

Food choices and behaviours: trends and the impact of life events

Further analysis as part of the longitudinal data on food-related issues scoping study



Julia Hall, Jo d'Ardenne, Matt Barnes, Caireen Roberts and Sally McManus

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October 2011

Prepared for the Department of Health

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Acknowledgements

We would like to thank Danielle De Feo and Rachel Conner from Department of Health for their expert advice and steering of this review.

We have also benefited enormously from the provision of data and advice from numerous researchers working on the surveys included in this review. Many of these people have given generously of their time and provided detailed and extremely useful comments on drafts of this report. They include: Julie Withey, Andrew Wong and Diana Kuh from the MRC NSHD; Gina Ambrosini and Susan Jebb from the MRC Human Nutrition Research Unit (HNR); Janet Cade from the University of Leeds; Eric Brunner and Aida Sanchez from UCL; and Kate Northstone and Pauline Emmett from Bristol University. Jenny Harris provided key contributions to the earlier stages of this project.

Notes to tables

- 1 The data used in this report have been weighted using the survey specific appropriate weighting variables that were archived with each dataset. Unweighted sample sizes are shown at the foot of each table and show the numbers of interviews conducted.
- 2 The following conventions have been used in tables:
 - no observations (zero value)
 - 0 non-zero values of less than 0.5% and thus rounded to zero
 - .. data not available (e.g. the food-related behaviour was not assessed that survey year)
 - [] used to warn of small sample bases, usually where the unweighted base is less than 40.
- 3 Because of rounding, row or column percentages may not add exactly to 100%.
- 4 A percentage may be quoted in the text for a single category that aggregates two or more of the percentages shown in a table. The percentage for the single category may, because of rounding, differ from the sum of the percentages in the table.
- 5 In this report percentages are given to one decimal place.
- 6 'Missing values' occur for several reasons, including refusal or inability to answer a particular question; refusal to co-operate in an entire section of the survey (such as the self-completion questionnaire); cases where the question is not applicable to the respondent; and of particular relevance here – where there has been attrition at subsequent waves. In general, missing values have been omitted.
- 7 The group to whom each table refers is stated at the upper left corner of the table.
- 8 The term 'significant' refers to statistical significance (at the 95% level) and is not intended to imply substantive importance. Unless otherwise stated, differences mentioned in the text have been found to be statistically significant at the 95% confidence level. Standard errors that reflect the complex sampling design and weighting procedures used in the survey have been calculated and used in tests of statistical significance.

Executive Summary

Introduction

This report builds on the descriptive analysis presented in a companion report by the same research team: *Longitudinal data on food-related issues: a scoping study* (Hall *et al.*, 2011).

The research questions addressed by this report are:

1. In the British population, are people's food behaviours and food hygiene and cooking practices getting better or worse over time? If there are changes, are they across the population as a whole or more within particular subgroups?
2. What socio-demographic factors predict different subsequent poor food-related outcomes?
3. What additional impact do different life events have on these outcomes?

Methods

Six UK-based longitudinal surveys were used for the analyses in this report:

- Avon Longitudinal Survey of Parent and Children (ALSPAC)
- British Household Panel Survey (BHPS) - Youth Cohort
- English Longitudinal Survey of Aging (ELSA)
- Family and Children Surveys (FACS)
- National Health and Development Survey (NHDS)
- Whitehall II.

Trend and multivariate regression analyses were undertaken. Results are reported in chapters focusing on each of the food-related behaviours examined. A wide range of socio-demographic and health variables were tested and controlled for. The impact of the following life events were considered:

- Change in employment status (job loss, job gain and retirement)
- Change in marital status
- Birth of another child
- Quitting smoking
- Change in health status
- Change in alcohol consumption

Key Findings

Sharing an evening meal with the family

Data was available on this in the BHPS Youth Cohort, with job loss and job gain the life events available for analysis. The main significant finding was that families with a reduction in their Work Intensity Ratio became more likely to share an evening meal. Also, families with older mothers were less likely to share an evening meal.

