Institute of Education

1970 British Cohort Study

Age 16 Survey Dietary Diaries User Guide

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Economic and Social Research Council

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1. The 1970 British Cohort Study

BCS70 is a multi-disciplinary longitudinal birth cohort study that follows the lives of more than 17,000 people born in England, Scotland and Wales in a single week of 1970.

Since 1970, cohort members have been surveyed at ages 5, 10, 16, 26, 30, 34, 38, 42 and most recently at age 46-48.

Over the course of cohort members' lives, BCS70 has collected information on health, physical, educational and social development, and economic circumstances among other factors.

BCS70 is run by the Centre for Longitudinal Studies (CLS), a research centre in the UCL Institute of Education, which is part of University College London.

BCS70 is core-funded by the Economic and Social Research Council (ESRC), and the most recent survey was additionally funded by the Medical Research Council and the British Heart Foundation.

This document accompanies the deposit of the Dietary Diary data collected during the Age 16 Survey at the <u>UK Data Service</u>.

2. The Age 16 Survey

The BCS70 Age 16 Sweep, known as 'Youthscan' was carried out by the International Centre for Child Studies in 1986, under the direction of Professor Neville Butler of Bristol University.

The survey aimed to monitor the continued social, physical and educational development of the BCS70 cohort throughout their teenage years. It involved no less than 19 questionnaire instruments.

The Age 16 Sweep was the last time that parents were interviewed, being asked about family circumstances, health, income, housing and education.

A medical assessment took body measurements, blood pressure, pulse, vision, hearing and co-ordination measures.

Cohort members themselves completed a large number of questionnaires covering many aspects of life including education, leisure activities, smoking, drinking, relationships with family and friends, beliefs and aspirations for the future.

Cognitive assessments included Reading Test, Arithmetic, Vocabulary, Spelling and BAS Matrices.

Teachers provided information about the school's characteristics and the pupil's ability, behaviour and attendance.

In particular (for the purposes of this specific documentation), the teenage participants also completed 4-day diaries covering diet and leisure activities.

The dietary diary data has not hitherto been available for analysis.

3. Fieldwork

Full details regarding the conduct of fieldwork are provided in the BCS70 Age 16 Survey User Guide - <u>https://cls.ucl.ac.uk/wp-</u> <u>content/uploads/2017/07/Guide_to_the_16-year_data.pdf</u>.

4. Dietary questionnaire

As part of the Age 16 survey, the teenage respondents were given a dietary diary by their school, where appropriate, or by post to the respondent's home. This asked them to fill in details for four days of everything they ate, beginning on a Friday morning, and keeping it up over the Saturday, Sunday and Monday, finishing it last thing on the Monday night. Participants were provided with instructions both within the diary and as an accompanying letter.

The format of the 4-day diary/questionnaire can be viewed in Appendix 1, which shows the instructions to cohort members on how to complete the diary. The full version can be downloaded from the website of the Centre for Longitudinal Studies at University College London:

https://cls.ucl.ac.uk/wp-content/uploads/2017/07/dock.pdf

Appendix 2 of this documentation contains a summary of the food group categories recorded.

In total 5,948 teenagers posted back a 4-day diary, but a substantial number were blank or incomplete. A total of 4,760 completed diaries have been successfully coded and analysed.

This was an unweighed food diary, using standard portion sizes,¹ though participants were asked (where they knew the weight and brand of something) to write it down. Otherwise they should indicate how much (e.g. a glass, cup or mug; a thin, medium or thick slice of bread/meat; tablespoon or teaspoon etc.) and the time at which it was consumed.

There was no evidence of differences between weekday and weekend nutrient intakes, and it was noted that many participants were revising for exams at home or were on holiday from school during the period of recording.²

5. Why are the dietary diaries being deposited so much later than other Age 16 data?

The 1986 Survey was the last follow-up to be organised by Bristol University. Soon afterwards, the administration of the whole cohort was transferred to the Centre for Longitudinal Studies in London (formerly the Social Statistics Research Unit, City University), where the study became known as BCS70. This process involved a large removal of historic paper questionnaires, keyed-in data, extensive records of contact details, etc.

Though research had been published on the cohort in the 1970s-80s during the Bristol administration, the data had not been systematically documented and deposited at the UK Data Archive, to facilitate general access by researchers worldwide.

