Supplementary documents for "Education, socioeconomic status and intelligence in childhood and stroke risk in later life: A meta-analysis"

eDocument 1: MEDLINE Search Strategy

Note we included search terms to identify studies examining early life risk factors for post-stroke cognitive impairment and depression for subsequent reviews, hence terms such as cognition – these have not been excluded if not relevant to education, SES, IQ and stroke in the present analysis.

1. cerebrovascular disorders/ or basal ganglia cerebrovascular disease/ or exp brain ischemia/ or carotid artery diseases/ or carotid artery thrombosis/ or carotid stenosis/ or cerebral small vessel diseases/ or cerebral amyloid angiopathy, familial/ or stroke, lacunar/ or intracranial arterial diseases/ or cerebral arterial diseases/ or intracranial arteriosclerosis/ or exp "intracranial embolism and thrombosis"/ or exp stroke/ or leukoencephalopathies/ or leukoaraiosis/
2. exp *brain/ and *atrophy/
3. (isch?emi$ adj6 (stroke$ or apoplex$ or cerebral vasc$ or cerebrovasc$ or cva)).tw.
4. ((brain or cerebr$ or cerebell$ or vertebrobasil$ or hemispher$ or intracran$ or intracerebral or infratentorial or supratentorial or middle cerebral artery or MCA$ or anterior circulation or posterior circulation or basilar artery or vertebral artery or space-occupying) adj6 (isch?emi$ or infarct$ or thrombo$ or emboli$ or occlus$ or hypoxi$)).tw.
5. ((cerebell$ or vertebrobasil$ or hemispher$ or intracran$ or intracerebral or infratentorial or supratentorial or middle cerebr$ or MCA$ or anterior circulation or posterior circulation or basilar artery or vertebral artery or space-occupying) adj6 stroke$).tw.
6. ((brain or cereb$) adj6 (vascular or microvascular) adj6 (disease$ or disorder$)).tw.
7. (intracranial adj6 (disease$ or disorder$)).tw.
8. (cerebral adj6 (small vessel disease$ or microangiopath$ or amyloid angiopath$)).tw.
9. ((lacun$ or subcortical) adj6 (stroke$ or infarct$)).tw.
10. (leukoencephalopath$ or leukoaraiosis).tw.
11. (white matter adj6 (disease$ or hyperintensit$ or intensity$ or change$ or lesion$ or damage or abnormalit$ or integrity or tracts or infarct$ or structure)).tw.
12. ((brain or cerebral or intracranial) adj6 (arteriosclero$ or atherosclero$ or atrophy$ or microbleed$ or microhaem$ or microhem$)).tw.
13. exp *intracranial hemorrhages/ and (microbleed$ or microhaem$ or microhem$).tw.
14. or/1-13

15. cognition disorders/ or mild cognitive impairment/ or dementia/ or dementia, vascular/ or dementia, multi-infarct/
16. neurobehavioral manifestations/ or confusion/ or memory disorders/
17. mental processes/ or cognition/ or cognitive reserve/ or Arousal/ or Orientation/ or Attention/ or exp memory/ or perception/ or exp thinking/ or Awareness/ or Problem Solving/ or "Generalization (Psychology)"/ or "Transfer (Psychology)"/ or comprehension/ or Impulsive Behavior/ or Learning/
18. ((cogniti$ or arous$ or orientat$ or attention$ or concentrat$ or memor$ or recall or percept$ or think$ or sequenc$ or judg?ment$ or awareness or problem solving or generali?ation or transfer or comprehension or learning or mental process$ or (concept adj5 formation) or executive function$) adj6 (ability$ or function$ or

difficult$ or impair$ or process$ or skill$ or performance or reserve or disorder$ or manifestation$ or declin$ or dysfunct$ or deficit$ or disabilit$ or problem$)).tw.
19. (cognition or confusion or dysexecutive syndrome$ or impulsive behavio?r$ or executive dysfunction$).tw.
20. or/15-19

21. exp intelligence/ or exp intelligence tests/
22. aptitude/ or aptitude tests/ or language tests/
23. education/ or educational status/ or exp educational measurement/
24. (intelligence or intelligent or IQ or intellectual or aptitude).tw.
25. (language adj6 (test$ or ability)).tw.
26. (education$ adj6 (status or attainment or measurement$)).tw.
27. ((mental or intellect$) adj6 (capacit$ or capabilit$ or abilit$ or performance)).tw.
28. or/21-27
29. child/ or child, preschool/ or adolescent/ or adult children/
30. (child$ or adolescen$ or youth or early life or early adult or pre-adult or early year$ or premorbid or pre-morbid).tw.
31. 29 or 30
32. 28 and 31

33. Education/ or Socioeconomic factors/ or educational status/ or educational measurement/ or psychology, educational/ or achievement/
34. (education or school$ or preschool or college or university or literate or literacy).tw.
35. ((educat$ or academi$ or schola$) adj6 (achieve$ or attain$ or level or qualification$ or performance or status)).tw.
36. or/33-35

37. socioeconomic factors/ or exp poverty/ or social class/ or social mobility/ or employment/ or unemployment/ or exp family characteristics/ or exp income/ or exp occupations/
38. ((soci$ or economic or living or family) adj6 (condition$ or factor$ or status or inequalit$ or standard$ or characteristic$ or size$ or wealth or position or depriv$ or income)).tw.
39. 37 or 38
40. child/ or child, preschool/ or adolescent/ or adult children/ or fathers/ or mothers/ or parents/
41. (child$ or adolescen$ or youth or early life or early adult or pre-adult or early year$).tw
42. 40 or 41
43. 39 and 42
44. ((father$ or mother$ or parent$) adj6 (income$ or occupation$ or job$)).tw
45. 43 or 44

46. 14 and 20 and 32 (CVD, cog and IQ))
47. 14 and 20 and 36 (CVD, cog and education)

48. 14 and 20 and 45 (CVD, cog and SES)
49. 14 and 32 (CVD and IQ)
50. 14 and 36 (CVD and education)
51. 14 and 45 (CVD and SES)
52. 46 or 47 or 48 (CVD, Cog and any early life factor)
53. 49 or 50 or 51 (CVD and any early life factor)
54. 52 or

eTable 1a-c. Details of included studies by early life factor

1a Education									
Study	**Setting**	**Total number of participants**	**Participants with stroke (n)**	**Participants without stroke (n)**	**Age at follow up/stroke**	**Measure of education**	**Primary outcome**	**Measurement of outcome**	**Results**
Mean years of education									
Tatemichi et al (1992)[1]	Hospital Outpatient clinic	500	251	249	71.9	Mean years of education	Ischaemic stroke	Clinical examination Neuroimaging	Stroke: 10.1±4.5 Non-stroke: 12.3±4.6
Sydney Stroke Study Sachdev et al (2014)[2] (3-7)	Hospital	280	183	97	71.91	Mean years of education	Ischaemic stroke and TIA	Clinical examination Neuroimaging	Stroke: 10.10±2.66 Non-stroke: 11.75±3.31
Lukatela et al (2000)[8]	Outpatient clinic	218	159 89 Single stroke 70 Multiple infarction	59	Mean age approx. 72	Mean years of education	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	Single stroke: 11.97±2.57 Multiple infarction: 11.62±3.23 Non-stroke: 12.86±2.51

Vantaa 85+ Study Rastas et al (2007)[9]	Population	553	111	442	88.5	Mean years of education	Ischaemic, haemorrhagic stroke and TIA	Clinical examination Centralised Health Statistics	Stroke: 3.2±2.0 Non-stroke: 4.3±3.0
Copstein et al (2012)[10]	Population	3391	285	3106	≥20 44.13 (whole sample)	Mean years of education	Ischaemic and haemorrhagic stroke	Self-report questionnaire	Stroke: 7.09±4.05 Non-stroke: 8.12±3.45
Honolulu- Asia Aging Study Petrovitch et al (1998)[11]	Population	3734	147	3170	78.8	Mean years of education	Ischaemic and haemorrhagic stroke	Neuroimaging Case note review	Stroke: 9.8±3.0 Non-stroke: 10.5±3.2
Mok et al (2004)[12]	Hospital	117	75	42	71	Mean years of education	Ischaemic stroke and TIA	Clinical examination Neuroimaging	Stroke: 4.8±4.1 Non-stroke: 5.4±4.6
Hochstenbach et al (1998)[13]	Hospital	262	229	33	18-70 mean = 55.9	Mean years of education	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	Stroke: 4.1±1.5 Non-stroke: 4.4±1.5

Helsinki Stroke Aging Memory (SAM) Study Jokinen et al (2006)[14]	Hospital	361	323 85 Subcortical ischaemic vascular disease 238 other stroke	38	71.7	Mean years of education	Ischaemic stroke	Clinical examination Neuroimaging	Stroke (other): 9.8±4.3 Non-stroke: 9.4±3.5
Kastorini et al (2013)[15]	Hospital	500	250	250	77/73	Mean years of education	Ischaemic stroke	Clinical examination Neuroimaging	Stroke: 8±4.6 Non-stroke: 8±4.9
Third National Health and Nutrition Survey (NHANES III) Bravata et al (2005)[16] 17-19	Population	11 163	619	10 544	>40 Average <65	Year of schooling	Ischaemic and haemorrhagic stroke	Self-report questionnaire	Stroke: 9.2±4.1 Non-stroke: 10.3±4.2
Kauranen et al (2013)[20]	Hospital	190	140	50	52	Mean years of education	Ischaemic stroke	Clinical examination Neuroimaging	Stroke: 12.5±2.6 Non-stroke: 12.4±2.9

Reitz et al (2006)[21]	Community	1 271	97	1 174	76.3	Mean years of education	Ischaemic, haemorrhagic stroke and TIA WHO criteria	Clinical examination Neuroimaging Case note review Self-report questionnaire	Stroke: 8.9±4.3 Non-stroke: 8.6±4.6
Gillespie et al (2012)[22]	Hospital	112	56	56	40-88 65.55	Mean years of education	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	Stroke: 10.09±1.64 Non-stroke: 10.56±2.12
Kessels et al (2006)[23]	Hospital Outpatient Clinic	266	105	161	59.5	Mean years of education	Ischaemic and haemorrhagic stroke	Clinical examination	Stroke: 10.7±3.7 Non-stroke: 10.3±3.2
Columbia-Presbyterian Medical Centre Desmond et al (2002)[24] [25]	Outpatient Clinic	575	334	241	≥60	Mean years of education	Ischaemic stroke	Clinical examination Neuroimaging	Stroke: 10.7±4.9 Non-stroke: 12.4±4.5

				Frequencies (n=stroke vs without stroke)					
Hu et al (2005)[26]	Population cohort	47 721	2863	44 858	Men: 49.5 Women: 52 No range	0-6 years 7-9 years 9+ years	Ischaemic and haemorrhagic stroke	Centralised Health Statistics	0-6 years = 798 vs 12 610 ≥7 years = 2065 vs 32 248[§]
Japan Public Health Centre-based Prospective Study (JPHC) Honjo et al (2009)[27] [28-30]	Population cohort	29 134	793	28 341	50-69	Age at completion of education ≤ 14 years 15-17 years	Ischaemic and haemorrhagic stroke	Neuroimaging Case note review Centralised health statistics Self-report	≤ 14 years = 439 vs 13 662 ≥15-17 = 354 vs 14 679[§]
National Health Interview Survey (NHIS-1994) Huang et al (1997)[31]	Population cohort	11 925	71	11 854	All ages included Majority over 65yrs	Not educated (NE) Primary school (PS) ≥ Junior School (JS)	Ischaemic and haemorrhagic stroke	Case note review Self-report	≤ PS = 60 vs 5459[§] ≥ JS = 11 vs 6395

