



CeLSIUS
CENTRE FOR LONGITUDINAL STUDY
INFORMATION & USER SUPPORT

EDUCATION IN THE ONS LONGITUDINAL STUDY OF ENGLAND AND WALES

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CeLSIUS, UCL



Office for
National Statistics



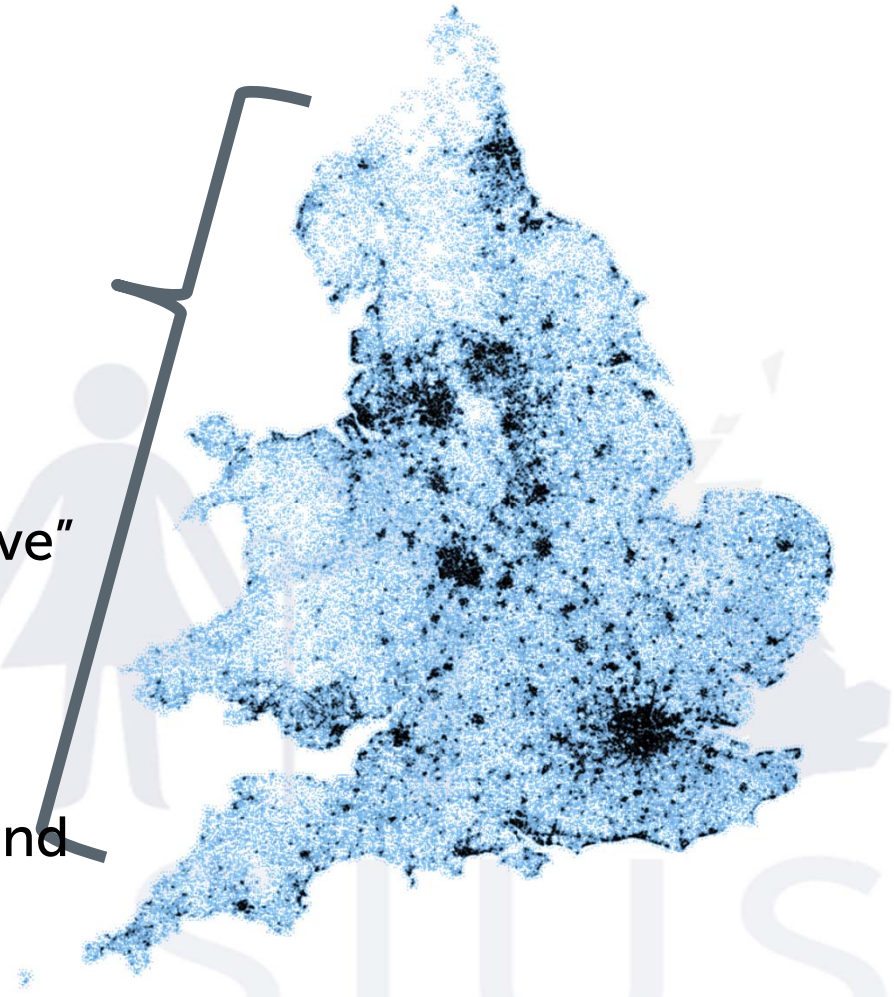
The ONS LONGITUDINAL study

- Individual and household level microdata

→ 1%

sample

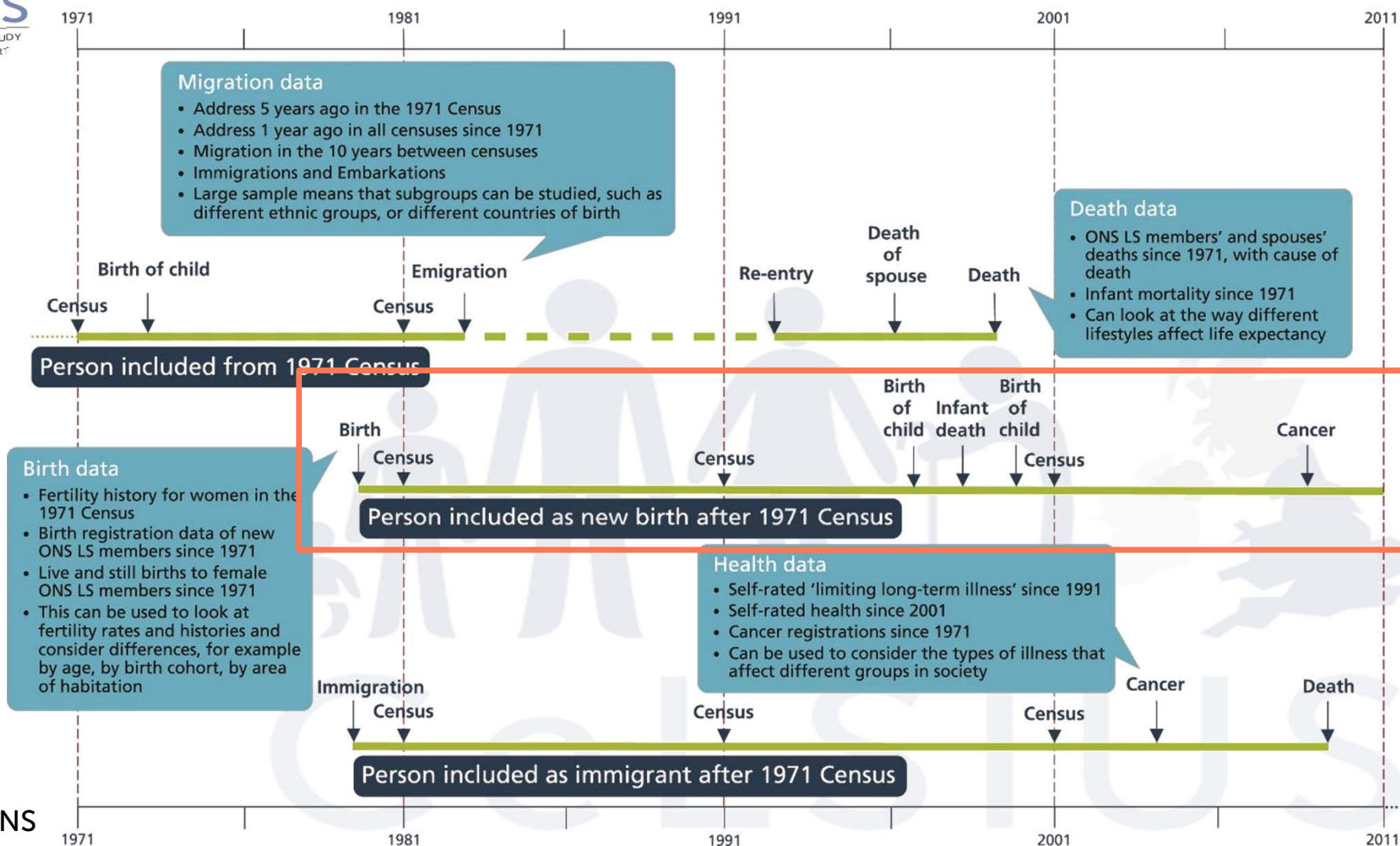
- Random selection based on birthdays
- Longitudinal follow-up since 1971, each "wave" n>500'000
- All Census topics available
- Life events data also linked to LS members, including births to sample mothers, deaths and cancer registrations
- Large sample → subgroup analyses



