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# An introduction to survey data on health

Vanessa Higgins and Deborah Wiltshire, UK Data Service



4<sup>th</sup> July 2016

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# Can you hear us?



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# Can you hear us?

If Not:

- Check your volume, and that your speaker/headset is plugged in
- Your invitation also included a phone number; you can call that to listen in



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# Overview

- Cross-sectional Surveys (Vanessa Higgins)
- Longitudinal Surveys (Deborah Wiltshire)
- Data Access and Resources
- Questions



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# Health Survey for England

- Monitors the health of the English population
- Continuous, annual survey, 1991 onwards
- Sample from Postcode Address File
  - 8,000 adults
  - 2,000 children
  - Boosts from time to time
- Face-to-face data collection
  - Interviewer and nurse visits



# Health Survey for England

## Core content each year:

- questions on general health
- limiting longstanding illness
- doctor diagnosed hypertension & diabetes
- psycho-social / well-being indicators
- Smoking and alcohol
- demographic and socio-economic indicators,
- use of health services
- social care
- prescribed medicines
- measurements of height, weight and blood pressure.
- Waist and hip circumference
- Analyses of blood and saliva sample

## Additional modules/boosts each year

Examples:

2010 respiratory disease and lung function;

2011 cardiovascular disease;

2012 physical activity;

2013 social care;

2014 mental health

<https://www.ucl.ac.uk/hssrg/studies/hse>

<https://discover.ukdataservice.ac.uk/series/?sn=2000021#questions>

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# Scotland, Wales and Northern Ireland

## Scottish Health Survey:

- 1995, 1998, 2003 and annually since 2008
- Face-to-face interviewer and nurse visits until 2012
- 2012-2015 – interviewer administered biological module
- Since 2008: [Core topics and rotating topic biennially](#):

## Welsh Health Survey:

- Face-to-face household interview; Self-completion paper questionnaires to individuals
- 1998, 2003+ annual, ended in 2015
- No nurse visit

## NI Health Survey:

- Annual since 2010-11 (data only available for 2010-11)
- Face-to-face interviewer visit (no nurse visit)
- Previously NI Health and Wellbeing Survey



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What percentage of women (aged 16+) in England were current smokers in 2014?



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# Other cross-sectional surveys.....examples

## Wide range of health topics.....:

- Smoking, Drinking and Drug Use among Young people
- Dental Health Surveys
- Psychiatric Morbidity Surveys
- National Survey of Sexual Attitudes and Lifestyles
- National Diet and Nutrition Surveys
- Infant Feeding Surveys
- What about Youth?
- NHS Patient Survey Programme

<http://www.hscic.gov.uk/article/1887/Health-Surveys-Service>

## Surveys with some health content.....

- Annual Population Survey
- Opinions and Lifestyle Survey,
- European Quality of Life Survey
- European Social Survey
- And so on.....



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In 2014, what percentage of 11-15 year olds in England had ever taken drugs?



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# Research case-study: ethnic differences in physical activity, diet and obesity

- Aim: To identify ethnic differences in healthy eating, physical activity and obesity in England
- Health Survey for England 2004
- Logistic regression using SVY command in STATA
- Outcomes:
  - Meeting physical activity guidelines
  - Eating 5 day
  - BMI obese
- Explanatory variables such as gender, age, educational level, generation, income etc (diet and physical activity for obesity)



