly's living arrangements. By analyzing the interaction between elderly care recipient status and foreign background, while controlling for sociodemographic and health factors, we aim to uncover how

these elements intertwine and affect health and mortality outcomes, with a specific focus on COVID-19. Additionally, by contrasting our findings with all-cause mortality data from the year preceding the pandemic, we provide insights into existing mortality disparities by country of origin within the Swedish care context. Specifically we have the following two research questions:

- RQ1. Do migrants have mortality disadvantage in different types of care setting **before** the COVID-19 pandemic?
- RQ2. Do migrants have mortality disadvantage in different types of care setting **during** the COVID-19 pandemic?

In our analyses we will evaluate the likelihood of three potential mechanisms: (1) Healthy Migrant Paradox: This suggests a positive selection of migrants, indicating that, even within elderly care arrangements, migrants have lower mortality rates in the pre-pandemic years. (2) Cultural Norms and Economic Possibilities: This implies a negative selection of migrants, suggesting that within elderly care arrangements, migrants have higher mortality rates in the pre-pandemic years. (3) Equalizing Effect of COVID-19: This theory posits that the pandemic has created a uniform risk across different migrant backgrounds due to increased exposure to the SARS-CoV-2 virus, whether through transmission within care homes or contact with infected home care workers during the pandemic year.

### **Data and methods**

Our analysis utilizes comprehensive data spanning the entire Swedish population from 1990 to 2021, encompassing both the pre-pandemic era and the initial complete year of the COVID-19 pandemic (March 2020-February 2021). Potentially, further updates adding even more recent years will be added to the database. Our outcome measures for the analyses of 2020 are all deaths from COVID-19 and all deaths from any other cause of death. The starting date was set one day before the first recorded death attributed to COVID-19 on March 13, 2020, in Sweden. COVID-19 mortality was identified by the Swedish National Board of Health and Welfare, the agency responsible for the cause of death register, using the following ICD codes: U07.1, U07.2 or B342.

We derive comprehensive information on elderly living arrangements from the Swedish Social Service Register, a unique nationwide database that includes data on residency in care homes as well as utilization of home care services (Meyer et al. 2022). In our analysis, we categorize individuals based on their care situation, distinguishing between those not receiving care services, those utilizing home care services, and those in institutional settings such as special housing or nursing homes.