<http://www.theguardian.com/news/datablog/interactive/2013/aug/01/every-person-in-england-wales-dot-map#7/52.929/-2.571>

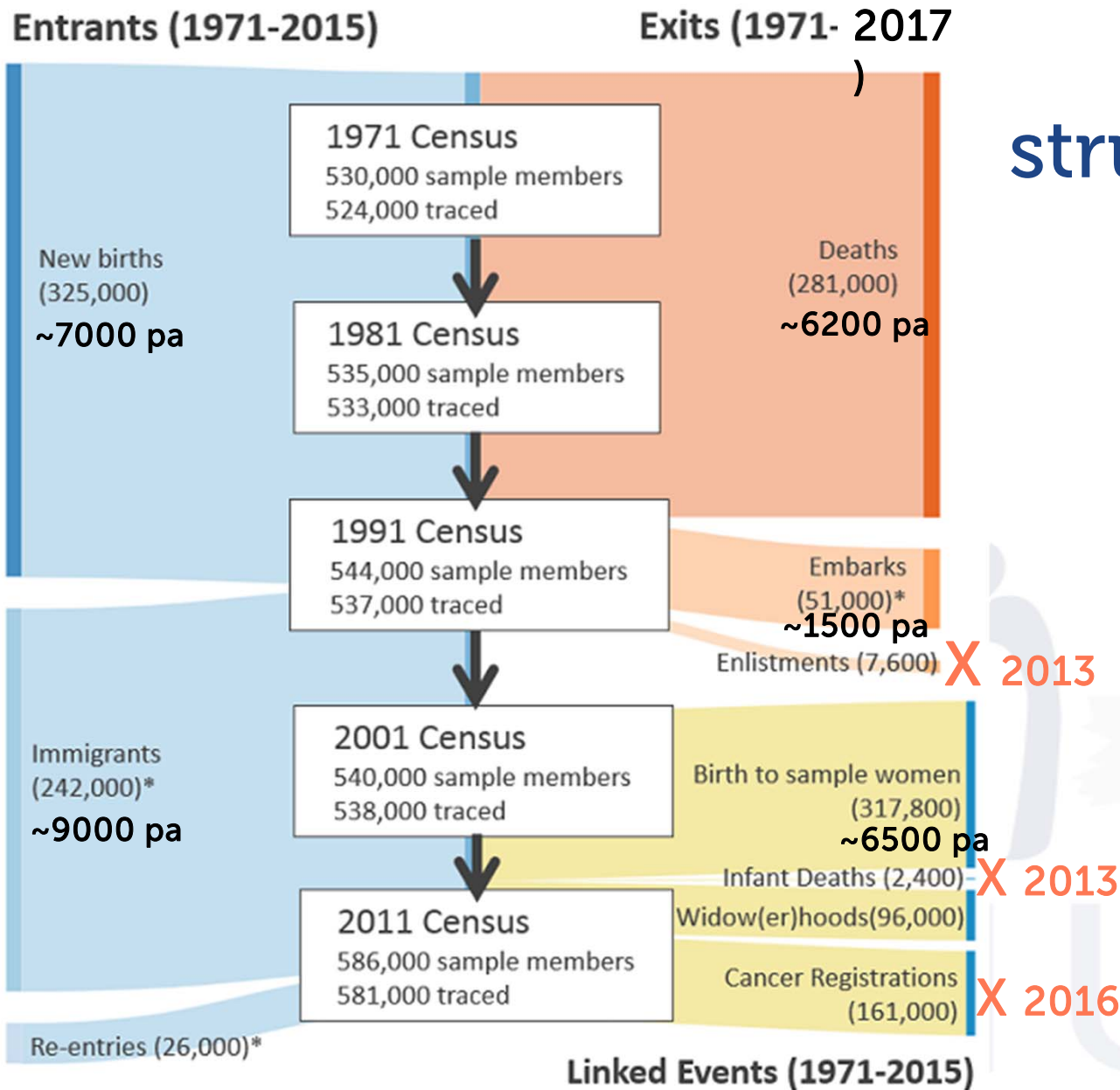
Example members of the ONS LS

Examples of data available on members of the ONS LS through their life-course are shown below. The ONS LS holds data on more than one million people, each including their own unique combination of these data.

