

SUPPLEMENTARY TABLES

eTable 1. Information Relating to all Twenty Participating COSMIC Studies

Study	Abbreviation	Location	Main race/ethnicity	Sample size	Years run	Reference
Bambui Cohort Study of Aging	Bambui	Bambui, Brazil	Brazilian	1491	1997–2013	Lima-Costa et al. ¹
Cognitive Function & Ageing Study	CFAS	United Kingdom†	White	12256	1989–	Brayne et al. ²
Cuban Health and Alzheimer Study	CHAS	Havana and Matanzas, Cuba	White, Black, Mixed	2574	2003–	Llibre-Rodriguez et al. ³
Einstein Aging Study	EAS	New York, USA	White, Black	2063	1993–	Katz et al. ⁴
Etude Santé Psychologique et Traitement	ESPRIT	Montpellier, France	White	2187	1999–	Ritchie et al. ⁵
Hellenic Longitudinal Investigation of Aging and Diet	HELIAD	Larissa and Marousi, Greece	White	1174	2010–	Dardiotis et al. ⁶
Hong Kong Memory and Ageing Prospective Study	HK-MAPS	Hong Kong	Chinese	785	2005–	Wong et al. ⁷
Invecchiamento Cerebrale in Abbiategrasso	Invece.Ab	Abbiategrasso, Italy	White	1267	2010–2015	Guaita et al. ⁸
Korean Longitudinal Study on Cognitive Aging and Dementia	KLOSCAD	South Korea (nation-wide)	Korean	6513	2009–	Kim et al. ⁹
Leipzig Longitudinal Study of the Aged	LEILA75+	Leipzig, Germany	White	1040	1997–2014	Riedel-Heller et al. ¹⁰
Monongahela Valley Independent Elders Survey	MoVIES	Mid-Monongahela Valley, PA, USA	White	1613	1987–2002	Ganguli et al. ¹²
Personality and Total Health Through Life Project	PATH	Canberra, Australia	White	2545	2001–	Anstey et al. ¹³
Sacramento Area Latino Study on Aging	SALSA	Sacramento Valley, CA, USA	Hispanic; Mexican ancestry	1710	1998–2008	Haan et al. ¹⁴
Sasaguri Genkimon Study	SGS	Sasaguri, Japan	Japanese	793	2011–	Narazaki et al. ¹⁵
Singapore Longitudinal Ageing Studies (I)	SLASI	Singapore	Chinese	1858	2003–	Feng et al. ¹⁶
Sydney Memory and Ageing Study	Sydney MAS	Sydney, Australia	White	1037	2005–	Sachdev et al. ¹⁸
Tajiri Project	Tajiri	Tajiri, Japan	Japanese	100	1998–2005	Meguro et al. ¹⁹
Zaragoza Dementia Depression Project	ZARADEMP	Zaragoza, Spain	White	4542	1994–	Lobo et al. ²⁰

eTable 2. *Ethics approvals for the individual contributing studies.*

Study	Institutional Review Board
Bambui	Ethics Boards of the Fundac,ãõ Oswaldo Cruz in Rio de Janeiro and the Instituto Rene´ Rachou of the Fundac,ãõ Oswaldo Cruz in Belo Horizonte, Brazil (14/2007 - CEPESH-CpqRR)
CFAS	Anglia and Oxford Multi-centre Research Ethics Committee (MREC) - 99/5/22; Eastern MREC – 99/5/22; Eastern MREC – 05/MRE05/37; NRES Committee East of England – 05/MRE05/37
CHAS	Medical University of Havana’s Ethics Committee – Approval 20/01/2003
EAS	Albert Einstein College of Medicine Institutional Review Board (Approval#1996-175)
ESPRIT	Ethics committee (CCPPRB) of the Kremlin Bicetre hospital (n° registered 99-28)
HELIAD	Institutional Ethics Review Board of the University of Thessaly (BEY846Ψ8N2-32II)
HK-MAPS	Joint Chinese University of Hong Kong-New Territories East Cluster Clinical Research Ethics Committee (CRE-2011.101)
Invece.Ab	Ethics Committee of the University of Pavia (#3/2009)
KLOSCAD	Institutional Review Board of Seoul National University Bundang Hospital, Korea (IRB No. B-0912/089-010)
LEILA75+	Ethics committee of the University of Leipzig (C7 79934700)
MoVIES	University of Pittsburgh Institutional Review Board (IRB# 961263-0110)
PATH	Australian National University Human Research Ethics Committee (#M9807, #2002/189, #2006/314, # 2010/542, #2001/2, #2009/039)
SALSA	University of California, San Francisco Human Research Protection Program Institutional Review Board (IRB#10-00243)
SGS	Institutional Review Board of the Institute of Health Science, Kyushu University (IHS-2010-22)
SLASI	National University of Singapore Institutional Review Board (Reference Code: 04-140)
Sydney MAS	University of New South Wales Human Research Ethics Committee (approval #14327)
Tajiri	Ethical Committee of Tohoku University Graduate School of Medicine (#2012276, #2014160, #20141238, and #20141767)
ZARADEMP	Ethics committee of the Zaragoza University Hospital (CEICA # CP16/2012)

Written consent was exclusively or predominantly obtained from participants in all studies (SPAH obtained oral consent from illiterate participants; CFAS obtained oral consent, countersigned by a witness, from participants with a physical/visual disability).