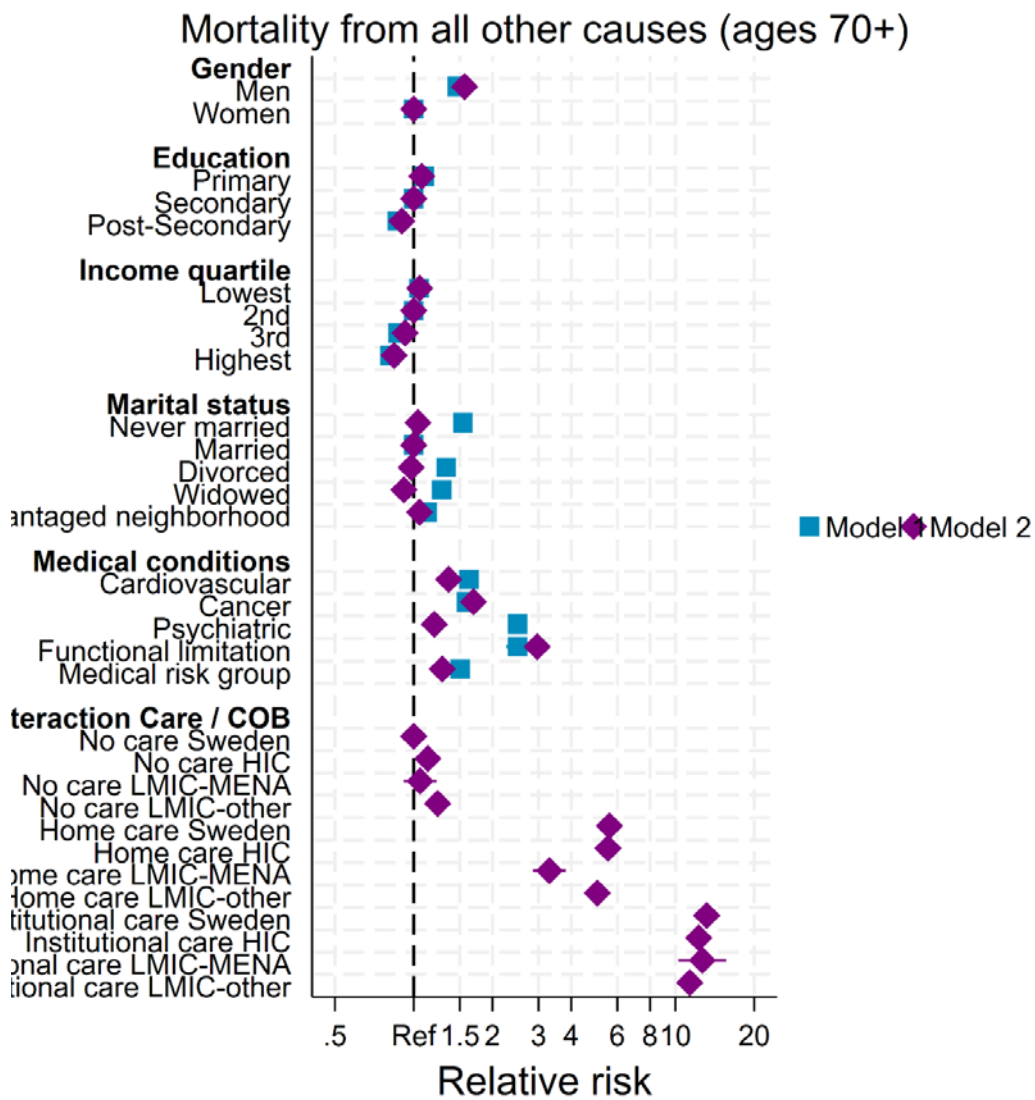
Regarding the origin of individuals, we distinguish between persons born in Sweden, persons born in other high-income countries, and persons born in a middle- or low-income country (according to an OECD classification based on the UN Human Development Index for different countries). The latter group is divided into persons born in North Africa and the Middle East (MENA) and other countries.

Our study focuses on the population aged 70 and above, employing Cox proportional hazards models with age as the baseline. Additionally, our models account for a variety of covariates, including Sex, Income (divided into four quartiles from lowest to highest), Education (primary,

upper secondary, post-secondary), Civil status (unmarried, married, divorced, and widowed), Disadvantaged neighborhood, and underlying Medical conditions.