Choice and access to food

FACS provides longitudinal data on poor choice and lack of access to food. A choice and access summary score was derived from questions asking about whether the family can afford certain foods. Families with lower socio-economic status, younger mothers, and mothers who smoked were more likely to have poorer choice and access to food. Five life events could be examined: becoming a single parent, job loss, job gain, having another child, and mother quitting smoking. The life events which had significant negative impacts on choice and access to food were becoming a lone parent and job loss.

Hand washing before meals

Data on hand washing was collected in ALSPAC. As children grew older, they became more likely to have washed hands prior to eating. Those of non-white ethnicity were less likely to have washed hands prior to eating. The impact of six life events on hand washing practice were examined: a change in marital status, job loss, job gain, pregnancy, quitting smoking, and a change in health status. The only life event associated with a decline in hand washing was the arrival of a sibling in the household.

Adding salt to food

Both ALSPAC and Whitehall II have data on the use of salt in cooking and eating practices. Whitehall data demonstrated that adding salt while cooking was in decline. However, ALSPAC showed that as children got older mothers became more likely to add salt to their food. Many socio-demographic variables were associated with salt use (such as educational qualifications for ALSPAC and ethnicity for Whitehall II), but the life events examined (a change in marital status, a change in health status, and quitting smoking for both surveys; job loss, job gain, and pregnancy for ALSPAC; and increased alcohol consumption for Whitehall II) were not found to be significant predictors.

Fruit and vegetable consumption

Data from four of the surveys were examined in relation to fruit and vegetable consumption. All indicated that this food behaviour was on the increase. Gender was not a significant predictor for the Youth Cohort but was for all of the older age cohorts. Higher socio-economic groups in the older age cohorts were also predictive of increased fruit and vegetable consumption. The key finding was the strong and consistent link between quitting smoking and increased fruit and vegetable intake.

1 Introduction

This chapter sets out the background for the project and describes the research questions and analytic approach taken to address these questions. The rationale for taking a life course approach that takes account of life events is set out.

1.1 Policy and public health context

Rising levels of obesity and diet-related disease are of significant public health concern in the UK. Various campaigns have been initiated by the government, such as the Department of Health's Change4Life programme. This aims to reduce the likelihood of people becoming overweight by encouraging better diet and increased levels of exercise. The Food Strategy 2030, led by the Department for the Environment, Food and Rural Affairs (DEFRA), reports that poor diet is estimated to account for a third of all cases of cancer and a further third of all cases of cardiovascular disease. The Food Strategy report sets out DEFRA's vision for helping to ensure that the population is eating safe, healthy, affordable and sustainable food by 2030. High quality research and evidence was identified as an important input into guiding the policy associated with achieving this.

1.2 Background to this report

This report builds on the basic descriptive analysis presented in a companion report by the same authors: *Longitudinal data on food-related issues: a scoping study* (Hall *et al.*, 2011). The datasets identified in that report as the most appropriate longitudinal sources available on food-related behaviours in Britain are also used here. This report aims to support the government's food-related policy objectives and strategy by presenting more extended secondary analysis of these longitudinal data sources. Specifically, this report examines what available longitudinal data can tell us about the trends in and predictors of different food-related behaviours, and hygiene and cooking practices. Particular focus is given here to the role that life events might have on changing food-related behaviour.

1.3 Research questions and analytic model

The research questions addressed by this report are:

1. In the British population, are people's food behaviours and food hygiene and cooking practices getting better or worse over time? If there are changes, are they across the population as a whole or more within particular subgroups?
2. What socio-demographic factors predict different subsequent poor food-related outcomes?
3. What additional impact do different life events have on these outcomes?

