



Predictors of Successful Cognitive Aging in European Superagers (90+ Years): A Cross-Platform EMIF & DPUK Investigation of Real-World Evidence



Dementias Platform^{UK}
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Introduction

The proportion of individuals living into old age increases with the group of individuals aged 90 years and older as the fastest growing segment of the population. The prevalence of dementia strongly increases with age reaching over 60% in persons aged 90 years and older. Some people however live into old age without cognitive impairment or dementia. These persons may be resilient to cognitive decline typically associated with old age.

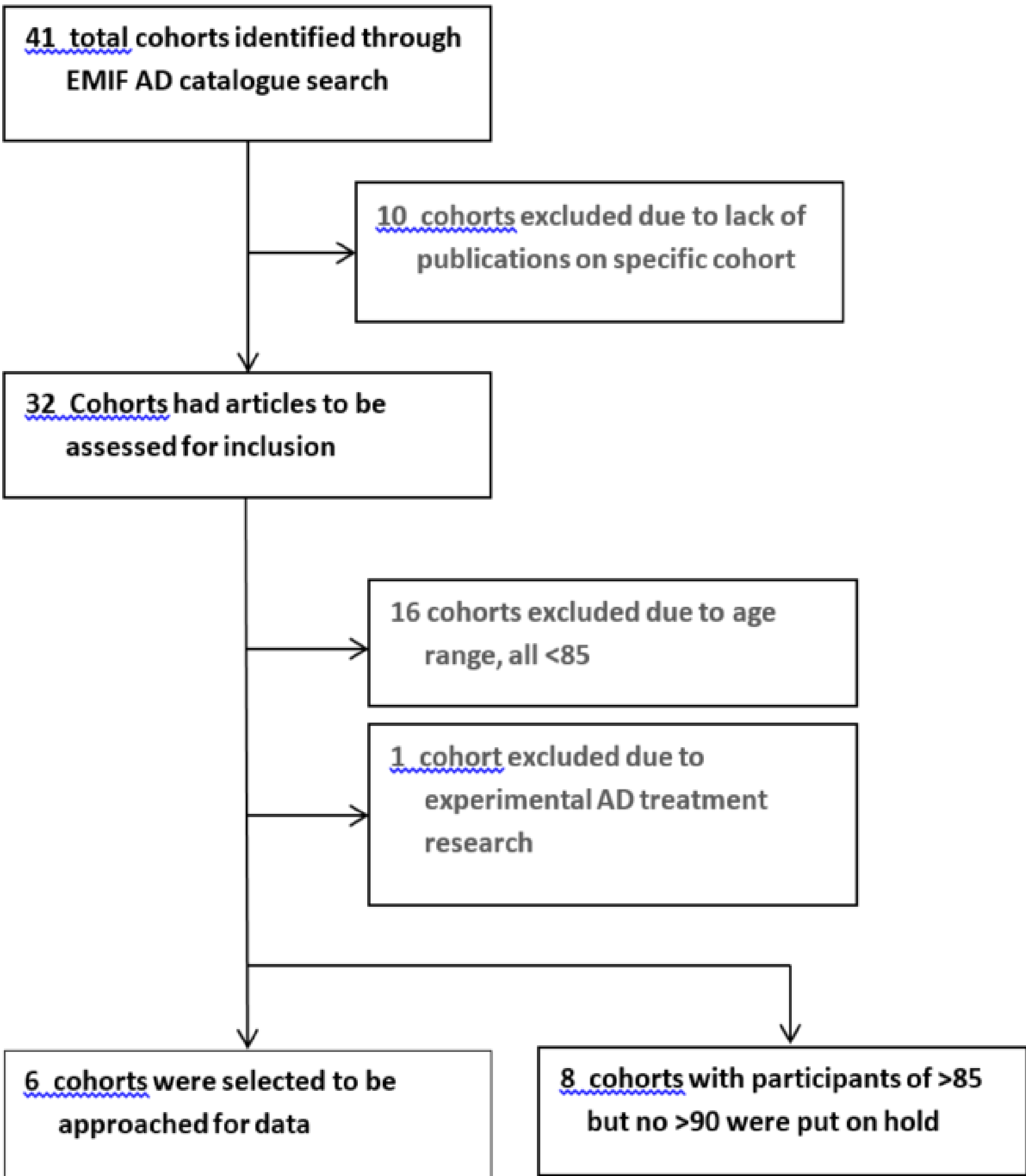
Elucidating factors that contribute to successful cognitive aging is crucial to discover new therapeutic targets to promote the prevention of dementia and to reduce its public health burden. We therefore aim to build a prediction model of successful cognitive aging in persons aged over 90 years of age to identify factors that contribute to resiliency to cognitive decline. Despite the increasing number of individuals aged 90 years and older, only few studies have included this specific age group. For this reason, we will combine resources available through EMIF-AD and DPUK to build a large database of European superagers.

