

Social Inclusion, Physical Health, and Wellbeing in Older Europeans: Insights from the SHARE easySHARE Dataset

1. ASK Phase

1.1 Research Aim

The project investigates how social inclusion, physical health, and partnership status relate to quality of life and mental health among adults aged 50 and over across Europe. Using harmonized data from easySHARE Release 9.0.0, the study aims to identify social and health determinants of wellbeing in later life.

1.2 Research Questions

1. Does social support (giving or receiving help) predict higher quality of life (CASP-12)?
2. Does having a partner in the household predict better quality of life?
3. How are physical health indicators (grip strength, chronic diseases) associated with mental health (EURO-D)?
4. Do these relationships differ by gender or European region (North, South, East, West)?

1.3 Stakeholders

- Public-health and ageing researchers
- The European Commission's Joint Research Centre (JRC)
- NGOs promoting mental-health and active-ageing policies

1.4 Success Criteria

- Evidence-based insights into wellbeing determinants
- Clear, reproducible workflow (GitHub)
- Policy relevance for the EU's Healthy and Active Ageing agenda

2. PREPARE Phase

2.1 Data Source

Dataset: easySHARE Release 9.0.0 (SHARE-ERIC, 2024; DOI 10.6103/SHARE.easy.900)

Population: individuals 50+ from 28 European countries

Format: long panel (Waves 1–9), analyzed cross-sectionally (Wave 9)

Purpose: teaching/research subset of SHARE

2.2 Key Variables

Concept	Variable	Description
Quality of life	casp	CASP-12 index (12–48; higher = better)
Mental health	eurod	EURO-D depression scale (0–12; higher = worse)
Social support	sp002_mod, sp008_	Received and given help outside household
Partner status	partnerinhh	1 = living with partner, 3 = no partner
Physical health	maxgrip, chronic_mod, adla, iadla	Grip strength, chronic conditions, functional limitations
Controls	age, female, isced1997_r, co007_, country_mod	Demographics and region

2.3 Software Environment

All data processing and statistical analyses were conducted in **RStudio (R version 4.4.1)**

2.4 Data Cleaning & Management

- Recode missing codes (–1 to –16, 95–99, 9997–9999 → NA)
- Restrict to Wave 9 respondents aged 50+
- Derive region4 (North, West, South, East)
- Standardize continuous variables (_z)
- Recode binaries (partner_bin, income_difficulty_bin, received_help_bin, provided_help_bin)

3. PROCESS Phase

1. Import .rda
2. Recode special missing codes to NA
3. Keep respondents ≥ 50 years
4. Select study variables
5. Filter Wave 9
6. Create macro-regions (region4)
7. Recode predictors (binary 0/1, z-scores)
8. Check distributions, missingness, outliers

4. ANALYZE Phase

4.1 Regression Results

Table 1 – RQ1: Social support and quality of life (CASP-12)

Term	β	SE	95% CI	p
Received help (1)	-0.14	0.03	[-0.20, -0.08]	<.001***
Provided help (1)	0.12	0.03	[0.07, 0.18]	<.001***
Age (z)	-0.04	0.02	[-0.07, -0.00]	.029*
Female (1)	0.07	0.04	[-0.00, 0.15]	.053
Education: Low	-0.26	0.04	[-0.33, -0.18]	<.001***
Education: Medium	-0.06	0.03	[-0.12, -0.00]	.046*
Income ease (1)	0.61	0.04	[0.52, 0.69]	<.001***
Grip strength (z)	0.09	0.02	[0.05, 0.13]	<.001***
Chronic burden (z)	-0.13	0.02	[-0.16, -0.10]	<.001***
Chronic burden ²	0.02	0.01	[0.00, 0.04]	.029*
ADL (z)	-0.21	0.03	[-0.26, -0.16]	<.001***
IADL (z)	-0.13	0.03	[-0.18, -0.07]	<.001***
Region: East (vs West)	-0.63	0.05	[-0.72, -0.54]	<.001***

Notes. Values are unstandardized coefficients with HC3 robust SE in parentheses. 95% confidence intervals in brackets. * $p < .05$, ** $p < .01$, *** $p < .001$. Reference region = West.