Further participant consent was not deemed necessary as only fully de-identified data were shared with the analysis team (e.g., as per the Privacy Rule proposed by the National Institute of Health, USA: http://privacyruleandresearch.nih.gov/research_repositories.asp).

eTable 3. Information relating to Dementia diagnosis, Tests of Memory and the MMSE, and Data Relating to Risk Factors in all Participating COSMIC Studies

Study	Criteria used to classify dementia	General Cognition test	Hypertension ^a	Cardiovascular disease ^b	Diabetes ^c	Stroke ^d
Bambui	MMSE score cut-off point 13/14 appropriate for Brazilian populations with low schooling ^f	MMSE	1. Blood pressure (mean of 2 nd and 3 rd) 2. Medication	Myocardial infarction or angina	1. Fasting blood glucose 2. Treatment	History of stroke
CFAS	AGECAT organicity level of O3	MMSE	History	Angina or heart attack	History	History of stroke
CHAS	DSM-IV or education-adjusted 10/66 Lancet dementia diagnosis; those with CDR \geq 1 but not indicated as having a dementia diagnosis were also excluded	Community Screening Instrument for Dementia (CSI-D). Scores converted to MMSE with a published co-calibration table ²¹	1. Blood pressure (average) 2. History indicated by diagnosis or treatment	Doctor diagnosed any of heart attack, angina, heart failure, valve disease, or other (such as atrial fibrillation or ventricular arrhythmia or cardiomyopathy)	1. Told had diabetes 2. Had treatment 3. Fasting blood glucose	Self-report of a clinical diagnosis
EAS	DSM-IV	Blessed Information Memory Concentration test. Validated formula was used to convert these scores to MMSE scores ²² .	1. Blood pressure (mean of 2) 2. History	Myocardial infarction, coronary artery bypass, angina, heart failure, angioplasty, or arrhythmia	1. History 2. Treatment 3. Fasting blood glucose	Medical history of stroke
ESPRIT	Standardized interview by a neurologist incorporating cognitive testing, with diagnoses made using the DSM-IV, validated by an independent panel of expert neurologists	MMSE	1. Blood pressure (mean of 2) 2. Medication	Ischemic heart disease (defined as any of current angina, history of angioplasty, heart operation or myocardial infarction) or heartbeat disorders (arrhythmia or auricular fibrillation)	1. Treatment 2. Fasting blood glucose	Have you had one or more cerebrovascular attacks (strokes, seizures)?
HELIAD	Full battery of neuropsychological tests, neurological examination and a consensus diagnosis of Neurologists and Neuropsychologists using DSM-IV criteria	MMSE	History	Coronary disease, myocardial infarction, congestive heart failure, arrhythmia, or any other heart disease	History	Medical history of stroke or TIA

Study	Criteria used to classify dementia	General Cognition test	Hypertension ^a	Cardiovascular disease ^b	Diabetes ^c	Stroke ^d
HK-MAPS	Clinical Dementia Rating ≥ 1	MMSE	Cumulative Illness Rating Scale severity rating 1+	Cumulative Illness Rating Scale severity rating 1+ for either heart disease (ischemic heart disease or heart failure) or arrhythmia/ atrial fibrillation	Cumulative Illness Rating Scale severity rating 1+	Cumulative Illness Rating Scale severity rating 1+ for cerebrovascular disease (CVA, TIA)
Invece.Ab	DSM-IV	MMSE	1. Medication 2. Supine blood pressure 170-180 mmHg and history 3. Supine blood pressure >180 mmHg	1. Cardiovascular disease defined by study as any of myocardial infarction, heart failure, angina, arrhythmia, coronary artery bypass graft, or other 2. Medication 3. Atrial fibrillation	1. Treatment 2. History	History of stroke or TIA
KLOSCAD	DSM-IV	MMSE	1. History (also having follow-up current status data or age first diagnosed/began medication) 2. Self-reported current 3. Blood pressure (mean of 3)	1. History of any of myocardial infarction, angina, congestive heart failure, arrhythmia, cardiac operation, or other (also having follow-up current status data or age first diagnosed/began medication) 2. Self-reported current cardiac disease	1. History (also having follow-up current status data or age first diagnosed/began medication) 2. Self-reported current 3. Fasting blood glucose 4. Non-fasting blood glucose ≥ 200 mg/dL	History of stroke (sometimes indicated only by having data for a follow-up current status), cerebral infarction, cerebral haemorrhage, TIA, cerebral ischaemia, or "something like stroke".
LEILA75+	DSM-IV	MMSE	1. Blood pressure	Self-reported myocardial infarction	Self-reported	Self-reported history of stroke
MoVIES	Clinical Dementia Rating ≥ 1	MMSE	1. Blood pressure (right or left: n=338; averaged over both: n=67) 2. History	History of any of myocardial infarction, angina, pacemaker, palpitations, heart murmur, or other (includes reported presence >1 month ago at wave 2)	History (includes reported presence >1 month ago at wave 2)	History of stroke (includes participants assessed at wave 2 indicating presence >1 month ago)
PATH	DSM-IV	MMSE	1. Blood pressure (mean of 2) 2. Medication	"Do you have heart trouble?"	1. History 2. Treatment	"Have you ever suffered a stroke?"
SALSA	California ADDTC criteria for vascular dementia and NINDS-ADRDA for Alzheimer's disease	Modified MMSE. Scores converted to MMSE with a published co-calibration table ²¹	1. Blood pressure (mean of 2) 2. Self-reported 3. Medication	Myocardial infarction, angina, congestive heart failure, atrial fibrillation, or heart/coronary catheterization	1. Self-report 2. Fasting blood glucose 3. Medication	Self-report