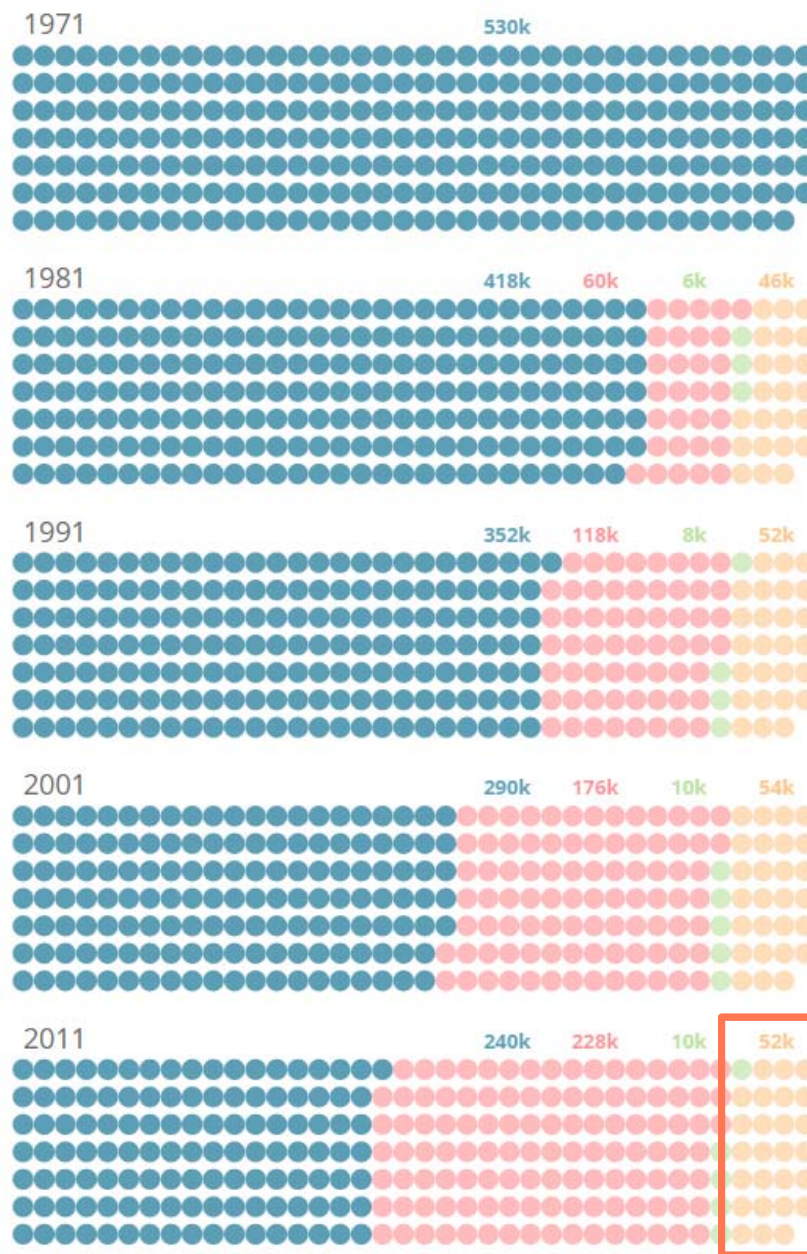


Source: ONS

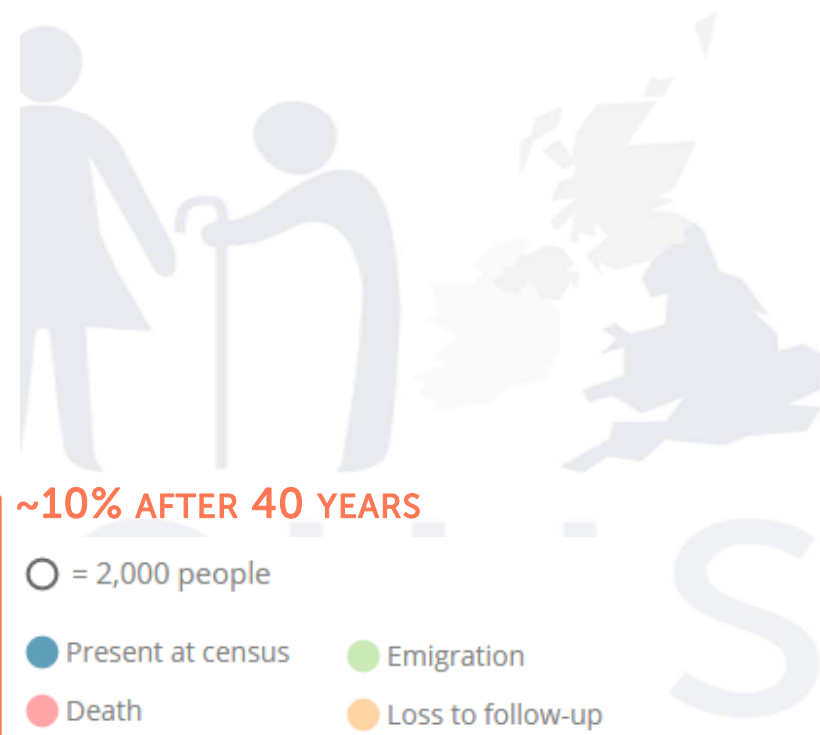
Data structure



Source: ONS



Low Attrition



Source: ONS

What information does the LS contain?

Census	Events
<ul style="list-style-type: none"> • Gender • Age • Ethnicity/Country of Birth • Education • Marital status • Family composition • Geography • Economic activity • Occupation • Social class • Migration • Travel to work 	<ul style="list-style-type: none"> • Religion (2001-) • Limiting long-term illness (1991-) • Self-rated health(2001-) • Care-giving (2001-) • National Identity • Passports held • Language proficiency • Time since arrival • Intention to stay • Second address • Heating type • Deaths (Causes Of Death) • Births of LSM* • Maternity events to LSM* (Live births, infant deaths, still births, birth weight) • Emigration • Immigration • Widow(er)hoods • Cancer registration

*LSM: Longitudinal Study Members
Highlighted in BLUE: 2011 only

For Data Dictionary go to: <https://www.ucl.ac.uk/infostudies/silva-php-resources/researchProjects/celsius/standalone/index.php>

1971

EDUCATION IN THE LS

<p>13 Have you obtained any of the following?</p> <p>G.C.E. 'A' level Higher School Certificate (HSC)</p> <p>Higher grade of Scottish Certificate of Education (SCE)</p> <p>Higher grade of Scottish Leaving Certificate (SLC)</p> <p>Ordinary National Certificate (ONC) Ordinary National Diploma (OND)</p>	<p>14 Have you obtained any of the following qualifications since <u>reaching the age of 18</u>?</p> <p><i>a</i> H.N.C. or H.N.D. <i>e</i> Graduate or corporate membership of professional institutions</p> <p><i>b</i> Nursing qualifications <i>f</i> Any other professional or vocational qualifications</p> <p><i>c</i> Teaching qualifications</p> <p><i>d</i> Degrees, diplomas or other educational qualifications</p> <p>If so, give full details of all such qualifications in the order in which they were obtained, even if not relevant to your present job or if you are not working. If none, write 'NONE'.</p> <table border="1"> <thead> <tr> <th>Qualification</th> <th>Major Subject or Subjects</th> <th>Awarding Institution</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center; vertical-align: middle;"> <p>Up to 6 post-18 qualifications</p> </td> </tr> </tbody> </table>			Qualification	Major Subject or Subjects	Awarding Institution	<p>Up to 6 post-18 qualifications</p>		
Qualification	Major Subject or Subjects	Awarding Institution							
<p>Up to 6 post-18 qualifications</p>									
<p>1 <input type="checkbox"/> GCE 'A' level or HSC</p> <p>2 <input type="checkbox"/> SCE higher or SLC higher</p> <p>3 <input type="checkbox"/> ONC or OND</p> <p>4 <input type="checkbox"/> None of these</p>									