# Results

## Obesity

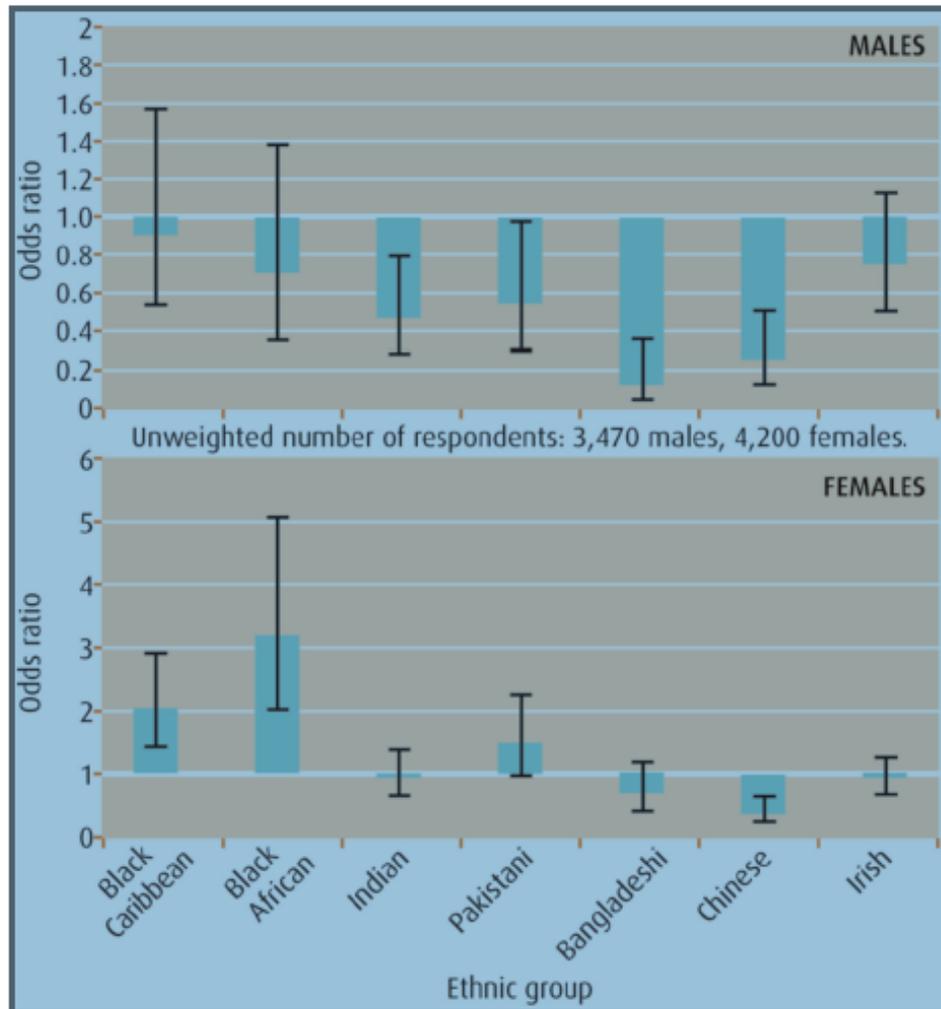


FIGURE 6. ODDS RATIOS: OBESITY, MALES AND FEMALES AGED 16+

## Physical activity

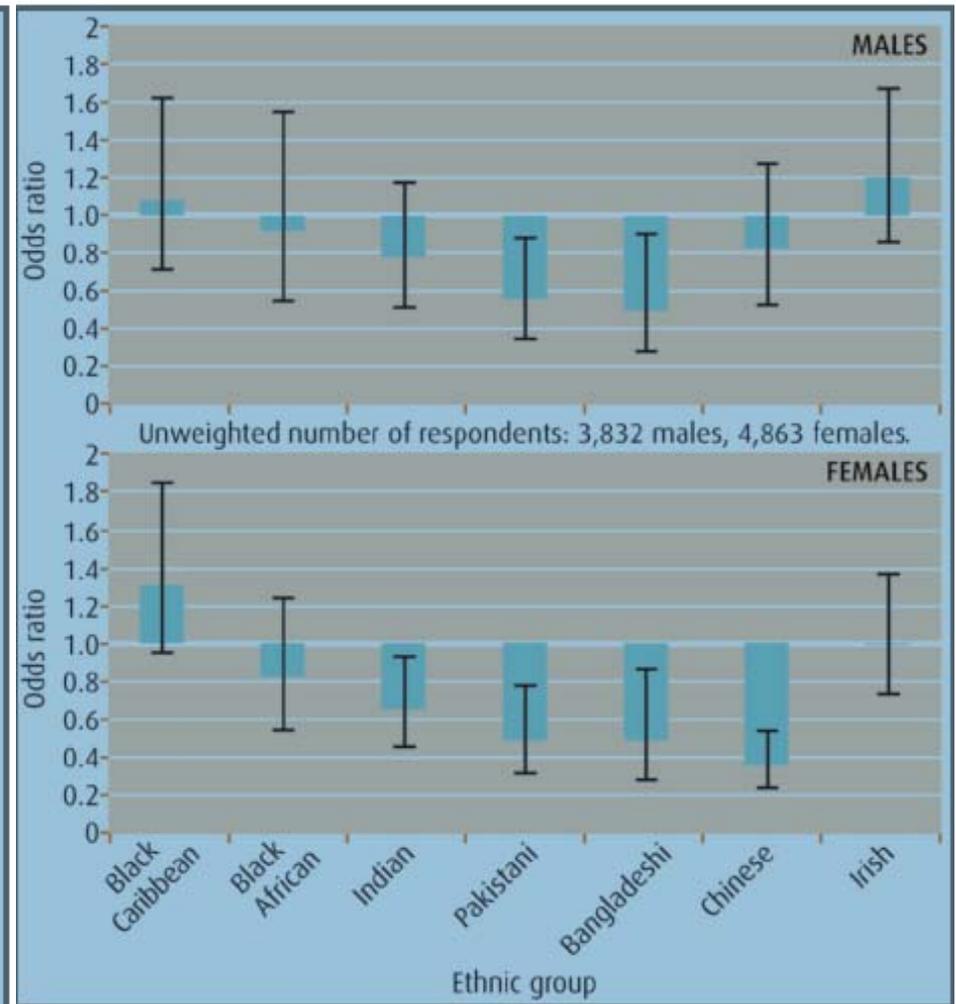


FIGURE 4. ODDS RATIOS: PHYSICAL ACTIVITY, AGED 16+

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# Why use this data?

The quality, utility and flexibility of the data:

- High quality, nationally representative data
- Subpopulation analyses (boost samples)
- Objective measurements (e.g. BMI)
- Operationalisation (e.g. physical activity; ethno-religion, obesity)
- Range of covariates
- Pool data over time (e.g. 1999 and 2004) – separate ethnic models; change over time
- Intra household analyses (e.g. parents and children)

<https://www.ukdataservice.ac.uk/use-data/data-in-use/case-study/?id=97>

Thanks to ESRC!

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# Health related longitudinal datasets

- National Child Development Study (NCDS)
- 1970 British Cohort Study (BCS70)
- Millennium Cohort Study (MCS)
- Avon Longitudinal Study of Parents and Children (ALSPAC)
- Understanding Society/UK Household Longitudinal Study (UKHLS)
- British Household Panel Study (BHPS)
- English Longitudinal Study of Ageing (ELSA)
- Life Opportunities Survey (LOS)
- Health and Lifestyle Survey (HALS)



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# Birth Cohort Studies

- 1958 National Child Development Study (NCDS)
