**Supplementary Table 3: Results for determinants of CR (1 row = 1 model; multiple models per study possible):**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Author****Year****Model No.**  | **CR Statistical Model** | **Type of Subjects in CR Model** | **Groups considered in CR model** | **Neuropathology Measure** | **Cognitive Performance****Test** | **Variables****Controlled****For** | **Reserve Factors** | **Quality**  |
| Alexander et al. 1997Model 5 | partial correlation | All AD | N/A | FDG-PET: regional metabolism relative to the left sensorimotor cortex | dementia severity (MDRS) | age, gender, illness duration | **education\*** | Low |
| Alexander et al. 1997Model 8 | partial correlation | All AD | N/A | FDG-PET: absolute regional PET values relative to the left sensorimotor cortex | dementia severity (MDRS) | age, gender, illness duration | **education\*** | Low |
| Borroni et al. 2009Model 1 | multiple linear regressions | all bvFTD | N/A | SPECT imaging: regional cerebral blood flow (rCBF) | dementia severity (Clinical Dementia Rating) | age and gender | **education\***  | Moderate |
| Model 2  |  |  |  |  |  |  | **occupation\***  | Moderate |
| Model 3  |  |  |  |  |  |  | **leisure activities†**  | Moderate |
| Model 4  |  |  |  |  |  |  | **reserve index\*** (education & occupation) | Moderate |
| Christensen et al. 2007Model 1Result 1 | ANOVA (interaction) | Continuum (community sample) | men | MRI: brain atrophy | "cognitive change" calculated for each individual based on estimate of crystallized intelligence and a test of cognitive speed” | age, gender  | **education†** | Moderate |
| Model 1Result 2  |  |  | women |  |  |  | **education†** | Moderate  |
|  Christensen et al. 2007Model 2Result 1 | ANOVA (interaction) | Continuum (community sample) | men | MRI: number of WMHs | "cognitive change" calculated for each individual based on estimate of crystallized intelligence and a test of cognitive” speed | age, gender | **education†** | Moderate |
| Model 2Result 2  |  |  | women |  |  |  | **education†** | Moderate |
| Dumurgier et al. 2010Model 1  | linear regression | All AD | N/A | CSF: Aβ 1–42 | dementia severity (MMSE) | age, gender | **education\*** | Moderate |
| Model 2  |  |  |  |  | dementia severity (CDR) | age, gender  | **education\*** | Moderate |
| Dumurgier et al. 2010Model 3  | linear regression | All AD | N/A | CSF: Total Tau | dementia severity (MMSE) | age, gender | **education†** | Moderate |
| Model 4  |  |  |  |  | dementia severity (CDR) | age, gender | **education†** | Moderate |
| Dumurgier et al. 2010Model 5  | linear regression | All AD | N/A | CSF: Phospho-Tau 181 | dementia severity (MMSE) | age, gender | **education†** | Moderate |
| Model 6  |  |  |  |  | dementia severity (CDR) | age, gender | **education†** | Moderate |
| Dumurgier et al. 2010Model 7Res1 | linear regression stratiﬁed analysis by CDR status | All AD | mild dementia(CDR 1) | CSF: Aβ 1–42 | dementia severity (CDR) | age, gender | **education\*** | Moderate |
| Model 7 Res2 |  |  | moderatedementia (CDR 2) |  |  |  | **education†** | Moderate |
| Model 7Res3 |  |  | severe dementia (CDR 3) |  |  |  | **education†** | Moderate |
| Dumurgier et al. 2010Model 8(combined results) | linear regression stratiﬁed analysis by CDR status | All AD | mild dementia(CDR 1)ORmoderatedementia (CDR 2)ORsevere dementia (CDR 3) | CSF: Total Tau | dementia severity (CDR) | age, gender | **education†** | Low |
| Dumurgier et al. 2010Model 9(combined results) | linear regression stratiﬁed analysis by CDR status | All AD | mild dementia(CDR 1)ORmoderatedementia (CDR 2)ORsevere dementia (CDR 3) | CSF: Phospho-Tau 181 | dementia severity (CDR) | age, gender | **education†** | Low |
| Murray et al. 2011Model 1Result 1 | Structural equation modelling (SEM) | all healthy cognition | N/A | MRI: brain atrophy (whole brain volume) & WMH in four regions of the brain (frontal, parietal, temporal, occipital) | ﬂuid intelligence, immediate and delayed verbal memory, executive function or purposive action, processing speed, attention and visual short-term memory (subject to PCA to extract general intelligence 'g') | childhood intelligence (IQ score), sex, total intracranial volume | **education\***  | High |