EDUCATION IN THE LS

1981

<p>13 Have followed G.C.E. Higher Certificate Higher Level Ordinary</p>	<p>16 Degrees, professional and vocational qualifications</p> <p>Have you obtained any qualifications <u>after the age of 18</u> such as:</p> <p>Degrees, Diplomas, HNC, HND, Nursing qualifications, Teaching qualifications, Graduate or corporate membership of professional institutions, Other professional, educational or vocational qualifications?</p> <p>Exclude qualifications normally obtained at school, such as GCE, CSE and School Certificates.</p> <p>If box 2 is ticked write in all qualifications even if they are not relevant to your present job or if you are not working.</p> <p>1 <input type="checkbox"/> Please list the qualifications in the order in which they were obtained.</p> <p>Write for each qualification:</p> <p>2 <input type="checkbox"/> the title the major subject or subjects</p> <p>3 <input type="checkbox"/> the year obtained and the awarding institution</p> <p>4 <input type="checkbox"/> If more than four, please enter in the space top right</p>	<p>1 <input type="checkbox"/> NO — none of these</p> <p>2 <input type="checkbox"/> YES — give details</p> <p>Title</p> <p>Subject(s)</p> <p>.....</p> <p>Year</p> <p>Institution</p> <p>.....</p> <hr/> <p>Title</p> <p>Subject(s)</p> <p>.....</p> <p>Year</p> <p>Institution</p> <p>.....</p>
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Highest post-18
qualification
only

EDUCATION IN THE LS

1991

19 Degrees, professional and vocational qualifications

Have you obtained any qualifications after reaching the age of 18 such as:

- degrees, diplomas, HNC, HND,
- nursing qualifications,
- teaching qualifications (see * below),
- graduate or corporate membership of professional institutions,
- other professional, educational or vocational qualifications?

Do not count qualifications normally obtained at school such as GCE, CSE, GCSE, SCE and school certificates.

If box 2 is ticked, write in all qualifications even if they are not relevant to your present job or if you are not working.

Please list the qualifications in the order in which they were obtained.

- * If you have **school teaching qualifications**, give the full title of the qualification, such as 'Certificate of Education' and the subject(s) which you are qualified to teach. The subject 'education' should then only be shown if the course had no other subject specialisation.

NO - no such qualifications ☐
YES - give details ☐

1 Title	2 Title
Subject(s)	Subject(s)
Year	Year
Institution	Institution
3 Title	4 Title
Subject(s)	Subject(s)
Year	Year
Institution	Institution

Up to 6 post-18
qualifications

EDUCATION IN THE LS

2001

If you are aged 16 to 74 ► Go to **16**

16 Which of these qualifications do you have?
✓ *all the qualifications that apply or, if not specified, the nearest equivalent.*

<input type="checkbox"/> 1+ O levels/CSEs/GCSEs (any grades)	<input type="checkbox"/> NVQ Level 1, Foundation GNVQ
<input type="checkbox"/> 5+ O levels, 5+ CSEs (grade 1), 5+ GCSEs (grades A-C), School Certificate	<input type="checkbox"/> NVQ Level 2, Intermediate GNVQ
<input type="checkbox"/> 1+ A levels/AS levels	<input type="checkbox"/> NVQ Level 3, Advanced GNVQ
<input type="checkbox"/> 2+ A levels, 4+ AS levels, Higher School Certificate	<input type="checkbox"/> NVQ Levels 4-5, HNC, HND
<input type="checkbox"/> First Degree (eg BA, BSc)	<input type="checkbox"/> Other Qualifications (eg City and Guilds, RSA/OCR, BTEC/Edexcel)
<input type="checkbox"/> Higher Degree (eg MA, PhD, PGCE, post-graduate certificates/diplomas)	<input type="checkbox"/> No Qualifications

17 Do you have any of the following professional qualifications?
✓ *all the boxes that apply.*

<input type="checkbox"/> No Professional Qualifications	<input type="checkbox"/> Qualified Dentist
<input type="checkbox"/> Qualified Teacher Status (for schools)	<input type="checkbox"/> Qualified Nurse, Midwife, Health Visitor
<input type="checkbox"/> Qualified Medical Doctor	<input type="checkbox"/> Other Professional Qualifications

Highest AND Professional qualification

If you are aged 16 or over → Go to 25



25 Which of these qualifications do you have?

- Tick **every** box that applies if you have **any** of the qualifications listed
- If your UK qualification is not listed, tick the box that contains its nearest equivalent
- If you have qualifications gained outside the UK, tick the 'Foreign qualifications' box and the nearest UK equivalents (if known)

- ☐ 1 - 4 O levels/CSEs/GCSEs (any grades), Entry Level, Foundation Diploma
- ☐ NVQ Level 1, Foundation GNVQ, Basic Skills
- ☐ 5+ O levels (passes)/CSEs (grade 1)/GCSEs (grades A*-C), School Certificate, 1 A level/ 2-3 AS levels/VCEs, Higher Diploma
- ☐ NVQ Level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma
- ☐ Apprenticeship
- ☐ 2+ A levels/VCEs, 4+ AS levels, Higher School Certificate, Progression/Advanced Diploma
- ☐ NVQ Level 3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma
- ☐ Degree (for example BA, BSc), Higher degree (for example MA, PhD, PGCE)
- ☐ NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher Level
- ☐ Professional qualifications (for example teaching, nursing, accountancy)
- ☐ Other vocational/work-related qualifications
- ☐ Foreign qualifications
- ☐ No qualifications

EDUCATION IN THE LS

2011

Have you obtained any of the following qualifications? If so, please specify, the nearest equivalent.

