

Getting Started: An introduction to four British cohort studies

28 November 2024

Centre for Longitudinal Studies, UCL Social Research Institute



Today's schedule

Session	Time	Topics covered	Speaker
1.	12.30 – 12.45	Introduction	Dr Vanessa Moulton Senior Research Associate
2.	12.45 –13.05	Content by 'subject area'	Prof. Morag Henderson Professor in Sociology
3.	13.05 – 13.25	Overview of the type of analysis	Dr Richard Silverwood Associate Professor
4.	13.25 – 13.45	Getting started with the data And where to go for more information	Dr Vanessa Moulton Senior Research Associate
5.	13.45 – 14.00	General Q&A	All

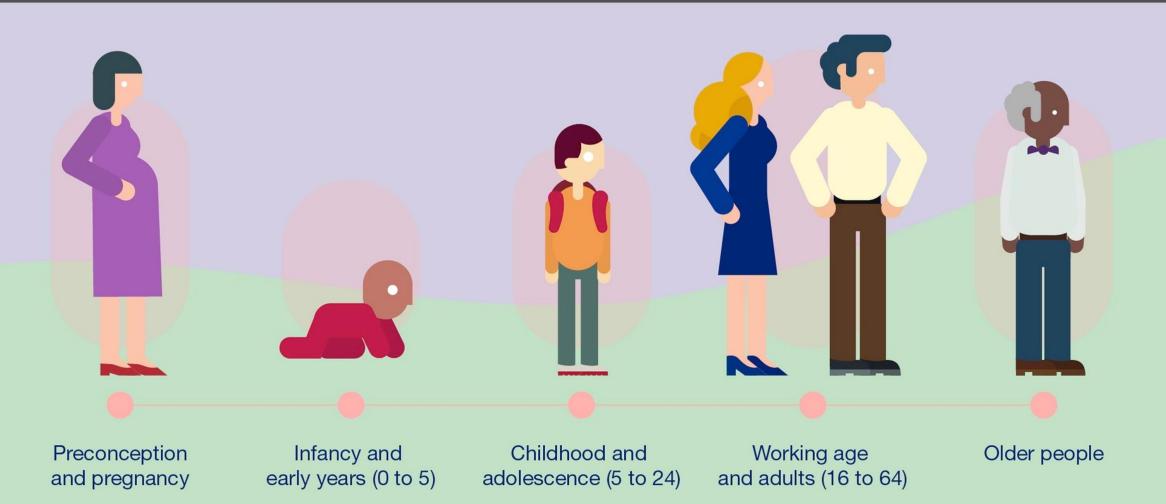


Birth cohort studies

- Cohort studies are a type of longitudinal study—an approach that follows participants over a period of time (often many years)
- Participants share a common characteristic, i.e. birth cohorts follow individuals born in a particular period - a day, week, month, year
- It follows these people throughout their lives, and collects information from them at particular ages
- During the period of follow-up, some of the cohort will be exposed to a specific risk factor or characteristic; by measuring outcomes over a period of time, it is then possible to explore the impact of this variable



The life course approach - life stages



CENTRE FOR LONGITUDINAL STUDIES

1946

National Survey of Health and Development

1970

BCS70 1970 British Cohort Study



COHORT STUDY





National Child Development Study





-2022







Our new studies

Early Life Cohort Feasibility Study (fieldwork completed in 2023-24)

- ESRC funded study following a cohort of several thousand babies born in the UK in 2022-23.
- New insights into the health and development of children and test feasibility of setting up a new full-scale birth cohort study in future.
- Data collection took place when babies were 9-12 months. Expected data release: mid 2025.

Children of the 2020s Study (fieldwork began in 2022)

- DfE commissioned study following a cohort of babies born in England Sept-Nov 2021(@ 8,500 families).
- Scientific and policy questions about family, early education and childcare determinants of early school success.
- Wave 1 data (nine months) available now from ONS, Wave 2 (two years) expected early-mid 2025.

COVID Social Mobility and Opportunities study (fieldwork began in 2021)

- A UKRI funded study following over 13,000 young people (in Year 11 in the academic year 2020-21).
- Effects of COVID-19 pandemic and the cost of living crisis on young people's lives and prospects.
- Wave 1 and Wave 2 data available now from the UK Data Service.

Four national longitudinal studies

1958 National Child Development Study (NCDS)

born in GB in one week. N = 17,415

1970 British Cohort Study (BCS70)

born in GB in one week. N = 17,196

Next Steps (formerly LSYPE)

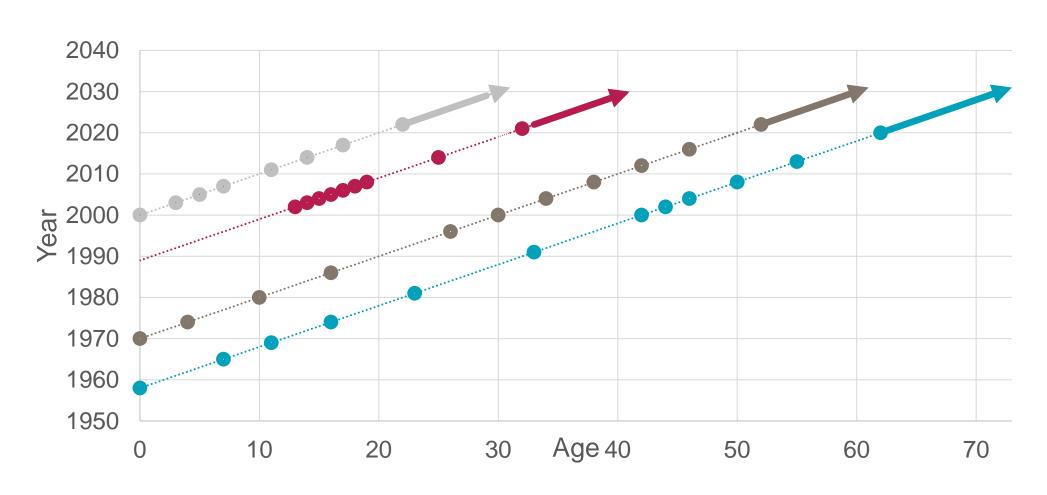
living in England born in 1989/90. Began aged 13-14. N = 15,770

Millennium Cohort Study (MCS)

born in the UK in 2000-02. N = 18,818

Study timelines and future 2020-2030

MCS Next Steps BCS70 NCDS





An example: NCDS A study of everyone born in one week in 1958 (GB)



	1958	1965	1969	1974	1981	1991	2000	2003	2004	2008	2013
	Birth	7	11	16	23	33	42	44	46	50	55
E)O main respondent	mother	parents	parents	cohort member / parents	cohort member	cohort member	cohort member	cohort member	cohort member	cohort member	cohort member
		school	school	school		children (1 in 3)					
medical	medical exam	medical exam Ht/Wt	medical exam Ht/Wt	medical exam Ht/Wt	Ht/Wt	Ht/Wt		Ht/Wt blood - DNA		Ht/Wt	Ht/Wt
survey instruments		cognitive mental h.	cognitive mental h.	cognitive mental h.	mental h.	mental h.	mental h.	biomedical		cognitive mental h.	
linked data				area of residence (census)	area of residence (census)					consent for health and economic records	
response rate	17,415	15,425	15,337	14,654	12,537	11,469	11,419	9,377	9,534	9,790	9,137



The cohort studies by scientific theme/discipline





Subject areas

- Physical health
- Mental health & Wellbeing
- Family and relationships
- Earnings and income
- Education, ability and cognitive measures

...but there are many more



Birth	School years	Adult
Household composition Parental social class Obstetric history Smoking in pregnancy Pregnancy (problems, antenatal care) Labour (length, pain relief, problems) Birthweight, length	Household composition Parental social class Parental employment Financial circumstances Housing Health Cognitive tests Emotions and behaviour School Views and expectations Attainment	Household composition Employment Social class Income Housing Health (including biomarkers) Well-being and mental health Health-related behaviour Training and qualifications Basic skills Cognitive tests
		Views and expectations



Physical Health



Physical health measures	NCDS 58	BCS 70	NS 89	MCS 01
Self assessed general health	7, 11,16, 33, 44, 46, 50, 55	5, 10, 16, 34, 42, 46	25, 32	3, 5, 7, 11, 14, 17
BMI, Height, Weight	7,11, 16, 23, 33, 42, 44, 50, 55	10,16, 26, 30, 34, 42, 46	25, 32	3, 5, 7, 11, 14, 17
Hospital Episodes Statistics:	England & Scotland ✓	England & Scotland ✓	England ✓	Scotland & Wales ✓
DNA /biomarkers	44 (available)	46 (available)	32 (available)	14 (available)
Physical activity (leisure time)	11, 16, 23, 33, 42, 44, 50, 55	5, 10, 16, 34, 42, 46	20, 25, 32	5, 7, 11, 14, 17
Diet related measures (intake, overeating)	7, 33, 42, 44	10, 16, 30, 34, 42, 46	25, 32	9 months, 3, 7, 11, 14, 17
Anthropometry (e.g. blood pressure, body fat, grip strength, vision, motor skills)	7, 11, 16, 44	10, 16, 46 + accelerometry	-	3, 7, 11, 14, 17 (10, 14 acceler)
Medical conditions/ *long term illness	0, 7, 11, 26, 23, 33, 42, 44, 46, 50, 55	0, 5, 10, 16, 26, 30, 34, 38, 42, 46	14*, 15*, 16*, 17*, 18*, 19*, 20*, 25*, 32	9m, 3, 5, 7, 11, 14, 17
Drugs & alcohol consumption	16, 23, 33, 42, 44, 46, 50, 55	16, 26, 30, 34, 42, 46	14, 15, 16, 17, 18, 19, 20, 25, 32	11, 14, 17

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BMI, Height, Weight	7,11, 16, 23, 33, 42, 44, 50, 55	10,16, 26, 30, 34, 42, 46	25, 32	3, 5, 7, 11, 14, 17
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Drugs & alcohol consumption	16, 23, 33, 42, 44, 46, 50, 55	16, 26, 30, 34, 42, 46	14, 15, 16, 17, 18, 19, 20, 25, 32	11, 14, 17

Health measures in COVID-19 web surveys	NCDS 58	BCS 70	NS 89	MCS 01
COVID-19 antibodies N=10,442	n=3,222	n=2,547	n=1,267	CM Par n=1,140 n=2,266
Long COVID Symptoms Testing COVID presence	W3 W1, W2; W1, W2; W1, W2, W3			
Self-related general health	W1, W2, W3	W1, W2, W3	W1, W2, W3	W1, W2, W3
Long-standing health conditions	W1, W2, W3	W1, W2, W3	W1, W2, W3	W1, W2, W3
Disruption to medical appointments	W1, W2, W3	W1, W2, W3	W1, W2, W3	W1, W2, W3
Difficulty obtaining medication	W2, W3	W2, W3	W2, W3	W2, W3
Defined as vulnerable	W1, W2, W3	W1, W2, W3	W1, W2, W3	W1, W2, W3

More information can be found in this video on the cohort studies through a biomedical science perspective and on the CLS website



Introducing the 1958, 1970, 1989-90 & 2000-01 birth...