Framingham Heart Study Weinstein et al (2014)[32] [33]	Population cohort	264	132	132	77.4	< High school (<HS) High school degree (HS) Some college ≥ College degree	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging Case-note review Centralised Health Statistics Self-report	<HS =14 vs 10 ≥ HS = 118 vs 122[§]
Health and Aging and Body Composition (Health ABC) Koster et al (2005)[34]	Population cohort	2574	180	2394	70-75	< 12 years 12 years >12 years	Ischaemic, haemorrhagic stroke and TIA	Clinical examination Self-report	<12 years = 82 vs 1046 ≥ 12 years = 98 vs 1345[§]
REGARDS Brenner et al (2010)[35] [36]	Population cohort	27 716	2830	24 886	≥45 Majority over 65yrs	< High school (<HS) High school degree (HS) Some college (SC) College graduate (CG)	Ischaemic, haemorrhagic stroke and TIA	Self-report	<HS = 611 vs 2986 ≥ HS = 2 216 vs 21 924[§]

de Bruijin et al (2014)[37]	Hospital	157	96 94 with education	61	47.3 18-49	Low: ≤ High school (HS) Medium: Secondary vocational education High: ≥Higher professional or university	Ischaemic stroke	Clinical examination Neuroimaging	≤ HS = 35 vs 7 >HS = 59 vs 54[§]
Multi-ethnic Study of Atherosclerosis (MESA) Everson-Rose (2014)[38]	Outpatient clinic	6749	195 147 strokes 48 TIA	6554	68.3 45-84	<High school (<HS) High school or some college (HS) ≥College degree (≥CD)	Ischaemic, haemorrhagic stroke and TIA	Clinical examination Neuroimaging	<HS = 43 vs 1171 ≥HS = 152 vs 5383[§]
Uppsala Longitudinal Study of Adult Men (ULSAM) Wiberg et al 2012)[39] [40]	Population cohort	919	155 72 with education	764 729 with education	70	Elementary school (6-8 years) Secondary school (12 years) ≥College (>12 years)	Ischaemic, haemorrhagic stroke and TIA	Centralised health Statistics Medical records	6-8 years = 53 vs 571 ≥12 years = 19 vs 158[§]

EPIC- Postdam Study Weikert et al (2008)[41]	Population cohort	27 548	168 167 with education	2198 2196 with education	55.9 35-65	≤ Vocational school (≤ 10 years) Technical school (12 years) University (>12 years)	Ischaemic stroke	Case note review Self-report questionnaire Death certificate	≤ 10 years = 72 vs 808 ≥12 years: n = 95 vs 1389[§]
Cardiovascular Health Study Yan et al (2013)[42]	Cohort study	4619	650	3969	≥65 73.57	<High school (<HS) High School or GED (HS) Some college (SC) College graduate (CG) Graduate or Professional school (Grad)	Ischaemic stroke	Clinical examination Centralised Health Statistics Self-report	<HS = 216 vs 1125 ≥HS = 434 vs 2844[§]
Diet, Cancer and Health Danish Follow up Study Nybo et al (2008)[43]	Hospital	508	254	254	60.5 50-64	7 years 8-10 years >10 years	Ischaemic stroke	Neuroimaging Centralised Health Statistics Autopsy	≤ 10 years = 217 vs 203[§] >10 year =37 vs 51

Engels et al (2014)[44]	Population	44 742	127	44 615	15+ Majority of stroke over 65yrs	0-4 years 5-9 years ≥10 years	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging Self-report	0-9 = 117 vs 33 716[§] ≥10: n=10 vs 10 899
Trygged et al (2011)[45]	Population	424 281	42 026	382 255	18-64	Compulsory (9 years) Upper Secondary University	NS	Centralised Health Statistics	Compulsory = 16 642 vs 126 482 ≥ Upper secondary = 25 359 vs 255 798[§]
Social Inequality in Cancer Cohort Study Combines Copenhagen City Heart Study, 1936 Cohort Study, Monica I, II, III, Diet Cancer and Health Study and Inter 99 Study Nordahl et al (2014)[46]	Population cohort	68 643	3613	65 030	30-70 54 at baseline (follow up 14 years)	Low: Primary and lower Secondary Medium: Upper secondary, vocational or technical education High: University	Ischaemic stroke	Centralised Health Statistics	Low = 1393 vs 67 250 ≥Medium = 2148 vs 135 066[§]

Valko et al (2008)[47]	Hospital	689	235 214 with education	454 447 with education	63/47 21-87	Primary school (PS) Secondary school (SS) College (Coll) University (Uni)	Ischaemic stroke	NS	PS = 59 vs 43 ≥ SS = 155 vs 404[§]
Assets and Health Dynamics among the oldest old (AHEAD) Wolinsky et al (2009)[48]	Population	5511	545	4966	≥65	Grade school (GS) High school (HS) College (Coll)	Ischaemic and haemorrhagic stroke	Centralised Health Statistics	GS = 137 vs 1241 ≥ HS = 408 vs 3725[§]
Baune et al (2006)[49]	Hospital Outpatient clinic	336	112 111 with education	224 223 with education	35-69 Majority under 65yrs	No education Primary school (PS) Preparatory school (Prep) Secondary school (SS) University degree (Uni) Other	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	≤ Prep = 86 vs 157 ≥ SS = 25 vs 66[§]

Deoke et al (2012)[50]	Hospital	201	101	100	59.3 Most over 60	Illiterate or Primary school (≤ PS) >Primary school (>PS)	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	≤ PS = 38 vs 34 >PS = 63 vs 66
Oxford Vascular Study (OXVASC) Oxford Project to Investigate Memory and Ageing (OPTIMA) Pendlebury et al (2012)[51]	Population	314	207	107	71.4	<12 years ≥12 years	Ischaemic and haemorrhagic stroke	NS	<12 years = 119 vs 25 ≥12 years = 88 vs 82
Kingsholem Project Zhu et al (2000)[52]	Population	1301	183	1118	≥75	<8 years ≥8 years	Ischaemic and haemorrhagic stroke	Centralised Health Statistics Hospital register	<8 years = 96 vs 559 ≥8 years = 87 vs 559
Sim et al (2008)[53]	Outpatient clinic Population	479	265	214	58.87 40-79	<12 years ≥ 12 years	Ischaemic and haemorrhagic stroke	Clinical examination	<12 years = 141 vs 117 ≥ 12 years = 124 vs 97

Swedish military service conscription Wennerstad et al (2010)[54] [55]	Population	1 135 383	8215	1 127 168	NS 28-55	≤ 9 years > 9 years	Ischaemic and haemorrhagic stroke	Centralised Health Statistics Cause of death register ICD 8 : 430-438; ICD 9: 430-435, 437; ICD10: I60, I62-I69, G45	≤ 9 years = 1945 vs 157 804 >9 years = 6270 vs 969 364
CogFAST Nigeria Study Akinyemi et al (2014)[56]	Out-patient clinic Hospital	219	143	74	≥45 60.4	None (0 years) Primary education (1-6 years) Secondary education (7-12 years) Tertiary education (>12 years)	Ischaemic and haemorrhagic stroke	Clinical examination and neuroimaging WHO criteria	0-6 years = 60 vs 21[§] ≥ 7 years = 83 vs 53[§]

Liu et al (2008)[57]	Hospital	112	60	52	73	Illiterate Primary school (PS; 0-6 years) Middle school (MS;7+ years)	Ischaemic stroke	Clinical examination Neuroimaging Chinese classification - 1995	≤ PS = 30 vs 37[§] > MS = 30 vs 15
Odds Ratios									
Jilin Provincial Chronic Disease Survey of 2012 Wang et al (2015)[58]	Population	21 435	NS	NS	18-79 Majority under 60yrs	≤ Primary school Junior high school Senior high school ≥ College	"Cerebrovascular disease" Based on the ICD10: I60-67, I69	Self-report questionnaire	OR = 0.91 (0.78-1.07)*†

Chen et al (2014)[59]	Population	512 891	8884	504 007	35-74 61.5	No formal school Primary school (PS) Middle school (MS) High school (HS) College/university	Ischaemic, haemorrhagic stroke and TIA	Self-report questionnaire	OR = 2.28 (2.02-2.56)*†
Hamano et al (2014)[60]	Population	326 229	4718	321 511	≥30	Compulsory school (≤ 9 years) High school (10-12 years) High school/college (>12 years)	Ischaemic and haemorrhagic stroke ICD10: I60-I69	Centralised Health Statistics	OR = 1.56 (1.45-1.67)†
Strodl et al (2008)[61]	Community	7839	174	8939	70-75	No formal education Primary school (PS) Secondary school (SS) Tertiary	Stroke	Self-report questionnaire	OR = 0.98 (0.68-1.41)*

Nanjing Chronic Disease and Risk Behaviour Study (NCDRBS) Xu et al (2008)[62]	Population	29 340	453	28 887	>35 Majority of stroke >65	0-9 years 10-12 years >13 years	Stroke WHO MONICA	Self-report questionnaire Medical records	OR = 1.08 (0.82-1.44)*†
Medin et al (2008)[63]	Hospital	168	65	103	54.8	Low education (6-9 years) High education (> 9 years)	Ischaemic and haemorrhagic stroke ICD10 I61, I63, I64	NS	OR = 2.48 (1.18-5.23)†
You et al (1999)[64]	Community and hospital	904	452	452	59	No high school Some high school Completed high school Other tertiary University	Ischaemic stroke WHO classification	NS	OR = 0.83 (0.47-1.47)*†
Kisjanto et al (2005)[65]	Hospital	917	235	682	20-44	Illiterate or elementary school (ES) ≥Secondary school	Ischaemic and haemorrhagic stroke WHO classification	Clinical examination	OR= 0.72 (0.52-0.99)*

Lofmark et al (2007)[66]	Population	55 266	457	54 809	35-85 Split into 35-75 and 75-85	Low education (maximum of 9 years compulsory school) High education (>9years compulsory school)	Ischaemic stroke WHO classification ICD 10: I63.0-I63.9	Centralised health Statistics	OR: Age 35-75 years = 1.09 (0.88-1.34)† OR: Age 75-85 years = 2.48 (1.06-5.77)†
Folsom et al (1990)[67]	Population	2063	218	1845	55-69	<High school (<HS) High school (HS) >High school (>HS)	Ischaemic and haemorrhagic stroke ICD 9: 430-438	Centralised health Statistics Self-report questionnaire Contact with GP	OR = 0.6 (0.4-0.8)*†

The Rotterdam Study Van Rossum et al (1999)[68]	Population	4274	162 105 with history of stroke (HS) 157 with stroke at follow up (FS)	3996 (baseline) 3839 (follow up)	NS Majority over 65yrs	Primary school (PS) Lower/intermediate general and lower vocational education Higher general and intermediate vocational education Higher education (vocational) and university	NS ICD 10	Case note review Centralised Health Statistics Self-report	OR: HS = 0.89 (054-1.49)*† OR: FS = 0.86 (0.57-1.30)*†
Vasterbotten Intervention Program (VIP) in collaboration with WHO MONICA Emmelin et al (2003)[69]	Population	1148	473	945	25-74 54.7	Low (≤9 years) Medium (10-12 years) High (≥ 13 years)	Ischaemic and haemorrhagic stroke	Neuroimaging	OR: Men = 1.1 (0.7-1.8) OR: Women = 1.1 (0.7-1.9)