| Model1Result 2 |  |  |  |  |  |  | **occupation†** | High |
| Model 2Result 1 |  |  |  | MRI: the left and right hippocampal atrophy & WMH in four regions of the brain (frontal, parietal, temporal, occipital).  |  |  | **education\***  | High |
| Model 2 Result 2 |  |  |  |  |  |  | **occupation†** | High |
| Garibotto et al. 2012Model 1  | A multiple linear regression  | all AD grouped according to the ApoE genotype | ApoE e4 carriers | FDG-PET: regional cerebral metabolic rate of glucose (rCMRglc) | dementia severity (MMSE), verbal long term memory, visuo- spatial functions, semantic word ﬂuency [all in one model] | age and gender | **reserve index\*** (education & occupation) | Low |
| Model 2 |  |  | ApoE non-carriers |  |  |  | **reserve index\*** (education & occupation) | Low |
| Garibotto et al. 2008Model 1  | A multiple linear regression | All probable AD | AD vs. healthy controls | FDG-PET: regional cerebral metabolic rate of glucose (rCMRglc) | global cognitive status (MMSE), the verbal long term memory, executive, and visuospatial functions [all in one model] | age and gender | **education\***  | Moderate |
| Model 2  |  |  |  |  |  |  | **occupation\*** | Moderate |
| Model 3  |  |  |  |  |  |  | **reserve index\*** (education & occupation) | Moderate |
| Garibotto et al. 2008Model 4  | A multiple linear regression | All aMCI converters |  aMCI converters vs. healthy controls | FDG-PET: regional cerebral metabolic rate of glucose (rCMRglc) | global cognitive status (MMSE), the verbal long term memory, executive, and visuospatial functions [all in one model] | age and gender | **education\***  | High |
| Model 5  |  |  |  |  |  |  | **occupation\*** | High |
| Model 6  |  |  |  |  |  |  | **reserve index\*** (education & occupation) | High |
| Garibotto et al. 2008Model 7  | A multiple linear regression | All aMCI non-converters |  aMCI non-converters vs. healthy controls | FDG-PET: regional cerebral metabolic rate of glucose (rCMRglc) | global cognitive status (MMSE), the verbal long term memory, executive, and visuospatial functions [all in one model] | age and gender | **education†**  | Moderate |
| Model 8 |  |  |  |  |  |  | **occupation†**  | Moderate |
| Model 9  |  |  |  |  |  |  | **reserve index†** (education & occupation) | Moderate |
| Staff et al. 2004Model 1 | general linear modelling analysis of covariance(ANCOVA) | all healthy cognition |  N/A | MRI: white matter hyperintensity (WMH)  | fluid-type intelligence (RPM) | childhood IQ, sex | **education†**  | High |
| Model 2 |  |  |  |  |  |  | **occupation\*** | High |
| Staff et al. 2004Model 3  | general linear modelling analysis of covariance(ANCOVA) | all healthy cognition |  N/A | MRI: white matter hyperintensity (WMH) | immediate anddelayed verbal memory (AVLT) | childhood IQ, sex | **education\***  | High |
| Model 4 |  |  |  |  |  |  | **occupation†** | High |
| Staff et al. 2004Model 5  | general linear modelling analysis of covariance(ANCOVA) | all healthy cognition |  N/A | MRI: brain fraction (BF) (the ratio of the total white and grey matter volumes to the total intracranial volume) | fluid-type intelligence (RPM)  | childhood IQ, sex | **education†**  | High |
| Model 6  |  |  |  |  |  |  | **occupation\*** | High |
| Staff et al. 2004Model 7 | general linear modelling analysis of covariance(ANCOVA) | all healthy cognition |  N/A | MRI: brain fraction (BF) | immediate anddelayed verbal memory (AVLT) | childhood IQ, sex | **education\***  | High |
| Model 8  |  |  |  |  |  |  | **occupation\*** | High |
| Ewers et al. 2013Model 1 | ROI-based analysis:linear regression (interaction:education x CSF Ab1-42 status) | all healthy cognition | normal CSF Ab1-42 (Ab1-42 [-])vs. abnormal CSF(Ab1-42 [+]) levels | FDG-PET metabolism | global cognitive ability based on AD assessment scale  | age, gender | **education\*** | Moderate |
| Model 2 |  |  |  |  | composite measure of episodic memory |  | **education\*** | Moderate |
| Model 3  |  |  |  |  | composite measure of executive function |  | **education\*** | Moderate |