CLOSER 320 views • 1 year ago

https://www.youtube.com/watch?v=dSd7E TrQdR0&t=1932s



Mental Health & Wellbeing



Mental health & Wellbeing— all cohorts

- Bristol Social Adjustment Guide (BSAG)
- Conners teachers Hyperactivity Rating Scale (Conn)
- Rutter Behavioural Scale (RUT)
- Child Development Scale (combination of Rutter and Connor) (CDS)
- Strengths and difficulty questionnaire (SDQ)
- Mood and feelings questionnaire (MFQ)
- Malaise inventory (MAL)
- Kessler Scale (4 item) (K4)
- General Health Questionnaire (12-item version) (GHQ-12)
- Short Form Health Survey (SF-36)
- The Warwick-Edinburgh Mental Wellbeing Scale (WEMWEBS)

Malaise



A nine-item Malaise Inventory: a measure of psychological distress

- Do you feel tired most of the time?
- Do you often feel miserable or depressed?
- Do you often get worried about things?
- Do you often get into a violent rage?
- Do you often suddenly become scared for no reason?
- Are you easily upset or irritated?
- Are you constantly keyed up and jittery?
- Does every little thing get on your nerves?
- Does your heart often race like mad?

Mental Health measure	NCDS 58	BCS 70	NS 89	MCS 01
BSAG	7, 11			
Conn		10, 16		
RUT	7 , 11 , 16 , 16	5, 10, 16		
CDS		10		
SDQ				3, 5, 7, 7, 11, 11, 14, 17, 17
MFQ				14
MAL	23, 33, 42, 50	16, 26, 30, 34, 42, 46		
K4/K6		34		17
GHQ-12	42	16, 30	15, 17, 25, 32	
SF-36	50	46		
WEMWEBS	50	42, 46		17
PHQ, GAD			32	

Parent, teacher and self-report

COVID-19 sweeps: All Cohorts



- Patient Health Questionnaire-2 (PHQ-2):
- Over the <u>last 2 weeks</u>, how often have you been bothered by the following problems?
 - Little interest or pleasure in doing things
 - Feeling down, depressed or hopeless
- Generalised-Anxiety Disorder (GAD-2)
- Over the <u>last 2 weeks</u>, how often have you been bothered by the following problems?
 - Feeling nervous, anxious or on edge
 - Not being able to stop or control worrying
 - Not at all Nearly every day

More information can be found in this video on mental health in the cohort studies





Mental health in four British : cohort studies:...

UCL Centre for Longitudinal Studi...
204 views • 1 year ago

CC

https://www.youtube.com/watch?v=Do4X
VUqsPO0&t=1510s



Family and Relationships





Family and relationships

- Who is in the household
- Relationship to cohort member
- Age /number of siblings
- Biological, step, adoptive parents
- Age of parents when the cohort member was born
- Fertility intentions
- Pregnancy history
- Partnership formation, cohabitation, marriage, divorce, dissolution, formation

More information can be found in this video on families in the CENTRE FOR LONGITUDINAL cohort studies





Families and relationships in four British cohort studies...

UCL Centre for Longitudinal Studi... 63 views • 1 month ago

1/3 recordings

https://www.youtube.com/watch?v=IFkCW C9eJbE



Education, ability and cognitive measures



NCDS 58	BCS 70	NS 89	MCS 01
			NPD
		NPD	NPD
		NPD	
23, 42	32	NPD & self report	NPD & self report
23, 42	26, 32, 34, 42	NPD & self report	NPD & self report
16	16	14, 15, 16, 17	11, 14
		Individualised Learning Record	
42, 46	38, 42	20, 25, 32	17
23,33	42	20, 25, 32	17
42	38	20, 25, 32	-
	23, 42 23, 42 16 42, 46 23,33	23, 42 32 23, 42 26, 32, 34, 42 16 16 42, 46 38, 42 23,33 42	NPD NPD 23, 42 32 NPD & self report 23, 42 26, 32, 34, 42 NPD & self report 16 16 16 14, 15, 16, 17 Individualised Learning Record 42, 46 38, 42 20, 25, 32 23,33 42 20, 25, 32

Cognitive ability in childhood



- Bracken school readiness (BSRA-R)
- British Ability Scales: verbal similarities, word definitions, matrices, recall of digits, pattern construction, picture similarities, naming vocabulary, word reading
- General Ability Test (GAT)
- Cambridge Neuropsychological Test Automated Battery (CANTAB): Decision making, Working memory
- National Foundation for Education Research (NFER): maths tests, reading comprehension
- Applied Psychology Unit (APU): Vocab test, Maths test
- Number Analogies (GL Assessment)
- Schonell Reading Test; Southgate Group Reading Test; Edinburgh Reading Test;
 English Picture Vocabulary Test
- Copying Designs Test; Human Figure Drawing; Complete a Profile Test

(Main) cognitive ability/skill	NCDS 58	BCS 70	NS 89	MCS 01
Developmental milestones		22 months*, 42 months*		9 months
School readiness (BSRA-R)				3
Verbal reasoning	11	10		11
Non-verbal reasoning	11	10,16		5
Verbal skills (i.e. reading, comprehension, vocabulary, literacy)	7,11,16,37*	5,10,16,21*,34,42		3,5,7,14
Mathematics and numeracy	7,11,16,37*	10,16,21*,34		7,17
Visual/spatial processing	7	5		5,7
Decision making				11,14
Memory (short-term, long-term, spatial, working)	50	10,46	32	11
Processing speed	50	46		

^{*} sub-sample



Earnings and income



Earnings and Income	NCDS 58	BCS 70	NS 89	MCS 01
Earnings from work (CM and parents)	7, 11, 16, 23, 33, 42, 46, 50, 55	10, 16, 26, 30, 34, 38, 42, 46	14, 15, 16, 20, 25	3, 7, 11, 14, 17
Income (investments, income support, benefits, etc.)	16, 33, 42, 46, 50, 55	10, 16, 30, 34, 38, 42	25, 32	3, 7, 11, 14, 17
Occupation	11, 33, 42, 46, 50, 55	10, 30, 34, 38, 42, 46	25, 32	3, 7, 11, 14, 17
Social mobility (generational analysis)	✓	✓	✓	✓
Wealth (actual): Housing Financial - Savings - Debt	55 23,33,50 -	42 34, 42, 46 42, 46	32 32 25, 32	11,14 7,11,14 7,11,14



How to search these resources

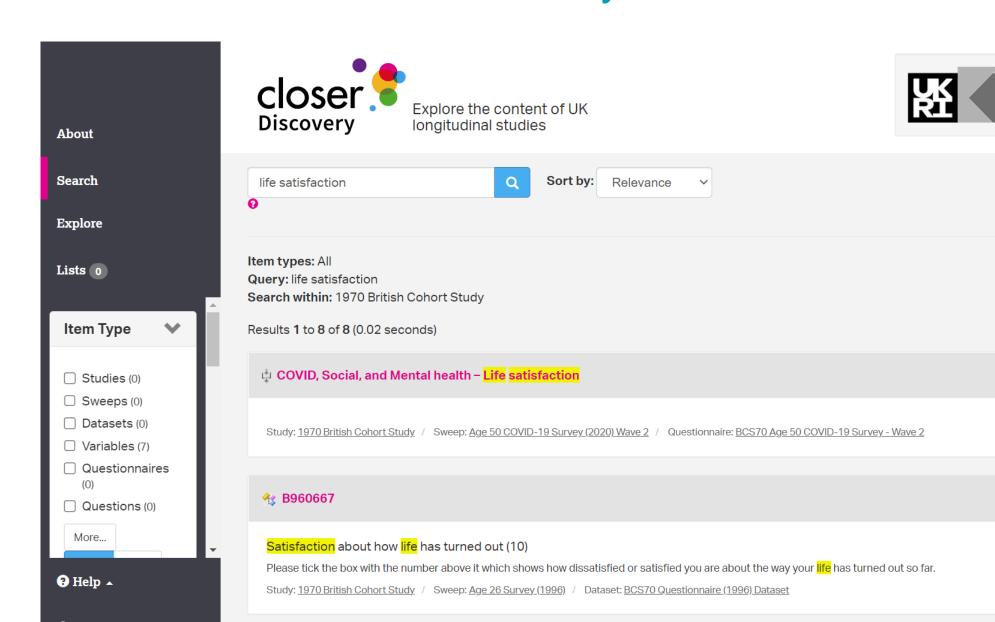


SEARCH Closer Discovery



Economic and Social

Research Council





Alternative methods for searching

- Search in questionnaires (available from UK Data Service or <u>CLS</u> website: Our Studies; Sweeps; Documentation; Questionnaires)
- Or download the actual datasets and search the variables (<u>UK</u> <u>Data Service</u>)
- Descriptions of variables in published papers

Training resources

CENTRE FOR LONGITUDINAL **STUDIES**

Upcoming events

Recordings on CLS website and the CLS Youtube Channel



UCL Centre for Longitudinal Studies

CENTRE FOR LONGITUDINAL **STUDIES**

The UCL Centre for Longitudinal Studies is home to a unique series of UK national cohort ...more cls.ucl.ac.uk and 1 more link ∆ Subscribed ∨

Videos Playlists

@CLScohort · 342 subscribers · 73 videos

Getting started with the cohort studies Play all

The UCL Centre for Longitudinal Studies (CLS) is home to four of the UK's national cohort studies, which follow tens of thousands of people from birth and across the whole of their lives. These...



Getting started - An introduction to four British...

UCL Centre for Longitudinal Studi... 537 views • 11 months ago

Introductions to our four national cohort studies Play all

Find out more about the Centre for Longitudinal Studies' four longitudinal cohort studies: the 1958 National Child Development Study, 1970 British Cohort Study, Next Steps and Millennium Cohort...



National Child Development...

UCL Centre for Longitudinal Studi... 278 views • 1 year ago



Introduction to the 1970 British Cohort Study

UCL Centre for Longitudinal Studi... 294 views · 2 years ago



Introduction to Next Steps: a longitudinal study in England

UCL Centre for Longitudinal Studi... 159 views • 1 year ago



Millennium Cohort Study (fu... UCL Centre for Longitudinal Studi...

853 views · 2 years ago

Additional sources of information



Physical health

- Fluharty, M., Villadsen, A., Kandola, A., Griffiths, L., O'Neill, D., Pinto Pereira, S., Timpson, N., Cooper, R., Bann, D.(2020). Physical activity across age and study: a guide to data in six CLOSER studies. London, UK: CLOSER.
- Rajatileka S, Groom A, Ring S. Harmonisation of strategies for exploitation of biological sample collections. London, UK:
 CLOSER; 2017.
- Ruiz M, Benzeval M, Kumari M. A guide to biomarker data in the CLOSER studies: A catalogue across the cohort and longitudinal studies. London, UK: CLOSER; 2017.
- Maddock, J., O'Neill, D., Robinson, S., Crozier, S., Jameson, K., Dodgeon, B., Suderman, M., Emmett, P., Gush, K., Burton, J., Payne, J., Kumari, M., & Hardy, R. (2020). A guide to the dietary data in eight CLOSER studies. London, UK: CLOSER.

Mental Health and Wellbeing

McElroy, E., Villadsen, A., Patalay, P., Goodman, A., Richards, M., Northstone, K., Fearon, P., Tibber, M., Gondek, D., & Ploubidis, G.B. (2020). Harmonisation and Measurement Properties of Mental Health Measures in Six British Cohorts.
 London, UK: CLOSER.

Cognitive ability

Moulton, V., McElroy, E., Richards, M., Fitzsimons, E., Northstone, K., Conti, G., Ploubidis, G.B., Sullivan, A., O'Neill, D. (2020). A guide to the cognitive measures in five British birth cohort studies. London, UK: CLOSER.