Older adults who **receive help** from others report significantly **lower quality of life** ($\beta = -0.14, p < .001$), whereas those who **provide help** to others experience **higher quality of life** ($\beta = 0.12, p < .001$). These findings suggest that being a provider of support, rather than a recipient, is associated with greater autonomy and sense of purpose in later life. Quality of life decreases slightly with age ($\beta = -0.04, p = .029$) and is marginally higher among women ($p = .053$). Higher education and easier financial circumstances are both strong positive predictors of wellbeing, while weaker grip strength, higher chronic burden, and greater functional limitations (ADL/IADL) are linked to poorer outcomes. A small quadratic term for chronic burden ($\beta = 0.02, p = .029$) indicates a mild **nonlinear pattern**, whereby the negative impact of chronic illness on wellbeing weakens at very

high levels of disease burden. Regionally, respondents from **Eastern Europe report substantially lower CASP-12 scores** than those in Western Europe ($\beta = -0.63, p < .001$). Due to missing data, the analytic sample for this model covers only West and East Europe.

Table 2 – RQ2: Partner and quality of life (CASP-12)

Term	β	SE	95% CI	p
Partner in HH (1)	0.15	0.03	[0.09, 0.20]	<.001***
Age (z)	-0.04	0.02	[-0.07, -0.01]	.012*
Female (1)	0.10	0.04	[0.02, 0.18]	.009**
Education: Low	-0.28	0.04	[-0.36, -0.19]	<.001***
Education: Medium	-0.07	0.03	[-0.13, -0.02]	.010**
Income ease (1)	0.58	0.04	[0.49, 0.66]	<.001***
Grip strength (z)	0.10	0.02	[0.05, 0.14]	<.001***
Chronic burden (z)	-0.13	0.02	[-0.16, -0.10]	<.001***
Chronic burden ²	0.02	0.01	[0.00, 0.04]	.029*
ADL (z)	-0.22	0.03	[-0.27, -0.17]	<.001***
IADL (z)	-0.13	0.03	[-0.18, -0.07]	<.001***
Region: East (vs West)	-0.65	0.05	[-0.74, -0.56]	<.001***

Notes. Values are unstandardized coefficients with HC3 robust SE in parentheses. 95% confidence intervals in brackets. * $p < .05$, ** $p < .01$, *** $p < .001$. Reference region = West.

Living with a partner is strongly and positively associated with quality of life. Individuals with a partner score approximately **0.15 SD higher on CASP-12** ($\beta = 0.15, p < .001$) than those without one. The pattern of other covariates mirrors that in RQ1: higher age and chronic burden relate to lower wellbeing, whereas higher education, income ease, and grip strength are beneficial. ADL and IADL limitations remain significant negative predictors. The same small convex chronic effect is observed ($\beta = 0.02, p = .029$), indicating diminishing marginal losses in wellbeing among those with extensive chronic conditions. As before, Eastern Europeans show notably lower wellbeing ($\beta = -0.65, p < .001$), and the analytic coverage again includes only West and East regions.

Table 3 – RQ3: Physical health and mental health (EURO-D)

Term	β	SE	95% CI	p
Grip strength (z)	-0.16	0.02	[-0.20, -0.12]	<.001***
Chronic burden (z)	0.13	0.02	[0.10, 0.16]	<.001***
Chronic burden ²	-0.00	0.01	[-0.02, 0.02]	.833
ADL (z)	0.23	0.03	[0.18, 0.29]	<.001***
IADL (z)	0.14	0.03	[0.07, 0.21]	<.001***
Education: Low	0.17	0.04	[0.09, 0.25]	<.001***
Income ease (1)	-0.31	0.05	[-0.40, -0.21]	<.001***
Region: East (vs West)	-0.33	0.05	[-0.43, -0.22]	<.001***

Notes. Values are unstandardized coefficients with HC3 robust SE in parentheses. 95% confidence intervals in brackets. * $p < .05$, ** $p < .01$, *** $p < .001$. Reference region = West.

Physical health indicators display strong, linear associations with mental health. **Greater grip strength** predicts **fewer depressive symptoms** ($\beta = -0.16, p < .001$), while **higher chronic burden** corresponds to **more symptoms** ($\beta = 0.13, p < .001$). The quadratic term for chronic conditions is non-significant ($p = .833$), suggesting that depression increases proportionally with the number of chronic illnesses. **Functional limitations** exert pronounced effects: each unit increase in ADL ($\beta = 0.23, p < .001$) or IADL ($\beta = 0.14, p < .001$) relates to higher depressive symptomatology. Consistent with the coding scheme, respondents reporting **less income difficulty** ($\beta = -0.31, p < .001$) exhibit **better mental health**. Interestingly, Eastern Europeans show slightly **lower standardized EURO-D scores** than Western Europeans ($\beta = -0.33, p < .001$), possibly reflecting cross-regional differences in reporting style or baseline symptom distributions.