Gan et al (2011)[70]	Hospital	618	309	309	61.34/61.03	≤Junior school (≤JS)	Ischaemic stroke	Clinical examination	OR = 0.63 (0.42-0.96)*
Fitzpatrick et al (2012)[71]	Population	1612	401	1211	52	Mean years of education	Ischaemic, haemorrhagic stroke and TIA	Self-report questionnaire	OR: 0.98 (0.93-1.04)*
Epidemiologic studies of the Elderly (EPESE) program Fillenbaum et al (2000)[72]	Community	4034	307	3727	>65		NS	Self-report questionnaire	OR: 0.97 (0.95-1.01)*†
WHO collaborative study Chang et al (2002)[73] [74]	Hospital	8146	2162	5984	15-49	High (>Secondary schooling) Secondary schooling Low (Primary or no schooling)	Ischaemic and haemorrhagic stroke Only Ischaemic stroke results used	Clinical examination	OR: Eastern Europe = 2.05 (0.92-4.54)† OR: Asia = 1.19 (0.71-1.98)† OR: Latin American = 1.16 (0.72-1.87)†

The Brain Attack Surveillance in Corpus Christie (BASIC) project Smith et al (2003)[75]	Population	1147	808 405 Non-Hispanic whites (NHW) 403 Mexican Americans (MA)	339	≥45 70	<High school (<HS) ≥High school (≥HS)	Ischaemic and haemorrhagic stroke and TIA	Case note review Centralised health Statistics	OR: NHW = 4.53 (2.20-9.32)† OR: MA = 5.08 (3.17-8.14)†
Jackson et al (2014)[76]	Population	11 468	177	11 291	47-52	No formal education School certificate High school certificate Trades and apprentice Certificate/diploma University degree or higher	Ischaemic and haemorrhagic stroke ICD10: I60-I60.9, I61-I61.9, I53-I63.9 and I64	Self-report questionnaire Centralised health Statistics	OR = 1.30 (0.72-2.34)†

Grau et al (2012)[77] [78-81]	Hospital	740	370	370	60.7	≥ 12 years <12 years	Ischaemic, haemorrhagic stroke and TIA	Clinical examination Neuroimaging	OR = 0.81 (0.50-1.31)*†
Relative Risk									
Andersen et al (2014)[82]	Population	54 048	NS	NS	71.9	Basic/High school (7-12 years) Vocational (10-12 years) Higher (≥13 years)	Ischaemic stroke	Neuroimaging Centralised health Statistics	RR = 0.99 (0.97-1.0)*†
NHANES I and NHEFS Gillum et al (2002)[83] [84]	Population	5614	802	4812	45-74 Majority of strokes >65	<8 years 8-11 years 12 years >12 years	Ischaemic and haemorrhagic stroke ICD 9: 431-434.9, 436, 437-437.1	Centralised health Statistics	RR: White Men =0.96 (0.73-1.27)*† RR: White Women = 0.91 (0.69-1.19)*† RR: Black Men and Women = 0.66 (0.46-0.96)*†
Lindenstrom et al (1993)[85]	Population	13 000	696	12 304	>35 61.7	≤ 7 years ≥ 8 years	Ischaemic stroke and TIA	NS	RR = 1.3 (1.1-1.5)†

The Brain Attack Surveillance in Corpus Christie (BASIC) project Lisabeth et al (2007)[86]	Population	631	631	NS	72.7	High school (HS) <High school (<HS)	Ischaemic and haemorrhagic stroke ICD 9: 430-432, 435-439	Neuroimaging Case note review Centralised health Statistics	RR = 0.42 (0.35-0.50)*†
Hart et al (2000)[87]	Community	5765	416	5349	35-64	Age at leaving full time education: ≤ 16 Age at leaving full time education: >16	Ischaemic, haemorrhagic stroke and TIA ICD 8 & 9: 430-438; ICD 10: I60-I69, G45	Centralised health Statistics Hospital discharge records	RR = 1.28 (0.96-1.70)†
Hazard Ratios									
Kuopic Ischaemic Heart Disease Study (KIHD) Everson et al (2001)[88]	Population	2303	113 90 ischaemic	2190	42-60	≤ Primary school (≤ PS/6 years) < High school/some vocational training (<HS/7-8 years) Some high school or more (≥ 9 years)	Ischaemic and haemorrhagic stroke ICD 9: 430-438 Only Ischaemic stroke results used	Centralised health Statistics FINMONICA stroke register	HR: 1.76 (0.87-3.55)

Malmo-Diet-and-Cancer-Cohort Hamrefors et al (2014)[89]	Population	24 944	1253	23 691	Approx. mean age of 58	Didn't complete elementary school Elementary school (6-8 years) Junior school (9-10 years) Education at advanced level (12 years) At least one additional year University degree	Ischaemic stroke ICD9: 430, 431, 434, 436 ICD10: I60, I61, I63, I64	Centralised health Statistics	HR = 0.38 (0.23-0.62)*†
Northern Manhattan Stroke Study (NOMAS) Boden-Albala et al (2012)[90] 91-93	Population	1840	687	1153	68.2	<High school (<HS) ≥ High school (≥HS)	Ischaemic stroke	Centralised health Statistics Self-report questionnaire	HR = 1.4 (1.1-1.7)†

Prevention with Mediterranean Diet (PREDIMED) Mejia-Lacheros et al (2014)[94]	Outpatient clinics	7263	136	7126	55-80 67	Low education (Primary school education or less) High education (Secondary or university studies)	Ischaemic and haemorrhagic stroke	Case note review Self-report questionnaire Centralised health statistics	HR = 1.83 (1.09-3.09)†
ARIC Huxley et al (2014)[95] [96]	Population	274 299	988	14 419	45-64	< High school High school graduate and/or vocational school College Graduate or professional school	Ischaemic and haemorrhagic stroke	Neuroimaging Case note review Centralised health statistics Self-report questionnaire	HR: black ethnicity = 1.79 (1.06-3.02)† HR: White ethnicity = 0.83 (0.56-1.23)†

Swedish Conscription Surveys Hemmingsson et al (2007)[97]	Population	44 495	592	43 903	40-55	≤9 years 10-11 years 12-13 years 14 years ≥15 years	Ischaemic and haemorrhagic stroke ICD 9: 430-438; ICD 10: I60-I69	Centralised health statistics	HR: 1.04 (0.99-1.09)
EPESE Newhaven sample Avendano et al (2006)[98]	Population	2494	260	2234	≥65	0-7 years 8-9 years 10-12 years ≥13	Ischaemic and haemorrhagic stroke	Case note review Centralised health statistics Self-report/ questionnaire	HR =1.31 (0.66-2.65)†
Prospective population study of women in Gothenberg Blomstrand et al (2014)[99]	Population	1460	184	1276	38-60	8 levels from elementary school to secondary school.	Ischaemic and haemorrhagic stroke Only Ischaemic stroke results used	Centralised health statistics	HR = 1.17 (1.01-1.35)†

Dutch National Survey of General Practice Avendano et al (2006)[100]	Population	190 665	472	190 193	≥25 70.9 (men);76.1 (females)	Low (no schooling or solely elementary education) Middle (Secondary schooling) High (Post-secondary education)	Ischaemic, haemorrhagic stroke and TIA International classification of Primary care coding system	Case note review	HR: Men = 1.58 (1.07-2.36)† HR: Women = 1.12 (0.59-2.14)†
Health and Retirement Study merged with Study of Asset and Health Dynamics among the Oldest Old; Children of the Depression; War Baby; Early Baby Boomer Liu et al (2013)[101] [102;103]	Population	22 847	2298	20 549	>51 Majority of strokes over 65yrs	Low: < High School (<9 years) Middle: High School (9-12 years) High: College (≥13 years)	Ischaemic and haemorrhagic stroke	Self-report questionnaire	HR = 1.37 (1.17-1.59)†

Kuper et al (2007)[104]	Population	47 942	200	47 742	30-49	Total years of education	Ischaemic and haemorrhagic stroke ICD 9: 434, 431; ICD 10: I63.3- I63.9, I64; ICD 7: 332, 331; ICD 8: 433-434, 334 Only Ischaemic stroke results used	Centralised health statistics	HR = 2.2 (1.3-3.7)†
Jichi Medical School Cohort Study Honjo et al (2010)[105]	Population	10 640	362	10 278	NS	Age at leaving school: ≤ 14 15-17 years ≥ 18 years	Ischaemic and haemorrhagic stroke	Clinical examination Neuroimaging	Males: HR: 0.92 (0.51-1.65)* Females: :HR: 1.04 (0.47-2.31)*

POSPECT and MORGEN Mejean et al (2013)[106] [107]	Population cohort	33 106	531	32 575	20-70 all mean ages are below 60	Lowest (Primary education) Lower (Intermediate, secondary or lower vocational) Higher (higher general or intermediate vocational) Highest (University or higher vocational education)	Ischaemic and haemorrhagic stroke	Centralised health statistics ICD 9: 430-434, 436; ICD 10: I60-I66	HR = 1.21 (0.91-1.60)†
Prevalence Ratio									
Llibre et al (2010)[108]	Population	3015	229	2786	≥ 65	≤ 6 grades ≥ 7 grades	Ischaemic and haemorrhagic stroke WHO definition	Neuroimaging Self-report questionnaire	≥ 7 grades: Prevalence ratio: 0.90 (0.6-1.1)
1b. Childhood SES									
Study	**Setting**	**Total number of participants**	**Participants with stroke (n)**	**Participants without stroke (n)**	**Age at follow up/stroke**	**Measure of childhood SES**	**Primary outcome**	**Measurement of outcome**	**Results**

Hazard ratios									
Health and Retirement Study Liu et al (2013)[101] 103;109-111	Population Cohort	22 847	2298	20 549	61	Sum of parents education	Ischaemic or haemorrhagic stroke	Clinical examination Neuroimaging	HR=1.35 (1.15-1.59)
Swedish Conscript Study 1949-1951 Hemmingsson et al (2007)[97]	Population	44 495	592	43 903	40-55	Father's occupation Crowded housing	Ischaemic or haemorrhagic stroke	Centralised health statistics	HR= 1.08 (1.03-1.09)
Copenhagen City Heart Study Kornerup et al (2010)[112]	Population	9542	350	9192	NS	Financial problems in childhood	Ischaemic stroke	Centralised health statistics	HR=1.71 (1.29-2.26)†
Frequencies (n=stroke vs without stroke)									
ARIC Johnson et al (2010)[113]	Population Cohort	5347	234 104 with childhood SES	5113 2507 with childhood SES	51.8 57-79	Father's education	Ischaemic stroke	Centralised health statistics Self-report	Low SES= 74 vs 1736 High SES = 30 vs 875

Hart et al (2000)[87]	Community sample	5765	416 404 with childhood SES	5349 5,249 with childhood SES	35-64	Father's occupation	Ischaemic, haemorrhagic stroke or TIA	Centralised health statistics	Low SES = 335 vs 3948 High SES = 69 vs 1301
Nurse's Health Study Cohort Gliksman et al (1995)[114]	Population sample	117 006	828 741 with childhood SES	116 178 104,644 with childhood SES	30-55	Father's occupation	Ischaemic or haemorrhagic stroke	Case note review Centralised health statistics	Low SES = 463 vs 63 697 High SES = 278 vs 40 947
British Regional Heart Study Wannamethee et al (1996)[115]	Population cohort	5934	136	5380	40-59	Father's occupation	Stroke	Self-report	Low SES = 103 vs 3903 High SES = 33 vs 1477
Swedish Conscript Study 1951-1976 Wennerstad (2010)[54] [116]	Population cohort	1 135 383	8215	1 127 168	Approx. 36	Father's occupation	Stroke	Centralised health statistics	Low SES = 4580 vs 542 168 High SES = 3635 vs 585 001
Odds Ratios									
Grau et al (2012)[77]	Hospital	740	370	370	60.7 <80	Father's occupation	Ischaemic, haemorrhagic stroke or TIA	Clinical examination Neuroimaging	OR= 0.79 (0.48-1.30)*†