- 1970 British Cohort Study (BCS70)
- Millennium Cohort Study (MCS)

- different decades  
generational change
- Health/medical  
focus
- social and  
economic  
circumstances



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# Data collection sweeps

1958 National Child Development Study	1970 British Cohort Study	Millennium Cohort Study
1958 - birth	1970 - birth	2000-02 – birth
1965 - age 7	1975 - age 5	2001-03 – 9 months
1969 - age 11	1980 - age 10	2006 – age 5
1974 - age 16	1986 - age 16	2008 - age 7
1981 - age 23	1996 - age 26	2012 - age 11
1991 - age 33	1999-2000 – age 29-30	2015 - age 14
1999-2000 – age 41-42	2004-05 - age 34-35	NEXT: 2018 – age 17
2004-05 – age 46-47	2008-09 - age 38-39	
2008-09 – age 50	2012 - age 42	
2013-14 – age 55	NEXT: 2016 – age 46	
NEXT: 2018 – age 60	FUTURE: 2020 – age 50	





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# Exemplar from MCS: regular bedtime and childhood behavioural difficulties

- Study: Kelly, Y., Kelly, J. and Sacker, A. (2013) Changes in bedtime schedules and behavioral difficulties in 7 year old children. *Pediatrics*. 132(5).
- Study explored links between children's (ir)regular bedtimes and associations with behavioural difficulties.
- Explored impact of cumulative bedtime conduct over early childhood, as well as change between waves.



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What proportion of 3 year olds in the UK have irregular bedtimes?