☐ NVQ Level 1, Foundation GNVQ

☐ NVQ Level 2, Intermediate GNVQ

☐ NVQ Level 3, Advanced GNVQ

☐ NVQ Levels 4-5, HNC, HND

☐ Other Qualifications (eg City and Guilds, RSA/OCR, BTEC/Edexcel)

☐ No Qualifications

Do you have any professional qualifications?

☐ Qualified Dentist

☐ Qualified Nurse

☐ Other Professional Qualifications

If you have obtained any of the following qualifications, please specify the nearest equivalent.

☐ YES - give details

Title

Subject(s)

Institution

Title

Subject(s)

Institution

Highest qualification

EDUCATION INFO IN THE LS

Var name	EDUC7	QMLVHIQ8	QMLVHQT9	HLQP0	HLQP11
Desc	Academic level of LS member	Level of highest qualification	Level of highest qualification	Highest qualification. 2001.	Highest qualification
0 Higher university degree	1 Higher degrees of UK standard	1 Higher degrees of UK standard	10 No academic or professional qualifications	10 No academic or professional qualifications	10 No academic or professional qualifications (England & Wales & Northern Ireland)
1 Other degrees and equivalent	2 First degrees and all other qualifications of first degree standard	2 First degrees and all other qualifications of first degree standard	11 Level 1: CSEs (grades 2-5), GCSEs (grades D-G), 1-4 CSEs (grade 1), 1-4 GCSEs (grades A-C), 1-4 O levels, NVQ level 1, Foundation GNVQ	11 Level 1: CSEs (grades 2-5), GCSEs (grades D-G), 1-4 CSEs (grade 1), 1-4 GCSEs (grades A-C), 1-4 O levels, NVQ level 1, Foundation GNVQ	11 Level 1: 1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ level 1, Foundation GNVQ, Basic/Essential Skills (England & Wales & Northern Ireland)
2 Other qual higher than A level	3 Qualifications that are: (i) generally obtained at 18 and over, (ii) above GCE 'A' level standard: and (iii) below UK first degree level	3 Qualifications that are: (i) generally obtained at 18 and over, (ii) above GCE 'A' level standard: and (iii) below UK first degree level	12 Level 2: 5+ O levels, 5+ CSEs (grade 1), 5+ GCSEs (grades A-C) etc, 1 A level, 1-3 AS levels, NVQ level 2, Intermediate GNVQ	12 Level 2: 5+ O levels, 5+ CSEs (grade 1), 5+ GCSEs (grades A-C) etc, 1 A level, 1-3 AS levels, NVQ level 2, Intermediate GNVQ	12 Level 2: 5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate, Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/G
3 A level and equiv	4 Highest qualification is not stated		13 Level 3: 2+ A levels, 4+ AS levels, Higher School Certificate, NVQ level 3, Advanced GNVQ	13 Level 3: 2+ A levels, 4+ AS levels, Higher School Certificate, NVQ level 3, Advanced GNVQ	13 Apprenticeship (England & Wales & Northern Ireland)
4 None			14 Level 4/5: First degree, Higher degree, NVQ levels 4-5, HNC, HND. Qualified Teacher status, Qualified Medical Doctor, Qualified Dentist, Qualified Nurse, Midwife, Health Visitor	14 Level 4/5: First degree, Higher degree, NVQ levels 4-5, HNC, HND. Qualified Teacher status, Qualified Medical Doctor, Qualified Dentist, Qualified Nurse, Midwife, Health Visitor	14 Level 3: 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advance Diploma, NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma (England & Wal
5 None Stated			15 Other qualifications (eg City and Guilds etc), Other Professional qualifications	15 Other qualifications (eg City and Guilds etc), Other Professional qualifications	15 Level 4+: Degree (BA, BSc), Higher Degree (MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional, Qualifications (Teaching, Nursing, Accountancy) (England & Wales & Northern Ireland)
18+ qualifications only				16 Other: Vocational/Work-related Qualifications, Foreign Qualifications/ (Not stated/ level unknown) (England & Wales & Northern Ireland)	16 Other: Vocational/Work-related Qualifications, Foreign Qualifications/ (Not stated/ level unknown) (England & Wales & Northern Ireland)
			-7 Missing (initial extract only record)	-7 Missing (initial extract only record)	16 Qualifications gained outside the UK (NI) (Not stated/ level unknown) (England & Wales & Northern Ireland)
					-6 Missing
	-9 Person aged under 16 or has no qualifications		-9 Not applicable	-9 Not applicable	-9 No code required (Aged less than 16, Students not at their term-time address)

ACCESS TO THE ONS LS DATA



- **Contact CeLSIUS** at UCL to discuss potential research ideas:
celsius@ucl.ac.uk
- Read **training materials** on CeLSIUS website
<https://www.ucl.ac.uk/iehc/research/epidemiology-public-health/research/celsius>
- **Support provided by CeLSIUS** at every step, including the application process
- Analysis to be carried out through **approved projects**
- Work is undertaken in **secure environment** (SRS) or remotely
- Project **outputs cleared** and sent to you

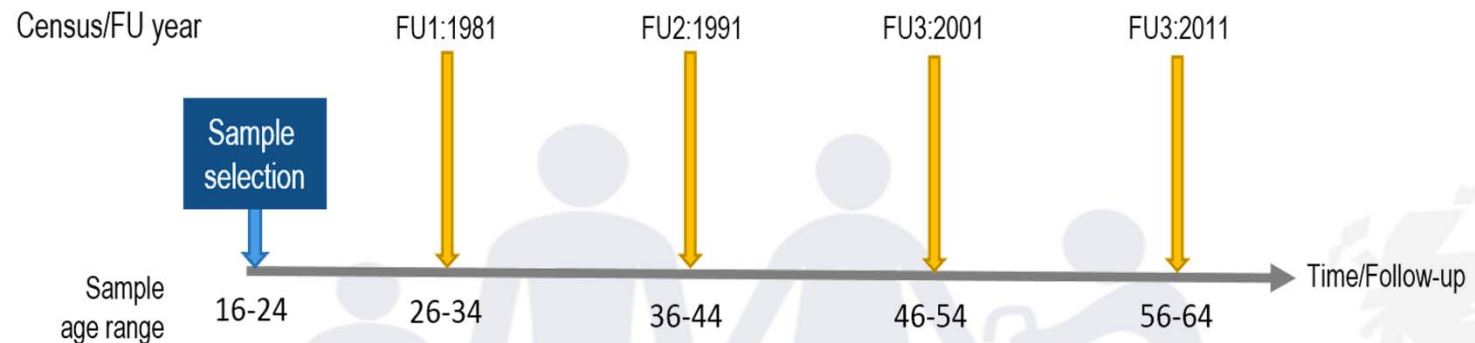
RESEARCH EXAMPLE

HOW DOES **EDUCATION** LEVELS AFFECT THE
CHANCES OF BEING IN EMPLOYMENT OVER
THE LIFE COURSE?