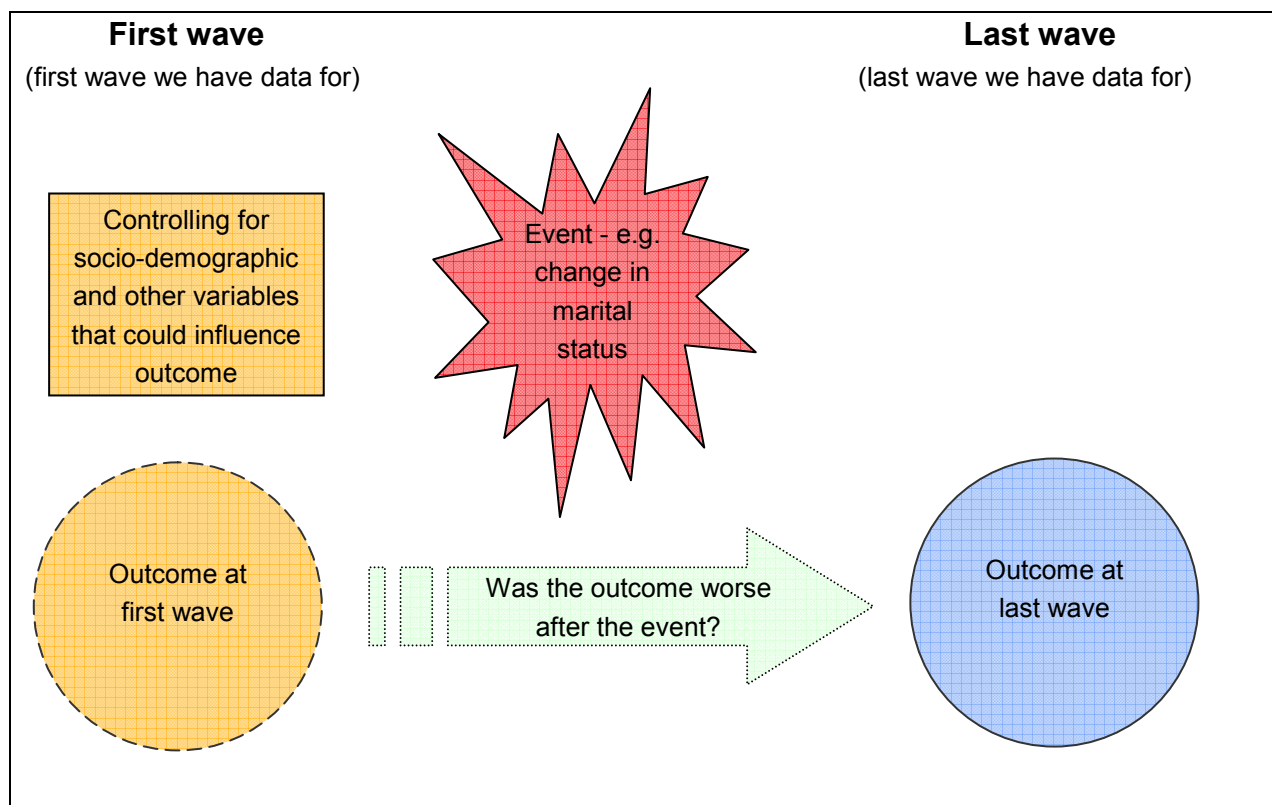
The first research question was addressed by looking at the prevalence of each food-related behaviour at each wave of a survey, and testing for significant trends over the survey waves. The behaviours examined were: eating an evening meal together as a family, having poor choice and access to food, washing children's hands before meals, adding salt to food, and eating fresh fruit and vegetables. As well as looking at changes in the overall prevalence of each behaviour, trends were also examined by subgroups. This involved looking at the distribution of food behaviours by various socio-demographic variables at each wave, as well as by other health behaviours such as smoking status and drinking alcohol.

The second research question used regression analyses to test which respondent characteristics from the first wave predicted subsequent poor food-related behaviours at the final wave.

The third research question extended the multivariate baseline regression built to answer question two (including the significant predictors identified and the behaviour at the first survey wave). Life events experienced between the first and last survey waves were then added to the model to test which were significantly associated with the food behaviour occurring at the final wave. Where more than one life event was significant, both/all were included in the multivariate model.

Figure 1.1 presents the analytical model used, making use of the longitudinal nature of the data. Data from the first wave provide potential predictor variables, data from the final wave provides the outcome variable, and data from all waves are used to identify who has experienced particular life events.

Figure 1.1 Analytical model used to examine the impact of life events on food behaviours.