Next

CENTRE FOR LONGITUDINAL STUDIES



Other data enhancements in the birth cohorts

- Genetic data in the NCDS, BCS70, Next Steps and MCS
 - MCS Trios (cohort, mother, father)
- Linked administrative data
 - Health and education
 - Consent: Employment (all) and crime (Next Steps, MCS)
- Geographical data
 - e.g. electoral wards, output areas, Points of Interest etc
- Harmonised datasets across the cohorts
 - Socio-economic, BMI, mental health, child environment
- COVID-19 online surveys
 - Possible impacts of pandemic on multiple aspects of life
 - Wide range of topics including family, employment, home schooling, mental health during lockdown and an open question on affects of the pandemic





Examples of the types of analyses that can be undertaken using CLS cohort data

Richard Silverwood
Associate Professor of Statistics &
CLS Chief Statistician

CENTRE FOR LONGITUDINAL STUDIES

28 November 2024



Outline



- 1. Simple analyses
- 2. Confounder control
- 3. Repeated measures
- 4. Cross-cohort analysis

Simple analyses

Simple analyses



- The cohorts provide rich data collected on cohort members over many years/decades, so complex analyses possible.
- But let's start with some simple (more descriptive) examples...

Centre for Longitudinal Studies



Fertility intentions and postponed parenthood

Initial findings from Next Steps at Age 32

The age at first birth in the UK has steadily increased over time. Among women born in the early 1990s, 44% have had one or more children before the age of 30, compared with 58% of their mothers' generation (born in mid-1960s) and 81% of their grandmothers' generation (born in late 1930s).

While some individuals might prefer not to have children, others may be uncertain about their childbearing plans, or have reasons for putting them off. Against the backdrop of persistently low fertility rates in England and Wales (1.49 children per woman in 2022), understanding people's 'fertility intentions' – their desire to have or not have children – can shed light on potential barriers that might force individuals to postpone or forego having children.

This briefing investigates fertility intentions among 32-year-olds taking part in Next Steps, a nationally representative cohort study following the lives of around 16,000 people in England who were born in 1989-90. It focuses on the reasons why people who do want to have children (or more children) might postpone doing so, within a challenging social and economic context. Higher inflation, the rising cost-of-living and housing prices might strain current and potential parents financially. At the same time, the Covid-19 pandemic has significantly altered working styles and patterns, with increased remote work and flexible arrangements becoming more common. These changes may influence how individuals balance career and family planning decisions. Additionally, ongoing debates about parental leave policies, childcare costs, and work-life balance are shaping the environment in which this generation is making fertility decisions.

The analysis was conducted on an analytical sample of 7,279 Next Steps respondents, of whom 2,045 reported that they wanted to have children (or more children) but were not currently trying, and their reasons for postponing parenthood.

Next Steps Age 32 Sweep

Next Steps is following the lives of around 16,000 people in England born in 1989-90. The Age 32 Sweep took place between April 2022 and September 2023. More than 7,200 study members took part in a 60-minute survey, either online or with an interviewer. Data from this and previous sweeps of Next Steps are available to download from the UK Data Service.

AUTHORS

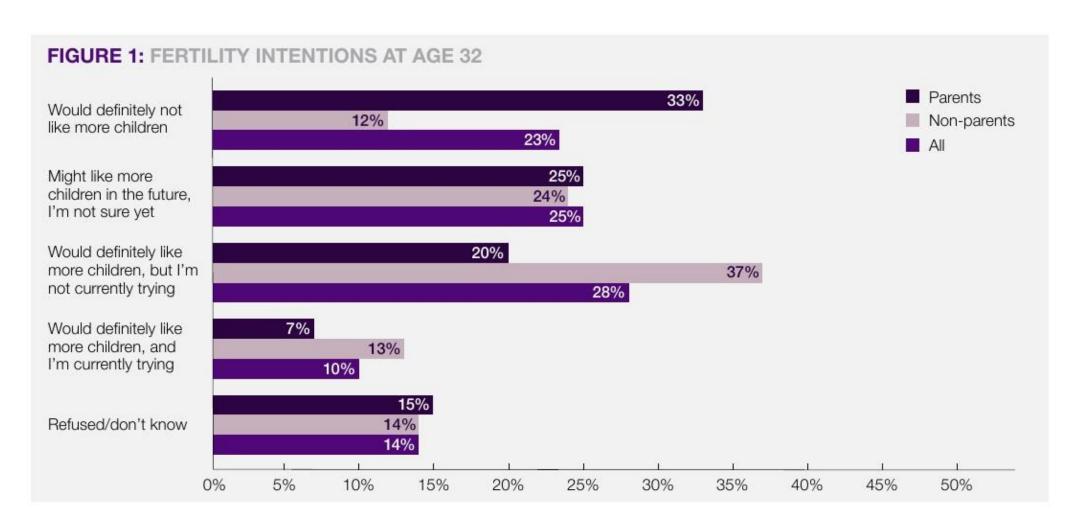
Dr Alina Pelikh Professor Alice Goisis



Which of these statements best describes the way you feel about having (more) children?

- I would definitely like (more) children, and I'm currently trying
- I would definitely like (more) children, but I'm not currently trying
- I might like (more) children in the future, I'm not sure yet
- I would definitely not like (more) children
- I don't know
- Prefer not to say



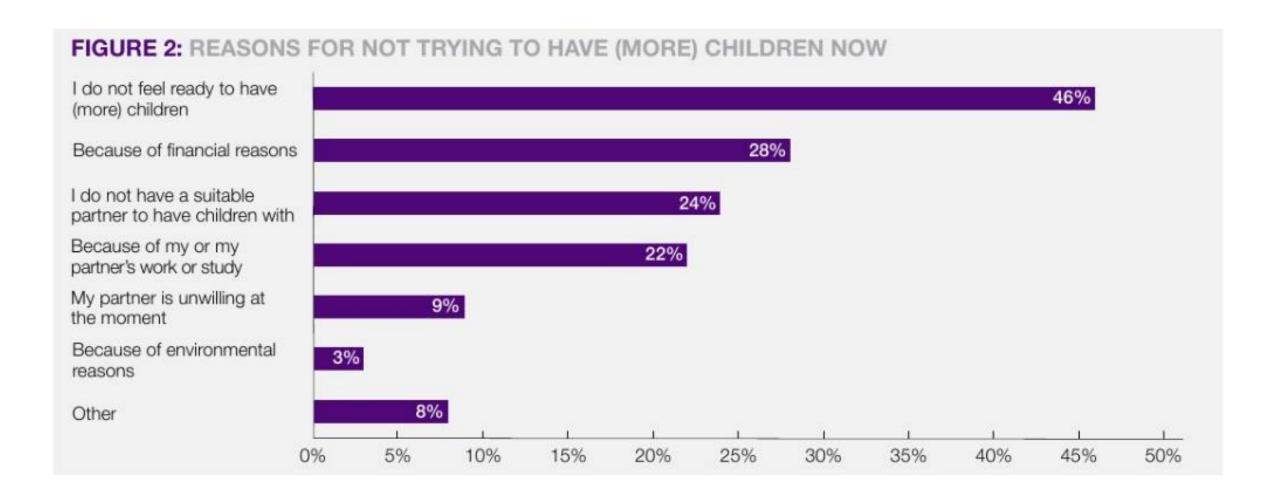




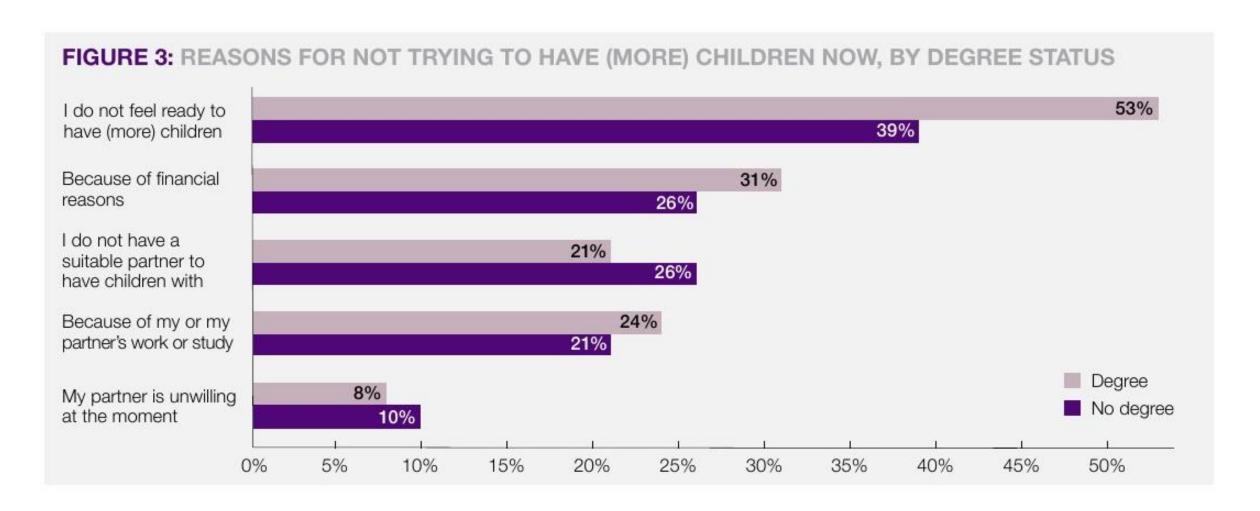
Which one of the following best describes the main reason you are not currently trying to have (more) children?

- I do not feel ready to have (more) children yet
- I do not have a suitable partner to have children with
- My partner is unwilling at the moment
- Because of financial reasons
- Because of my work or study
- Because of my partner's work or study
- Because of environmental reasons
- Other (please specify)
- Don't know/Prefer not to say









Simple analyses: Key message



 Great opportunity for simple (more descriptive) analyses – literally thousands of interesting variables collected in the cohorts.



- If we want an estimated association between an independent variable and a dependent variable to have any causal interpretation, we need to consider confounder control.
- Confounder: A variable that causes non-causal (spurious) association between an independent variable (exposure) and a dependent variable (outcome).

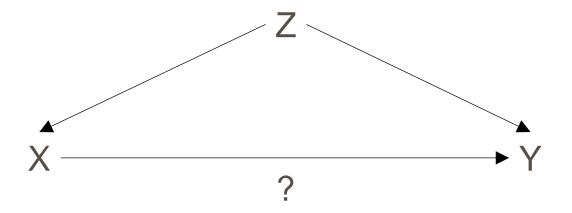


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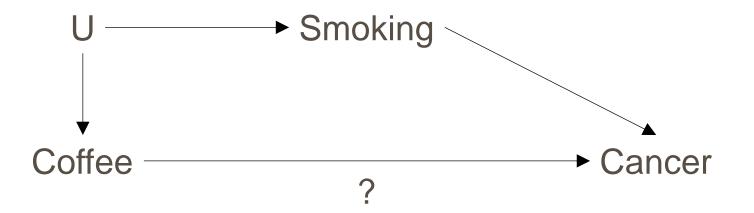




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- Confounder: A variable that causes non-causal (spurious) association between an independent variable (exposure) and a dependent variable (outcome).
- Thankfully, the rich data collected on cohort members over many years/decades provide great opportunity for confounder control.