Prevalence Rate									
Aberdeen Children of the 1950's Lawlor et al (2006)[117]	Population cohort	11 106	-	-	Approx. 50	Father's occupation	Ischaemic or haemorrhagic stroke	Centralised health statistics	PR per 10 000 PY: Social class I/II= 2.3 (1.0-6.9) PR per 10 000 PY: Social class V= 7.8 (5.6-11.3)
1c. Childhood/ Premorbid IQ									
Study	**Setting**	**Total number of participants**	**Participants with stroke (n)**	**Participants without stroke (n)**	**Age at follow up/stroke**	**Measure of childhood/ premorbid IQ**	**Primary outcome**	**Measurement of outcome**	**Results**
Hazard Ratios									
Danish Birth Cohort Study 1953 Batty et al (2005)[118]	Population	6910	93	6817	≈ 47	Danish translation of the Swedish Harnquist Intelligence Test	Stroke ICD 8: 430-438, 410-414 ICD 10: I60-I69, I20-25	Centralised Health Statistics	HR=1.29 (0.75-2.25)†

Swedish Conscription Study 1949-1951 Hemmingsson et al (2007)[97]	Population	44 495	592	43 903	40-55	Standardised global IQ score	Ischaemic and haemorrhagic stroke ICD-9: 430–438 ICD-10: I60–I69	Centralised Health Statistics	HR = 1.26 (0.76-2.09) †
Swedish Conscription Study 1951-1976 Wennerstad et al (2010)[54]	Population	1 135 383	8215	1 127 168	Mean age ≈ 36	Standardised global IQ score	Ischaemic or haemorrhagic stroke ICD8: 430-438 ICD9: 433-438 ICD10: I60-I69, G45	Centralised Health Statistics	HR=0.94 (0.92-0.96) *†
Helsinki Birth Cohort Study Kajantie et al (2012)[119]	Population Cohort	2786	131	2655	56.7	The Finnish Defence Forces Basic Ability Test	Ischaemic or haemorrhagic stroke ICD8: 430-434, 436-437 ICD9: 430-434, 436-438 ICD10: I60-I69	Centralised Health Statistics	HR= 0.98 (0.75-1.27) †

Aberdeen Children of the 1950s Lawlor et al (2008)[120]	Population Cohort	11 125	56	11 069	50-55	Moray House Test aged 11	Ischaemic or haemorrhagic stroke ICD9: 430-438 ICD10: I60-I69, G45	Centralised Health Statistics	HR=0.68 (0.55-0.84) *†
Mean Differences									
Sydney Stroke Study Brodaty et al (2010)[4] 3;6;7;121	Hospital	264	167	97	72.42	NART-R IQ	Ischaemic stroke WHO criteria	Clinical examination	104.31 ± 10.26 Stroke 114.09 ± 7.99 Non-stroke
Kessels et al (2006)[23]	Hospital	266	105	161	59.5	NART-R IQ	Ischaemic or haemorrhagic stroke	NS	97.1 ± 15.6 Stroke 101.1 ± 14.6 Non-stroke
Sampson et al (2002)[122]	Hospital	103	50	47	72.5	NART-R IQ	Stroke	NS	105 (95-114) Stroke 110 (102-116) Non-stroke
Odds Ratios									

Wisconsin Longitudinal Study Jokela et al (2011)[123]	Cohort	8623	276	8347	64.8	Henmon-Nelson Test of Mental Ability	Stroke	NS	OR=0.85 (0.74-0.99)†

* inverted for meta-analysis to demonstrate inverse relationship

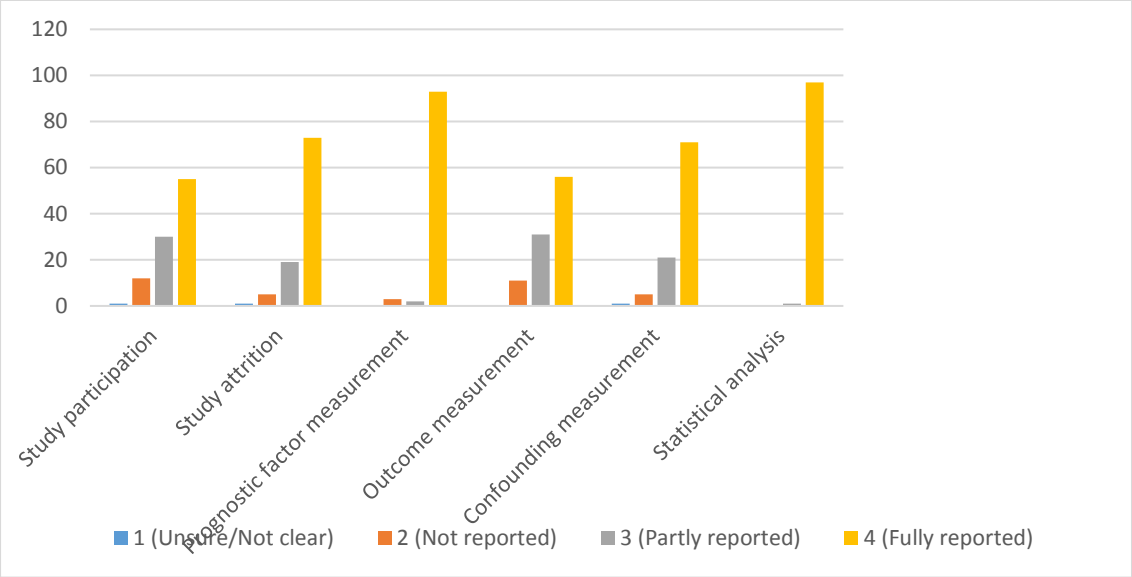
† Adjusted

§ Sum of multiple categories to represent low and high educational level

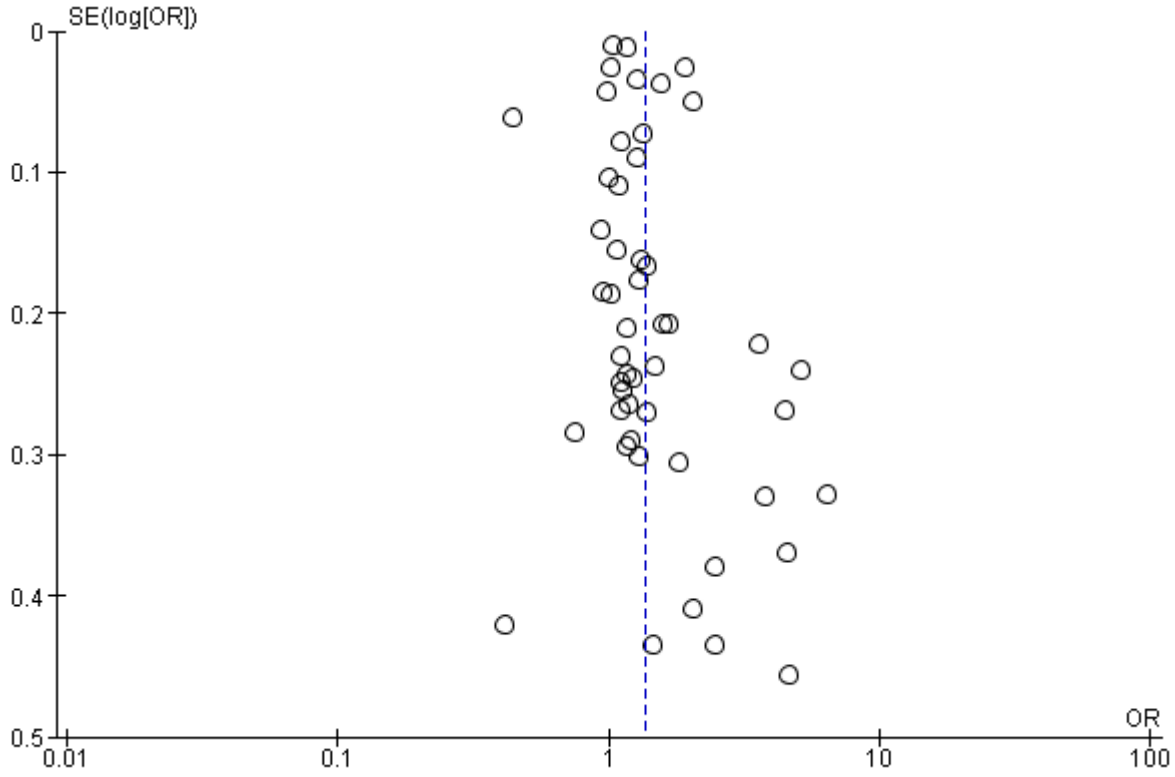
NS= Not specified

Values in table and figures may differ due to rounding

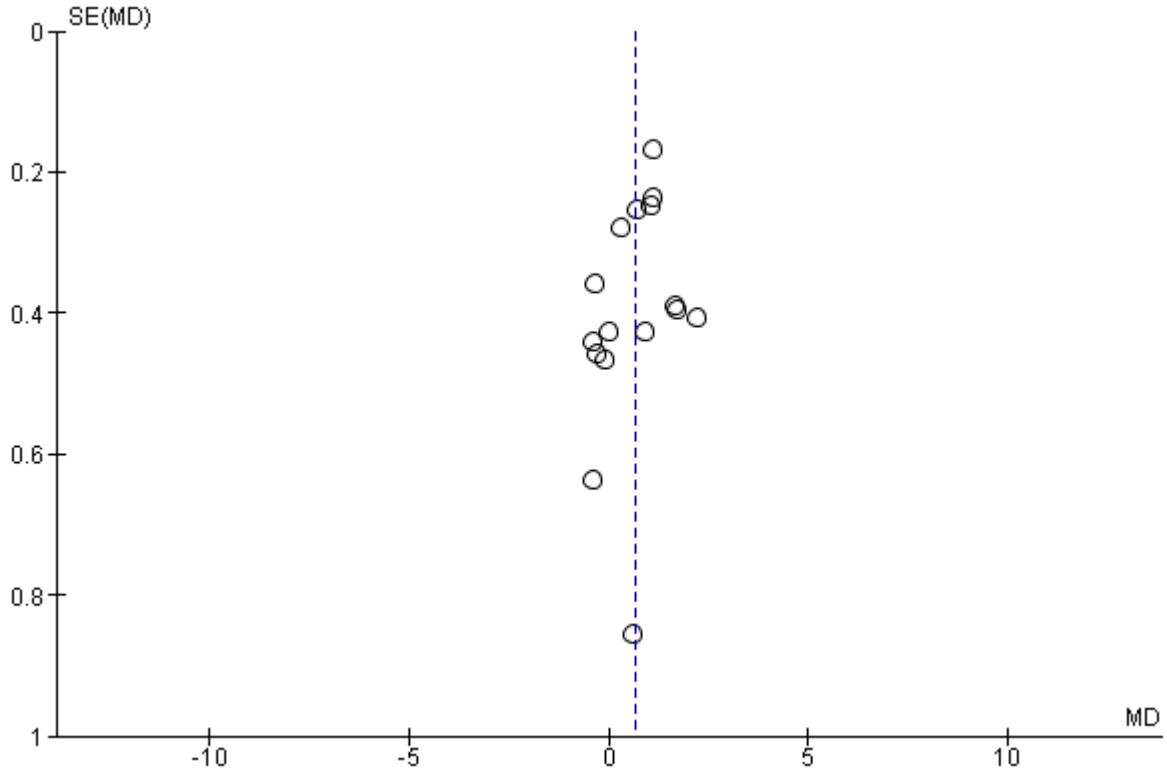
eFigure 3. Quality assessment: Frequencies of scores on individual quality items