Methods EMIF-AD

The EMIF-AD catalogue was used to identify cohorts relevant for the current study. The key publications mentioned in the catalogue were then reviewed in addition to publications related to the specific cohorts found through PubMed. Cohorts of which no publications were available, or those whose studies used data from other cohorts to publish, were excluded. All cohorts with a cut off age under 85 were excluded.

Subsequently, by reviewing the results and methods sections of the remaining publications the final selection was made of cohorts that had either at baseline or at follow up, a minimum of 5 participants of 90 years or older.

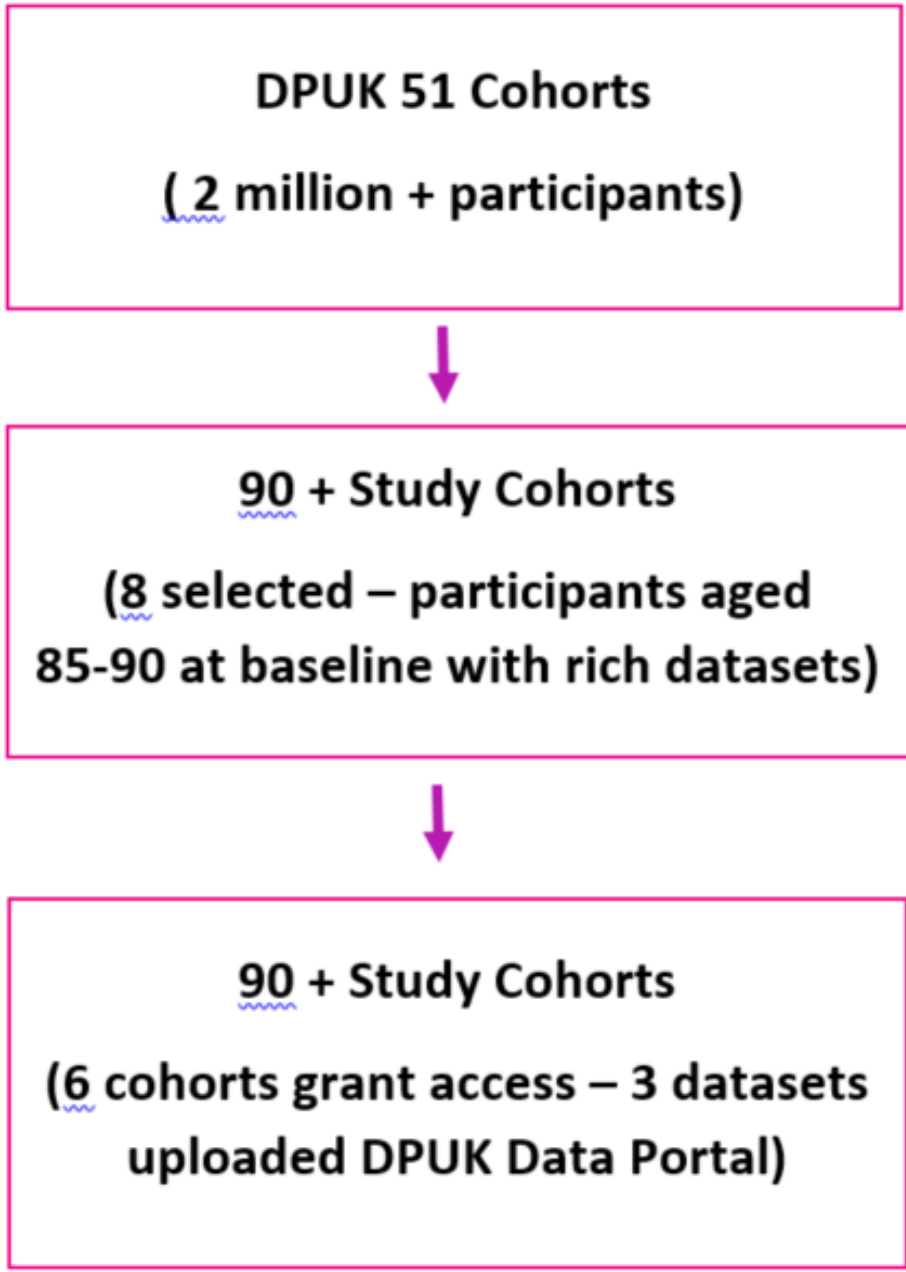
From the data available in the publications and the provided information in the EMIF-Ad catalogue a list of common variables was made and requested from the contact person of the selected cohorts.