Research

JAMA Psychiatry | Original Investigation

Association of Early-Life Mental Health With Biomarkers in Midlife and Premature Mortality Evidence From the 1958 British Birth Cohort

George B. Ploubidis, PhD; G. David Batty, PhD, DSc; Praveetha Patalay, PhD; David Bann, PhD; Alissa Goodman, MSc

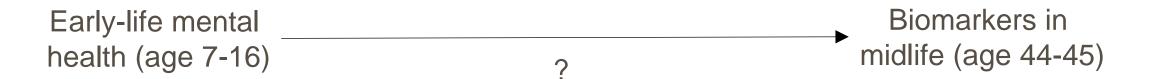
IMPORTANCE Early-life mental health is known to be associated with socioeconomic adversity and psychological distress in adulthood, but less is known about potential associations with biomarkers and mortality.

OBJECTIVE To investigate the association between early-life mental health trajectories with biomarkers in midlife and premature mortality.

DESIGN, SETTING, AND PARTICIPANTS This study used data from the British National Child Development Study, a population-based birth cohort. The initial sample of 17 415 individuals consisted of all infants born in Great Britain in a single week in 1958. Analysis began Feburary 2017 and ended May 2020.

Supplemental content







Early-life mental health (age 7-16)

Rutter Child Scale A at ages 7 and 11 (mothers) and at age 16 (teachers):

- Conduct problems
- Affective symptoms

Early-life mental health (age 7-16)

Biomarkers in midlife (age 44-45)



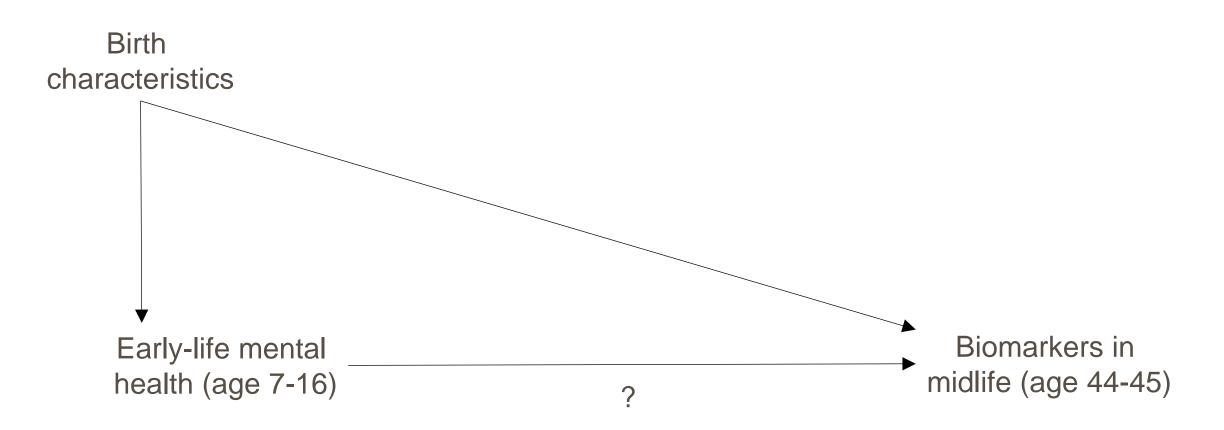
Biomarkers in midlife (age 44-45)

- Fibrinogen
- C-reactive protein
- Glycated haemoglobin
- High-density lipoprotein
- Low-density lipoprotein
- High blood pressure

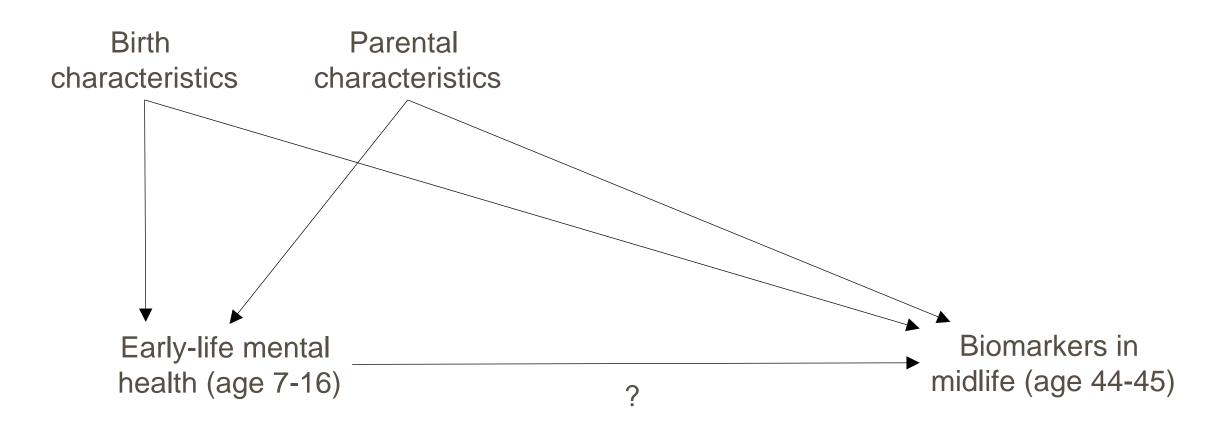
Early-life mental health (age 7-16)

Biomarkers in midlife (age 44-45)

