# Are Austrians ageing healthily?

## Trends in ADL & IADL functional limitations

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ORIGINAL PAPER

# Are Austrians ageing healthily?

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# Overview

- Context & motivation
- Previous evidence
- Data & methods
- Results
- Key takeaways

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# Context & motivation

**The key question**

As life expectancy increases in Europe, do additional years come with **good health** or with **functional impairments**?

**Policy stakes**

- Rising limitations → relatively higher long-term care demand
- Stable/declining → compression; postponement of functional impairment

**Why this study?**

- Media article reporting a sharp increase in limitations among Austrians 65+ based on ATHIS 2014–2019:
  - * ADL limitations: +32% (m) / +34% (f)
  - * IADL limitations: +86% (m) / +33% (f)
  - * Some individual items tripled or quadrupled
- Change coincided with survey mode switch: CATI (2014) ⟶ CAPI (2019)
- SHARE uses consistent face-to-face CAPI across all waves

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# International Evidence: A Mixed Picture

| | | |
|---|---|---|
| **↓ Declining limitations** | | |
| Freedman et al. (2002) **– USA – NHIS / NLTCS / 1982 – 1999** | ADL & IADL | Systematic review: clear decline among older adults, especially IADL |
| Knoll et al. (2023) **– USA – HRS / 2008-2018** | IADL, 65+ | Decline from 42% (2006) to 31% (2018) |
| Verropoulou & Tsimbos (2017) – **SHARE / 2004-2013** | ADL & IADL, 50+ | Overall declining trend (OR 0.9); exception: men aged 50–64 (OR 1.1) |
| **↑ Increasing limitations** | | |
| Fuller-Thomson et al. (2009) **– USA – NHANES / 2000-2005** | ADL, 65+ | End of declining trend; increase in ADL limitations |
| Woldemariam et al. (2024) **– Austria – ATHIS /2014-2019** | ADL & IADL, 65+ | Strong increase in ADL and IADL |
| **↔ Stable / mixed findings** | | |
| Ding et al. (2024) – **China – CHARLS / 2011-2018** | ADL & IADL, 60+ | Overall increase, but stable by age group |
| Ahrenfeldt et al. (2018) **– Europe – SHARE / 2004-2013** | ADL, 50+ | ADL trend broadly stable, improvements older cohorts |
| Heimbuch et al. (2023) **– USA – HRS / 2006-2018** | ADL, 50-65, 65+ | 65+: slight decline (23.7% → 20.2%); ages 50–64: stagnating |

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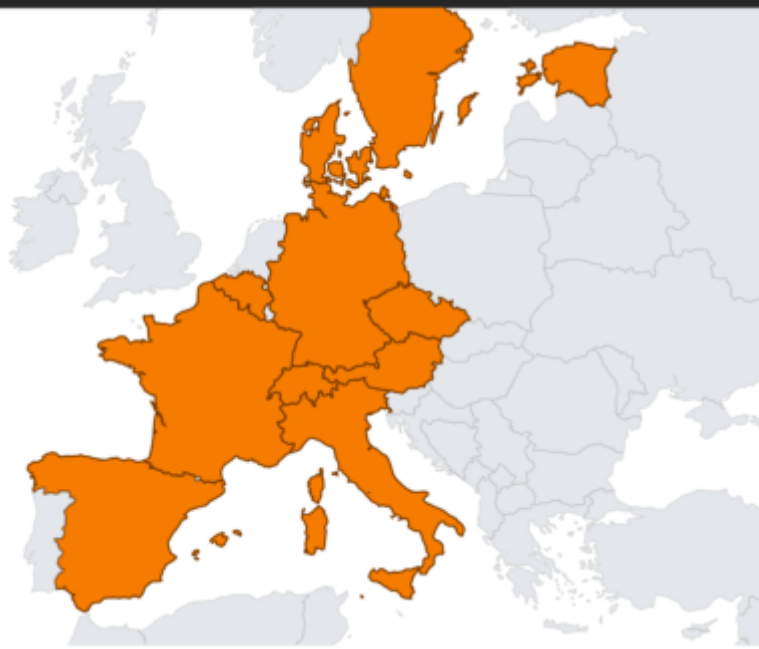
# Data & variables



- Data source
  - SHARE waves 4, 5, 6, 9 → 2011, 2013, 2015, and 2021/22
  - Austria and 10 European countries participating in all waves
    - European countries: DE, SE, ES, IT, FR, DK, CH, BE, CZ, EE
  - Age group 65+
  - Panel data
- Outcome variables
  - **Activities of daily living (ADL):** 6 basic self-care tasks (walking, bathing, feeding, toileting, dressing, and getting in and out of bed)
  - **Instrumental activities of daily living (IADL):** 7 more complex activities (using a map in a strange place, shopping, managing money, taking medication, making telephone calls, housekeeping, preparing meals)
  - Binary (1+ limitation) and count outcomes
- Control variables
  - Age, gender, partnership, area of living, education, BMI, chronic illness, physical activity