| Ewers et al. 2013Model 4 | voxel-wise multiple regression(interaction:education x CSF Ab1-42 status) | all healthy cognition | normal CSF Ab1-42 (Ab1-42 [-])vs. abnormal CSF(Ab1-42 [+]) levels | FDG-PET metabolism | global cognitive ability based on AD assessment scale  | age, gender | **education\*** | Low |
| Scarmeas et al. 2003Model 1  | various voxelwise multiple regression | all AD | N/A | H2 15O PET: cerebral blood flow (CBF) | dementia severity (mMMSE) | age | **education\*** | Low |
| Model 3 |  |  |  |  |  |  | **premorbid activities\*** | Moderate |
| Scarmeas et al. 2003Model 4  | various voxelwise multiple regression | all AD | N/A | H2 15O PET: cerebral blood flow (CBF) | dementia severity (mMMSE) | age,education,premorbid IQ | **premorbid activities\*** | Moderate |
| Kemppainen et al. 2008Model1 | voxel-based analysis; differences between the groups with t-test | all mild AD | high education vs. low education | PET; [11C]PIB as a ligand; B([11C]PIB) uptake  | dementia severity (subjects categorized as having the same degree of cognitive deterioration based on a variety of tests) | N/A | **education\*** | Low |
| Kemppainen et al. 2008Model 2 |  |  |  | PET; 18F-FDG as a ligand; glucose metabolism |  |  | **education\*** | Low |
| Kemppainen et al. 2008Model 3  | automated Region-of-Interest analysis; differences between the groups with t-test | all mild AD | high education vs. low education | PET; [11C]PIB as a ligand; B([11C]PIB) uptake | dementia severity (subjects categorized as having the same degree of cognitive deterioration based on a variety of tests) | N/A | **education\*** | Low |
| Kemppainen et al. 2008Model 4  |  |  |  | PET; 18F-FDG as a ligand; glucose metabolism |  |  | **education\*** | Low |
| Perneczky et al. 2007  | voxel-based linear regression analysis | all FTD | N/A | PET using 18F-FDG as a ligand, cerebral metabolic rate of glucose utilization (rCMRglc) | disease severity (CERAD-NAB) | gender, age | **education\***  | Moderate |
| Perneczky et al. 2007  | voxel-based linear regression analysis | all DLB | N/A | PET using 18F-FDG as a ligand, cerebral metabolic rate of glucose utilization (rCMRglc) | disease severity (CERAD-NAB) | gender, age | **education\***  | Moderate |
| Perneczky et al. 2006 | voxel-based linear regression analysis | AD | N/A | PET using 18F-FDG as a ligand, cerebral metabolic rate of glucose utilization (rCMRglc) | disease severity (CERAD-NAB) | gender, age | **education\***  | Moderate |
| Reed et al. 2011Model 1 Result 1  | latent variable modeling approach | continuum (healthy cognition, MCI, demented) | data from two studies | autopsy-derived measures of neuropathology (the pathology model defined as 5 latent variables: neuritic plaques, diffuse plaques, neocortical neurofibrillary tangles, medial temporal neurofibrillary tangles, and brain weight (adjusted for gender and height). Three observed variables were also used in the model: measures of Lewy bodies, chronic microscopic infarctions, and macroinfarcts). | 6 cognitive domains included separately in one model & summarized as latent constructs: episodic memory, semantic memory, working memory, visuospatial ability, perceptual speed, and verbal fluency | N/A | **socioeconomic status†**  | High |
| Model 1 Result2 |  |  |  |  |  |  | **education‡** | Moderate |
| Model 1Result3 |  |  |  |  |  |  | **leisure cognitive activities in mid-life\*** | Moderate |
| Model 1Result4 |  |  |  |  |  |  | **leisure****cognitive activities in late-life\*** | Moderate |
| Roe et al. 2008Model 1  | Multiple linear regression (interaction between education and PIB group) | continuum (healthy cognition & AD)  | N/A | PET using [11C]PIB as a ligand | dementia severity (CDR-SB) | age, APOE ε4+, age\*APOE ε4+, gender | **education\***  | Moderate |
| Roe et al. 2008Model 2 | Multiple linear regression (interaction between education and PIB group) | continuum(healthy cognition & AD)   | N/A | PET using [11C]PIB as a ligand | dementia severity (MMSE) | age, APOE ε4+, age\*APOE ε4+ | **education\***  | Moderate |
| Roe et al. 2008Model 3 |  |  |  |  | verbal abstract reasoning and conceptualization (WAIS III Similarities) |  | **education\*** | Moderate |