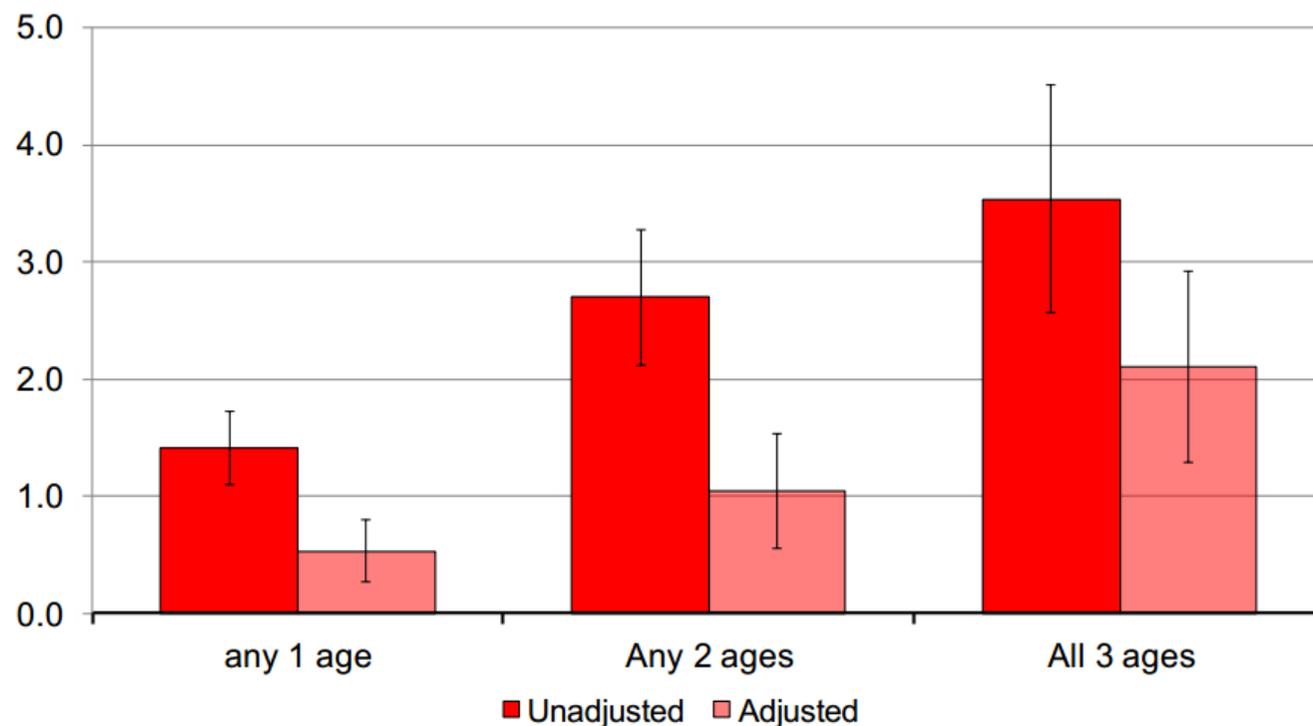
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# Exemplar from MCS: regular bedtime and childhood behavioural difficulties

Regression coefficients for behavioural difficulties scores (mother report) by non-regular bedtimes throughout early childhood, cumulative effects



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Figure based on cited study, taken from presentation by Kelly, Y. available at: <http://childofourtimeblog.org.uk/wp-content/uploads/2016/03/2016-06-17-Y-Kelly-Good-Start-in-Life.pdf>

# Exemplar from MCS: regular bedtime and childhood behavioural difficulties

- The effects are reversible!