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# Results

- **Outcome**

  1+ limitation in ADL and IADL

- **Method**

  Predicted shares from logit estimation at the age of 75; weighted; controlled for age and gender

- **Finding**

  **Stagnating** and **falling trends**

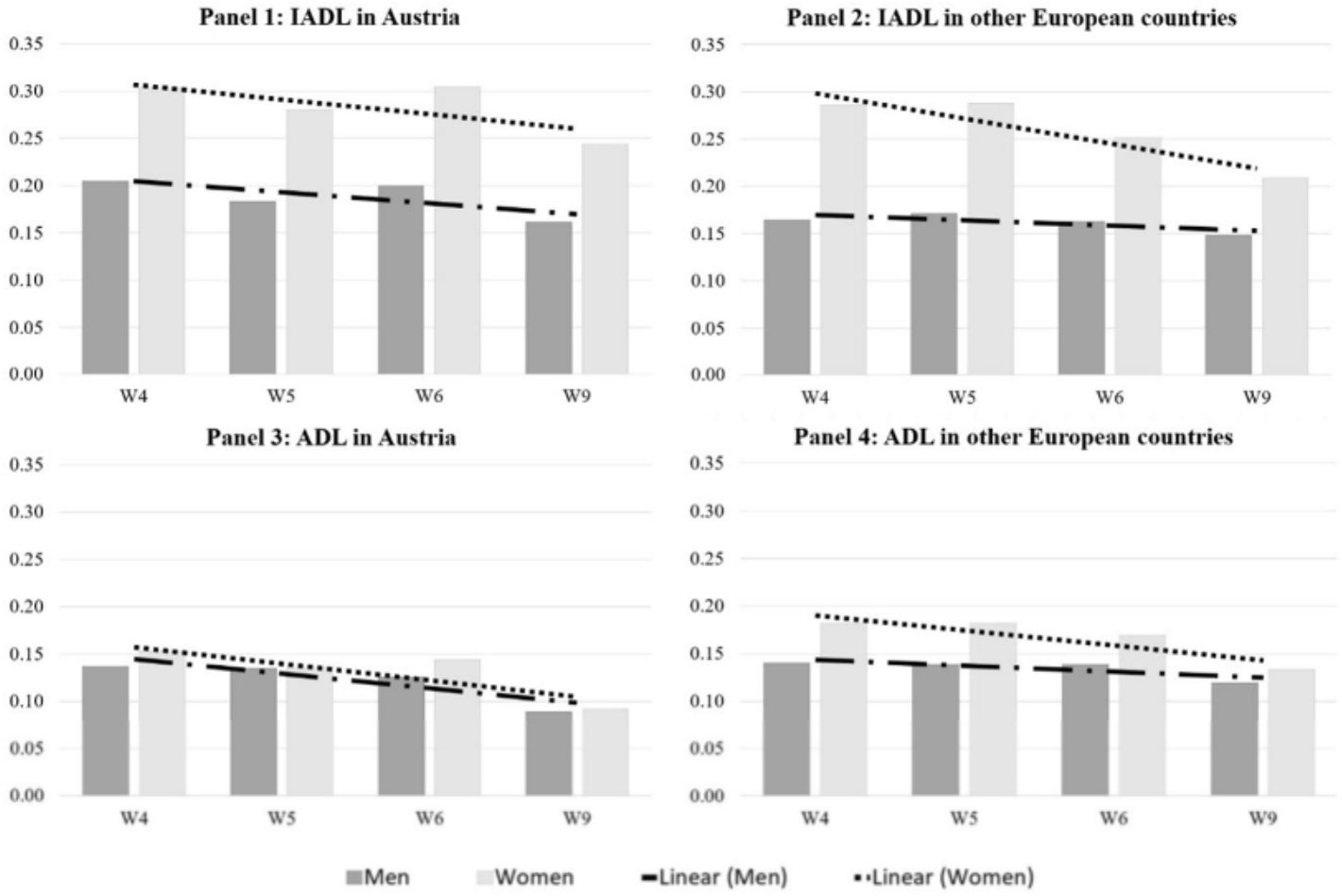


**Fig. 1** Trends in limitations in IADL and ADL at the age of 75. *Notes*: The four panels present age controlled predicted shares of 1 or more limitations in IADL and ADL with linear trend. Presented are predicted margins at the age of 75 from weighted logit estimation controlled for gender, age in years at time of the interview and country of living