| Roe et al. 2008Model 4  | Multiple linear regression (interaction between education and PIB group) | continuum(healthy cognition & AD)   | N/A | PET using [11C]PIB as a ligand | controlled word list learning (Animal Naming) | age, time between cognitive test and scan | **education**†  | Moderate |
| Roe et al. 2008Model 5  | Multiple linear regression (interaction between education and PIB group) | continuum(healthy cognition & AD)   | N/A | PET using [11C]PIB as a ligand | memory (Selective Reminding Test Free Recall) | age, gender | **education**†  | Moderate |
| Roe et al. 2008Model 6  | Multiple linear regression (interaction between education and PIB group) | continuum(healthy cognition & AD)   | N/A | PET using [11C]PIB as a ligand | global cognitive function (SBT) | age | **education\***  | Moderate |
| Model 7  |  |  |  |  | mental processing speed (Trailmaking A) |  | **education**†  | Moderate |
| Model 8  |  |  |  |  | executive functions (Trailmaking B) |  | **education**†  | Moderate |
| Roe et al. 2008Model 9 | Multiple linear regression (interaction between education and PIB group) | continuum(healthy cognition & AD)   | N/A | PET using [11C]PIB as a ligand | verbal learning/memory (Selective Reminding Test Total) | none | **education**†  | Moderate |
| Schweizer et al. 2012Model 1  | monolingual and bilingual groups matched on cognitive functioning and clinical severity; group comparison | AD | monolingual vs. bilingual | CT scan, linear measurements of brain atrophy: the temporal horn ratio | disease severity and cognitive functioning: memory, language, attention, visuospatial function, naming and executive function. | language groups matched on cognitive functions & clinical severity & years of education | **bilingualism**\* | Moderate |
| Model 2 |  |  |  | CT scan, linear measurements of brain atrophy: the third ventricle ratio |  |  | **bilingualism\*** | Moderate |
| Model 3  |  |  |  | CT scan, linear measurements of brain atrophy: radial width of the temporal horn (left)  |  |  | **bilingualism\*** | Moderate |
| Model 4  |  |  |  | CT scan, linear measurements of brain atrophy: radial width of the temporal horn (right) |  |  | **bilingualism\*** | Moderate |
| Model 5  |  |  |  | CT scan, linear measurements of brain atrophy: radial width of the temporal horn (largest) |  |  | **bilingualism\*** | Moderate |
| Spreng et al. 2011Model 1  | independent voxel-based linear regression analysis | bvFTD | N/A | PET using 18F-FDG as a ligand looking at cerebral metabolic rate of glucose utilization (rCMRglc) | dementia severity(CERAD-NAB) | years of education & gender | occupational characteristics (factor scores): **verbal\*** | Low |
| Model 2  |  |  |  |  |  |  | **physical\*** | Low |
| Model 3  |  |  |  |  |  |  | **visuospatial†** | Low |
| Teipela et al. 2009Model 1 | multivariate network analysis (3 steps) | AD | N/A | diffusion MRI (DTI); white matter integrity: Fractional Anisotropy (FA) as a marker of fiber degeneration | dementia severity (MMSE)  | age, gender | **education\*** | Low |
| Model 2  |  |  |  |  | global cognitive functions (CERAD) |  | **education\***  | Low |
| Model 3  | multivariate network analysis (3 steps) | AD | N/A | diffusion MRI (DTI); white matter integrity: Fractional Anisotropy (FA) as a marker of fiber degeneration | dementia severity (MMSE)  | age, gender, & occupation | **education\***  | Low |
| Stern et al. 1995Model 1Sig. Result | partial correlation analysis | AD | N/A | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF): whole-cortex mean values to examine global perfusion | dementia severity (MMSE)  | age, activities of daily living, illness duration, pCO2 | occupational characteristics:**substantive complexity\*, motor skills\*, interpersonal skills\*** | Moderate |
| Model 1Non-Sig. Result |  |  |  |  |  |  | **physical demands†, management†, undesirable working conditions†** | Moderate |
| Model 2 Non-Sig. Result |  |  |  |  |  | age, activities of daily living, illness duration, pCO2 + **education in addition** | **substantive complexity†, motor skills†, physical demands†, management†, interpersonal skills†, undesirable working conditions†** | Moderate |