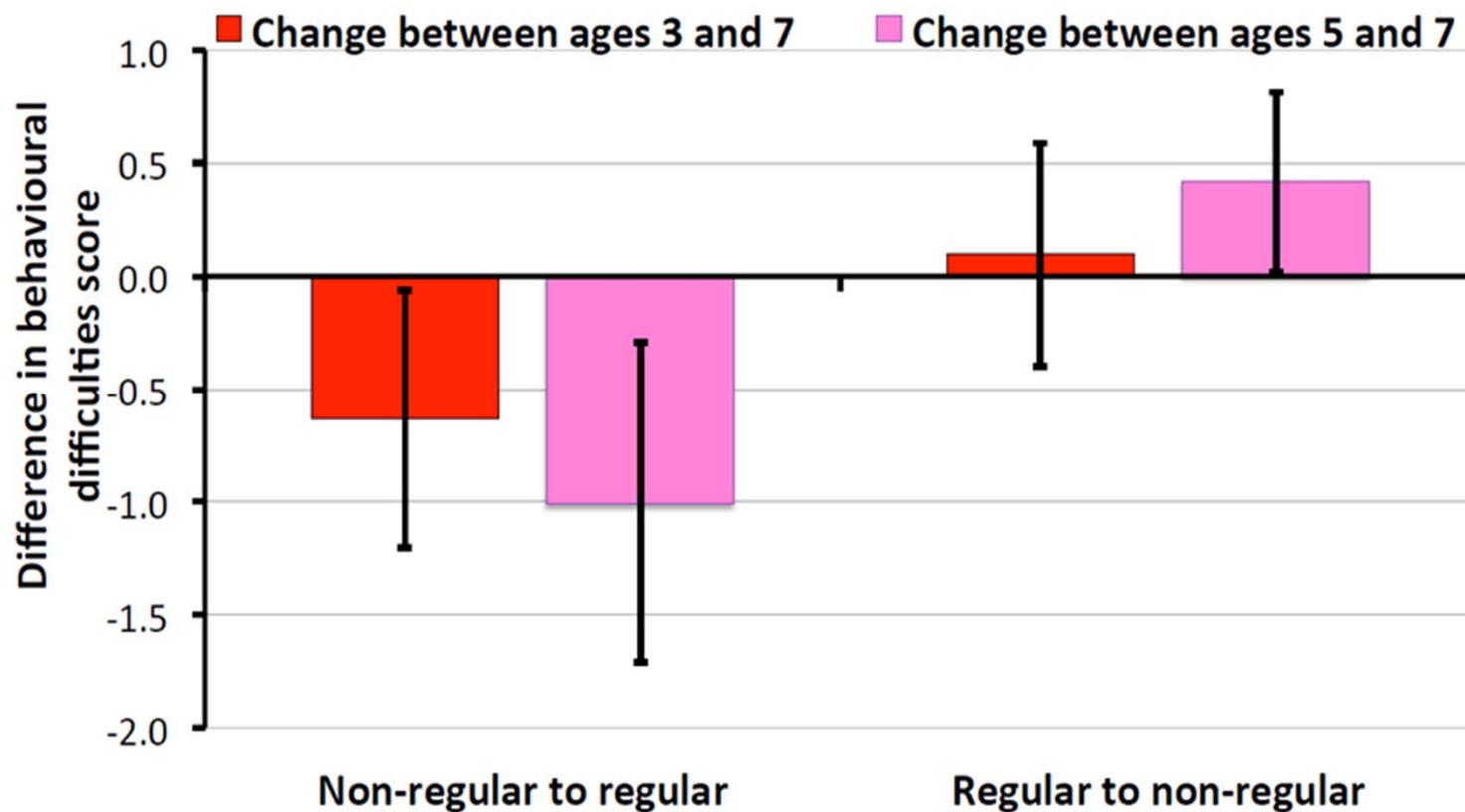


Figure from cited paper.



# The Cohort Studies in the news...

**Helen Pearson**  
**The Life Project**  
The extraordinary story  
of our ordinary lives

In March 1946, scientists began to track thousands of children born in one cold week. No one imagined that this would become the longest-running study of human development in the world, growing to encompass five generations of children. Today, they are some of the best-studied people on the planet, and the simple act of observing human life has changed the way we are born, schooled, parent and die. This is the tale of these studies and the remarkable discoveries that have come from them. Touching almost every person in Britain today, they are one of our best-kept secrets.



29 June 2015

**Children with two left feet are more likely to become sedentary adults, study finds**

NEWS & OPINION: [Health, Health & lifestyle, Physical health](#)

People with good motor coordination at 10 years old tend to spend less time in front of screens – either computer or TV – in adolescence and middle-age. They are also more likely to be physically active in their early 40s.

**> Private school education linked to better health more than 25 years later, study finds**

Private school pupils are more likely than their peers at comprehensives to have a lower body mass index (BMI) by the time they reach their early 40s. They also spend less time watching television and eat fewer take-away meals, according to new research published in the International Journal of



7 August 2015

**People who experience the stigma of obesity are more likely to overeat, research shows**

**Why is there a social divide in child obesity rates?** 18 May 2016

[Tweet](#) [Like](#) [0](#)

Smoking during pregnancy and being overweight before becoming pregnant account for around 40 per cent of the social divide in childhood obesity rates.