Study	Criteria used to classify dementia	General Cognition test	Hypertension ^a	Cardiovascular disease ^b	Diabetes ^c	Stroke ^d
SGS	Self-reported medical history	MMSE	Self-reported history of diagnosis	Self-reported history of diagnosis	Self-reported history of diagnosis	Self-reported history of diagnosis
SLASI	DSM-IV	MMSE	1. Blood pressure (1 reading) 2. Medication 3. History	1. Heart attack, heart failure, or atrial fibrillation 2. Medication for heart attack, heart failure, or atrial fibrillation	1. Fasting blood glucose 2. Treatment 3. History	History of stroke or regular medication for stroke
Sydney MAS	DSM-IV	MMSE	1. Blood pressure (mean of 2) 2. Medication 3. History	1. Heart attack, angina, cardiomyopathy, valve disease, arrhythmia, atrial fibrillation	1. Fasting blood glucose 2. Treatment 3. History	Diagnosis of stroke or TIA
Tajiri	Clinical Dementia Rating ≥ 1 , with DSM-IV follow-up	MMSE	1. Blood pressure (mean of 2) 2. Medication	Ischemic heart disease, or atrial fibrillation	1. Fasting blood glucose 2. Treatment (diet)	Medical history
ZARADEMP	DSM-IV	MMSE	Diagnosis using EURODEM Risk Factor Questionnaire and medical records	Diagnosis of myocardial infarction or angina using EURODEM Risk Factor Questionnaire and medical records	Diagnosis using EURODEM Risk Factor Questionnaire and medical records	History of stroke or TIA

^a Any of systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg, taking medication for hypertension, or medical history

^b History of any relevant condition (heart attack, angina, cardiomyopathy, valve disease, arrhythmia, atrial fibrillation, etc.)

^c Any of fasting blood glucose ≥ 126 mg/dL (>7 mmol/L), treatment for diabetes, or medical history

^d History of stroke or transient ischemic attack

^e Any of total cholesterol ≥ 240 mg/dL (>6.2 mmol/L), triglycerides ≥ 200 mg/dL (>2.3 mmol/L), treatment for high cholesterol, or medical history

^f Castro-Costa E, Fuzikawa C, Uchoa E, Firmo JO, Lima-Costa MF. Norms for the mini-mental state examination: adjustment of the cut-off point in population-based studies (evidences from the Bambui health aging study). *Arq Neuropsiquiatr* 2008;66:524-8.