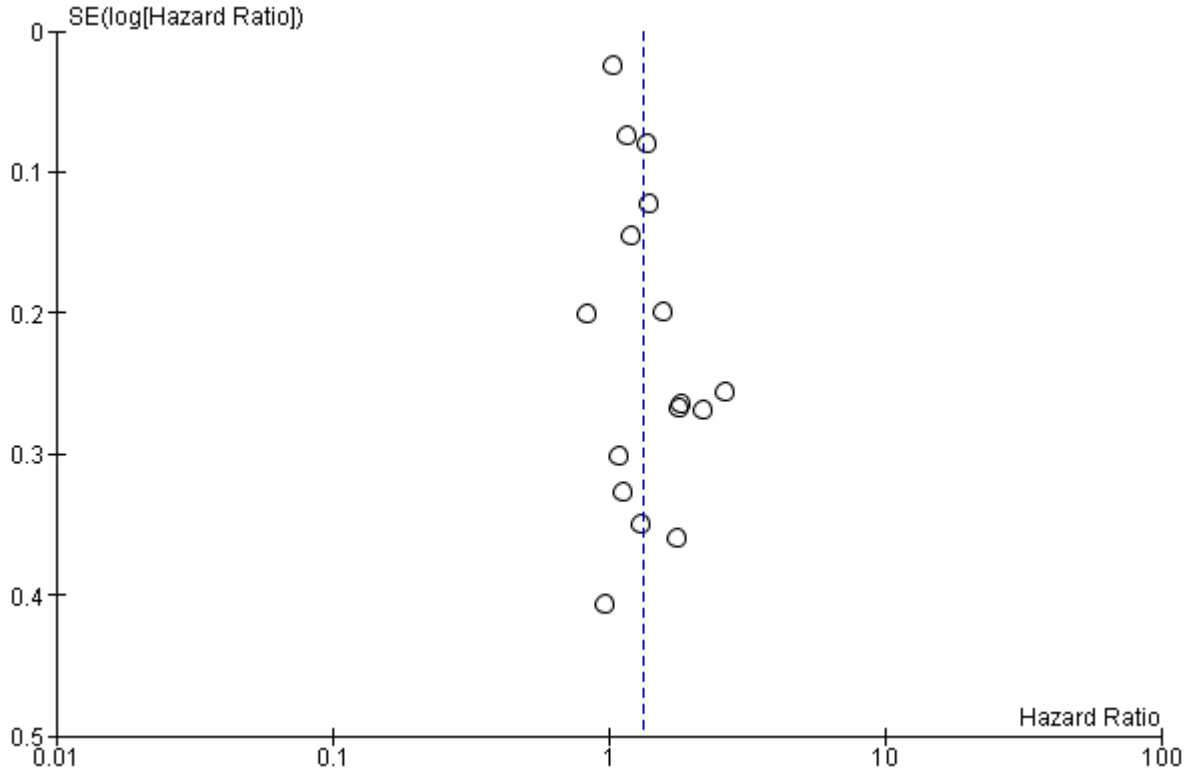
eFigure 4a. Funnel Plot for analysis of publication bias in studies reporting ORs for education and risk of stroke.



eFigure 4b. Funnel Plot for analysis of publication bias in studies reporting MDs for education and risk of stroke.



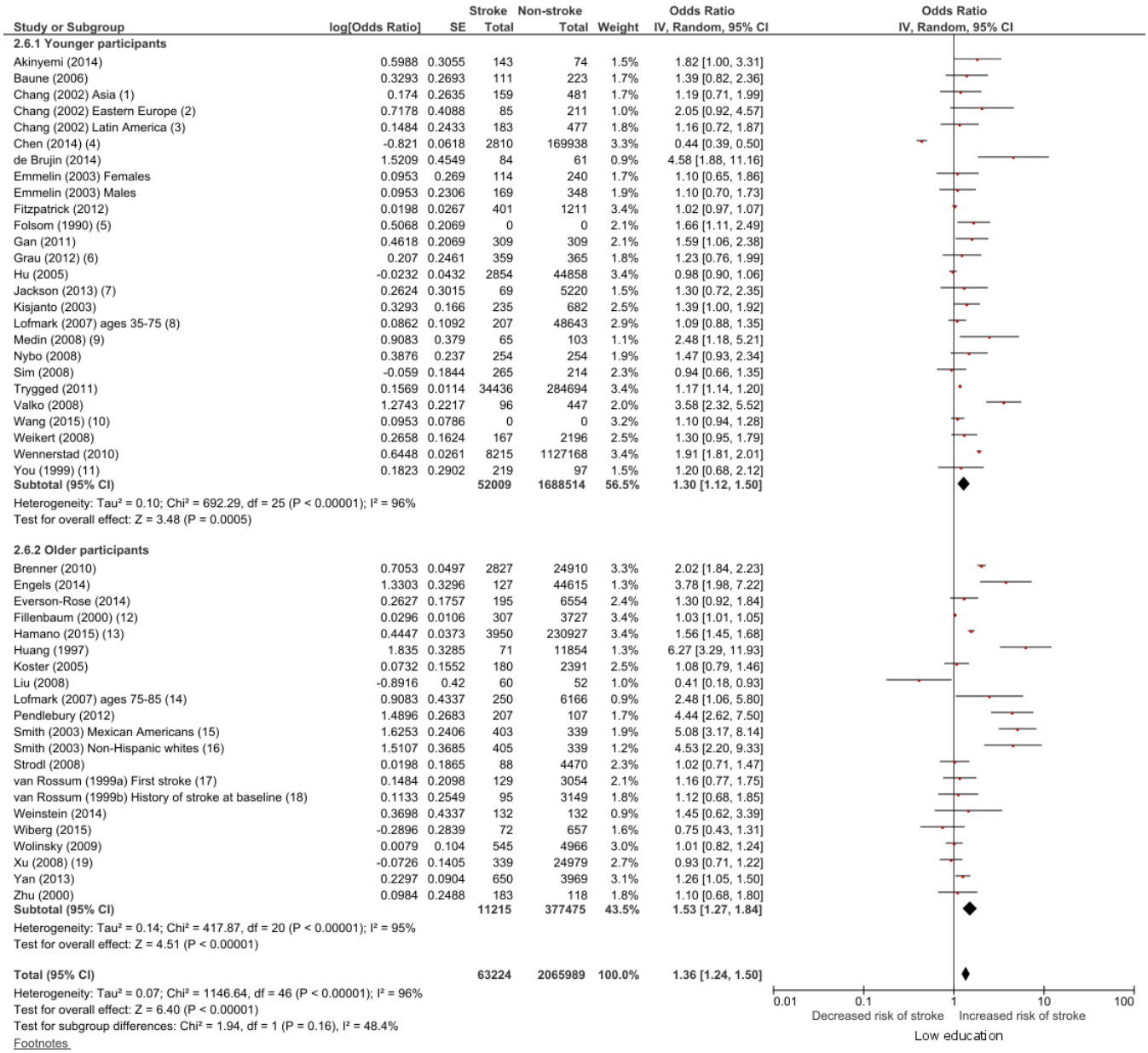
eFigure 4c. Funnel Plot for analysis of publication in studies reporting HRs for education and risk of stroke.



eDocument 2. Footnotes for figure 2a. Educational attainment (low versus high) and risk of stroke, risk ratio (OR, HR and RR), random effects model (risk ratio <1 indicates low education decreases risk of stroke; >1 = low education increases risk of stroke.

[a] Adjusted for age, gender and region
[b] Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
[c] Adjusted for age, sex, race
[d] Adjusted for age and sex
[e] Adjusted for age, gender, income, medical insurance, smoking and BMI
[f] Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrillation, diabetes, fibrogen, BMI, alcohol consumption
[g] Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI, area of residence, diabetes and abnormal blood fats
[h] Adjusted for hypertension, heart disease, diabetes, smoking
[i] Adjusted for hypertension, diabetes, hyperlipidaemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
[j] Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and hysterectomy/oophorectomy
[k] Adjusted for CHD, hypertension, COPD, obesity, income, age and sex
[l] Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
[m] Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
[n] Adjusted for age, sex, income, BMI, smoking, systolic blood pressure, antihypertensive medication, diabetes, HDL-C, LDL-C, lipid medication, CHD, PAD, ECG, carotid intima thickness and physical activity
[o] Adjusted for age, area of residence, cholesterol level, physical activity, ethanol intake, marital status, smoking, obesity, medical history of hypertension, diabetes
[p] Adjusted for age
[q] Adjusted for age, hypertension, BMI, smoking, physical inactivity, cholesterol, triglycerides, mental stress
[r] Adjusted for age, sex, physical activity, smoking, alcohol consumption, diet
[s] Adjusted for age, sex, race, sex, hypertension, smoking, diabetes, alcohol, BMI, physical activity, social networks, depression, difficult life events
[t] Adjusted for age, race, ethnicity, gender, marital status, adult SES
[u] Adjusted for cardiac disease, hypertension, diabetes, inactivity, social isolation, Medicaid insurance, home heath aid
[v] Adjusted for aged, gender, smoking, alcohol consumption, BMI, hypertension, diabetes, high cholesterol, family history of CHD and diet
[w] Adjusted for age, smoking, BMI, alcohol consumption, hypertension, diabetes, exercise
[x] Adjusted for baseline age, smoking, history of diabetes, history of heart disease, alcohol consumption, non recreational physical activity, blood pressure medication, and systolic blood pressure
[y] Adjusted for age, sex, calendar year and income
[z] Adjusted for age, smoking, adjusted FEV1, diastolic and systolic blood pressure, height, alcohol consumption and pre-existing CHD.
[aa] Adjusted for age, sex and ethnicity

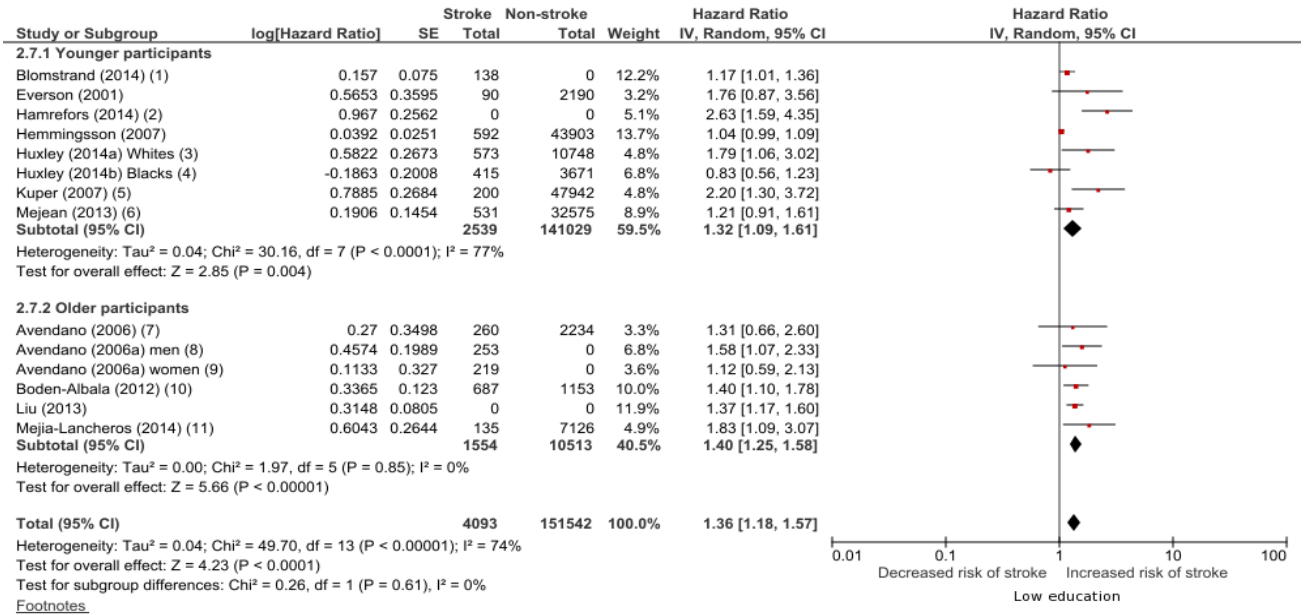
eFigure 5a. Sensitivity analysis comparing studies that included younger (mean age ≤65 years) vs those that included older (mean age >65 years) participants by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(2) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(3) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(4) Adjusted for age,gender and region.
(5) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(6) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
(7) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and hysterectomy/oophorectomy
(8) Adjusted for age and sex
(9) Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
(10) Adjusted for age, gender, income, medical insurance, smoking and BMI.
(11) Adjusted for hypertension, heart disease, diabetes, smoking
(12) Adjusted for age, sex, race
(13) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(14) Adjusted for age and sex
(15) Adjusted for age and sex
(16) Adjusted for age and sex
(17) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI, alcohol consumption
(18) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI, alcohol consumption
(19) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
NOTE: Studies without footnotes report unadjusted results