After the transfer to London, a thoroughgoing exercise was undertaken throughout the 1990s to check, document and deposit at the UK Data Archive the keyed-in data from the sweeps up to and including age 16, whilst also arranging fieldwork to conduct further sweeps at age 26 (1996), age 30 (2000), age 34 (2004) etc. But the keyed-in data for the sweeps up to and including age 16 were found not to have been stored and documented in a systematic way, and certain elements appeared not to be in a format which was appropriate for deposit. One such element was the dataset containing the dietary diaries ('Document K' in the list of 16-year instruments 'A-T': see https://cls.ucl.ac.uk/cls-studies/1970-british-cohort-study/bcs70-age-16-sweep/).

While Professor Butler was still alive, he felt strongly that the dietary information needed to be carefully examined to estimate the intake of micro- and macronutrients, non-essential nutrients etc., before these data could be useful to researchers. A look-up table for this purpose had been used by Bristol researchers in the 1980s,^{2,3,4,5} who used 1,250 standard food items; but on contacting their main representative Helen Crawley a decade-and-a half later, it was regretted that this look-up/ conversion algorithm could no longer be found.

6. Coding of the raw data to nutrient categories

Over the next decade, further attempts were made to locate such a conversion algorithm, but after Professor Butler's death we were advised that, even in the event of locating this, there was the issue that the food groups and nutrients were noted in the diaries in a way which would be difficult to compare with modern-day nutrient research. Opinions have changed about what constitutes a 'bowl' of pasta or a 'spoon' of sugar, and, for instance, tinned tuna is no longer classed as a source of the essential fatty acid Omega Three, etc. In addition, many more than 1,250 food groups are now commonly used.⁶

Nevertheless, we feel this resource may still be helpful even in its less-than-ideal format, especially as the number of participants (4,760) gives a large degree of statistical power.

The nutrient database used by Crawley et al resulted in the nutrient categories listed in Appendix 3 of this documentation. From Helen Crawley's published work it appears the coding was completed partly using McCance & Widdowson's integrated food dataset tables⁶ along with additional information on the nutrient content of other products²

7. Datasets

The two datasets corresponding to the recorded food group and nutrient categories in Appendices 2 & 3 are 'BCS86_dietfdgp' and 'BCS86_dietnut.' Each dataset contains the unique case identifier BCSID, enabling the files to be merged longitudinally with all other available BCS70 datasets.

The user may consider attempting to re-code the data using the DINO⁷ software, which uses 6,000 food items, as is the practice of the National Diet and Nutrition Survey's 4-day diaries (NDNS^{8,9}). However, bearing in mind the reservations stated in the final two paragraphs of section 5 above, the user may possibly find this a difficult process unless he or she applied to CLS for access to the original diaries.

Queries about any aspect of the data should be sent to CLS using the feedback page on the CLS website: <u>https://cls.ucl.ac.uk/contact/</u>

8. References

1. Crawley, H.F. (1988) Food Portion Sizes. London: H.M. Stationery Office.

2. Crawley, H.F. (1993) The energy, nutrient and food intakes of teenagers aged 16-17 years in Britain: 1. Energy, macronutrients and non-starch polysaccharides.
<u>British Journal of Nutrition</u>, 70, 15-26.

3. Crawley, H and Summerbell, C. (1997) Feeding frequency and BMI among teenagers. *International Journal of Obesity*, 21(2), 159-161.

4. Crawley, H.F. (1997) Dietary and lifestyle difference between Scottish teenagers and those living in England and Wales. *European Journal of Clinical Nutrition*, 51(2), 87-91.

5. Crawley, H.F and Summerbell, C.D. (1998) The nutrient and food intakes of British male dieters aged 16-17 years. *Journal of Human Nutrition & Dietetics*, 11(1), 33-40.

6. McCance, RA & Widdowson, EM (2014) <u>McCance and Widdowson's The</u> <u>Composition of Foods: Summary Edition, 7th ed</u>. London: Royal Society of Chemistry

7. DINO (Diet In Nutrients Out) – An integrated dietary assessment system (2015). Public Health Nutrition 18(2), 234-241.

8. Department of Health (2011) *National Diet and Nutrition Survey Years 1–4 2008/09–2011/12: User Guide*. London: Department of Health

9. Scientific Advisory Committee on Nutrition (2008) *The Nutritional Wellbeing of the British Population*. London: The Stationery Office.