Table 4 – RQ4a: Gender moderation (CASP-12)

Term	β	SE	95% CI	p
Received help (1)	−0.12	0.05	[−0.21, −0.03]	.008**
Provided help (1)	0.15	0.04	[0.07, 0.23]	<.001***
Female (1)	0.10	0.04	[0.01, 0.18]	.024*
Received × Female	−0.03	0.06	[−0.14, 0.08]	.629
Provided × Female	−0.06	0.05	[−0.16, 0.05]	.287
Region: East (vs West)	−0.63	0.05	[−0.72, −0.54]	<.001***

Notes. Values are unstandardized coefficients with HC3 robust SE in parentheses. 95% confidence intervals in brackets. * $p < .05$, ** $p < .01$, *** $p < .001$. Reference region = West.

The beneficial effects of social support on quality of life do **not differ by gender**. Interaction terms for both receiving ($\beta = -0.03$, $p = .63$) and providing help ($\beta = -0.06$, $p = .29$) with gender were non-significant. Thus, men and women appear to benefit similarly from offering help and are equally affected by receiving assistance.

Table 5 – RQ4b: Regional moderation (CASP-12)

Term	β	SE	95% CI	p
Received help (1)	−0.12	0.03	[−0.18, −0.06]	<.001***
Provided help (1)	0.11	0.03	[0.05, 0.17]	<.001***
Partner in HH (1)	0.11	0.03	[0.05, 0.17]	<.001***
Region: East (vs West)	−0.76	0.07	[−0.90, −0.63]	<.001***
Received × East	−0.03	0.09	[−0.20, 0.13]	.690
Provided × East	0.21	0.11	[0.00, 0.42]	.045*
Partner × East	0.16	0.07	[0.02, 0.31]	.022*

Notes. Values are unstandardized coefficients with HC3 robust SE in parentheses. 95% confidence intervals in brackets. * $p < .05$, ** $p < .01$, *** $p < .001$. Reference region =

West.

Regional context does, however, modify certain associations. While the negative effect of receiving help is consistent across regions (interaction $p = .69$), the **positive effect of providing help** is **significantly stronger in Eastern Europe** ($\beta = 0.21, p = .045$).

Likewise, the **wellbeing advantage of living with a partner** is more pronounced in the East ($\beta = 0.16, p = .022$). These results suggest that in socio-economic contexts where structural supports are weaker, interpersonal and familial resources play an even more vital role in maintaining quality of life. As with earlier models, only Western and Eastern regions were retained due to data coverage.

5. SHARE Phase

Key insights:

- Providing help boosts life satisfaction, while receiving help lowers it.
- Partnership strongly enhances wellbeing.
- Physical vitality and income ease reduce depressive symptoms.
- Eastern Europeans show stronger social-benefit effects.

Policy implications:

- Promote volunteering and intergenerational engagement.
- Support community and partnered living.
- Integrate grip strength into preventive screenings.