Researchers from the University of Liverpool analysed information on more than 9,000 children born in the UK in 2000-01, who are taking part in the Millennium Cohort Study.

They discovered that by the age of 11, one in five children whose mums were educated to degree level or higher were overweight, compared to one in three of those whose mothers had fewer qualifications.

Once the researchers had taken into account factors such as the child's sex and ethnicity, and the mother's age when the child was born, they found that several other factors were still significantly associated with an increased risk of the child being overweight by the time they were 11 years old. These included high birthweight, being breastfed, and consumption of solid foods before four months of age.

Dr David Taylor-Robinson, the study's lead author, said: "Our study has shown that socioeconomic circumstances at birth, as measured by mother's educational attainment remained significant after adjusting for all other influential factors.

# Understanding Society



- [About](#)
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- [Research](#)
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Understanding Society Scientific Conference 2017  
11-13th July 2017 - more information coming soon

Following the lives of 40,000 UK households to provide valuable evidence about 21st century life. [Discover more.](#)

**Data and documentation**

- Getting started
- Main survey
- Training

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- Publications search
- Working papers
- Case studies

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**News**

[Can a low-paid job lead onto better things?](#)  
27 Jun 2016

**Publications**

[The Welsh Single-Use Carrier Bag Charge and behavioural spillover](#)  
Journal Article Journal of Environmental Psychology - Sep 2016

**Events**

29 Jun [Understanding Society training in Wales](#)



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# About the study

- Began in January 2009, and builds on the long running British Household Panel Survey (BHPS) established in 1991
- Tracks change at individual and household level by examining:
  - what people are experiencing (circumstances and key events in their lives as they happen)
  - attitudes, identity and subjective well-being (expressions)
  - how individuals and households respond to policies and key events (behaviours)
  - changes in societal conditions (outcomes)



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## Health content in *Understanding Society: Individual Questionnaires*

- Self-assessment of overall health
- Height and weight
- Current prescriptions
- Health conditions
- Long-standing impairment or disability
- Current chronic health conditions
- GHQ measures mental health
- Health behaviours: smoking, drinking, exercise, diet



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Which UK country has the highest prevalence rate of Diabetes?



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# Prevalence of different health conditions

Condition	England	Wales	N.I.	Scotland
Asthma	13.7	15.4	10.8*	12.9*
Diabetes	5.7	6.2	4.2*	4.6*
Emphysema	0.7	1.3*	0.3*	1.1*
Epilepsy	1.1	1.2	1.06	1.6*
High blood pressure	18.6	19.8*	14.9*	20.2

England is the reference category.



# Health content in *Understanding Society*: Nurse assessments

Measure	Applications
Height and weight Waist circumference Percent body-fat (bioelectrical impedance)	BMI and assessment of excess body fat: obesity and risk factor for range of major chronic conditions and social outcomes
Respiratory function (Spirometry) (FVC, FEV <sub>1</sub> , PF, FEV <sub>1</sub> /FVC)	To detect both obstructive and restrictive respiratory diseases including COPD.
Diastolic and systolic blood pressure, resting pulse rate	Risk factor for stroke and heart conditions Risk cardio-vascular disease
Grip strength	Indicator muscle strength. Functional limitations and disability in older ages.
Blood samples (non-fasting), 19.8ml)	For the extraction of analytes and DNA
Short questionnaire on health on day of measurement, medications etc	Factors that may need to be considered in analysing physical measures and bloods



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# Biomarkers

*"a characteristic that is objectively measured and evaluated as an indicator of normal biological processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention"*



Important considerations when analysing them (time of day, medications, recent events etc.): see the User Guide

<https://www.understandingsociety.ac.uk/documentation/health-assessment>

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# Value of biomarkers

- Objective rather than self report
- More precise measures of health and illness.
- Specific conditions
- Undiagnosed illness
- Pre-disease risk factors
- Effectiveness of treatment
- 'How the social gets under the skin' - biological pathways between social factors and health
- 'How the biological gets outside the skin' – the interaction of genes and environment



