

Gender, Socioeconomic Status, and Health in Later Life: A Multilevel Analysis of the Frailty Index Across 17 European Countries

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Background

The rapidly aging European population has raised significant concerns about the well-being of elderly individuals, particularly in terms of their health. Older individuals are especially vulnerable to chronic illness and generally report poorer health (Read & Gorman, 2010). These characteristics make older women a particularly vulnerable group in the society. While women may experience certain health advantages that contribute to their longer life expectancy, they also exhibit greater levels of disability, more comorbidities, and poorer self-rated health compared to men (Gordon et al., 2017; Carmel, 2019). A large volume of research has attempted to investigate gender health disparities in European countries (Bambra et al., 2009; Case & Paxson, 2005; Crimmins et al., 2011; Lahelma et al., 2002). However, the relationship between socioeconomic status and health in older men and women is still unclear, with studies reporting inconsistent findings based on the health, socioeconomic status measures used, as well as age categories or countries included (Aguilar-Palacio et al., 2018; Gómez-Costilla et al., 2022; Uccheddu et al., 2019; Read & Gorman, 2010).

This study examines if there are gender differences in health that vary by education after midlife (age 50 years) in 17 European countries. This study makes several contributions to the existing literature on gender health inequalities among older adults in Europe. Firstly, this study aims to address the current gap in research by utilizing a more comprehensive and objective measure of health, namely the frailty index. This measure offers a more thorough assessment of older adults' overall health and has been consistently shown to be a robust predictor of adverse health outcomes (Fried et al., 2001; Romero-Ortuno & Kenny, 2012). Secondly, the study examines the intersection of socioeconomic status (SES) and gender, shedding light on how gender disparities in health vary by SES. Additionally, the study considers the influence of different welfare regimes, providing a deeper understanding of how macro-level opportunities and constraints influence gender health disparities. Lastly, by examining gender health inequalities across different age groups, the study evaluates whether health inequalities decrease, remain stable, or increase with age.

Data and Method

In this study, the data from the sixth wave of the Survey of Health, Ageing and Retirement in Europe (SHARE) was used. SHARE is the most extensive pan-European social science panel, with over 140,000 participants from 28 European countries and Israel, beginning in 2004 (Börsch-Supan et al., 2013). The study included 17 European countries that were grouped into four clusters based on their welfare state regimes and geographical location: Northern Europe (Denmark, Sweden), Western Europe (Austria, Germany, France, Switzerland, Belgium, and Luxembourg), Southern Europe (Spain, Italy, Portugal, and Greece), and Central and Eastern Europe (Czech Republic, Poland, Slovenia, Croatia, and Estonia).

To assess the health of older adults in this study, the frailty index was used as the primary health indicator. A frailty index is a multidimensional approach to measuring the health of older adults, incorporating various physical frailty indicators such as diagnosed illnesses, self-reported health, weight loss, grip strength, cognitive impairment, mood, and limitations in daily living activities (Romero-Ortuno & Kenny, 2012). The frailty index is based on counting health deficits. In this study, the frailty index was computed as the sum of each individual's deficit points divided by the total number of evaluated deficits (40) to obtain a score ranging from 0 to 1 (Searle et al., 2008; Romero-Ortuno & Kenny, 2012). A frailty index score of 0 indicates the absence of deficits, while a score of 1 indicates the presence of all evaluated deficits. For instance, an individual with five deficits would have a frailty index value of 0.125 (5/40). The socioeconomic status of the individuals was measured by their educational attainment. The level of educational attainment in SHARE data is classified based on the 1997 International Standard Classification of Education (ISCED-97) and refers to the respondent's highest level of education, categorized as low (ISCED 0, 1, and 2), medium (ISCED 3 and 4), or high (ISCED 5 and 6). To account for the different patterns of frailty across the age range, individuals' age was categorized into four groups: 50-59, 60-69, 70-79, and 80 and above.

This study employed a multilevel linear regression model to account for the two-level structure of the SHARE data. The first level represents individuals, while the second level is represented by 17 European countries. To assess whether the influence of socioeconomic status on gendered health outcomes varies based on the type of welfare regime in place, each welfare state was analyzed individually. To account for potential variations across different age groups, the analysis

was conducted separately for each age group and welfare state cluster, resulting in 16 separate regressions.