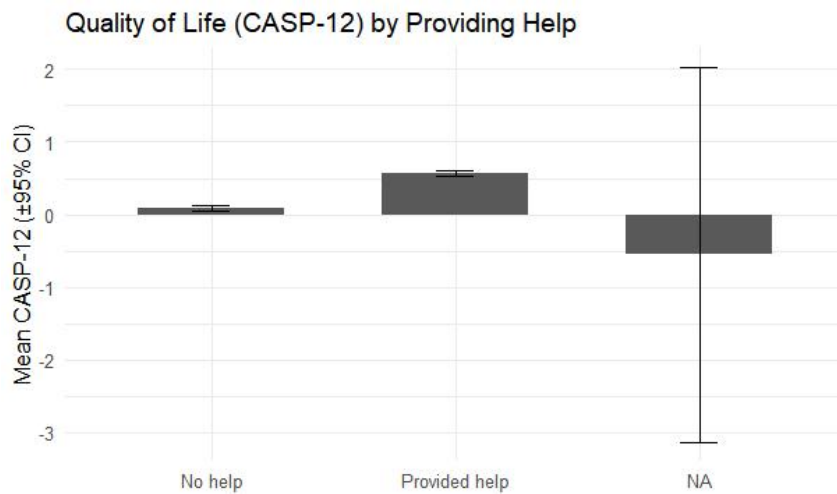
References

- Andersen-Ranberg, K., Petersen, I., Frederiksen, H., Mackenbach, J. P., & Christensen, K. (2009). Cross-national differences in grip strength among 50+ year-old Europeans: Results from the SHARE study. *European Journal of Ageing*, 6(3), 227–236.
- Gruber, S., Wagner, M., & Batta, F. (2024). Scales and multi-item indicators in the Survey of Health, Ageing and Retirement in Europe (Version 9.0.0). SHARE Berlin Institute. <https://doi.org/10.6103/scmn.900>
- Hyde, M., Wiggins, R. D., Higgs, P., & Blane, D. B. (2003). A measure of quality of life in early old age: The CASP-19 scale. *Aging & Mental Health*, 7(3), 186–194.
- Prince, M. J., Reischies, F., Beekman, A. T. F., et al. (1999). Development of the EURO-D scale: A European Union initiative to compare symptoms of depression. *The British Journal of Psychiatry*, 174(4), 330–338.
- SHARE-ERIC. (2024). easySHARE Release 9.0.0 [Dataset]. SHARE-ERIC. <https://doi.org/10.6103/SHARE.easy.900>

Appendix A: Figures and Visualizations

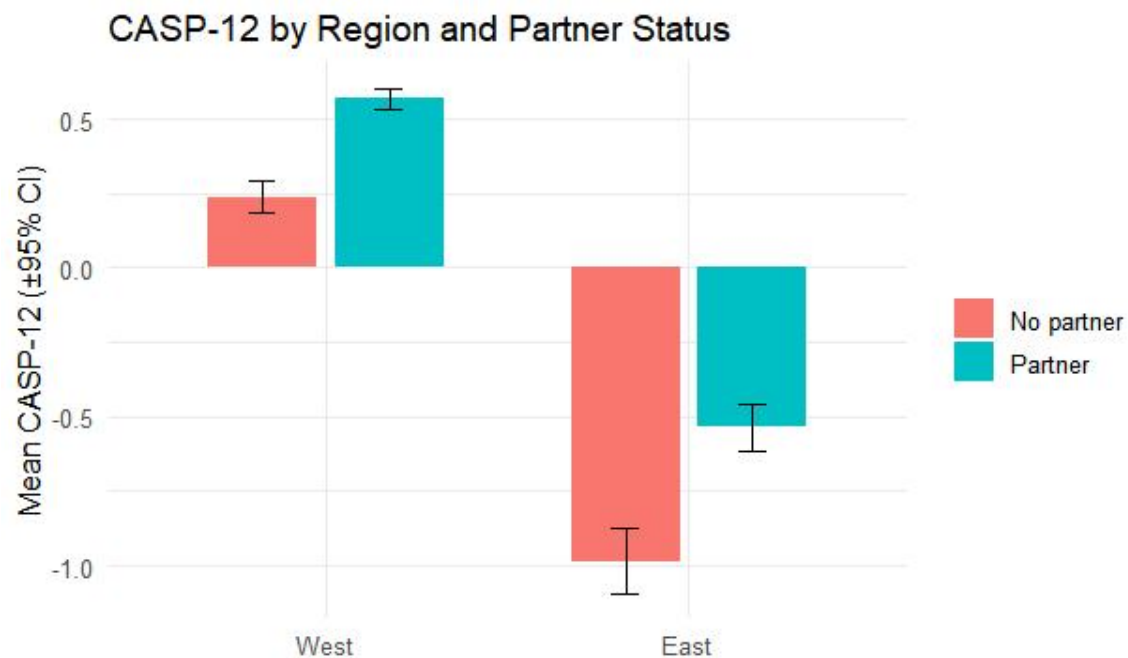
This appendix presents supplementary visualizations that support the main findings reported in Section 4 (*Analyze Phase*). All figures display standardized scores (z-values) with 95% confidence intervals and correspond to the regression analyses summarized in the main text.