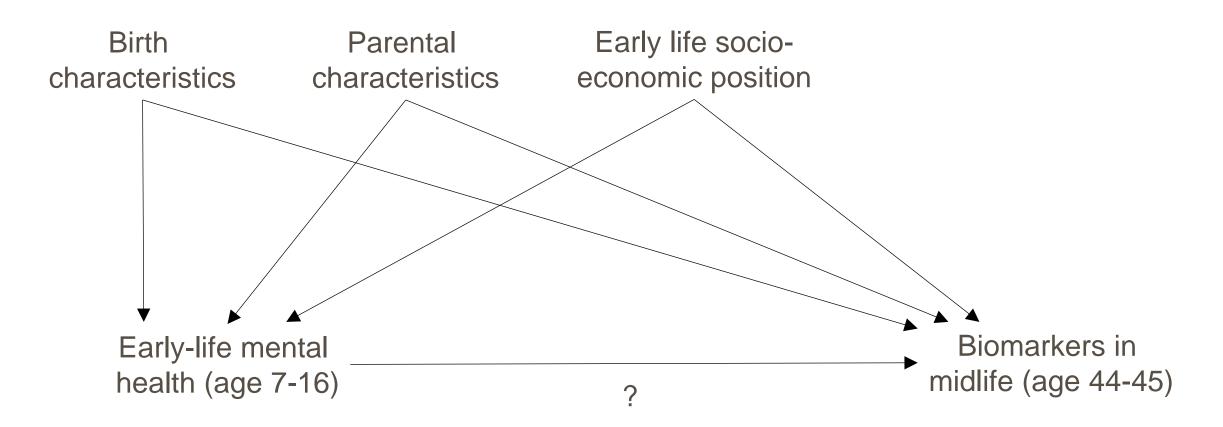




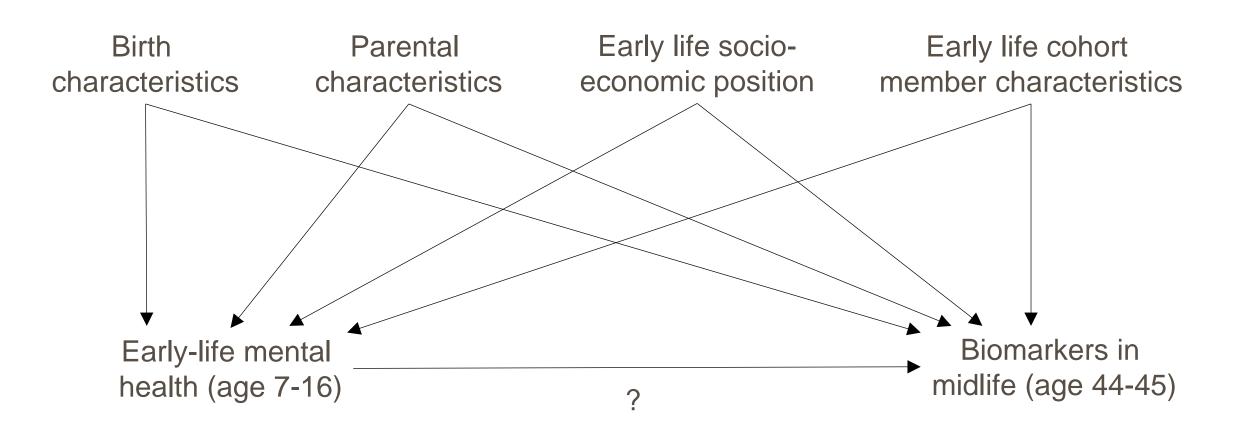




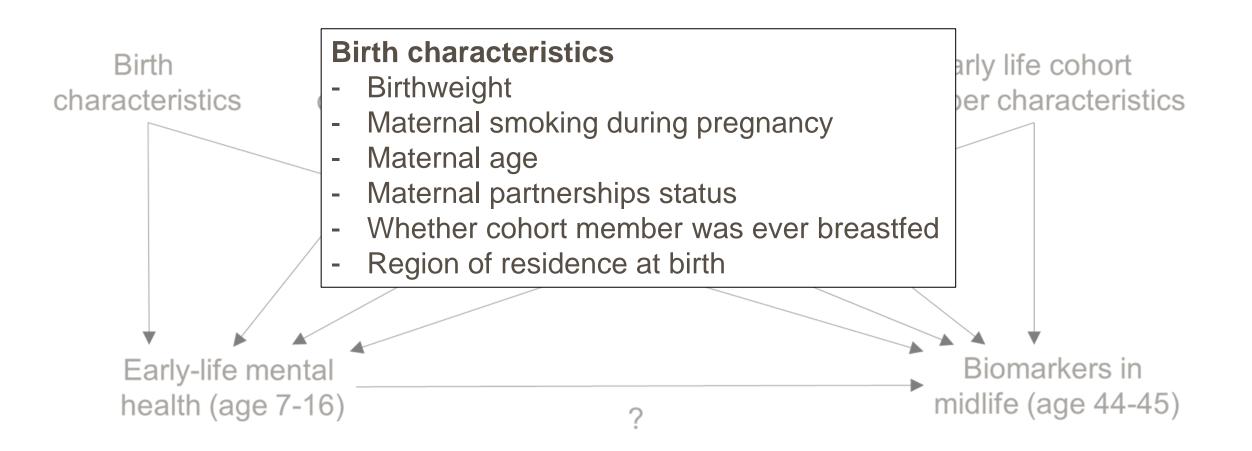




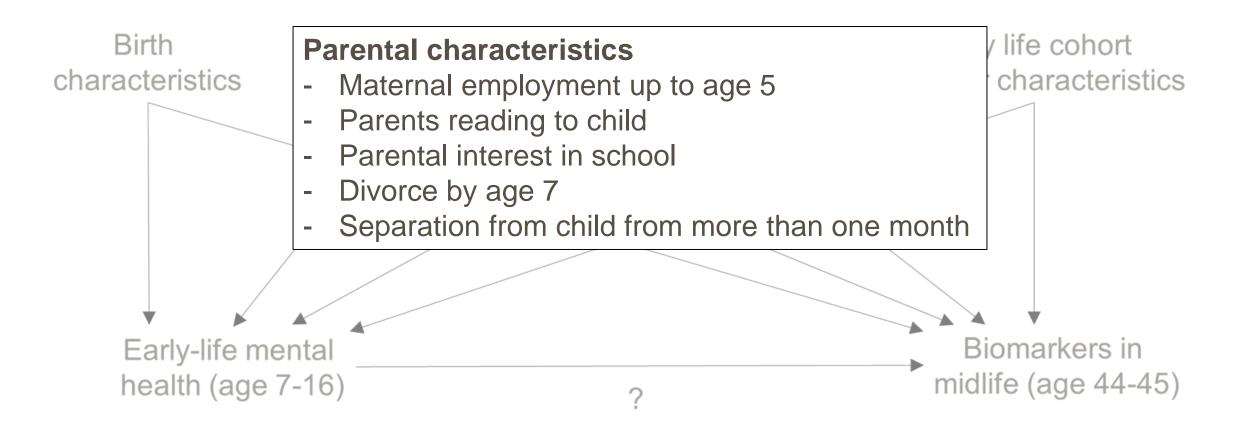




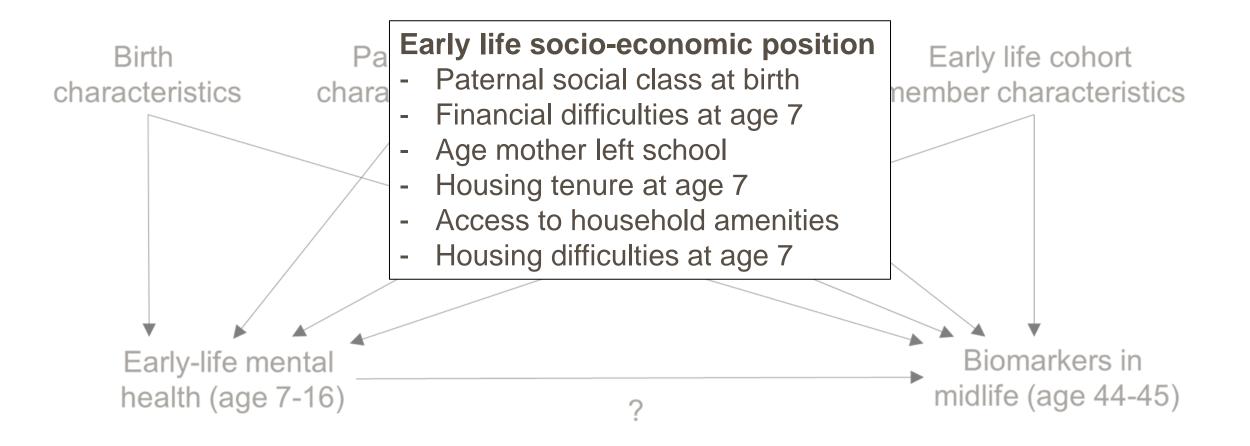




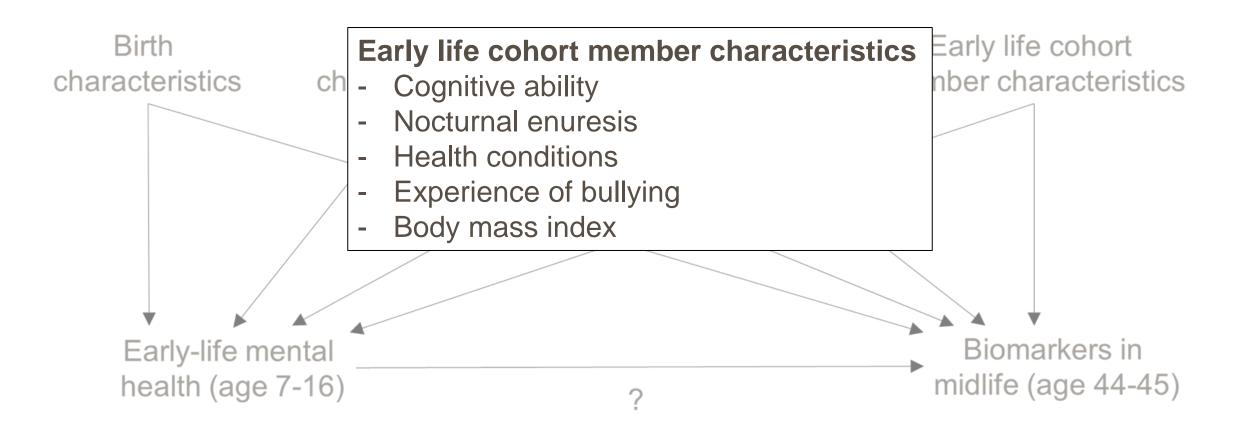




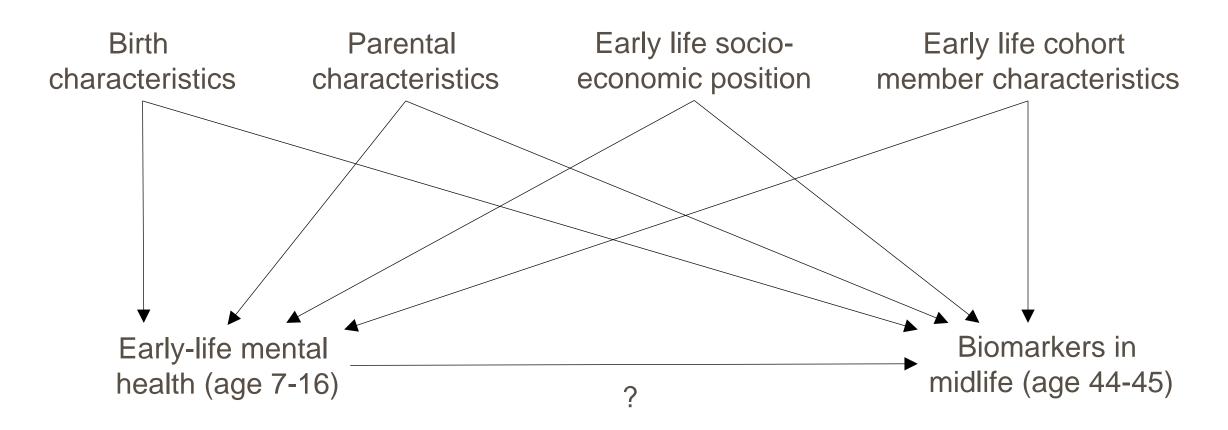












Confounder control: Key message



 The rich data collected on cohort members over many years/decades provide great opportunity for confounder control.

Repeated measures

Repeated measures



- Long-running cohorts measuring consistent topics over time provide repeated measures of the same measurement/construct.
- Examples:
 - Physical measurements
 - General physical health, mental health, specific diseases/conditions, health behaviours
 - Relationships, marital status, household composition
 - Employment status, occupation, earnings and income
- Allows you to characterise changes or trajectories over time.

Repeated measures: Example

Research

JAMA Dermatology | Original Investigation

Patterns of Atopic Eczema Disease Activity From Birth Through Midlife in 2 British Birth Cohorts

Katrina Abuabara, MD, MA, MSCE; Morgan Ye, MPH; David J. Margolis, MD, PhD; Charles E. McCulloch, PhD; Amy R. Mulick, MSc; Richard J. Silverwood, PhD; Alice Sullivan, PhD; Hywel C. Williams, DSc; Sinéad M. Langan, PhD

IMPORTANCE Atopic eczema is characterized by a heterogenous waxing and waning course, with variable age of onset and persistence of symptoms. Distinct patterns of disease activity such as early-onset/resolving and persistent disease have been identified throughout childhood; little is known about patterns into adulthood.

OBJECTIVE This study aimed to identify subtypes of atopic eczema based on patterns of disease activity through mid-adulthood, to examine whether early life risk factors and participant characteristics are associated with these subtypes, and to determine whether subtypes are associated with other atopic diseases and general health in mid-adulthood.

DESIGN, SETTING, AND PARTICIPANTS This study evaluated members of 2 population-based birth cohorts, the 1958 National Childhood Development Study (NCDS) and the 1970 British Cohort Study (BCS70). Participant data were collected over the period between 1958 and 2016. Data were analyzed over the period between 2018 and 2020.

Supplemental content

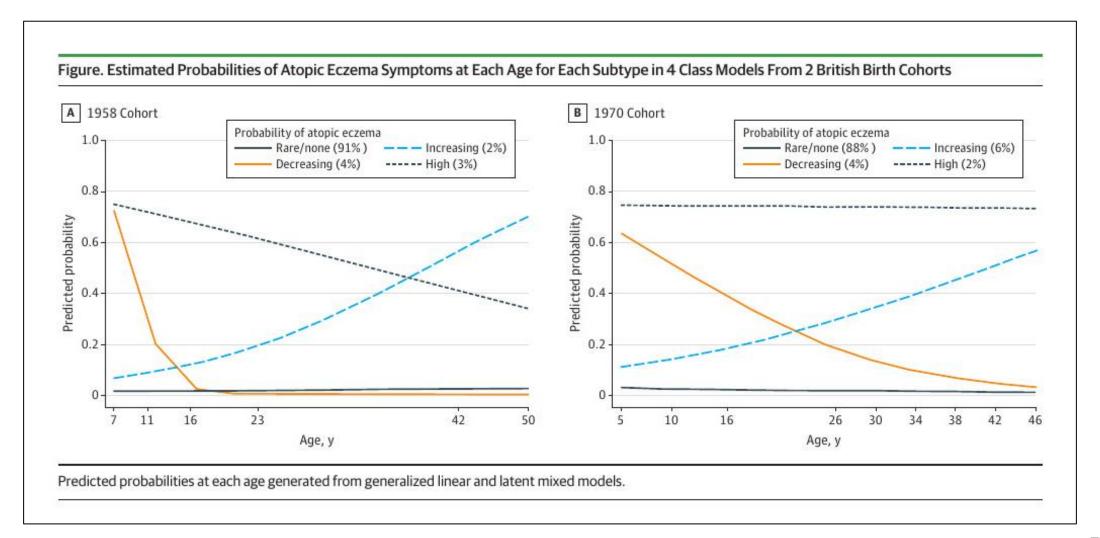
Repeated measures: Example



- Aimed to identify subtypes of eczema based on patterns of disease activity in NCDS and BCS70.
- Parent-reported or self-reported eczema period prevalence available from standardised questions at ages 7, 11, 16, 23, 42 and 50 in NCDS and ages 5, 10, 16, 26, 30, 34, 38, 42 and 46 in BCS70.
- Then examined whether:
 - early life risk factors associated with eczema subtypes
 - eczema subtypes associated with other atopic diseases and general health in mid-adulthood

Repeated measures: Example





Repeated measures: Key message



- British cohort studies provide repeated observations of the same measurement/construct.
- Allows you to characterise changes or trajectories over time.

Cross-cohort analysis

Cross-cohort analysis



- Conducting analyses across multiple cohorts allows us to extend our hypotheses: how do things change over time or between cohorts?
- Ideally want to analyse identical measures across cohorts.
- In absence of this, need consider how measures can best be harmonised.



Socioeconomic inequalities in childhood and adolescent body-mass index, weight, and height from 1953 to 2015: an analysis of four longitudinal, observational, British birth cohort studies



David Bann, William Johnson, Leah Li, Diana Kuh, Rebecca Hardy

Summary

Background Socioeconomic inequalities in childhood body-mass index (BMI) have been documented in high-income countries; however, uncertainty exists with regard to how they have changed over time, how inequalities in the composite parts (ie, weight and height) of BMI have changed, and whether inequalities differ in magnitude across the outcome distribution. Therefore, we aimed to investigate how socioeconomic inequalities in childhood and adolescent weight, height, and BMI have changed over time in Britain.