eTable 4 – Harmonization of Educational Attainment Across Cohorts

Country	Study		Assigned Educational Category			
			Incomplete Elementary	Completed Elementary (and incomplete Middle Level)	Completed Middle (and some High School)	Completed High School (may or may not have completed Tertiary)
Brazil		Education System	Less than 5 years	5 to <9 years	9 to <12 years	12+ years
	Bambui	Available categories	Illiterate; 1-3 years, 4-7 years	>=8 years	>=8 years	>=8 years
		Education in Years^a		Available. Year data used to assign participants to these higher categories		
United Kingdom		Education System	Less than <6 years	6 to <9 years	9 to <11 years	11+ years
	CFAS	Available categories	None.			
		Education in Years	Available. Year data used to assign participants to a specific level of educational attainment using the Education System information			
Cuba		Educational System	Less than 6 years	6 to <9 years	9 to <12 years	12+ years
	CHAS	Available categories	None; Some, did not complete primary	Completed Primary	Completed Primary	Completed Secondary; Tertiary
		Education in Years		Available. Year data used to assign participants into either Complete Elementary or Complete Middle categories		
USA		Educational System	Less than 5 years	5 to <8 years	8 to <12	12+ years
	EAS	Available categories	<i>No categorical data applicable to these levels of education</i>			High School Diploma/GED Bachelors; Masters; Doctorate; Other
		Education in Years	Available. Year data used to assign participants to these levels of educational attainment			
	MOVIES	Available categories	<6th grade	6-9th grade	Partial high school	High School Graduate; Trade/Technical, Partial College College Graduate; Graduate/Professional
		Education in Years	Available. Used to assign participants to a level of educational attainment if categorical data missing			
	SALSA	Available categories	None.			
		Education in years	Available. Used to assign participants to a specific level of educational attainment using the Education System information			
France		Educational System	Less than 5 years	5 to <9 years	9 to <12 years	12+ years
	ESPRIT	Available categories	<5th Grade	5th Grade; 6th To 9th Grade	Technical 9th Grade;	College; College Graduate (including Technical); University
		Education in Years	Not available.			
Greece	HELIAD	Educational System	Less than 5 years	5 to <9 years	9 to <12 years	12+ years
		Available categories	None.			
		Education in Years	Available. Used to assign participants to a specific level of educational attainment using the Education System information			
Hong Kong	HK-MAPS	Educational System	Less than 6 years	6 to <9 years	9 to <11 years	11+ years
		Available categories	None.			
		Education in Years	Available. Used to assign participants to a specific level of educational attainment using the Education System information			
Italy		Educational System	Less than 5 years	5 to <8 years	8 to <13 years	13+ years
	Invece.Ab	Available categories	None.			
		Education in Years	Available. Used to assign participants to a specific level of educational attainment using the Education System information			
South Korea	KLOSCAD	Educational System	Less than 6 years	6 to <9 years	9 to <12 years	12+ years

		Available Categories	Less Than High School Completion	Less Than High School Completion	Less Than High School Completion	High School Completion; University Degree	
		Education in Years	Available. Used to assign participants into a level educational attainment below High School				
Germany		Educational System	Less than 4 years	4 to <9 years	9 to <12 years	12+ years	
	LEILA	Available Categories	<i>No categorical data applicable to these levels of education</i>			Lower Secondary Education	Upper Secondary Education; Post-Secondary Non-Tertiary; Short Cycle Tertiary Education; Master Or Equivalent; Doctoral or Equivalent
		Education in Years	Available. Used to assign participants into a level educational attainment below Middle education				
Australia		Educational System	Less than 7 years	7 to <11 years	11 to <13 years	13+ years	
	PATH	Available Categories (PATH)	Some Primary	All Of Primary, Some Of Secondary	Intermediate School Certificate	Five/Six Years of Secondary; Trade Certificate/Apprenticeship; Technicians Certificate/Advanced Certificate; Certificate Other Than Above; Associate Diploma; Undergraduate Diploma; Bachelor's Degree; Post Graduate Diploma/Certificate; Higher Degree;	
		Education in Years	Available. Used to assign participants to a level of educational attainment if categorical data missing.				
	MAS	Available Categories	<i>No categorical data applicable to this category.</i>	Primary school, Incomplete High School	Incomplete High School; Incomplete High School + Certificate Diploma	Complete High School; Incomplete Tertiary; Complete High School + Certificate/Diploma; Completed Tertiary	
		Education in Years	Available. Used to categorize participants with incomplete Elementary education				
Japan		Educational System	Less than 6 years	6 to <9 years	9 to <12	12+ years	
	Tajiri	Available Categories	Less Than High School	Less Than High School	Less Than High School	High School	
		Education in Years	Available. Used to assign participants to a specific level of educational attainment below High School				
	SGS	Available Categories	None.				
		Education in Years	Available. Used to assign participants to a specific level of educational attainment using the Education System information				
Singapore		Educational System	Less than 6 years	6 to <8 years	8 to <10	10+ years	
		Available Categories	Less Than High School Completion	Less Than High School Completion	Less Than High School Completion	High School Completion, Technical or College Diploma; University Level	
		Education in Years	Available. Used to assign participants to either Elementary of Middle education				
Spain		Educational System	Less than 6 years	6 to <8 years	8 to < 10 years	10+ years	
		Available Categories (ZARADEMP)	None; Less Than Primary	Primary	Less Than High School	High School; College Diploma; Less Than Technical Formation; University Degree	
		Education in Years	Available. Used to assign participants to a level of educational attainment if categorical data missing				

^a For all studies, the year data was used to assign participants to the relevant level of educational attainment if categorical data was not available, or was not at a level of detail to assign participants to one of the four educational attainment categories.

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