Figure 1. Quality of Life (CASP-12) by Providing Help



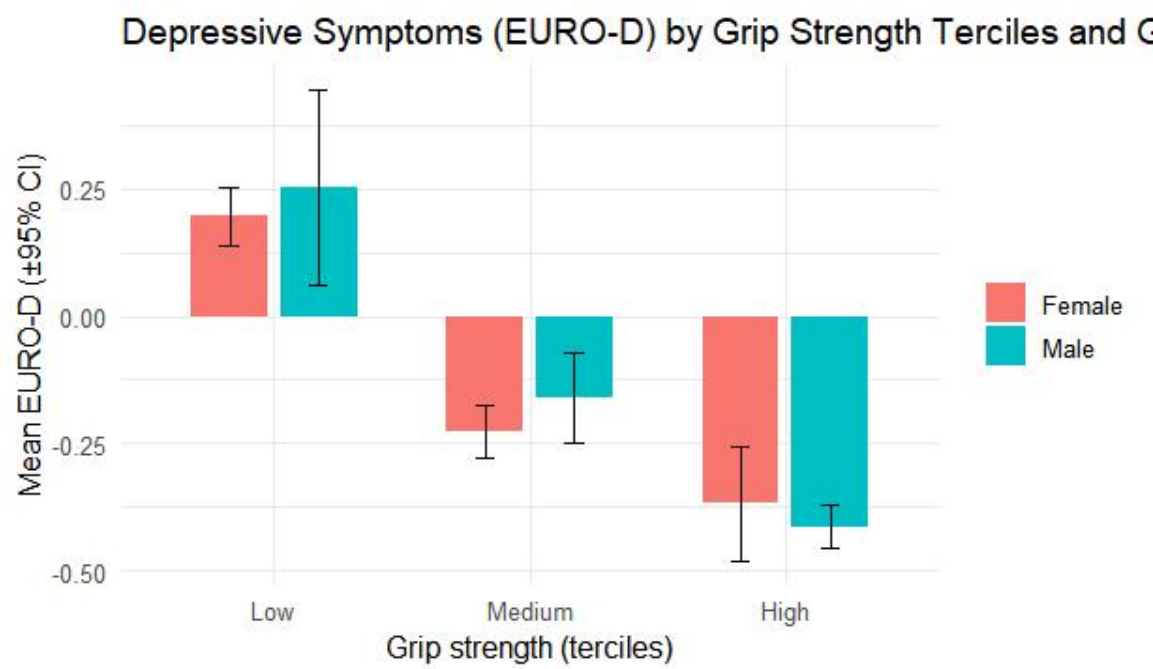
Description: Bar plot displaying mean CASP-12 scores for individuals who provided help vs. those who did not, including 95% confidence intervals.

Figure 2. Quality of Life (CASP-12) by Partner Status and Region



Description: Grouped bar plot showing mean CASP-12 scores by partner status across two European regions, with error bars (95% CI).

Figure 3. Depressive Symptoms (EURO-D) by Grip Strength



Description: Bar plot showing mean EURO-D (depressive symptoms) by terciles of grip strength (Low, Medium, High), with 95% confidence intervals.

Appendix B. Regression Diagnostics

To assess the validity of the linear regression assumptions, several post-estimation diagnostic tests were performed on the final model (m_final).

1. Specification test (RESET)

Test used: Ramsey RESET test

Result: $F(2, 4035) = 0.96, p = 0.382$

Interpretation: The non-significant p value indicates no evidence of model misspecification. The linear functional form appears appropriate for the data.

2. Multicollinearity (Variance Inflation Factor – VIF)

VIF range: 1.0 – 2.6

Interpretation: All VIF values are well below the conventional threshold of 5, suggesting that multicollinearity is not a concern in this model. Predictors contribute unique information to the regression.

3. Heteroskedasticity test

Test used: Studentized Breusch–Pagan test

Result: $\chi^2(15) = 116.38, p < .001$

Interpretation: The test detects heteroskedasticity in the residuals. To address this, **HC3 heteroskedasticity-robust standard errors** were applied in all reported models, ensuring reliable inference.

4. Normality of residuals

Test	Statistic	p-value	Interpretation
Shapiro – Wilk (sampled)	0.989	< .001	Significant deviation from perfect normality (expected in large samples).
Anderson – Darling	12.2	< .001	Confirms non-normality due to sample size and mild tail skewness.
Lilliefors	0.035	< .001	Same conclusion as above.
Cramér – von Mises	1.93	< .001	Indicates slight non-normality.
Jarque – Bera	156.0	< .001	Residuals depart from normality but not enough to invalidate OLS with robust SEs.

Interpretation: Although several normality tests are significant (as expected given the large N), visual inspection of residual histograms and Q–Q plots confirmed that

deviations from normality are minor and do not bias estimates when robust standard errors are used.

Conclusion: The diagnostics confirm that the model is well-specified, free of problematic multicollinearity, and statistically robust when using HC3 standard errors to account for mild heteroskedasticity and non-normality of residuals.