Methods We used data from four British longitudinal, observational, birth cohort studies: the 1946 Medical Research Council National Survey of Health and Development (1946 NSHD), 1958 National Child Development Study (1958 NCDS), 1970 British Cohort Study (1970 BCS), and 2001 Millennium Cohort Study (2001 MCS). BMI (kg/m²) was derived in each study from measured weight and height. Childhood socioeconomic position was indicated by the



Lancet Public Health 2018; 3: e194–203

Published Online March 20, 2018 http://dx.doi.org/10.1016/ S2468-2667(18)30045-8

See Editorial page e153

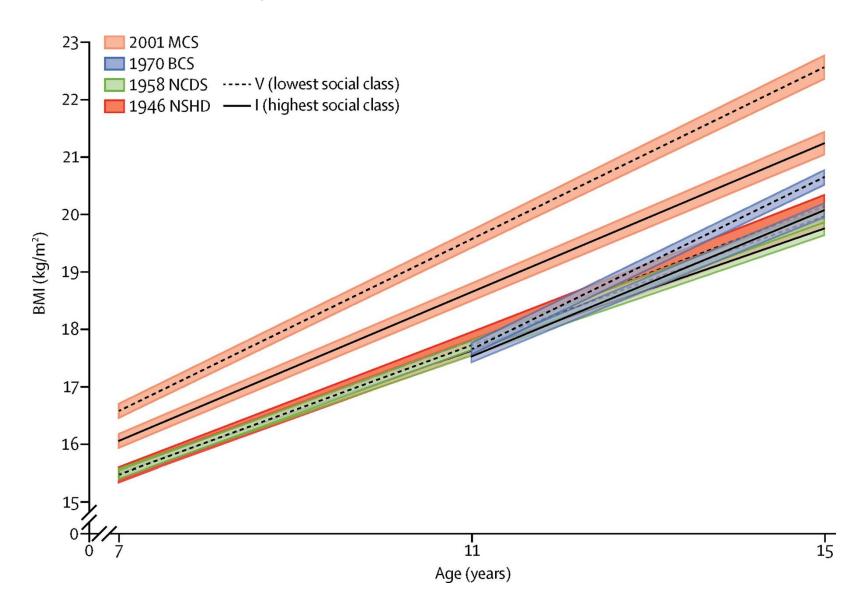
See Comment page e160

Centre for Longitudinal Studies, University College London (UCL) Institute of

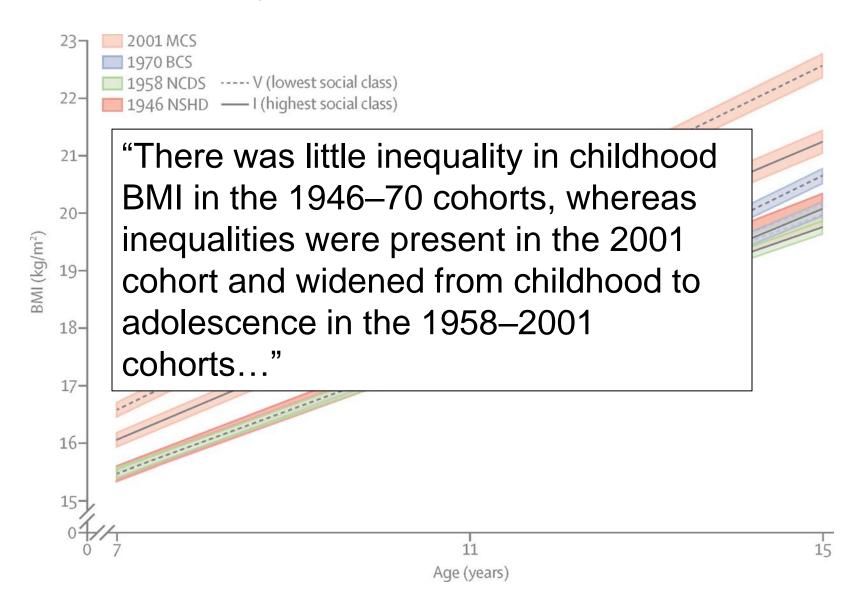


- Investigated how socioeconomic inequalities in childhood and adolescent weight, height, and BMI have changed over time.
- Used data from NSHD (BMI at ages 7, 11 and 15), NCDS (7, 11 and 16), BCS70 (10 and 16) and MCS (7, 11 and 14).
- Childhood socioeconomic position indicated by father's occupational social class reported at age 10-11.
- Examined associations between childhood socioeconomic position and BMI to assess socioeconomic inequalities.
- Examined whether inequalities widened or narrowed from childhood to adolescence.









Cross-cohort analysis: Key message



 Conducting analyses across multiple cohorts allows us to extend our hypotheses: how do things change over time or between cohorts?

Cross-cohort analysis: Key message

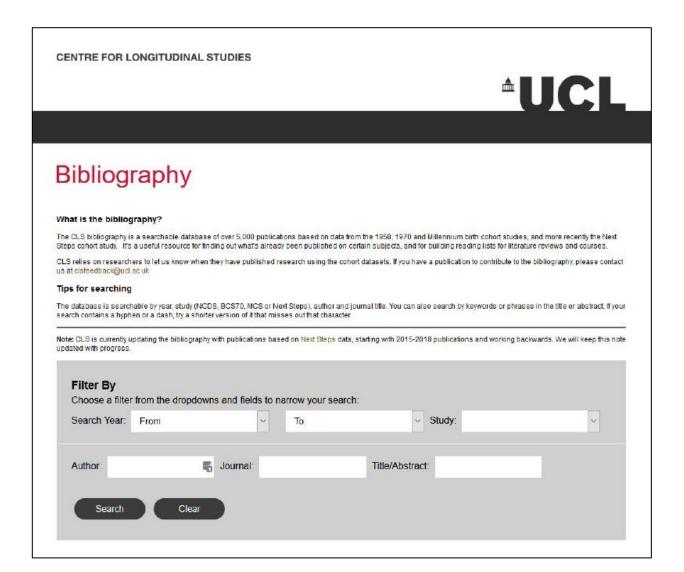


 Conducting analyses across multiple cohorts allows us to extend our hypotheses: how do things change over time or between cohorts?



CLS bibliography

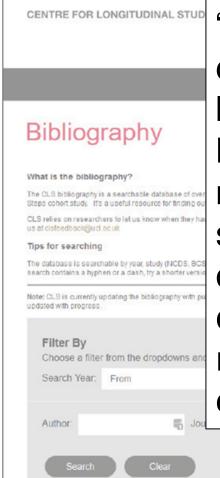




https://www.bibliography.cls.ucl.ac.uk

CLS bibliography





"The CLS bibliography is a searchable database of over 5,000 publications based on data from the 1958, 1970 and Millennium birth cohort studies, and more recently the Next Steps cohort study. It's a useful resource for finding out what's already been published on certain subjects, and for building reading lists for literature reviews and courses."

w.bibliography.

cis.uci.ac.uK



Thank you.

CENTRE FOR LONGITUDINAL STUDIES





Getting started with the data

CENTRE FOR LONGITUDINAL STUDIES



This section

CENTRE FOR LONGITUDINAL STUDIES

- Available resources
- Accessing the data
- Key ID's and other data protocols
- Merging data within and across sweeps
- Study design and sample weights
- Non-response and attrition
- Where to go for more information

Available resources https://cls.ucl.ac.uk/

CENTRE FOR LONGITUDINAL STUDIES

User guides

- Overview of measures
- Response and weights

Questionnaires

- Exact question wording
- Questionnaire routing
- Variable names

Data documentation

- Data notes
- Coding frames
- Variables lists, including derived variables

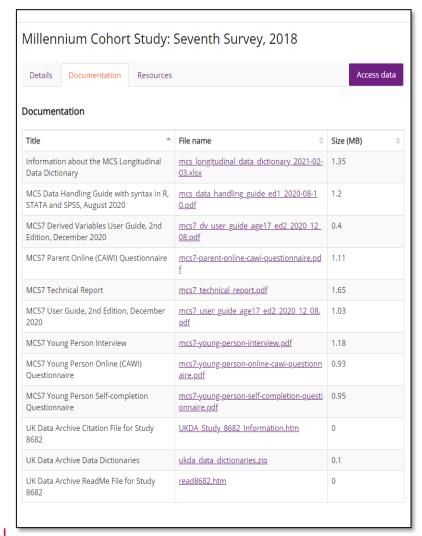
Technical reports

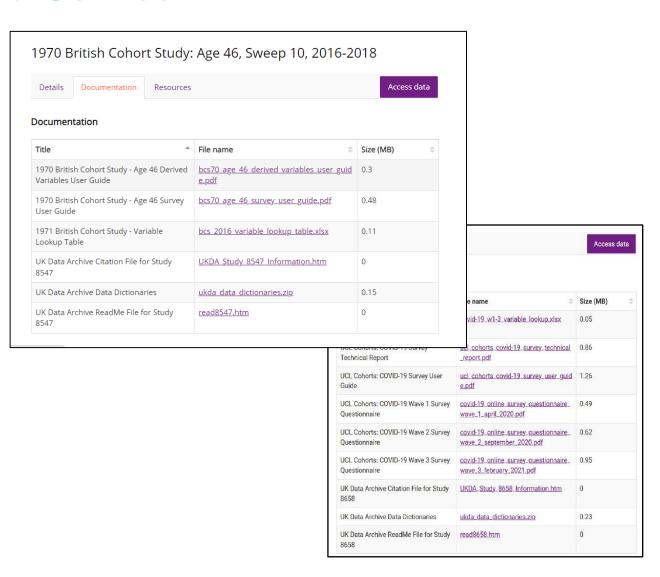
- Sample and questionnaire design, development
- Fieldwork, response, ethics
- Coding, editing
- Data dictionaries
- Cohort profiles e.g.
 - Sullivan A, Brown M, Hamer M, and Ploubidis GB (2022) Cohort Profile Update: The 1970 British Cohort Study (BCS70), International Journal of Epidemiology, dyac148
 - Joshi, H and Fitzsimons, E (2016) The Millennium Cohort Study: the making of a multi-purpose resource for social science and policy. Longitudinal and Life Course Studies, 7(4), 409-430.
- Previous journal publications



https://cls.ucl.ac.uk/publications-and-resources/

Resources available: UK Data Service

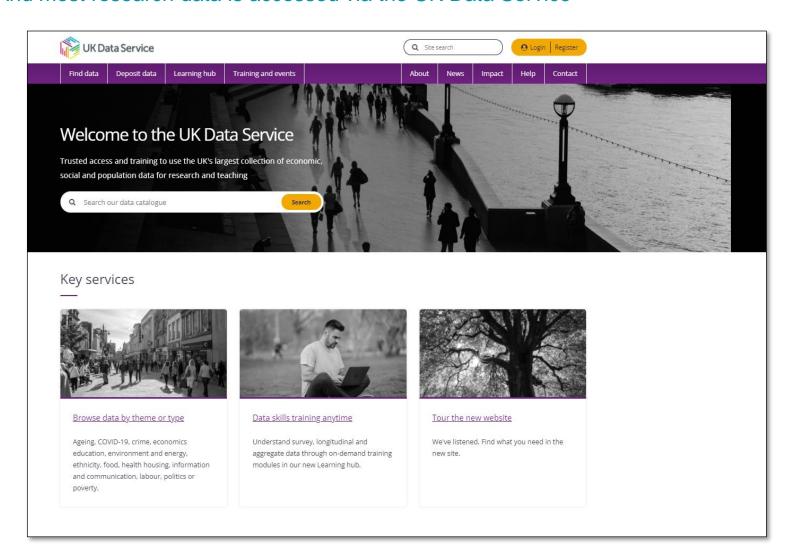




CENTRE FOR LONGITUDINAL STUDIES

Data <u>freely</u> available to researchers, government analysts and third sector

And most research data is accessed via the UK Data Service



UK Data Service



ukdataservice.ac.uk

CENTRE FOR LONGITUDINAL STUDIES

Access to different types of data at the UKDS

CENTRE FOR LONGITUDINAL STUDIES

Access to data held by the UK Data Service varies depending on how the data is classified:

<u>Safeguarded data available under End User Licence</u> (EUL): data with a low level of sensitivity and disclosivity.

