

Exploring the biopsychosocial determinants of resilient aging: new insights from the InveCe.Ab population-based study

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Cognitive reserve, lifestyle and affective reserve specifically and independently affect different health domains
in a population-based sample of oldest-old (80+).

Biological markers related to synaptic and immune function are independently associated with protective factors and resilient aging.

INTRODUCTION	METHODS	RESULTS		CONCLUSIONS
Cumulative exposures to modifiable factors during the life-course influence aging and disease trajectories. Lifestyle, cognitive and affective reserve independently predicted a resilient phenotype, defined as the maintenance of cognitive, mental health and functional independence in very old age (Rolandi et al., 2024). However, the biological mechanisms underlying resilient aging remain largely unexplored.	Participants: dementia-free older adults from the fifth wave of the InveCe.Ab study (n=401; age 83–87 years). Blood biomarkers: NULISAseq CNS Disease Panel detecting 120+ neuro-specific and inflammatory proteins. Protective factors: cognitive reserve, lifestyle, affective reserve (Rolandi et al., 2024). Health outcomes: - Cognition (MMSE) - Mental health (Mental Health Continuum Short Form) - Physical health (walking speed test)	1. LASSO logistic regression method identify 5 out of 120 biomarkers associated with the resilience phenotype: -Neurofilament light chain (NEFL): OR=0.78, p=0.234. - Interleukin-6 (IL6): OR=0.72, p=0.015. - Cystatin-C (CST3): OR=0.52, p=0.191. - Brain abundant membrane attached signal protein 1 (BASP1): OR=1.31, p<0.001. - Dopa decarboxylase (DDC): OR=1.58, p=0.021. ↓ Included as potential mediators of the relationships between protective factors and health outcomes in a SEM model.	2. Structural equation modeling (SEM) Cognitive reserve → cognition ($\beta^*=0.39$, p<0.001) → DDC ($\beta^*=0.15$, p=0.019) Affective reserve → mental health ($\beta^*=0.78$, p<0.001). → IL6 ($\beta^*=-0.13$, p=0.084) Lifestyle → physical health ($\beta^*=0.26$, p=0.018). BASP → cognition ($\beta^*=0.14$, p<0.001) NEFL → cognition ($\beta^*=-0.10$, p=0.024) DDC → mental health ($\beta^*=0.08$, p=0.044)	Protective factors and biological paths independently affect specific health domains. Further investigations are needed to characterize the biopsychosocial determinants of resilient aging.
				REFERENCE Rolandi et al. Lifestyle, Cognitive, and Psychological Factors Associated With a Resilience Phenotype in Aging: A Multidimensional Approach on a Population-Based Sample of Oldest-Old (80+). <i>J Gerontol B Psychol Sci Soc Sci</i>. 2024 doi: 10.1093/geronb/gbae132 Contact: e.rolandi@golgicenci.it  ALZHEIMER'S ASSOCIATION AAIC 26