9. Appendices

Appendix 1: 'Document K' the Dietary Diary Questionnaire, with instructions on how to complete

ABOUT YOUR DIETARY DIARY

At this stage we thought you would be interested in some news about a Dietary Diary, which we would like you to keep. Your school will give you the Diary when it is ready. You will be told how to complete it. Also, please keep this sheet available. You will be asked to record everything you eat and drink over a period of four days. Just like any other personal diary it should be filled in as you go through the day. It will be pocket-size, so that you will be able to carry it everywhere with you over the short period. You should try to fill it in as you go and not wait till the end of each day. You will be asked to begin it on a Friday morning, and keep it up over Saturday, Sunday and Monday, finishing it last thing on a Monday night.

When the Diary is completed, you should return it on the following day to the person at school who gave it to you. If it is the holidays, take it back on the first day when school re-opens. If it gets lost, there is an address on it to which it can be sent. If you lose it, let me know and I will send you another one.

How much help is allowed in filling it in? We want a very full record so please ask your parents' help or advice if you would like to. We are sure they will be interested.

Why are we asking you to fill in a Dietary Diary? You have heard a great deal about the need of eating 'healthy' foods. Some foods and drinks are known to be bad, and others are thought to be very good. Before we can help, we need to know the sort of things you like and what you like and what you are eating and drinking now.

Remember, what you drink is quite as important as what you eat. Everything you drink should be written in your Dietary Diary; tea, coffee, soft drinks, alcoholic drinks and even water.

What you will do when you get the Diary.

When you get the Diary, first fill in your name and address on the front cover. Then, read carefully the instructions inside the front cover. Should there be anything you do not understand, be sure to ask the person who gives you the Diary. Also, ask for help at home, if you want to.

You should start your Diary on the Friday morning as soon as you wake up. If this is not convenient, leave it for a week and then start the Diary on the next Friday. Write in everything you eat and everything you drink, including water until you wake up on the following Tuesday morning.

There will be cartoons in the Diary to encourage you to fill it up. Some of them are reproduced for you on the back of this sheet. We hope you like them.

We hope you enjoy completing your Dietary Diary too. There is plenty of room in it to enter your own views about food and drink. Thank you for your valuable help.

DOCUMENT K YOUTHSCAN UK VOUTHSCAN VOUTHSCAN VOUTHSCAN VOUTHSCAN VOUTHSCAN VOUTHSCAN VOUTHSCAN DOCUMENT K	
Date of Birth: 0470 Sex: Male Female	
If found, please return to owner or to: Professor Neville Butler MD, FRCP, FRCOG, DCH Director of Youthscan International Centre for Child Studies Ashley Down House 16 Cotham Park Bristol BS6 6BU Tel: (0272) 739783/743405	

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FILLING IN YOUR FOOD AND DRINK DIARY

We would like you to keep the diary for four days. The first day should be a *Friday* So you keep a record of all you eat and all you drink on *Friday*, *Saturday*, *Sunday* and *Monday*. Try to keep the Diary with you and fill it in each day as you go along, don't leave it until the evening.

Please write down everything you eat and everything you drink, at mealtimes and inbetween meals.

READ THROUGH THESE INSTRUCTIONS AND THE EXAMPLE CAREFULLY ONCE OR TWICE BEFORE YOU START

NOTES ON HOW TO COMPLETE THE DIARY

Write in the time on each occasion you have something to eat or drink.

Put down *how much* food or drink you have had. You do not need to weigh everything, but give a good description.

FOR EXAMPLE:

*When you have a slice of bread or meat say if it was a thin, medium or thick slice and give approximate size of slice

*Put down whether drinks were in glasses, cups or mugs e.g. half mug of milk

*Write tablespoon or teaspoon, not just spoonful.

*When you know the weight and brand of something, write it down. e.g. 150g carton of Yoghurt (St. Ivel), 180g Steak & Kidney Pie (Bowyers), 1/2 pint Shandy (Top Deck).

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For crisps and snacks write down the cost, eg. 15p packet of crisps

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DESCRIBE THE FOOD OR DRINK, GIVING AS MUCH INFORMATION AS POSSIBLE

How was the food prepared – fried, boiled or grilled? Is bread white, wholemeal or brown? What type of cereal was it? Was it butter or margarine? Did you cut the fat off the meat? What type of biscuit did you eat?



GIVE BRAND NAMES WHERE POSSIBLE FOR FOODS AND DRINKS Looking at wrappers and labels will help to fill this in accurately.

REMEMBER TO

.

Fill in the day of the week and the date at the top of each page.

Include everything - snacks, titbits - however small.

Put down all your drinks, even water.