- Most of our data are available under this licence.
- Your application is authorised directly by the UK Data Service, and you can
 download the data directly from there.

<u>Special safeguarded data available under Special Licence</u> (SL): access to moderately sensitive or disclosive data. Access through the UK Data Service and application approved by CLS before you can download the data.

<u>Controlled data available under Secure Access Licence</u> (SA) for access to the most sensitive and/or potentially disclosive data. Access through the UK Data Service and attend a specialised training course. CLS approval and access via UK Data Service SecureLab

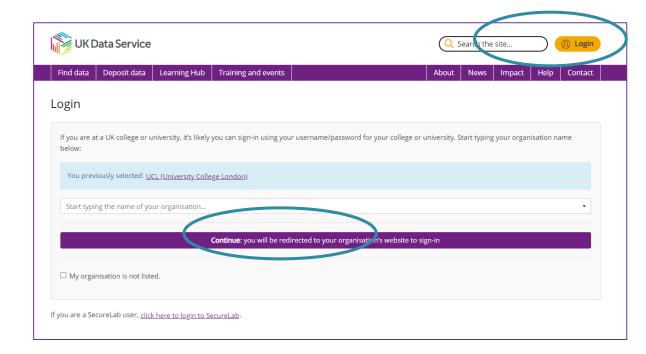
For details on specialist linked administrative data, genetic data and more information on data access please visit: https://cls.ucl.ac.uk/data-access-training/data-access/

Registering with the UK Data Service



- 1. Click 'Login'
- 2. On the Login page begin typing your organisation name. Select the organisation required
- 3. Click 'Continue'
- 4. Your own organisation login page will then be displayed. Login with your usual username and password
- 5. Complete the registration form with your details, selecting other options as required
- 6. Agree to the End User Licence (EUL), which outlines the terms and conditions of use of the Service
- 7. Click 'Register'.

Once registration is complete you will be able to download/order or request access to data



Accessing CLS cohort data I

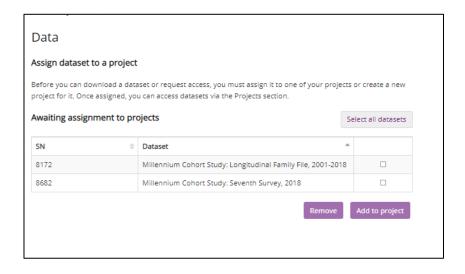
Cohort	Link
NCDS	http://discover.ukdataservice.ac.uk/series/?sn=2000032
BCS70	http://discover.ukdataservice.ac.uk/series/?sn=200001
Next Steps	http://discover.ukdataservice.ac.uk/series/?sn=2000030
MCS	http://discover.ukdataservice.ac.uk/series/?sn=2000031

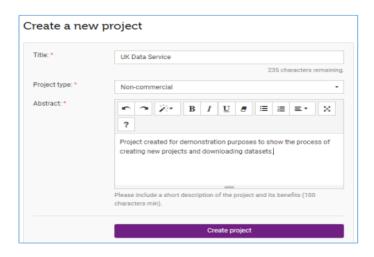
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Home > Data	catalogue	> Series > Serie:	5						
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Abstract									
The Millenniu	m Cohort	Study (MCS), wh	ich began in 2	000, is conducte	d by the Co	entre for Lo	ngitudina	l Studies	
(CLS). It aims	to chart th	e conditions of	social, econom	nic and health ad	vantages a	and disadvar	ntages fac	cing children	
			-	en tracking the 'I			_	-	
				ood. It also provi lational Child De					
Cohort Study		receding conon	i studies (the iv	rational Cilia De	velopinem	t Study (NCL	os) and th	ie 1970 bii tii	

CENTRE FOR LONGITUDINAL STUDIES

ccess	lata		
N 33359 Iillenniu	m Cohort Study – Survey and Biomeasures Data		~
SN	Study description	Explore online	Select
8756	Millennium Cohort Study, Sweeps 1-7, 2001-2019: Exact Participation Dates: Secure Access		
8755	Millennium Cohort Study, Sweeps 1-7, 2001-2019: Demographics, Language and Religion: Secure Access		
8754	Millennium Cohort Study, Sweeps 1-7, 2001-2019: Self-Reported Health, Behaviour and Fertility; Secure Access		
8753	Millennium Cohort Study, Sweeps 1-7, 2001-2019: Socio- Economic, Accommodation and Occupational Data: Secure Access		
8682	Millennium Cohort Study: Seventh Survey, 2018		☑
8172	Millennium Cohort Study: Longitudinal Family File, 2001-2018		☑
8156	Millennium Cohort Study: Sixth Survey, 2015		
7464	Millennium Cohort Study: Fifth Survey, 2012		
7261	Millennium Cohort Study: First Survey, Health Visitor Survey, 2002-2003		
7238	Millennium Cohort Study: Fourth Survey, Physical Activity Data, 2008		
6411	Millennium Cohort Study: Fourth Survey, 2008		
5795	Millennium Cohort Study: Third Survey, 2006		
5559	Millennium Cohort Study: Survey of Mothers who Received Assisted Fertility Treatment, 2003		
5350	Millennium Cohort Study: Second Survey, 2003-2005		
4683	Millennium Cohort Study: First Survey, 2001-2003		

Accessing CLS cohort data II







Before downloading the data:

- Click on Request Access
- Click on Complete actions
- Agree to standard 'End User Licence'
- Read and agree extra conditions

Choose data format and download zip file

- SPSS
- STATA
- TAB (tab-delimited)

Files: Datasets



Name	Contents	Structure	Identifier
NS8_2015_Main_Interview	Modules 1 to 7	Flat	NSID
NS8_2015_Self_Completion	Module 8	Flat	NSID
NS8_2015_Partnerships	Relationship histories	Hierarchical	NSID, W8RELID
NS8_2015_Children	Details of children of CM	Hierarchical	NSID, W8CHID
NS8_2015_Household_Members	Details of members living in same household as CM	Hierarchical	NSID, W8HHMID
NS8_2015_Activity_History	Activities and Employment histories	Hierarchical	NSID, W8HISTID
NS8_2015_Benefits	Details of individual benefits received	Hierarchical	NSID, W8BENID
NS8_2015_Income_Unfolding_brackets	Unfolding brackets questions for payments and income	Flat	NSID
NS8_2015_Benefits_Unfolding_brackets	Unfolding brackets questions for benefits	Hierarchical	NSID, W8BENID
NS8_2015_Derived_variables	Derived variables	Flat	NSID

Key identifiers (ID's)

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Cohort	Key cohort identifier	Key cohort member/family identifier format	
NCDS 1958	NCDSID	7 characters: N followed by 5 digits, and a single character e.g. N10016V	Cohort member/family identifier: Every cohort member (or for the MCS family) has the same ID across sweeps
BCS70 1970	BCSID	7 characters: B followed by 5 digits, and a single character e.g. B25819Z	Use these ID's to link datasets
Next Steps 1989/90	NSID	8 characters: NS followed by 5 digits and a single character e.g. NS21140C	W8xxID (age 25 and W9xxID (age 32) used in particular files to denote relationship, child, HH member etc
MCS 2000/02	MCSID	7 characters: M followed by 5 digits, and a single character e.g. M10029A	CNUM Cohort members, 1, 2 (twins) or 3 (triplets) PNUM Person number, for everyone else in the family apart from cohort members: parents, siblings, grandparents, etc

File structures: Flat v hierarchical

Type of file structure	Format	Examples in the cohorts
Flat	1 record per case	NCDS, BCS70, Next Steps – main data files MCS – family files
Hierarchical	1 or more records per case	Household files Activities e.g. employment histories Relationship histories Time use diaries MCS - Person within family

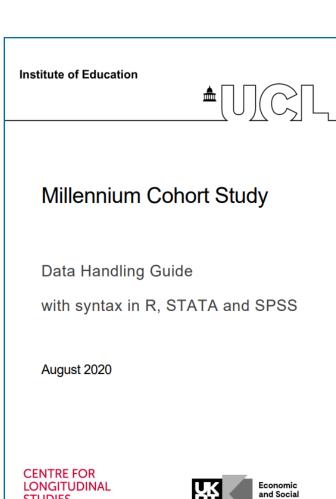
BCSID	Sex	Country	Emp
B567689A	1	1	1
B567689A	1	1	3
B567689A	1	1	3
B467921B	2	1	1
B879255C	2	2	5
B879255C	2	2	2
B297614D	1	1	6
B297614D	1	1	1
B349725E	1	3	3

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BCSID	Sex	Country	Emp1	Emp2	Emp3
B567689A	1	1	1	3	3
B467921B	2	1	1		
B879255C	2	2	5	2	
B297614D	1	1	6	1	
B349725E	1	3	3		

Merging data within and across sweeps

- 1. Identify appropriate files
 - Establish number of cases in target population
- 2. Check file structure: flat v hierarchical
 - Transform if necessary
- Identify merging variables:
 - 1. Unique 'key' cohort ID (member or family)
 - 2. Other ID's depending on merge
 - Check the same variable name (case sensitive, changed across sweep etc)
 - Create identical variable name if necessary
- 4. Check merged correctly





Study design (sampling and sample weights)

Studies are representative of...