| Stern et al. 1995Model 3Sig. Result | partial correlation analysis | AD | N/A | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF): a parietal perfusion index (PI) | dementia severity (MMSE) | age, activities of daily living, illness duration, pCO2 | **substantive complexity\*, interpersonal skills\*** | Moderate |
| Model 3Non-Sig. Result |  |  |  |  |  |  | **motor skills†, physical demands†(approach signify.), management†, undesirable working conditions†** | Moderate |
| Model 4Sig. Result  |  |  |  |  |  | age, activities of daily living, illness duration, pCO2 + **education in addition** | **physical demands\*, interpersonal skills\*** | Moderate |
| Model 4Non-Sig. Result |  |  |  |  |  |  | **substantive complexity†, motor skills†, management†, undesirable working conditions†** | Moderate |
| Stern et al. 1995Model 5 Sig. Result | Multiple-regression models for occupational effects | AD | N/A | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF): a parietal perfusion index (PI) | dementia severity (MMSE) | age, activities of daily living, illness duration, **education** | **physical demands\*, interpersonal skills\*** | Moderate |
| Model 5 Non-Sig. Result |  |  |  |  |  |  | **substantive complexity†, motor skills†, management†, undesirable working conditions†** | Moderate |
| Stern et al. 1995Model 6  | MANCOVA and subsequent univariate comparison | AD | High vs. low substantive complexity group | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF) across the entire cortex | dementia severity (MMSE) | age, activities of daily living, illness duration | **substantive complexity\*** | Moderate |
| Model 7  |  |  | High vs. low interpersonal group |  |  |  | **interpersonal skills\*** | Moderate |
| Christensen et al. 2009Model 1  | A linear regression with interaction terms (education x WMH) | Continuum (community sample) | N/A | MRI: atrophy and WMH (simultaneous covariates in one model) | cognitive decline calculated based on mental speed (SDMT) | Gender, age, initial SDMT, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x WMH | **education†** | High |
| Model 2  |  |  |  |  | cognitive decline calculated based on immediate recall (CVLT) | Gender, age, initial immediate recall, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x WMH | **education†** |  High |
| Model 3 |  |  |  |  | cognitive decline calculated based on delayed recall(CVLT) | Gender, age, initial delayed recall, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x WMH | **education†** | High |
| Christensen et al. 2009Model 4  | A linear regression with interaction terms (education x atrophy) | Continuum (community sample) | N/A | MRI: atrophy and WMH (simultaneous covariates in one model) | cognitive decline calculated based on mental speed (SDMT) | Gender, age, initial SDMT, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x atrophy | **education†** | High |
| Model 5  |  |  |  |  | cognitive decline calculated based on immediate recall(CVLT) | Gender, age, initial immediate recall, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x atrophy | **education†** | High |
| Model 6  |  |  |  |  | cognitive decline calculated based on delayed recall(CVLT) | Gender, age, initial delayed recall, atrophy, WMH, education, ICV, ICV x atrophy, ICV x WMH, education x atrophy | **education†** | High |
| Lane et al. 2011 | Moderated multiple regression with an interaction term (Education x SH) | VaD | N/A | MRI: SH volumes (subcortical hyperintensities) | dementia severity (MMSE) | No other covariates than the CR components (SH, education) | **education\***  | Moderate |
| Negash et al. 2013Model 1 | Univariate analysis  | all with evidence of AD pathology based on CSF Ab1-42 & all matched on MTL volume | non-demented (Resilient) vs. demented | MRI: medial temporal lobe (MTL) atrophy; CSF Ab1-42 levels | dementia severity (CDR-SOB) | N/A | **education\***  | Moderate |
| Negash et al. 2013Model 2 | multiple logistic regression with backward selection | all with evidence of AD pathology based on CSF Ab1-42 & all matched on MTL volume | non-demented (Resilient) vs. demented   | MRI: medial temporal lobe (MTL) atrophy; CSF Ab1-42 levels | dementia severity (CDR-SOB) | N/A (education & ICV entered to the model) | **education†** | Low |