Look at the example pages. You might not eat all the things written on them, but it will show you how to use the diary.



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	BEFORE BREAKFAST
TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
7.45 _{9M}	1 mug of Tea with oldinary (silver-top) milk and two sugar
	2 Chocolate Digestive biscuits (Crawfords). "Wh
2.00	1 Apple.

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л. И		BREAKFAST
	TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
	8 15 am	1 mug of ted with ordinary milkand two supports (white)
2 - 2 - 2 - 2	2	2 Weetabix 2 (tablespoons) Shreddies-Nabisco) Milk and 1 dessert 1 boiled egg 2 (Large Medium Slices) of toast - White bread with 2 (Large Medium Slices) of toast - White bread with 2 (Large Medium Slices) of toast - White bread with
	N	IID-MORNING BETWEEN BREAKFAST AND MIDDAY MEAL
Ē	TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
	10-15am	2 Pint glass of Lemonade
		1 bap of Cadbury's Wispa
с.	11.00am	I small packet of plain crisps (Walkers)
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	MIDDAY MEAL
TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
12-45 pm	4 large medium slices of Wholemeal bread with Margarine - blue band 4 slices of Cheddar Cheese and) 1 Tonnato (sliced)
	2 portion of Chips 2. Coinstake and Treacle Cake
	2 Pint of orange Juice - Squash
MIC	AFTERNOON BETWEEN MIDDAY MEAL AND EVENING MEAL
TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
4.15 pm	1 large Kit-Kat 1 mug of Coffee with I teaspoonful of Soffee mate and 2 leaspoons of sugar (while) 1 cub of Tea with ordinary milk and two sugars (while)
5-30 p.m	2 Digestine Biscuits (Me Vitres).

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	EVENING MEAL
TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
6.45 p.m.	1 large Pork-chop cooked in the oven - with oxo
	3 Medium, Boiled Potatoes
	2. Tablespoons of Peas - tinned (co-op)
	2 Tablespoons of Swiede
	1 individual Chocolate Mousse - Studi
	1 glass of Water
	DIETANN DIADT DIADT
EVEN	ING SNACKS & DRINKS UP TO BEDTIME OR DUBING NIGHT
TIME	AMOUNT OF FOOD & DRINK TAKEN AND BRAND
+.50 PM	I mug of Coffee with Ordinary milk and
_	two sugars (white?
8.30 P.M.	1 Packet of Chips from take-away.
45 pm	I tin of Shandy (top-deck)
2.00 2.m	1. Bucket of Potato Crisps (13p.).
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PLEASE TURN OVER AND BEGIN YOUR OWN DIARY



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Appendix 2: Diet food group categories recorded, with variable names in datafile BCS86_dietfdgp

mth	MONTH DIARY COMPLETED
year	YEAR DIARY COMPLETED
day	DAY NUMBER
beer	BEER LAGER CIDER G/DAY
wine	WINE VERMOUTH SHERRY G/DAY
gin	SPIRITS LIQUEURS G/DAY
coff	COFFEE G/DAY
bev	OTHER HOT BEVERAGES G/DAY
рор	CARBONATED DRINKS SWEETENED G/DAY
lcal	LOW CALORIE SOFT DRINKS G/DAY
fju	FRUIT JUICE UNSWEETENED G/DAY
bix	SWEET BISCUITS G/DAY
sbix	SAVOURY BISCUITS G/DAY
wbrd	WHITE BREAD G/DAY
wmbrd	WHOLEMEAL BREAD G/DAY
bbrd	BROWN WHEATGERM GRANARY BREAD G/DAY
otbrd	OTHER BREADS G/DAY
bfc1	HIGH FIBRE BREAKFAST CEREALS G/DAY
bfc2	OTHER BREAKFAST CEREALS, UNSWEETENED G/DAY
cake	CAKES BUNS PASTRIES G/DAY
cheese	CHEESE G/DAY
pizza	PIZZA G/DAY
sweet	SUGAR CONFECTIONERY G/DAY
choc	CHOCOLATE CONFECTIONERY G/DAY
eggs	EGGS G/DAY
chdish	EGG AND CHEESE DISHES G/DAY
butt	BUTTER G/DAY
fish	FISH G/DAY
fishd	FISH DISHES G/DAY
fruit	FRESH FRUIT, NOT CITRUS/APPL/PEAR G/DAY
cfruit	CANNED SWEETENED FRUIT
bacon	BACON, HAM G/DAY
chix	POULTRY AND POULTRY DISHES G/DAY
offal	OFFAL AND DISHES G/DAY
meatd	MEAT DISHES G/DAY
cmeat	CANNED MEAT G/DAY
mpie	MEAT PIES G/DAY
milk	WHOLE MILK G/DAY
ssmilk	SEMI-SKIMMED MILK G/DAY
milko	OTHER MILK AND CREAM G/DAY
yog	YOGHURT G/DAY
icream	ICE CREAM LOLLIES G/DAY