# Blood analytes

Measure	Applications
Cholesterol & triglycerides	'Fat in the blood' associated heart disease (CVD)
Glucose intolerance - HbA1c	Undiagnosed or poorly managed diabetes
Inflammatory markers - c-reactive protein, fibrinogen	Measures of inflammation – due injury or infection – acute or chronic – response to stress
CMV seropositivity	Immunosenescence - wear & tear immune system, chronic stress, associated diabetes
Anaemia – haemoglobin, ferritin	Marker for poor nutrition; increases with age, sig. health consequences
Liver function - ALP, ALT, AST, GGT, albumin	Associated alcohol, drugs, obesity, consequence of other diseases
kidney function – creatinine	Kidney diseases increase age, associated other diseases
Hormones – testosterone, IGF1, DHEAS	associated with stress processes, building muscles, ageing Testosterone - marker aggression IGF1 –associated diet, diabetes and cancer DHEAS -associated CVD, muscle strength, cognition

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# Data Access

- Data from all these studies (including the Understanding Society Nurse data) are deposited with the UK Data Archive
- More sensitive data requires approval e.g. geographic identifiers, more detailed information on country of origin, month of birth
- More sensitive information is accessed through the Secure Lab, including linked data to the National Pupil Database, and postcodes
- Access to the Understanding Society genetic data – see the Understanding Society website for details

<https://www.understandingsociety.ac.uk/about/health/data>



# Searching for Data

- Key Data
- Data By Theme
- Using Discover
- Using Variable & Question Bank

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About us Get data Use data Manage data Deposit data News and events

Home > Discover data > Data by theme > Health

## Health and health behaviour

A wealth of data on health and health-related behaviour

Key data Discover Analysing Research Resources

SHARE

Whilst there is a wealth of data on health and health-related behaviour, a number of studies are regarded as 'key' – either through their subject/geographical coverage, their use of standard measures, their longevity, their usage among the research community or because they are used to create 'official' figures.

The majority of the data described are known as 'raw', 'primary' or 'source' data in the sense that they represent information that has been collected 'first-hand'; they are original data sources which may then be used for 'secondary' analysis by researchers not involved in the data collection process. The majority of these data are anonymised because they describe the attitudes, behaviour, circumstances and personal details of the individuals being studied. These [types of data](#) are heavily used by the academic and government research communities.

The UK Data Service provides access to the following primary data sources:

Study name	Coverage	Topics
<a href="#">1946 birth cohort study</a> ; <a href="#">National Survey of Health and Development (NSHD)</a>	1946- continuing (longitudinal) Britain	child development initial conditions morbidity life outcomes ageing
1958, 1970, 2000-1 birth cohort studies: <a href="#">National Child Development Study (NCDS)</a> <a href="#">1970 British Cohort Study (BCS70)</a> <a href="#">Millennium Cohort Study (MCS)</a>	1958- continuing; 1970- continuing; 2000-1- continuing (all longitudinal) Britain/UK	child development initial conditions morbidity life outcomes ageing

QUICK ACCESS TO

- Ageing
- Crime
- Education
- Environment and energy
- Ethnicity
- Health and health behaviour
- Housing and local environment
- Information and communication
- Labour market
- Politics
- Poverty and social exclusion

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# UK Data Service resources

- Case-studies of health research:
  - [UKDS 'case-studies'](#);
  - [Health Surveys User Conferences e.g. 2016:](#)
- [Video tutorials](#)
- [Guides](#)
- [Secondary Analysis pages](#)
- [Student resources](#)
- [Teaching resources](#)
- [Advice for new users pages](#)
- Have a query? See our [help](#) pages and [FAQs](#)



# ESRC Services

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UK Data Service  
[ukdataservice.ac.uk](http://ukdataservice.ac.uk)



Understanding Society  
[www.understandingsociety.ac.uk](http://www.understandingsociety.ac.uk)



Census & Administrative Data Longitudinal Studies Hub  
[www.calls.ac.uk](http://www.calls.ac.uk)



Centre for Longitudinal Studies  
[www.cls.ioe.ac.uk](http://www.cls.ioe.ac.uk)



Administrative Data Research Network  
[www.adrn.ac.uk](http://www.adrn.ac.uk)



Cohort & Longitudinal Studies Enhancement Resources  
[www.closer.ac.uk](http://www.closer.ac.uk)



National Centre for Research Methods  
[www.ncrm.ac.uk](http://www.ncrm.ac.uk)

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