| Terracciano et al. 2013Model 1  | logistic regressions | all with AD neuropathology at autopsy | non-demented with AD pathology(asymptomatic) vs. demented with AD pathology | autopsy-derived measures of neuropathology: neurofibrillary tangles based on Braak & Braaak and Ab neuritic plaques based on CERAD | dementia diagnosis | age of death, gender, time interval since personality assessment, education. | personality facets (factors):**Low neuroticism\*, extraversion†, openness†,** **high conscientiousness\*,** **agreeableness†** | Moderate |
| Terracciano et al. 2013Model 2 | logistic regressions | all with AD neuropathology at autopsy | non-demented with AD pathology(asymptomatic) vs. demented with AD pathology | autopsy-derived measures of neuropathology: neurofibrillary tangles based on Braak & Braaak and Ab neuritic plaques based on CERAD | dementia diagnosis | age of death, gender, time interval since personality assessment, education, **Braak and CERAD** | personality facets (factors):**Low neuroticism\*, extraversion†, openness†,** **high conscientiousness\*,** **agreeableness†** | Moderate |
| Roe et al. 2007Model 1  | generalized linear mixed models (using the logit link function) | all with neuro-pathologic AD | demented vs. non-demented within one year of death | autopsy-derived measures of neuropathology: Khachaturian criteria  | clinical dementia diagnosis | age at death, time from last clinical assessment to death, sex, depression diagnosis, history of stroke | **education\*** | Moderate |
| Model 2  |  |  |  | autopsy-derived measures of neuropathology:National Institute on Aging/Reagan Institute criteria |  |  | **education\*** | Moderate |
| Model 3  |  |  |  | autopsy-derived measures of neuropathology:Consortium to Establish a Registry for Alzheimer’s Disease criteria |  |  | **education\*** | Moderate |
| Dufouil et al. 2003Model 1  | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | dementia severity (MMSE) | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education\*** | Moderate |
| Model 2  |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education\*** | Moderate |
| Dufouil et al. 2003Model 3  | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | attention: DSST | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education†** | Moderate |
| Model 4 |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education†** | Moderate |
| Dufouil et al. 2003Model 5  | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | attention: TMT B | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education†** | Moderate |
| Model 6 |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education†** | Moderate |
| Dufouil et al. 2003Model 7 | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | logical intelligence and reasoning: RPM | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education\*** | Moderate |
| Model 8  |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education†** | Moderate |
| Dufouil et al. 2003Model 9 | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | verbal fluency: WFT | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education\*** | Moderate |
| Model 10 |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education†** | Moderate |
| Dufouil et al. 2003Model 11 | ANCOVA (interaction term education x WMH) | continuum (community sample) | lower education vs. higher education(dichotomous variable) | MRI: WMH: deep white matter hyperintensities and periventricular hyperintensities count. | psychomotor speed : FTT | age, sex, education, occupation, smoking status, alcohol consump- tion, history of vascular diseases, hypertension, depressive symptoms | **education†** | Moderate |
| Model 12 |  |  | quartiles of years ofeducation (four-level variable) |  |  |  | **education†** | Moderate |
| Bennett et al. 2003Model 1  | Multiple linear regression with an interaction term (education x AD pathology score ) | continuum (AD and non-demented) | 3 levels of education: 90th, 50th, 10th percentile | global AD pathology  | global cognitive functions (composite measure based on 19 tests) | age and sex | **education\*** | Moderate |