# Time trends in pooled sample I

- **Austria**
- Logit and Negative binomial regression
- Odds ratios presented
- Base: W4 (2011)
- **~ Stagnation**

Controls: age, gender, partner, area of living, education, chronic illness, physical activity, BMI; weighted

| | I. IADL 1+ limitations | II. Number of limitations in IADL | III. ADL 1+ limitations | IV. Number of limitations in ADL |
|---|---|---|---|---|
| **Austria** | | | | |
| **Wave** (base = wave 4 (2011)) | | | | |
| **wave 5 (2013)** | **0.95** | **1.11** | **1.05** | **1.09** |
| | [0.79,1.13] | [0.98,1.25] | [0.86,1.29] | [0.91,1.30] |
| **wave 6 (2015)** | **1.19** | **1.22 **** | **1.10** | **1.16** |
| | [0.99,1.43] | [1.08,1.38] | [0.89,1.36] | [0.97,1.38] |
| **wave 9 (2021/22)** | **0.91** | **1.09** | **0.72 **** | **0.91** |
| | [0.76,1.09] | [0.96,1.24] | [0.57,0.89] | [0.74,1.10] |
| N | 8,770 | 8,770 | 8,770 | 8,770 |
| Pseudo $R^2$ | 0.30 | 0.18 | 0.28 | 0.18 |

# Time trends in pooled sample II

- **European countries**
  excl. Austria
- Logit and Negative binomial regression
- Odds ratios presented
- Base: W4 (2011)
- **Falling time trend**

Controls: age, gender, partner, area of living, education, chronic illness, physical activity, BMI; weighted

| | I. IADL 1+ limitations | II. Number of limitations in IADL | III. ADL 1+ limitations | IV. Number of limitations in ADL |
|---|---|---|---|---|
| **European countries** | | | | |
| **Wave** (base = wave 4 (2011)) | | | | |
| wave 5 (2013) | 1.06 | 1.13 ** | 1.02 | 1.06 |
| | [0.97,1.17] | [1.05,1.21] | [0.92,1.13] | [0.98,1.16] |
| wave 6 (2015) | 0.97 | 1.03 | 0.99 | 1.02 |
| | [0.88,1.07] | [0.96,1.11] | [0.89,1.10] | [0.94,1.12] |
| wave 9 (2021/22) | 0.84 *** | 0.91 * | 0.78 *** | 0.87 ** |
| | [0.76,0.92] | [0.84,0.98] | [0.70,0.87] | [0.79,0.95] |
| N | 89,617 | 89,617 | 89,617 | 89,617 |
| Pseudo $R^2$ | 0.26 | 0.15 | 0.22 | 0.14 |

# Contrasting results

- **ATHIS 2014–2019: sharp increase in ADL & IADL limitations**
- **SHARE 2011–2021/22: stable and slightly declining functional ability in Austria**

- **A plausible explanation: survey mode effects**
  - The ATHIS transition from CATI to CAPI coincides precisely with the reported increase. Mode effects are a well-documented source of bias — making this a highly plausible, though not yet fully testable, explanation.

- **Possible mechanisms:**
  - Selective non-response in CATI (harder to reach groups underrepresented)
  - CAPI reaches the most functionally limited
  - Different answer behaviour in face-to-face versus telephone settings

- Future research: randomised split-sample designs to quantify mode artefact vs. true change

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# Key takeaways

- **ADL & IADL limitations stagnated or declined in Austria** from 2011 to 2021/22
- European countries other than Austria show a clearer downward trend
- Findings support the compression of morbidity theory → **additional years of life are lived in good functional health**
- Findings contrast to the ATHIS study, possible due to survey mode effects
- Pay special attention to survey mode effects and look at a longer time span

- **Age-specific disability rates do not seem to rise** in analysed cohorts but **absolute care demand will still grow** as the number of elderly is growing

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# Future research

- Include SHARE Wave 10 data and Eastern European SHARE countries
- Look at **other disability measures** and definitions
- Investigate the effect of **panel attrition** on the results

- Do trend and patterns depend on welfare regime and health system?

- Randomised split-sample designs to quantify mode artefact vs. true change

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# Thank you!