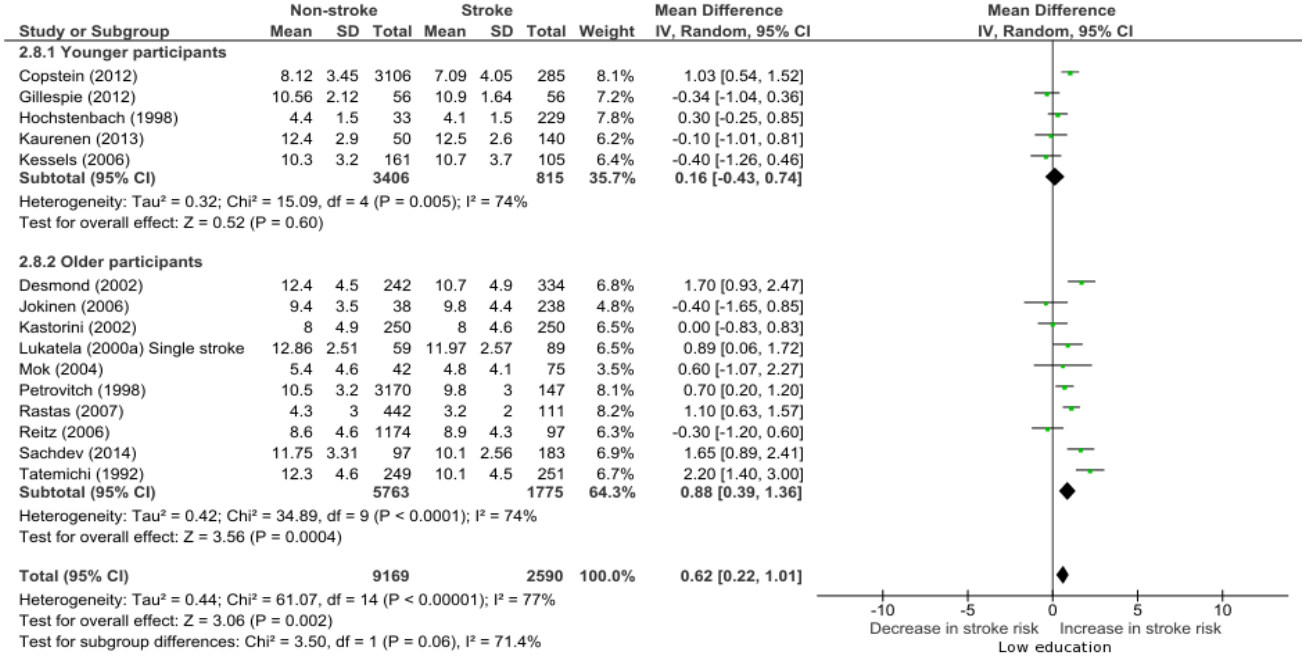
eFigure 5b. Sensitivity analysis comparing studies that included younger (mean age ≤65 years) vs studies that included older (mean age >65 years) participants by education level and risk of stroke; HR>1= low education increases risk of stroke.



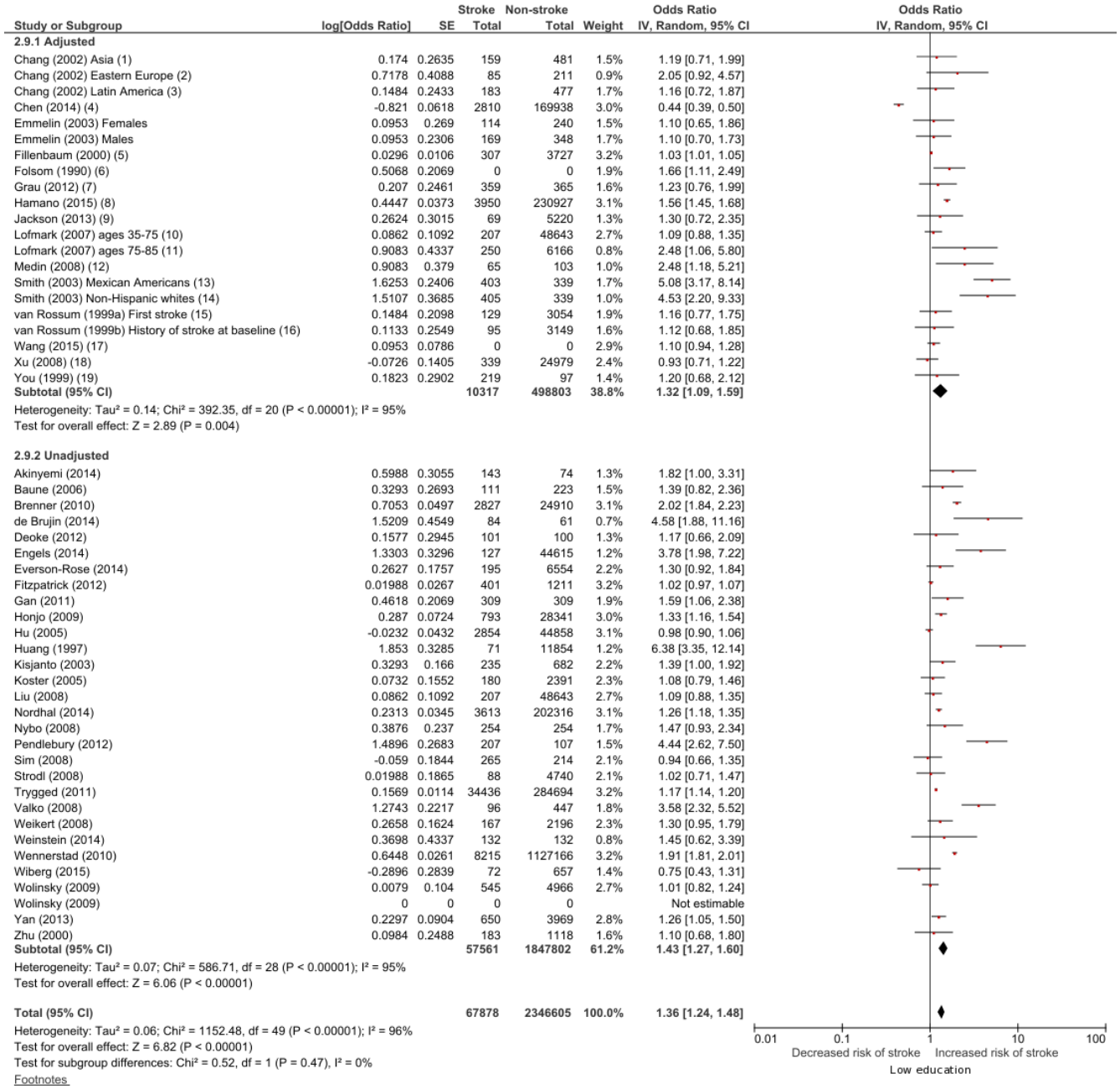
Footnotes

(1) Adjusted for age, hypertension, BMI, smoking, physical inactivity, cholesterol, tryglycerides, mental stress
(2) Adjusted for age and sex.
(3) Adjusted for age, sex, income, BMI, smoking, systolic blood pressure, antihypertensive medication, diabetes, HDL-C, LDL-C, lipid medication, CHD, PAD, ECG, carotid intima...
(4) Adjusted for age, sex, income, BMI, smoking, systolic blood pressure, antihypertensive medication, diabetes, HDL-C, LDL-C, lipid medication, CHD, PAD, ECG, carotid intima...
(5) Adjusted for age, smoking, BMI, alcohol consumption, hypertension, diabetes, exercise
(6) Adjusted for age, sex, physical activity, smoking, alcohol consumption, diet
(7) Adjusted for age, sex, race, sex, hypertension, smoking, diabetes, alcohol, BMI, physical activity, social networks, depression, difficult life events
(8) Adjusted for age
(9) Adjusted for age
(10) Adjusted for cardiac disease, hypertension, diabetes, inactivity, social isolation, Medicaid insurance, home heath aid.
(11) Adjusted for aged, gender, smoking, alcohol consumption, BMI, hypertension, diabetes, high cholesterol, family history of CHD and diet.
Note:Studies without footnotes report unadjusted results

eFigure 5c. Sensitivity analysis for comparing studies that included younger (mean age ≤65 years) vs studies that included older (mean age >65 years) participants by education level and risk of stroke; negative mean difference = lower education decreases risk of stroke and positive mean difference = lower education increases risk of stroke.



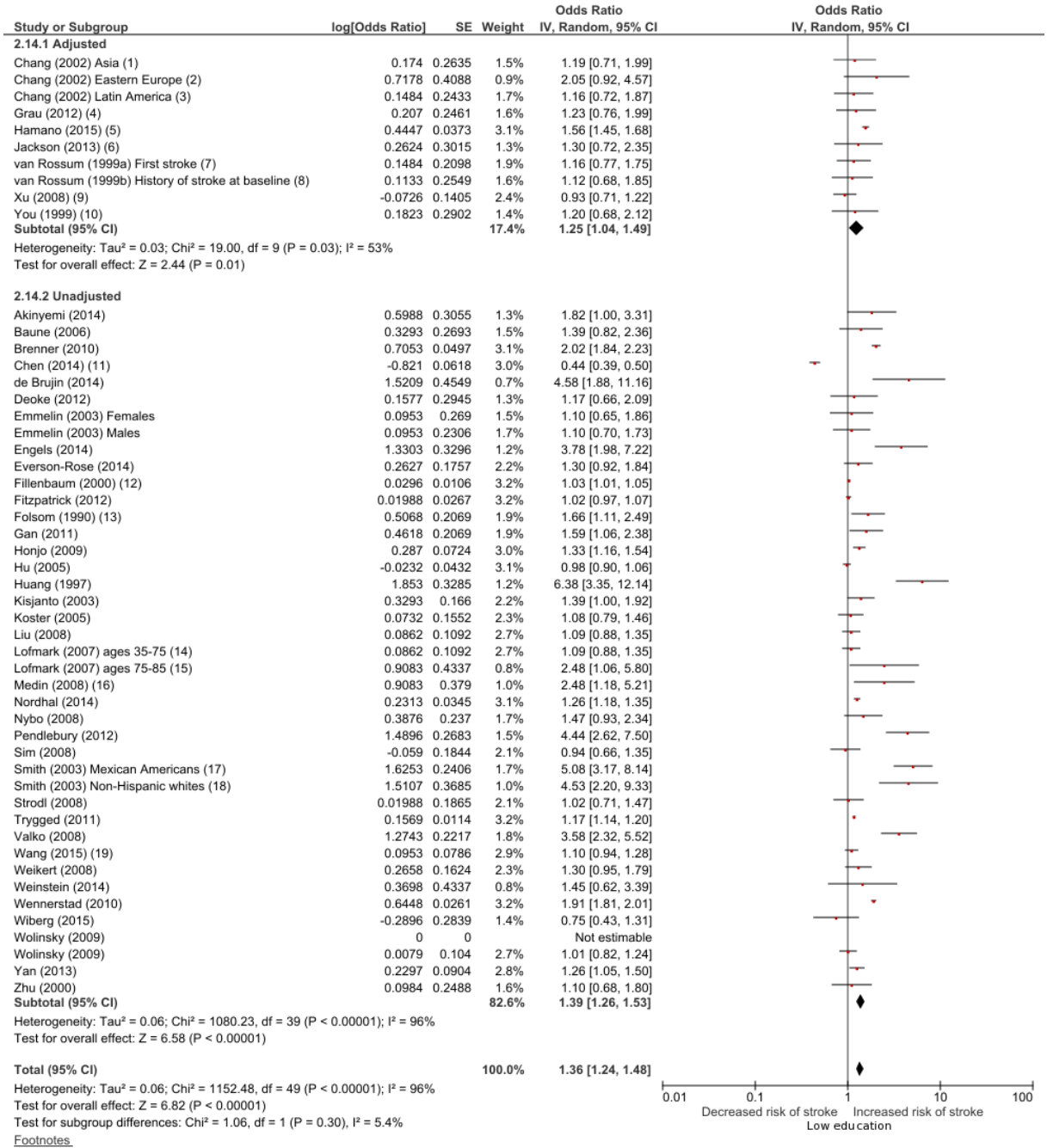
eFigure 5d. Sensitivity analysis comparing adjusted vs unadjusted studies by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(2) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(3) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of premature stroke or AMI,...
(4) Adjusted for age,gender and region.
(5) Adjusted for age, sex, race
(6) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(7) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
(8) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(9) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and hysterectomy/oophorectomy
(10) Adjusted for age and sex
(11) Adjusted for age and sex
(12) Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
(13) Adjusted for age and sex
(14) Adjusted for age and sex
(15) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI, alcohol consumption
(16) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI, alcohol consumption
(17) Adjusted for age, gender, income, medical insurance, smoking and BMI.
(18) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
(19) Adjusted for hypertension, heart disease, diabetes, smoking
Note: Studies without footnotes report unadjusted results