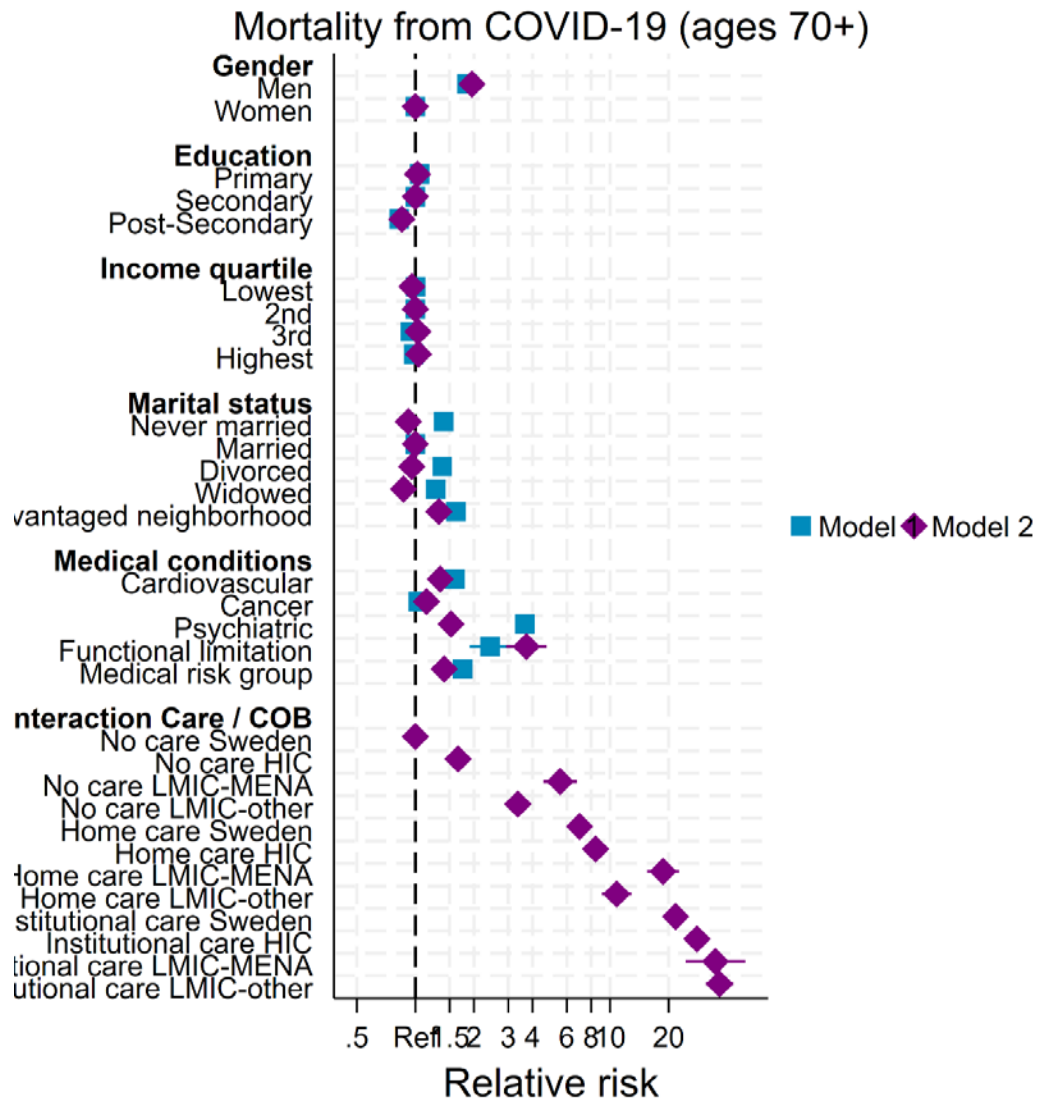
### First Results

Analyzing mortality from causes other than COVID-19 reveals a clear influence of care status on mortality rates. Individuals residing in institutional care settings experience mortality rates that are as much as 15 times higher than those not receiving care. Meanwhile, those receiving home care face a mortality risk approximately 3 to 6 times greater than individuals without any care services. Among the different care categories, foreign-born individuals tend to have lower mortality rates compared to their native counterparts. This pattern underscores the significant role that care status plays in mortality outcomes, while also highlighting a potential protective factor associated with being foreign-born, outside the context of COVID-19 related deaths.



Upon examining COVID-19 related mortality, the disparities shift, revealing a more pronounced disadvantage for those in the different care categories as compared to those who did not receive

any care, as well as a disadvantage for foreign-born individuals for both care categories and especially for those not receiving any care services.



**Discussion**

The disparities between native and foreign-born individuals in terms of COVID-19 mortality are not primarily driven by care status, as the most substantial relative differences are observed among those not receiving care. This suggests that the controlled environment of care settings, regulated by the state and with restricted visitations from relatives, mitigated the impact of migration background during the pandemic. However, it is crucial to note that being in a care setting did not entirely eliminate the differences between native and foreign-born individuals. Despite the controlled environment, disparities persisted, indicating that other factors beyond care settings contributed to the observed inequalities. These findings highlight the complexity of the issue.

**A more comprehensive analysis and discussion will be available in time for the European Population Conference 2024.**

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