## Questions?

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# Literature

**This paper:** Halmdienst, N., Radhuber, M., Weitzhofer-Yurtisik, T., & Winter-Ebmer, R. (2026). Are Austrians ageing healthily? *Empirica.* https://doi.org/10.1007/s10663-026-09675-5

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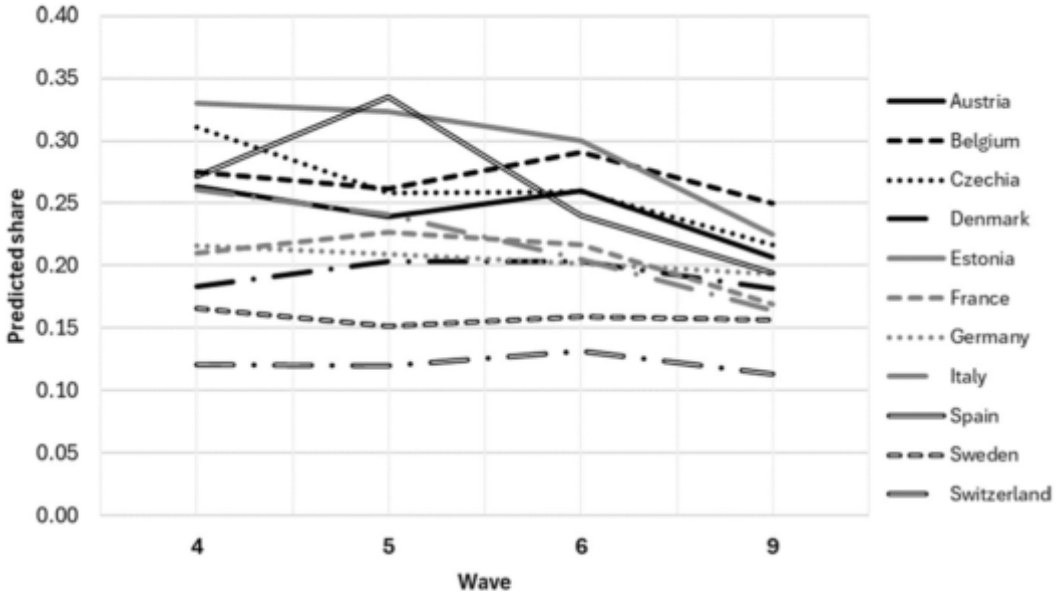


**Fig. 2** Trend in limitations in IADL for all countries. *Notes*: Predicted shares at age of 75 from logit estimation by country for SHARE waves 4–9 with one or more limitations in IADL as dependent variable like Fig. 1. Estimations are weighted and it is controlled for gender and age in years

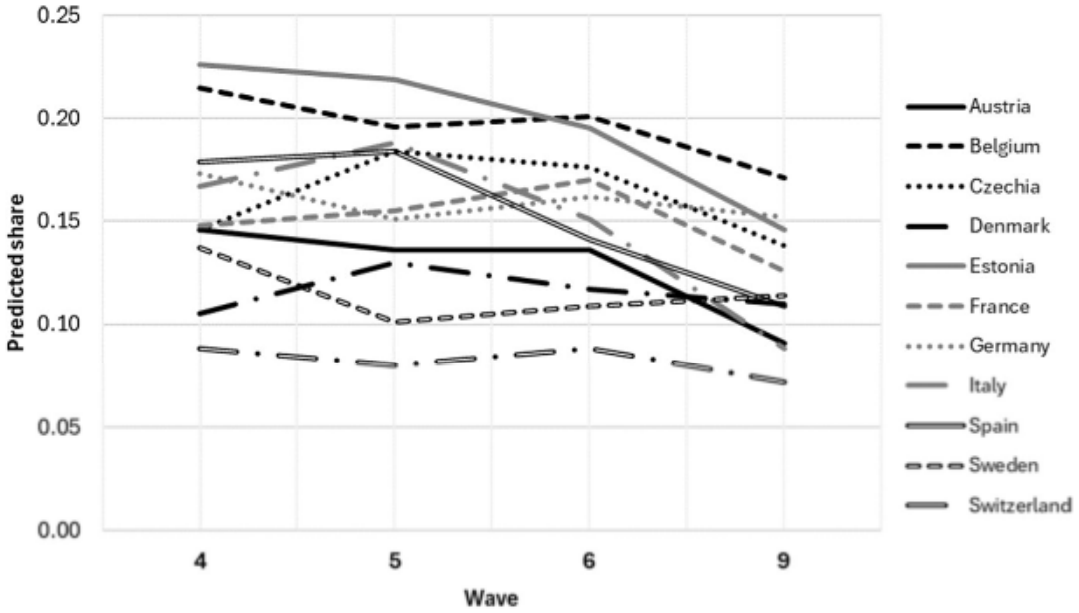


**Fig. 3** Trend in limitations in ADL for all countries. *Notes*: Predicted shares at age of 75 from logit estimation by country for SHARE waves 4–9 with one or more limitations in ADL as dependent variable like Fig. 1. Estimations are weighted and it is controlled for gender and age in years