nuts	NUTS G/DAY
pasta	PASTA RICE CEREALS G/DAY
salad	SALAD VEGETABLES G/DAY
puds	PUDDINGS AND FRUIT PIES G/DAY
sauce	SAUCES, PICKLES G/DAY
jam	SYRUPS AND PRESERVES G/DAY
veg1	FRESH AND FROZEN VEGETABLES G/DAY
veg2	CANNED AND PROCESSED VEGETABLES G/DAY
chip	FRIED POTATOE CHIPS G/DAY
snax	SAVOURY SNACKS G/DAY
misc	MISCELLANEOUS G/DAY
beef	BEEF, VEAL G/DAY
supps	SUPPLEMENTS TAKEN PER DAY
tea	TEA G/DAY
hchoc	HOT CHOCOLATE G/DAY
bfc3	SWEETENED BREAKFAST CEREALS G/DAY
cott	COTTAGE CHEESE G/DAY
pufa	POLUNSATURATED MARGARINE G/DAY
lfat	LOW FAT SPREAD G/DAY
marg	OTHER MARGARINE G/DAY
citrus	CITRUS FRUITS G/DAY
apple	APPLES, PEARS G/DAY
lamb	LAMB AND MUTTON G/DAY
pork	PORK G/DAY
cchix	COATED CHICKEN PRODUCTS
burger	BURGERS, KEBABS G/DAY
saus	SAUSAGES G/DAY
smilk	SKIMMED MILK G/DAY
fpie	FRUIT PIE G/DAY
mpud	MILK PUDDINGS G/DAY
soup	SOUP G/DAY
sugar	TABLE SUGAR G/DAY
bbean	BAKED BEANS G/DAY
spud	POTATOES NOT FRIED G/DAY
pots	FRIED, ROAST POTATO NOT CHIPS G/DAY
toms	TOMATOES G/DAY
gveg	GREEN VEGETABLES G/DAY
carrt	CARROTS G/DAY
peas	PEAS G/DAY
sqsh	SQUASH, SWEETENED FRUIT JUICE G/DAY
water	WATER G/DAY

Appendix 3: Diet nutrient categories recorded, & variable names in file BCS86_dietnut

day	DAY NUMBER
month	MONTH DIARY COMPLETED
year	YEAR DIARY COMPLETED
water	WATER G/DAY
sugars	SUGARS G/DAY
starch	STARCH G/DAY
fib1	SOUTHGATE FIBRE G/DAY
fib2	ENGLYST FIBRE G/DAY
kcal	ENERGY KCALS/DAY
kj	ENERGY KJ/DAY
prot	PROTEIN G/DAY
fat	FAT G/DAY
cho	CARBOHYDRATE G/DAY
alc	ALCOHOL G/DAY
na	SODIUM MG/DAY
k	POTASSIUM MG/DAY
са	CALCIUM MG/DAY
mg	MAGNESIUM MG/DAY
р	PHOSPHORUS MG/DAY
fe	IRON MG/DAY
cu	COPPER UG/DAY
zn	ZINC MG/DAY
i	IODINE UG/DAY
cl	CHLORIDE MG/DAY
se	SELENIUM UG/DAY
ret	RETINOL UG/DAY
carot	CAROTENE UG/DAY
vitd	VITAMIN D UG/DAY
thiam	THIAMIN MG/DAY
ribo	RIBOFLAVIN MG/DAY
niac	NIACIN MG/DAY
try60	TRYPTOPHAN/60 MG/DAY
vitc	VITAMIN C MG/DAY
vite	VITAMIN E MG/DAY
vitb6	VITAMIN B6 MG/DAY
vitb12	VITAMIN B12 UG/DAY
fol	FOLATE UG/DAY
panto	PANTOTHENIC ACID MG/DAY
bio	BIOTIN UG/DAY
gluc	GLUCOSE G/DAY[B
fruc	FRUCTOSE G/DAY
sucr	SUCROSE G/DAY

malt MALTOSE G/DAY lact LACTOSE G/DAY

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