Methods DPUK

The Dementias Platform UK (DPUK) Cohort Directory and Cohort Matrix were used to initially identify suitable cohorts for the study. The inclusion criteria for search were a baseline age of 85 years and a rich dataset of variables across data categories (i.e., cognitive, lifestyle, genetic, biomedical, demographic, psychosocial). All cohorts that had participants aged 85 + years were identified. This was validated by a literature search identifying cohort profile papers and highly characterised empirical studies. Eight cohorts were identified as having participants over the age of 85 years at baseline.

A full research proposal was submitted to DPUK to gain access to full datasets from the 8 cohorts: Whitehall II, CFAS I and II, Million Women Study, SABRE, Generation Scotland, Caerphilly Study, ELSA. The SABRE and CFAS II studies rejected the proposal due to a limited number of participants over the age of 85 but the other cohorts granted full access. At time of presentation, three cohort’s data are accessible through the DPUK Data Portal: Generation Scotland, CFAS I and ELSA.



Findings

DPUK cohort: Generation Scotland			
(n = 23,960 at baseline)	85-89 years n = 66	90+ years n = 10	
Age	M = 86.6 (1.25)	M = 93.9 (2.7)	
Education	College/university 8%	20%	
Gender	Female 65%	70%	
Alzheimer's	0%	0%	
Smoking	Never smoked 44%	50%	
	Ex-smokers 45%	40%	
	Current smokers 3%		
Mental Health (GHQ-12)	1.8 (2.7)	1.6 (1.6)	
BMI	37.7 (22.0)	33.4 (16.1)	
APOE	12/66	2/10	
Stroke	No 89%	90%	
Diabetes	No 88%	100%	
Heart disease	No 77%	80%	

Conclusion

This project harnesses cohort resources available through the EMIF-AD and DPUK platforms, building a large database of European superagers in a collaborative effort; extending capabilities of both platforms. In this way, we aim to contribute to the identification of predictors of successful cognitive aging.

Data upload and processing is currently underway and this valuable resource will be available for researchers to conduct analyses, furthering both dementia, health and cognitive ageing research.

Cross-Platform 90+ Cohort Characteristics

	Number of participants 90+ and 85+	Age at Testing	MMSE or MoCA or Dementia Score	Education	Gender	Medications	Cognition	Alcohol	Smoking	Physical Activity	Mental Health	Gait Speed	Blood Pressure	Lung Volume	Height	Weight	BMI	APOE	MRI
90+	~ 90	90-99	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SNAC-K	X (80+ n=1096)	65-99+	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ReGai	*	50-95	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Antwerp	*	39-101	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓
Heliad	X/ 85+ n=62	>64	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	X
H70 + H85	*	70-100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whitehall 2	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CAPS	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	X	✓
ELSA	(90 n=490) (85-89 n=503)	*	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	*	X	X
CFAS1	(85-89 n=336)(90-105 n=186)	*	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	X	X	X	X	X	✓	X
Million Women	*	*	✓	✓	✓	X	✓	✓	✓	✓	✓	X	X	✓	X	✓	✓	X	X
Generation Scotland	(90-99 n=10)(85-89 n=66)	*	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	X	X	✓	✓	✓	✓	X