CeLSIUS

DATA AND ANALYSES

- Sample: 16-24 (n=65234) tracked forward 40 years
- Outcome = **economic activity** (obtained at census every 10 years, 3 nominal categories)



Model specification

Multinomial logistic regression **ORs** adjusted for:

Economic activity at last FU, age group, **education level**, married (Y/N), self-reported sickness from last FU₀₁₊₁₁, child in HH, illness in HH members, spouse working, Carstairs deprivation quintiles

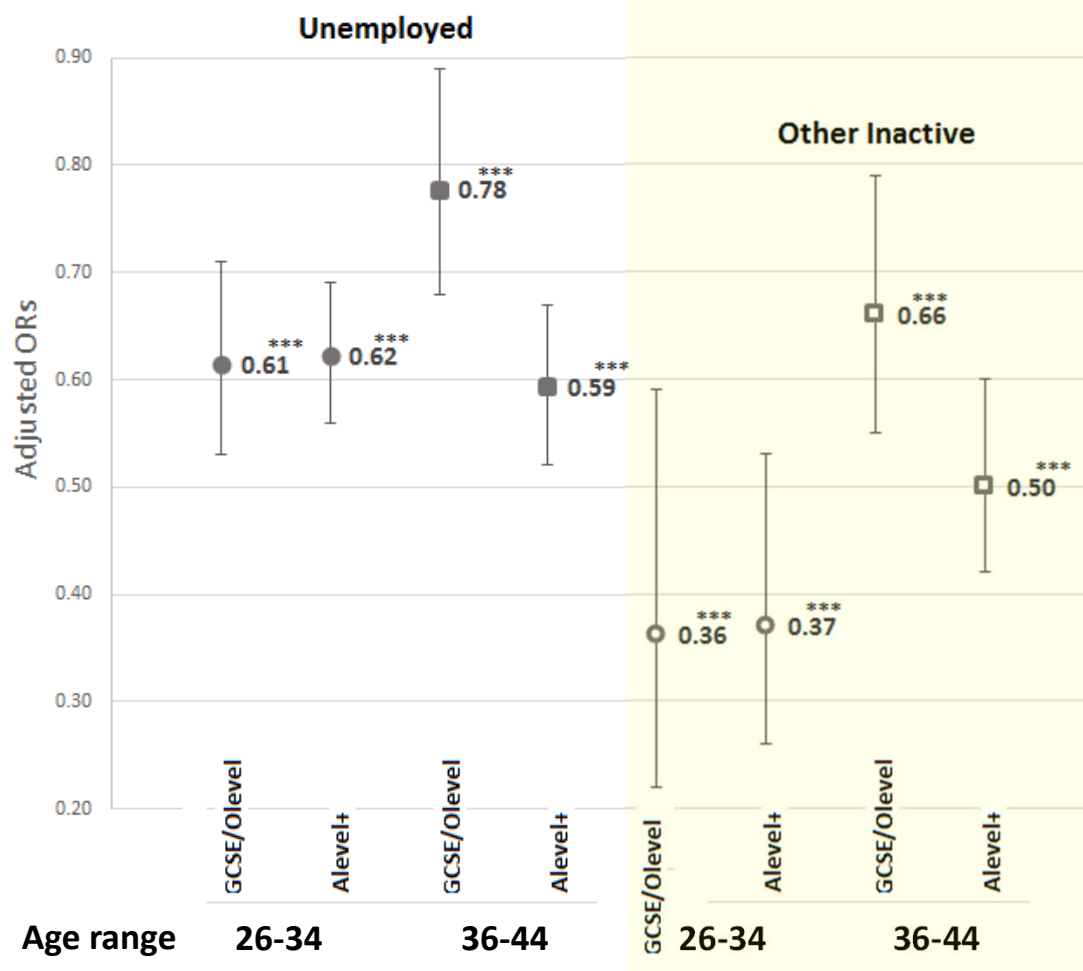
EDUCATION IN MEN

	1971-81					1981-91					1991-01					2001-2011				
	1971-81	LCI 95%	UCI 95%	P value	sig level	1981-91	LCI 95%	UCI 95%	P value	sig level	1991-01	LCI 95%	UCI 95%	P value	sig level	2001-11	LCI 95%	UCI 95%	P value	sig level
Unemployed/																				
GCSEs/Olevels	0.614	0.08	0.10	0.0035	**	0.777	0.10	-0.78	0.0426	*										
A level+	0.622	0.06	0.07	0.0088	**	0.594	0.07	-0.59	0.0000	***										
Ill_retired_other																				
GCSEs/Olevels	0.362	0.14	0.23	0.0000	***	0.66	0.11	-0.66	0.3664											
A level+	0.37	0.11	0.16	0.0000	***	0.499	0.08	-0.50	0.0000	***										
Unemployed/retired/other											1991-01	LCI 95%	UCI 95%	P value	sig level	2001-11	LCI 95%	UCI 95%	P value	sig level
GCSEs/Olevels											0.876	0.12	0.13	0.0000	***	1.051	0.12	0.14	0.0000	***
A level+											0.778	0.10	0.11	0.0000	***	1.153	0.10	0.12	0.0000	***
Not work, ill																				
GCSEs/Olevels											0.508	0.06	0.07	0.0000	***	0.579	0.07	0.08	0.0000	***
A level+											0.539	0.06	0.07	0.0000	***	0.553	0.05	0.06	0.0000	***

Note to LSDT: same data as graph in next slide

EDUCATION IN MEN

Ref category: no
education/missing



ORs significantly lower than 1 shows “protection” from being in workless economic state of those with increasing levels of education