| Model 2  |  |  |  | neuritic plaques |  |  | **education\*** | Moderate |
| Model 3  |  |  |  | diffuse plaques |  |  | **education\*** | Moderate |
| Model 4  |  |  |  | neurofibrillary tangles |  |  | **education†** | Moderate |
| Bennett et al. 2003Model 5  | Multiple linear regression with an interaction term (education x AD pathology score ) | continuum (AD and non-demented) | 3 levels of education: 90th, 50th, 10th percentile | neuritic plaques | episodic memory (composite measure based on 7 tests) | age and sex | **education\*** | Moderate |
| Model 6 |  |  |  |  | semantic memory (composite measure based on 4 tests) |  | **education\*** | Moderate |
| Model 7  |  |  |  |  | working memory (composite measure based on 4 tests) |  | **education\*** | Moderate |
| Model 8  |  |  |  |  | perceptual speed (composite measure based on 2 tests) |  | **education\*** | Moderate |
| Model 9 |  |  |  |  | visuospatial ability (composite measure based on 2 tests) |  | **education\*** | Moderate |
| Bennett et al. 2003Model 10  | Multiple linear regression with an interaction term (education x AD pathology score ) | continuum (AD and non-demented) | 3 levels of education: 90th, 50th, 10th percentile | diffuse plaques | episodic memory | age and sex | **education†** | Moderate |
| Model 11 |  |  |  |  | semantic memory |  | **education†** | Moderate |
| Model 12 |  |  |  |  | working memory |  | **education\*** | Low |
| Model 13  |  |  |  |  | perceptual speed |  | **education\*** | Low |
| Model 14  |  |  |  |  | visuospatial ability |  | **education†** | Moderate |
| Bennett et al. 2005Model 1 | Multiple linear regression with an interaction term (education x AD pathology score ) | continuum (AD, MCI, CH) | 3 levels of education: 90th, 50th, 10th percentile | amyloid load | global cognitive functions (composite measure based on 19 tests) | age and sex | **education\*** | Moderate |
| Model 2  |  |  |  | neurofibrillary tangles |  |  | **education†** | Moderate |
| Koepsell et al. 2008Model 1  | multiple linear regression with an interaction term(education x AD neuropathologic severity) | continuum (AD and non-demented) | 3 levels of education:lessthan high school, high school graduate, or beyond highschool. | neurofibrillary tangles (Braak & Braak stage) | dementia severity (MMSE) | none | **education†** | Moderate |
| Model 2 |  |  |  |  |  | age at death, presence of Lewy bodies, and presence of vascular dementia | **education†** | Moderate |
| Brayne et al. 2010Model 1 | binary logistic regression (likelihood ratio tests conducted between models) | continuum (demented and non-demented) | pathological severity levels |  neocortical atrophy | dementia status (demented vs. non-demented) | age at death, sex and study | **education\*** | Moderate |
| Model 2 |  |  |  | neocortical neuritic plaques |  |  | **education\*** | Moderate |
| Model 3 |  |  |  | neocortical diffuse plaques |  |  | **education\*** | Moderate |
| Model 4 |  |  |  | neocortical tangles |  |  | **education\*** | Moderate |
| Model 5 |  |  |  | neocortical cerebral amyloid angiopathy |  |  | **education\*** | Moderate |
| Model 6 |  |  |  | hippocampal atrophy |  |  | **education\*** | Moderate |
| Model 7 |  |  |  | hippocampal neuritic plaques  |  |  | **education\*** | Moderate |
| Model 8 |  |  |  | hippocampal diffuse plaques |  |  | **education\*** | Moderate |
| Model 9 |  |  |  | hippocampal tangles |  |  | **education\*** | Moderate |
| Model 10 |  |  |  | hippocampal cerebral amyloid angiopathy |  |  | **education\*** | Moderate |
| Model 11 |  |  |  | atherosclerosis |  |  | **education\*** | Moderate |
| Model 12 |  |  |  | haemorrhage |  |  | **education\*** | Moderate |
| Model 13 |  |  |  | lacune lesion |  |  | **education\*** | Moderate |
| Model 14 |  |  |  | infarct |  |  | **education\*** | Moderate |
| Model 15 |  |  |  | Braak stage |  |  | **education\*** | Moderate |
| Model 16 |  |  |  | brain weight |  |  | **education†** | Moderate |
| Model 17 |  |  |  | white matter pallor  |  |  | **education\*** | Moderate |