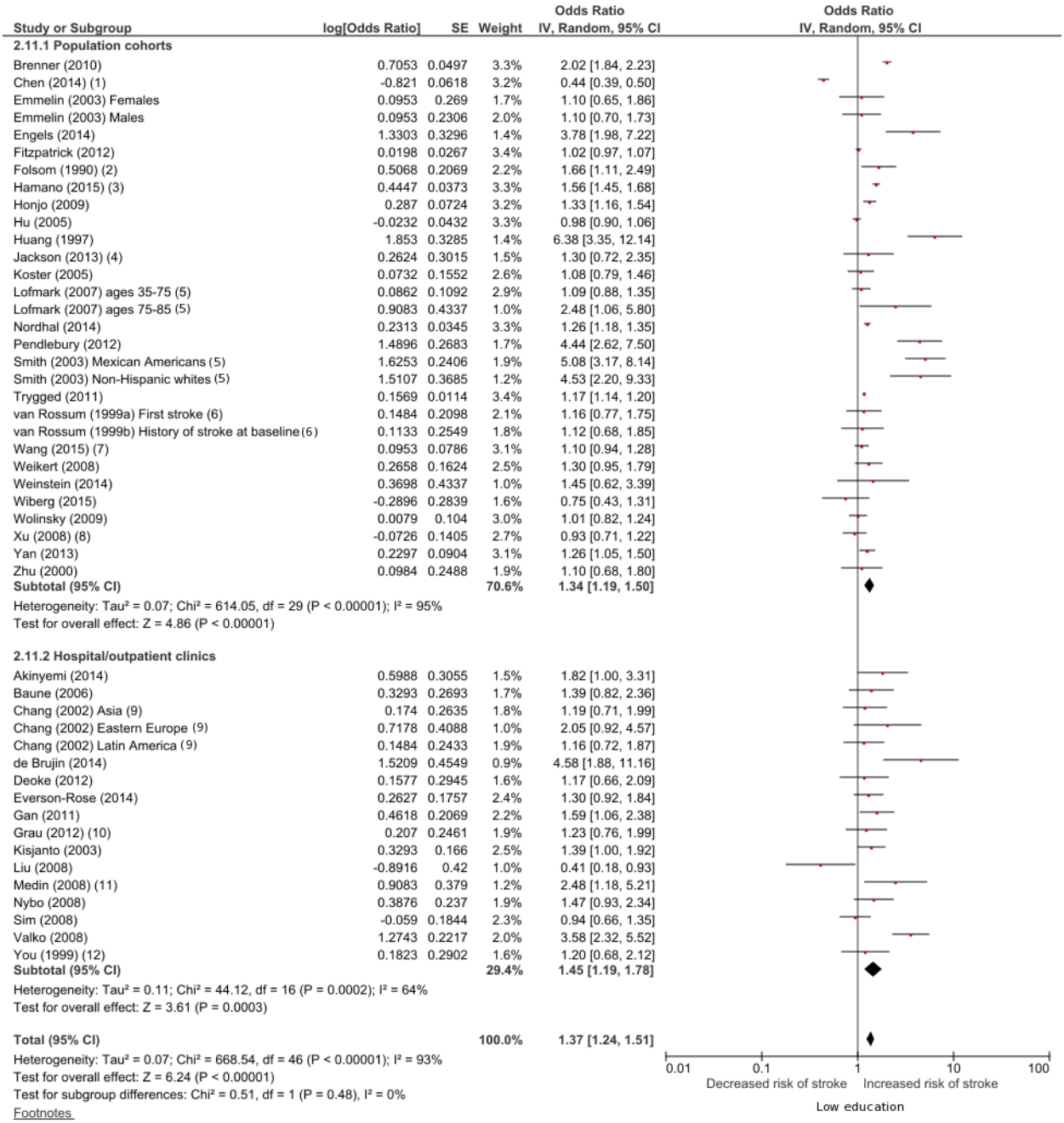
eFigure 5e. Sensitivity analysis comparing adjusted for vascular risk factors vs unadjusted studies by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of...
(2) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of...
(3) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history of...
(4) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
(5) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(6) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and...
(7) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI,...
(8) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI,...
(9) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
(10) Adjusted for hypertension, heart disease, diabetes, smoking
(11) Adjusted for age,gender and region.
(12) Adjusted for age, sex, race
(13) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(14) Adjusted for age and sex
(15) Adjusted for age and sex
(16) Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
(17) Adjusted for age and sex
(18) Adjusted for age and sex
(19) Adjusted for age, gender, income, medical insurance, smoking and BMI.
Note: Studies without footnotes report unadjusted results

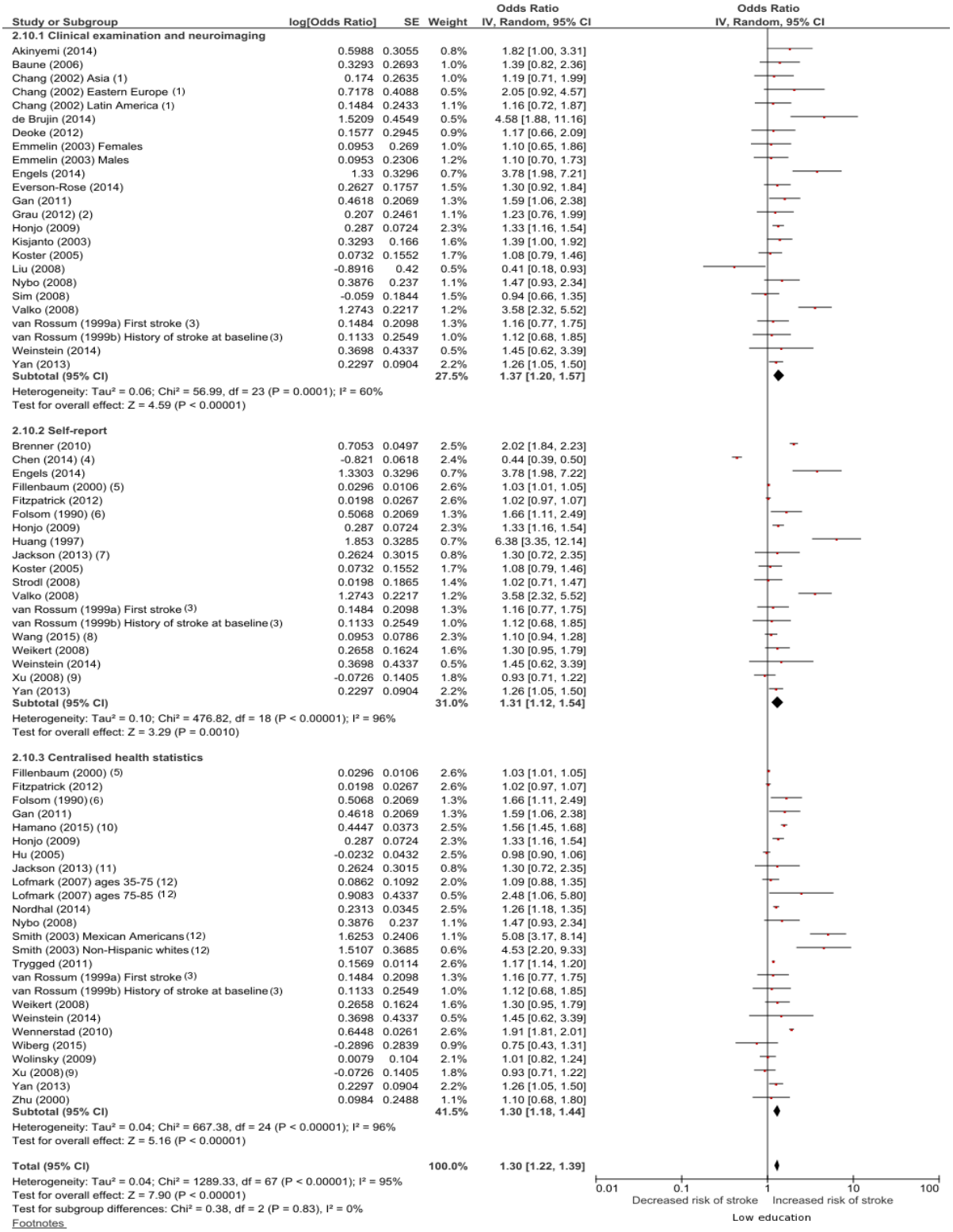
eFigure 5f. Sensitivity analysis comparing population cohort studies vs hospital/outpatient studies by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for age,gender and region.
(2) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(3) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(4) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and...
(5) Adjusted for age and sex
(6) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI,...
(7) Adjusted for age, gender, income, medical insurance, smoking and BMI.
(8) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
(9) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history...
(10) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports...
(11) Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
(12) Adjusted for hypertension, heart disease, diabetes, smoking
Note: Studies without footnotes report unadjusted results