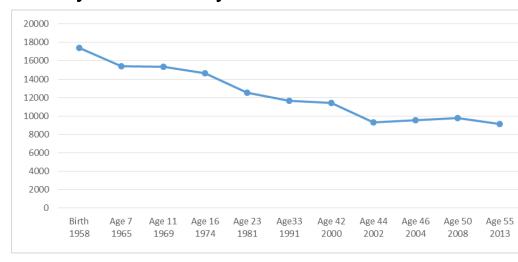
Cohort	Population	Sample and study design		Design weight(s)
NCDS 1958	All born in GB in one week	Total sample: Captured 98% of the total births in GB in the target week		None
BCS70 1970	All born in GB in one week	Total sample: Captured 95-98% of the total births in GB in the target week		None
Next Steps 1989/90	Young people in England in 2004 born between 01/09/89 and 31/8/90	· · · · · · · · · · · · · · · · · · ·		psu (SampPSU) strata (SampStratum) _File
MCS 2000/02	Children born in 2000 /2002 and living in the UK at age nine months,	Complex sample design: Clusters: Areas of residence (electronsproportionately stratified by a country, and ethnicity in England	ed by area disadvantage, and UK	

Non-response and attrition

- Distinction between unit (respondents') non-response and item nonresponse
 - Unit non-response (not responding to a particular sweep)
 - Non-response is common in longitudinal surveys
 - Item non-response i.e. not answering some questions
 - tends to be less of an issue in the cohorts
- Missing data may be a risk to representativeness

Potential for bias since respondents are often systematically different from

nonrespondents





Dealing with unit non-response

- <u>Case-wise deletion</u> i.e. ignoring non-response (unless missing completely at random)
 - Any individual in a data set is deleted from an analysis if they're missing data on any variable in the analysis
 - Straightforward, but doesn't deal with any non-response bias
- Non-response weights
 - Adjust the sample composition to take account of the loss of particular type of respondents.
 - Provided in MCS (govwt2 = overall in MCS7 for whole of UK analysis) and Next Steps (W9FINWT* = final weights for age 32 survey)

https://cls.ucl.ac.uk/wp-content/uploads/2022/05/MCS7-user-guide-Age-17-ed2.pdf https://cls.ucl.ac.uk/wp-content/uploads/2017/02/Next-Steps-Age-32-Sweep-User-Guide.pdf

- Other more advanced methods e.g.multiple imputation
 - MI involves the generation of multiple copies of the dataset in each of which missing values are replaced by imputed values sampled from their posterior predictive distribution given the observed



Dealing with unit non-response - resources

https://cls.ucl.ac.uk/data-access-training/handling-missing-data/ IOE, Faculty of Education and Society **UCL** of Education Handling missing data in the CLS cohort studies ndling missing data in the tional Child Dev User guide Handling missing data in the British May 2024 ıdy cohort studies (with theory and demo) er guide (Version 2) (2023, 190 minutes) 2021 Handling missing data in the Brit... 놙 UDINAL CENTRE FOR British cohort studies LONGITUDINAL Watch on YouTube

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Where to go for more information

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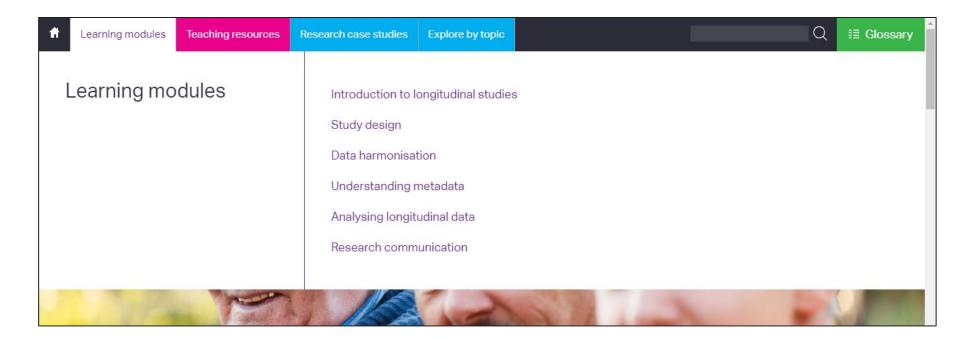




CLOSER Learning Hub: https://learning.closer.ac.uk/

CLOSER provides training and resources for students and early-career researchers to "maximise the use, value and impact of longitudinal research"

Learning Hub – demonstration video: https://youtu.be/Z_bFCClq2Dc





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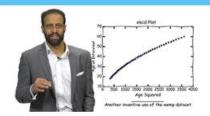


You are here: Home > Resources

Resources

NCRM has an extensive library of resources on research methods. These include those in our EPrints publications database, which has more than 3,000 items, and our collection of online tutorials.

Online tutorials



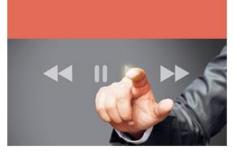
NCRM EPrints - search our publications database



Resources for trainers



Videos



Podcasts

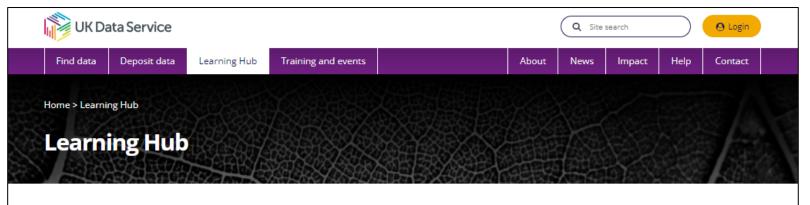


Courses and events





https://www.ncrm.ac.uk/resources/



Enhance your data skills and teaching

New to using data

Best practice and training for researchers new to accessing and using data in our collection. Includes advice and tools to correctly cite data; student-specific information on our Dissertation Award for undergraduates; and more.

Data skills modules

There is a wealth of data available for reuse in research and reports. These free, interactive tutorials are designed for anyone who wants to start using secondary data. They show you how to get started with finding good quality data, understanding it and starting your analyses.

Students

Students can access most of the UK Data Service's collection of social, economic and population data. Find resources to help you find and use our data during your studies including the UK Data Service dissertation resources.

Survey data

Survey data, including data from longrunning surveys, series and longitudinal studies, are a major part of social science research. Learn how to use survey and longitudinal data through training resources including videos, on-demand webinars and written guides.

International data

Our international macrodata contain socioeconomic time series data aggregated to a country or regional level for a range of countries over a substantial time period.

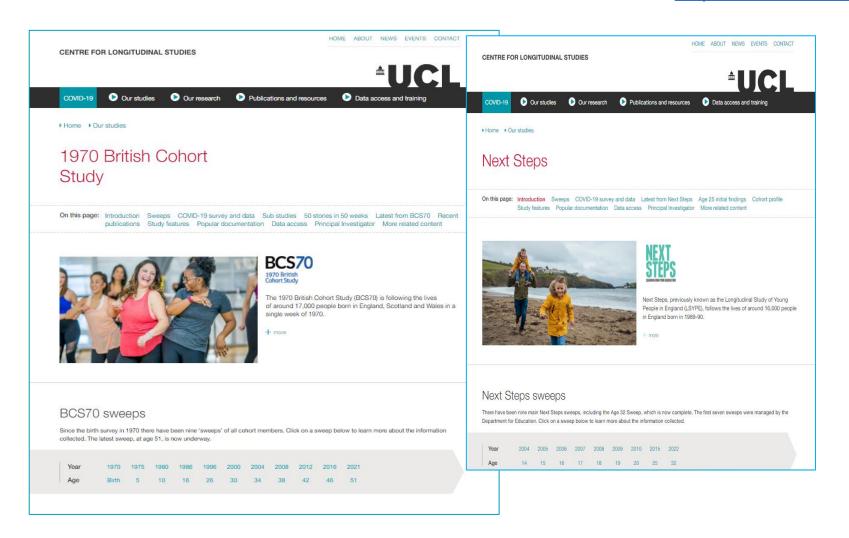
Qualitative data

Qualitative research gives a voice to the lived experience, offering researchers a deeper insight into a topic or individuals' experiences. Qualitative data can be combined with quantitative to enhance understanding around a policy or topic in a way that quantitative data by itself often cannot.

CENTRE FOR LONGITUDINAL STUDIES

Resources available: CLS website

https://cls.ucl.ac.uk/



CENTRE FOR LONGITUDINAL STUDIES

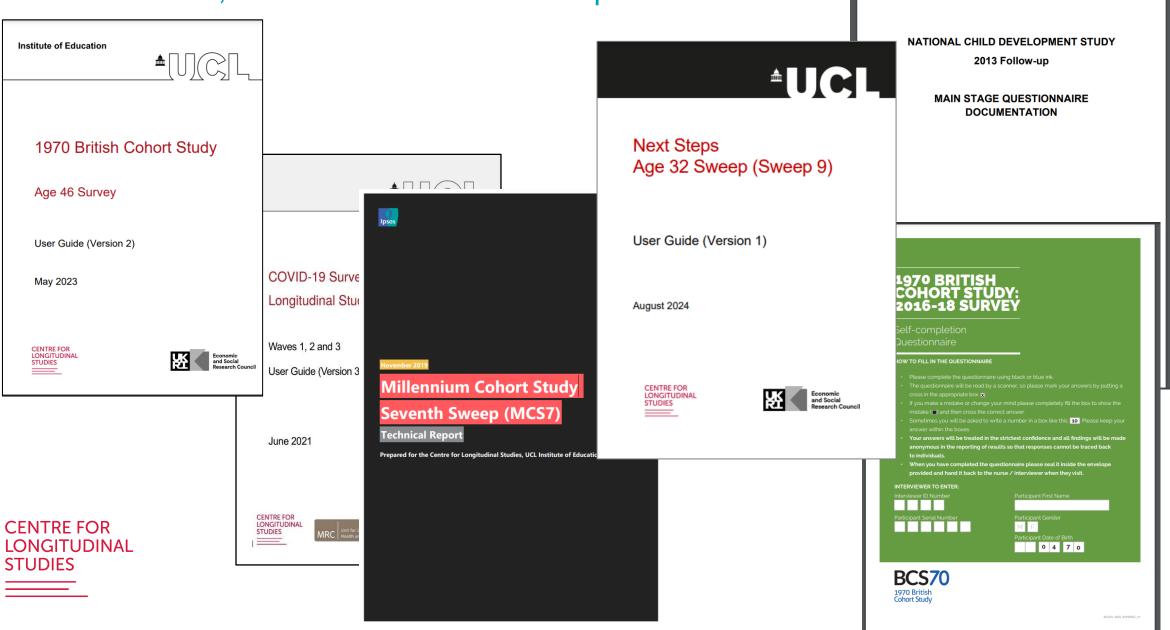




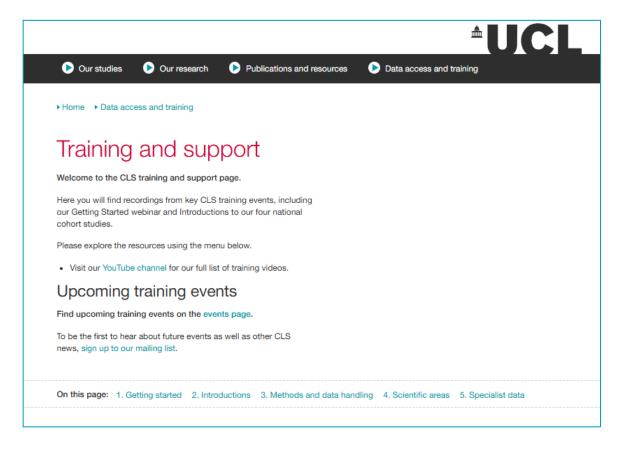




Resources available on each cohort and sweeps: User Guide, technical resources and questionnaires



CLS training and support

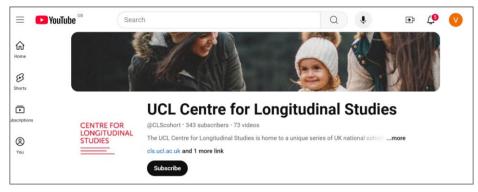


https://cls.ucl.ac.uk/data-access-training/training-and-support/



Upcoming training events	
Next Steps Age 32 Webinar and Initial Findings	Early 2025
Principles of mode effects	Late Feb 2025
New data: BCS70 age 52	March 2025

https://cls.ucl.ac.uk/events/



https://www.youtube.com/channel/UCUXx6J7PRyhWGf-xKDPW5eA

So we've covered



- An introduction to birth cohorts
- Some of the content in the CLS cohorts by subject areas
- Examples of the types of analysis
- Getting started with the data
- Where to go for more information