| Roe et al. 2008Model 1 (called preliminary) | a generalized linear mixed model (logit link function) with an interaction term(education x neuritic plaques) | all with evidence of AD pathology | demented or healthy cognition | neuropathological diagnosis of AD according to Khachaturian, NIA/Reagan Institute, or CERAD criteria | clinical diagnosis of dementia(APA) | neuritic plaques, diffuse plaques, diffuse plaques × education, Braak stage, Braak stage x education, age at death, time to death, sex, race | **education\*** | High |
| Model 2 (called final) |  |  |  |  |  | neuritic plaques, diffuse plaques, Braak stage, age at death, time to death, sex, race | **education\*** | High |
| Model 3 (trichotomizig education) |  |  |  |  |  |  | **education\*** | Moderate |
| Model 4 (separate) |  |  |  |  |  | neuritic plaques, age at death, time to death, sex, race | **education\*** | High |
| Model 5 (called preliminary) | interaction term: (education x diffuse plaques) | all with evidence of AD pathology | demented or healthy cognition | neuropathological diagnosis of AD according to Khachaturian, NIA/Reagan Institute, or CERAD criteria | clinical diagnosis of dementia(APA) | neuritic plaques, neuritic plaques x education, diffuse plaques, Braak stage, Braak stage x education, age at death, time to death, sex, race | **education†** | High |
| Model 6 (separate) |  |  |  |  |  | diffuse plaques, age at death, time to death, sex, race | **education†** | High |
| Model 7 (called preliminary) | interaction term: (education x Braak: tangle stage) | all with evidence of AD pathology | demented or healthy cognition | neuropathological diagnosis of AD according to Khachaturian, NIA/Reagan Institute, or CERAD criteria | clinical diagnosis of dementia(APA) | neuritic plaques, neuritic plaques x education, diffuse plaques, diffuse plaques × education, Braak stage, age at death, time to death, sex, race | **education†** | High |
| Model 8 (separate) |  |  |  |  |  | Braak stage, age at death, time to death, sex, race | **education†** | High |
| Roe et al. 2011Model 1  | Cox proportional hazards model with an interaction term(education x Aβ 1–42 x whole brain volume) | Only healthy cognition at baseline to predict incidence cognitive impairment | N/A | CSF: Aβ 1–42 | dementia severity (CDR) | Gender, age, race, presence of APOE4 allele, MRI scanner used | **education†** | High |
| Model 2 | Cox proportional hazards model stratified on biomarker (education x whole brain volume interaction) | Only healthy cognition at baseline to predict incidence cognitive impairment | Tau values below median | CSF: Tau | dementia severity (CDR) | Gender, age, race, presence of APOE4 allele, MRI scanner used | **education†** | High |
| Model 3  |  |  | Tau values above median | CSF: Tau |  |  | **education\*** | Moderate |
| Model 4 |  |  | Phospho-Tau below median | CSF: Phospho-Tau 181 |  |  | **education†** | High |
| Model 5  |  |  | Phospho-Tau above median | CSF: Phospho-Tau 181 |  |  | **education\*** | High |
| Yaffe et al. 2011Model 1 | mixed-effects model with an interaction term(education x B-amyloid 42/40) | continuum(mix of demented and healthy as part of community sample) | B-amyloid 42/40 tertials & binary education level  | B-Amyloid 40 and B-amyloid 42 from stored plasma | global cognition (mMMSE) | age, race, diabetes, APOE status, smoking | **education\***  | High |
| Model 2 |  | only healthy cognition |  |  |  |  | **education\*** | High |
| Stern et al. 1992Model 1  | stepwise multiple-regression | all AD | 3 levels of education: < 12 years of education, high school graduate = 12 years,> high school  | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF): parietal index  | dementia severity (mMMSE & BDRS) | age, dementia duration | **education\*** | Moderate |
| Model 2  |  |  |  | xenon-133 inhalation SPECT looking at parietal cerebral blood flow (rCBF): % of flow at a specific detector |  |  | **education\***  | Moderate |

(\*) denotes a reserve factor in the particular context (protective factor, significant result); (†) a factor NOT classified as a reserve in the particular context (insignificant results); (‡) a factor has an opposite relationship than expected (significant result but in the opposite direction).