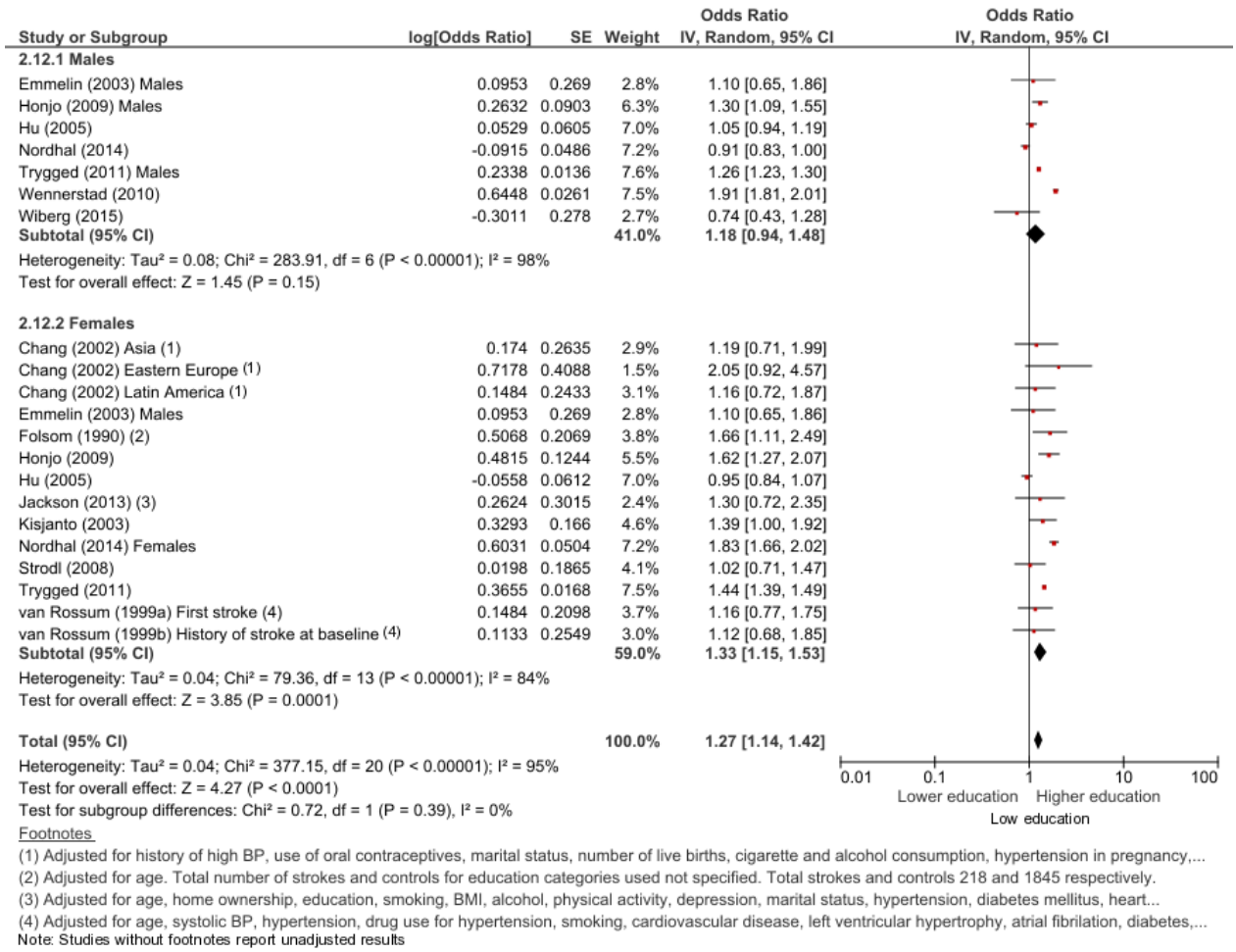
eFigure 5g. Sensitivity analysis comparing stroke ascertainment methods (clinical examination, self-report, central health statistics) by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy, family history...
(2) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
(3) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI,...
(4) Adjusted for age,gender and region.
(5) Adjusted for age, sex, race
(6) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(7) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and...
(8) Adjusted for age, gender, income, medical insurance, smoking and BMI.
(9) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
(10) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(11) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and...
(12) Adjusted for age and sex
Note: Studies without footnotes report unadjusted results

eFigure 5h. Sensitivity analysis comparing males and females by education level and risk of stroke; OR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for history of high BP, use of oral contraceptives, marital status, number of live births, cigarette and alcohol consumption, hypertension in pregnancy,...

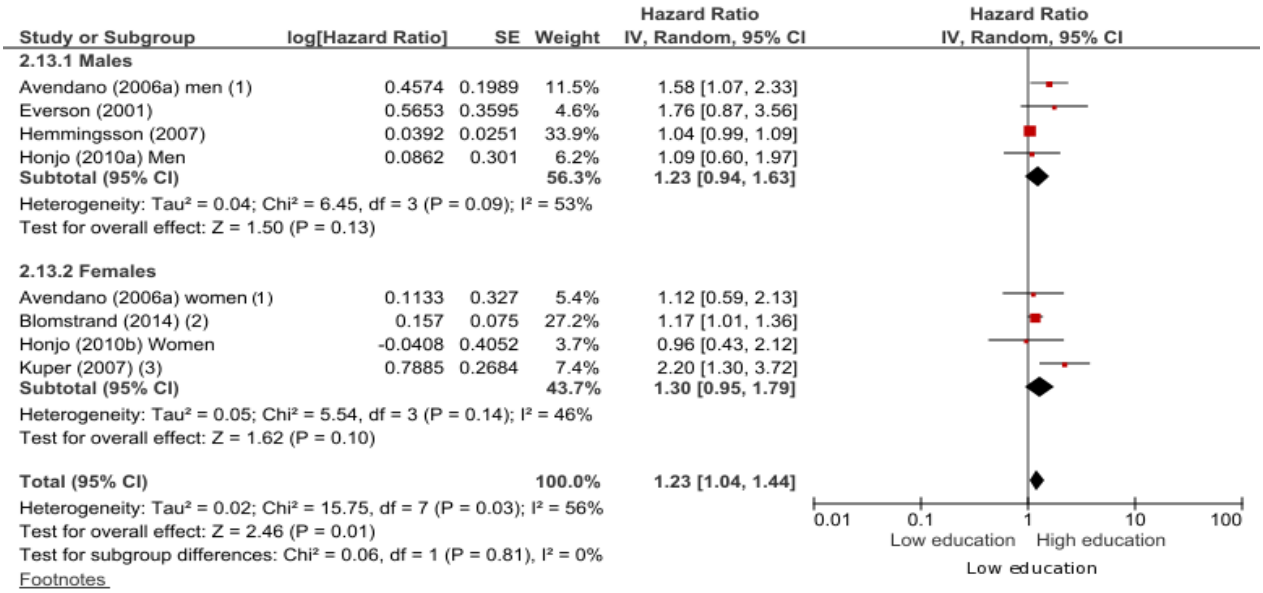
(2) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.

(3) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart...

(4) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes,...

Note: Studies without footnotes report unadjusted results

eFigure 5i. Sensitivity analysis comparing males and females by education level and risk of stroke; HR>1= low education increases risk of stroke.



Footnotes

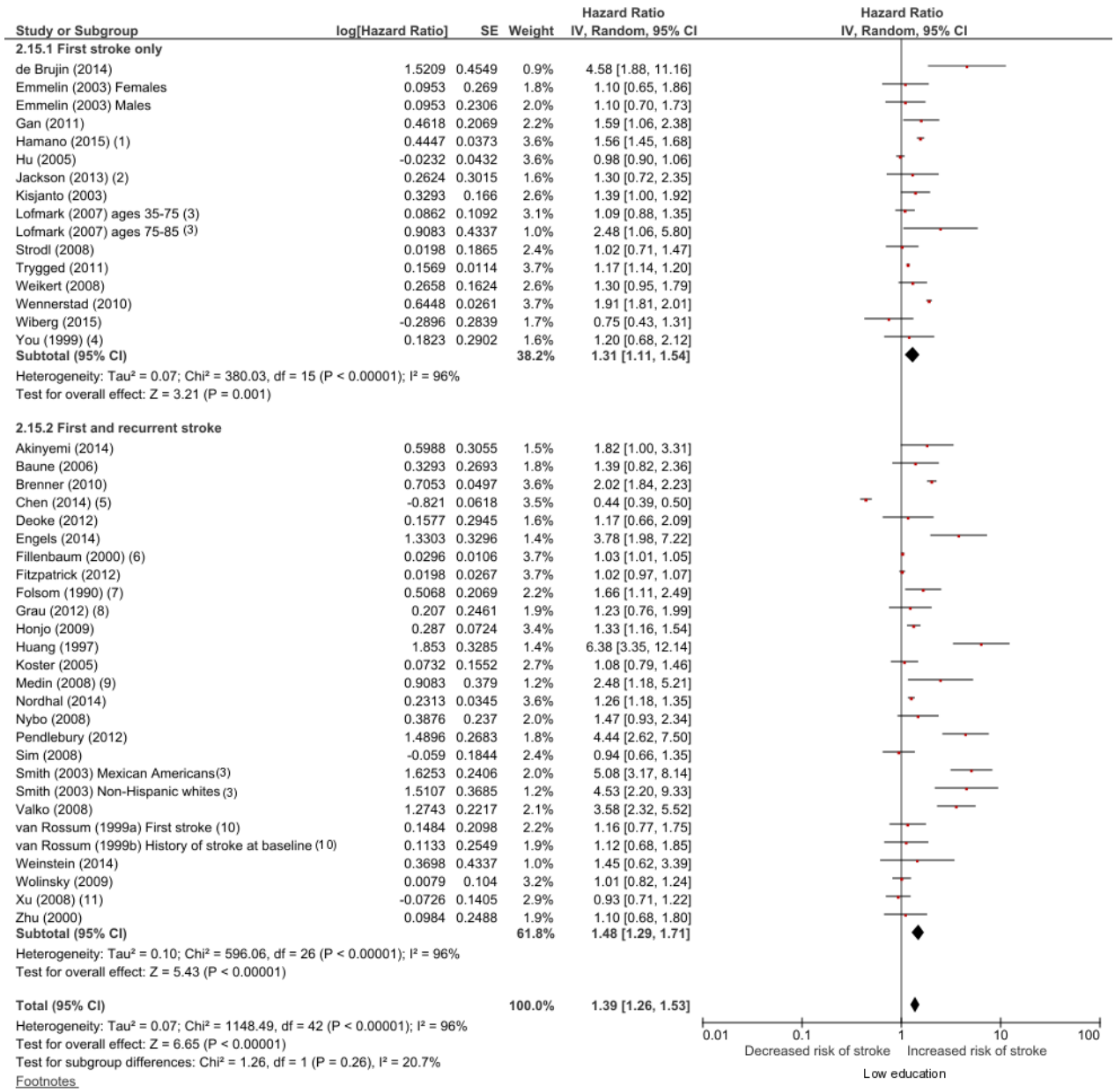
(1) Adjusted for age

(2) Adjusted for age, hypertension, BMI, smoking, physical inactivity, cholesterol, tryglycerides, mental stress

(3) Adjusted for age, smoking, BMI, alcohol consumption, hypertension, diabetes, exercise

Note: Studies without footnotes report unadjusted results

eFigure 5j. Sensitivity analysis comparing first only and recurrent/unspecified stroke by education level and risk of stroke; HR>1= low education increases risk of stroke.



Footnotes

(1) Adjusted for CHD, hypertension, COPD, obesity, income, age and sex.
(2) Adjusted for age, home ownership, education, smoking, BMI, alcohol, physical activity, depression, marital status, hypertension, diabetes mellitus, heart disease and...
(3) Adjusted for age and sex
(4) Adjusted for hypertension, heart disease, diabetes, smoking
(5) Adjusted for age,gender and region.
(6) Adjusted for age, sex, race
(7) Adjusted for age. Total number of strokes and controls for education categories used not specified. Total strokes and controls 218 and 1845 respectively.
(8) Adjusted for hypertension, diabetes, hyperlipidemia, previous stroke/TIA, and PAD, current smoking, alcohol abstinence, high alcohol consumption, leisure time sports activity
(9) Adjusted for work related factors on the Job Content Questionnaire, organisational change at the workplace and decreased participation
(10) Adjusted for age, systolic BP, hypertension, drug use for hypertension, smoking, cardiovascular disease, left ventricular hypertrophy, atrial fibrilation, diabetes, fibrogen, BMI,...
(11) Adjusted for age, gender, area of residence, BMI, smoking, alcohol consumption, diabetes, high blood pressure, occupational and leisure time physical activity
Note: Studies without footnotes report unadjusted results

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