Results

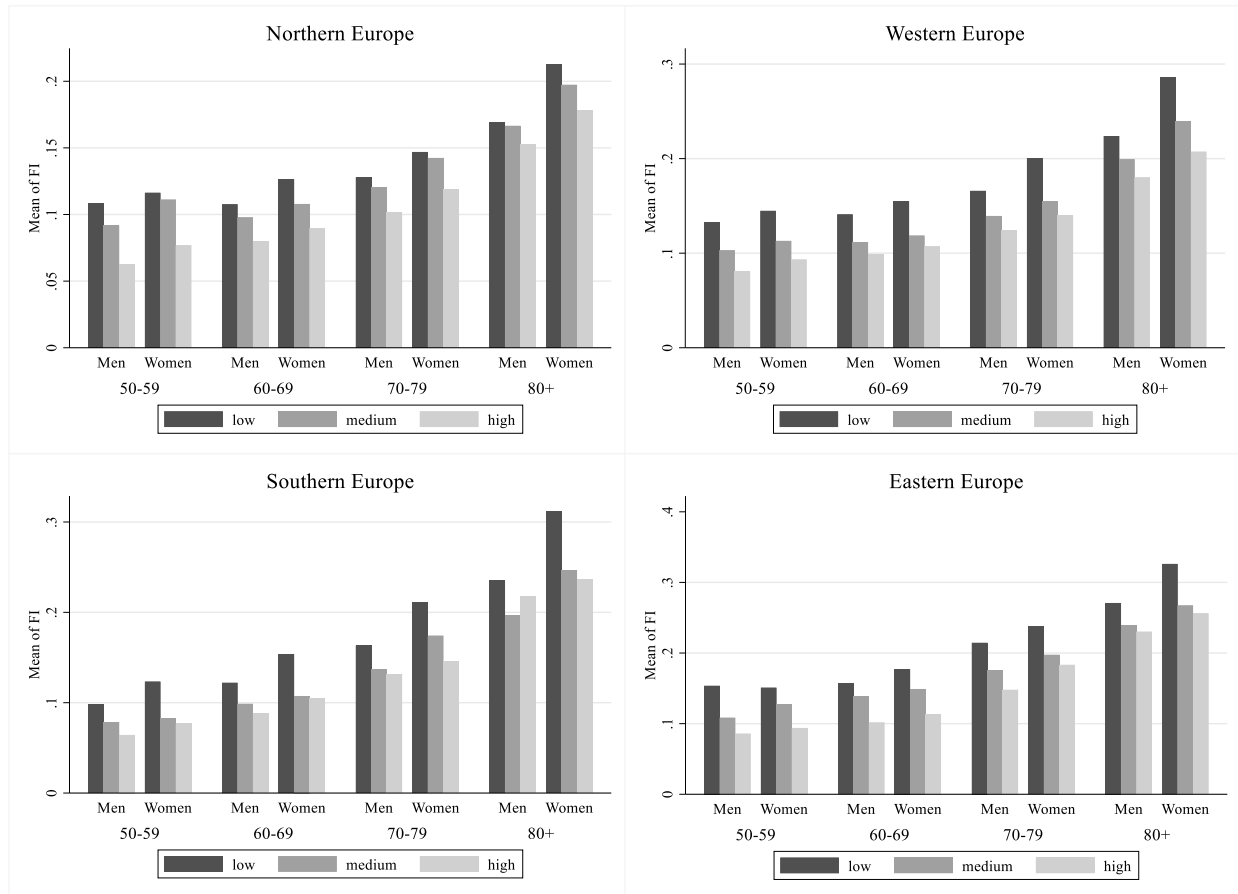


Figure 1. Frailty index (FI) according to gender, education, and age category stratified by welfare state cluster

The findings of this study reveal several important insights. Firstly, women have higher frailty index scores than men on average. Additionally, the results, as depicted in Figure 1, clearly illustrate a significant relationship between education and the frailty index. Higher education levels are associated with lower frailty index scores, indicating a positive impact of education on health. Notably, the study finds that the protective effect of education on the frailty index is stronger for women than for men. While both genders benefit from higher education levels in terms of lower frailty index scores, the reduction in frailty index is more pronounced among women. This underscores the potential for education to have a greater impact on reducing health deficits for women in later life. Furthermore, the findings demonstrate that the influence of education on health

is more prominent for women than for men in Southern, Western, and Eastern European countries. However, in Northern Europe, no substantial gender disparity in health outcomes based on SES was observed. This suggests variations in the relationship between SES and health across different regions of Europe, emphasizing the importance of considering the contextual factors of welfare state regimes when examining gender health disparities. Lastly, the study highlights an age-related gradient in gender disparities in frailty. Gender health inequalities were significant among low-educated individuals aged 80 years and above regardless of the welfare state. However, for medium and higher education, significant gender differences in frailty were only observed in Southern, Western, and Eastern welfare state clusters.

Implications and Future Research

The study's findings highlight the importance of taking into account the complex interaction between gender, education, health, and welfare regimes when devising policies and interventions to enhance the health of older populations. The stronger protective effect of education on the frailty index for women compared to men suggests that initiatives promoting education among women can play a crucial role in reducing health disparities in this group. Additionally, the study's findings of widening gender disparities in frailty with advancing age emphasize the necessity of targeted interventions tailored to the specific health needs of older individuals. To address these findings, policymakers and healthcare providers should prioritize the development of comprehensive and multidimensional health programs that cater to the unique requirements of older individuals. This is particularly important for Southern, Western, and Eastern European countries, where the age-related gradient in frailty was observed to be most pronounced.

This preliminary version of a study is the first step toward a future publication. In its current form, the research is designed as a cross-sectional analysis, meaning that it only provides a snapshot of individuals' health status at a specific point in time and does not allow the tracking of changes in health as individuals age. The intention is to progress toward a longitudinal study by utilizing the comprehensive SHARE data to conduct panel regressions. This would allow to track changes in health status among individuals as they age and assess the impact of various interventions and policy initiatives on health outcomes.

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