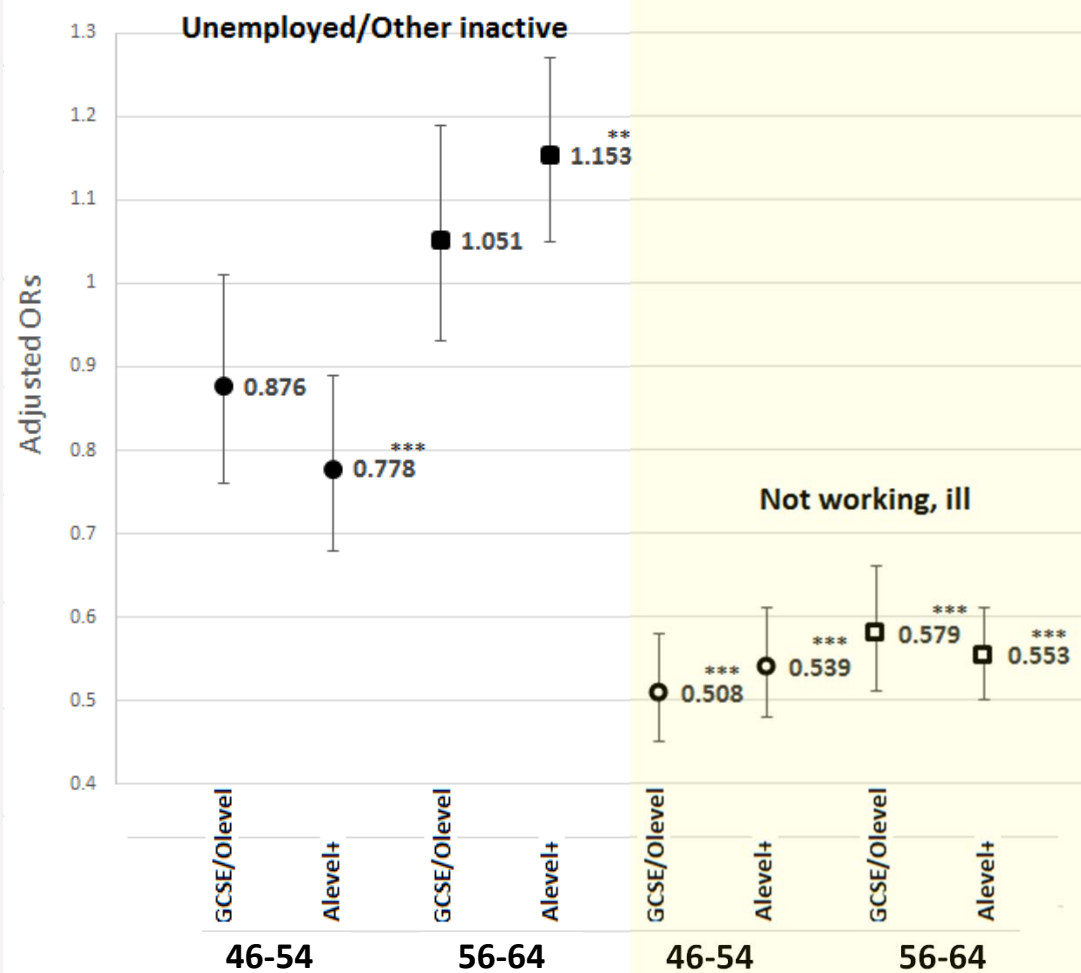
This protection weakens in mid-life for those with GCSE/O-level equivalent education

EDUCATION IN MEN

No “protection” from being unemployed/other inactive at age 56-64

No response gradient for protection from being workless and ill in later life

Ref category: no education/missing



EDUCATION IN WOMEN

WOMEN

	1971-81					1981-91					1991-01					2001-2011				
Unemployed/ill/other inactive	OR	LCI 95%	UCI 95%	P value	sig level	OR	LCI 95%	UCI 95%	P value	sig level	OR	LCI 95%	UCI 95%	P value	sig level	OR	LCI 95%	UCI 95%	P value	sig level
GCSEs/Olevels	0.624	0.45	0.86	0.0035	**	0.829	0.69	0.99	0.0426	*	0.471	0.42	0.53	0.0000	***	0.537	0.48	0.6	0.0000	***
A level+	0.72	0.56	0.92	0.0088	**	0.672	0.56	0.8	0.0000	***	0.46	0.41	0.52	0.0000	***	0.45	0.4	0.5	0.0000	***
LAHF																				
GCSEs/Olevels	0.782	0.72	0.84	0.0000	***	0.966	0.89	1.04	0.3664		0.607	0.55	0.67	0.0000	***	0.753	0.69	0.82	0.0000	***
A level+	0.847	0.79	0.90	0.0000	***	0.811	0.76	0.87	0.0000	***	0.515	0.47	0.57	0.0000	***	0.701	0.64	0.76	0.0000	***

No education/none declared as reference

Note to LSDT: same data as graph in next slide

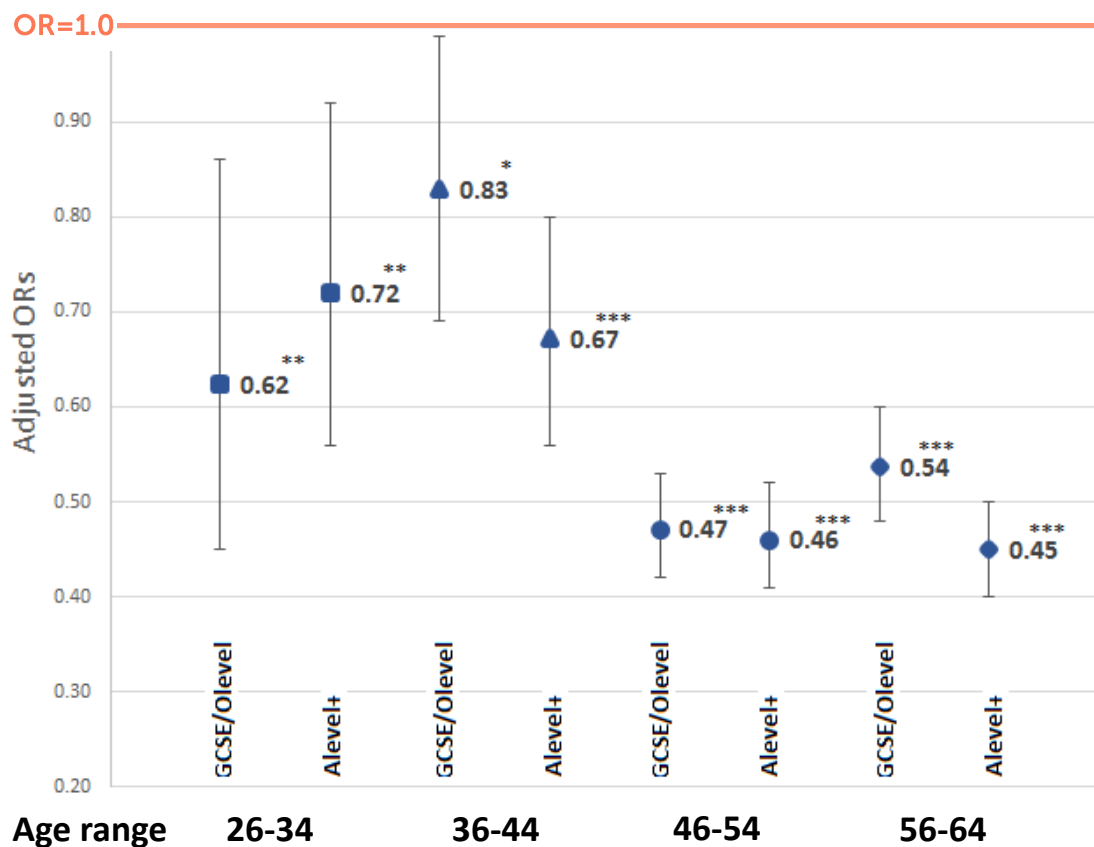
EDUCATION IN WOMEN

Ref category: no
education/missing

ORs significantly lower than 1 shows “protection” from being in workless economic state of those with increasing levels of education

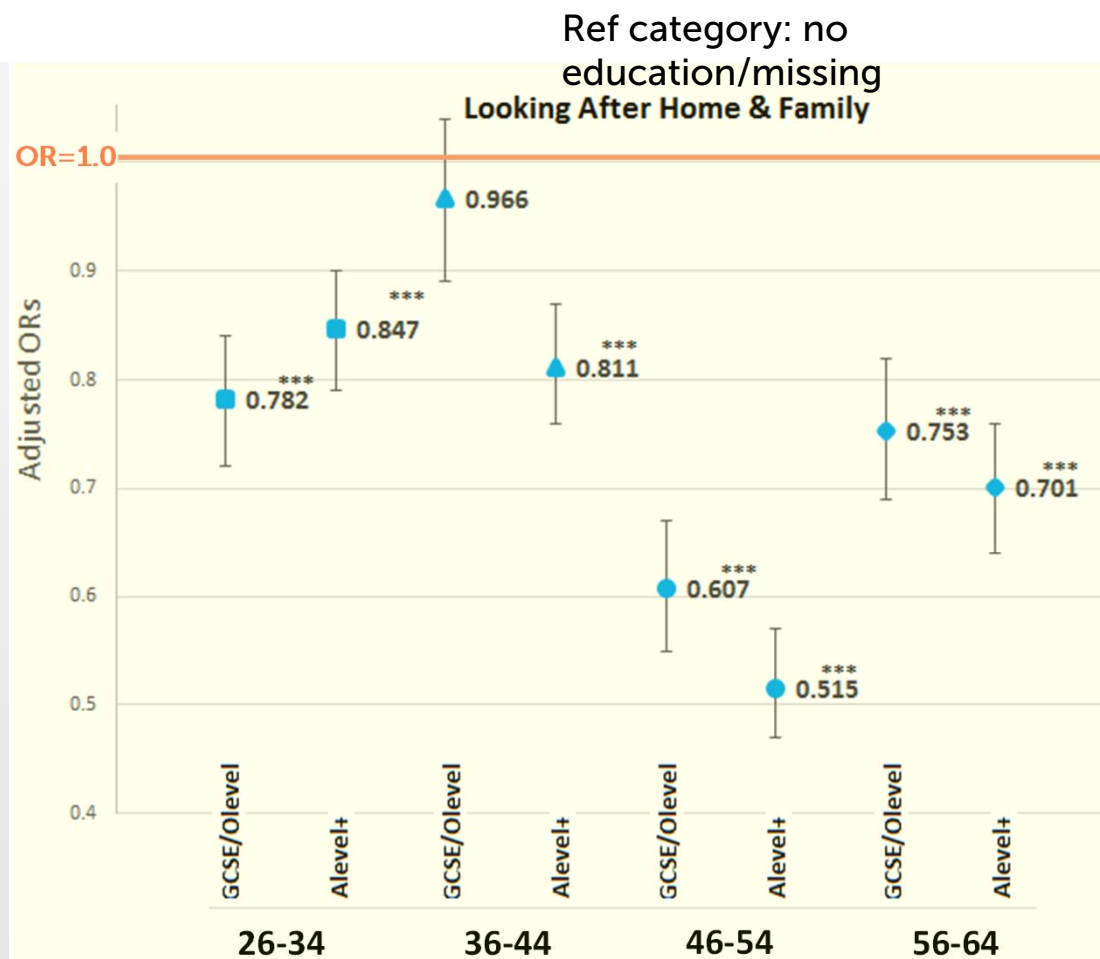
This protection against being unemployed/other inactive strengthens in mid- to later-life

Unemployed/Other Inactive



EDUCATION IN WOMEN

The protection against worklessness with looking after home and family strongest at age 46-54



THANK YOU & Acknowledgment

- The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme under project ES/K000365/1. The authors alone are responsible for the interpretation of the data.
- This work contains statistical data from ONS which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates



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The **Centre for Longitudinal Study Information and User Support**

(**CeLSIUS**) has been providing **free support** to academic, statutory and voluntary sector users.

To find out more about CeLSIUS and the ONS LS, go to:

The CeLSIUS website: <https://www.ucl.ac.uk/iehc/research/epidemiology-public-health/research/celsius>

gives you free access to all the information you need about the ONS LS, online training in LS use, example data tables, and information about current and past LS projects and research outcomes

Email us at celsius@ucl.ac.uk with your project ideas

Twitter: [@celsiusnews](https://twitter.com/celsiusnews) for all the latest ONS LS-related news and information