1.4 The impact of life events on food-related behaviour

Food choices and behaviours vary with many things. These include economic, physical (access, skills, time); social (culture, family); psychological (mood, stress); and attitudinal factors, as well as beliefs and knowledge about food. Any life events that impact on these determinants could potentially change an individual's food choices and behaviours. For example, a change in economic circumstances (perhaps bought about by job loss or marital separation) may result in the individual no longer being able to afford certain foods, and increased concern about food wastage leading to a reluctance to try 'new' foods for fear the family will reject them (European Food Information Council Review, 2005). On the other hand, access to more money may not necessarily equate to a better quality diet, despite the range of foods from which to choose from increasing. There is a well established link between social class and food behaviours and nutrient intakes, but as far as the authors of this report are aware it has not been established whether an improvement in circumstances leads to a change in behaviour, or whether previous experiences have resulted in these behaviours becoming ingrained.

Gaining or losing a job, having another child, or marital separation are all life events that can impact on people's day to day stress levels. Lack of time is frequently mentioned for not following nutritional advice (European Food Information Council Review, 2005). People living alone or cooking for one may seek out convenience foods rather than cooking from basic ingredients. This need has been met with a shift in the fruit and

vegetables market from loose to pre-packed, prepared and ready-to-cook products. However, these products are more expensive than loose products. When marital separation occurs decreased income may compound decreased time available.

Psychological stress is a common feature of modern life and can modify behaviours that affect health, such as physical activity, smoking or food choice. The influence of stress on food choice and behaviours is complex and depends on the individual, the stressor and the circumstances (Oliver and Wardle 1999). The proposed mechanisms for stress induced changes in eating and food choice are motivational differences (reduced concern about weight control), physiological (reduced appetite caused by the process associated with stress) and practical changes in eating opportunities, food availability and meal preparation.

Family involvement has been found to be important in making and sustaining dietary change. Social support from both within the household and from co-workers has been found to be positively associated with improvements in fruit and vegetable consumption (Sorensen et al 1998a) and with the preparative stage of improving eating habits (Sorensen et al 1998b). Conversely, lack of social support may sabotage dietary change (Peterson et al 1994).

Finally, healthy behaviours are known to cluster together (French *et al.*, 2008). If, for example, an individual quits smoking, he or she may also be more likely to make other lifestyle changes.

1.5 References

European Food Information Council Review. (2005)

<http://www.eufic.org/article/en/expid/review-food-choice/>

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Sorensen G, Stoddard A & Macario E (1998b) Social support and readiness to make dietary changes. *Health Education and Behaviour* 25: 586-598.

2 Methods

This chapter describes the methods used. In particular, the datasets used are listed, the outcome variables, and the socio-demographic and life event variables that were hypothesised to impact on these outcomes, are defined, and the statistical approach is described.

2.1 Surveys used

Six UK-based longitudinal surveys are used for the analyses in this report:

- Avon Longitudinal Survey of Parent and Children (ALSPAC)
- British Household Panel Survey (BHPS) - Youth Cohort
- English Longitudinal Survey of Aging (ELSA)
- Family and Children Surveys (FACS)
- National Health and Development Survey (NHDS)
- Whitehall II.

ALSPAC recruited 14,541 pregnant women living in the Avon area with an estimated delivery between April 1991 and December 1992. These women, their partners and the children arising from the pregnancy have been followed up, and data have been collected throughout childhood. ALSPAC has included considerable amounts of food-related data including food diaries for children (eight waves), and feeding/food frequency questionnaires for the children (nine waves), the mothers (four waves) and their partners (three waves).

BHPS Youth Cohort began in 1994 and interviews 11-15 year olds in households selected for the BHPS. Wave one of the BHPS took place in 1991 and consisted of 5,500 households selected from the Postcode Address File. It is representative of all private households in Britain. None of the adult questionnaires have included food-related questions but five of the youth cohort waves from 2004 to 2008/09 have. Although the food-related questions were asked for five waves of the Youth Cohort survey, for this report we only use the first three waves. This was done to increase the sample size for analysis.

ELSA follows a representative sample of the English population aged 50 and over, and around 12,000 respondents were drawn originally from three years of the Health Survey for England (HSE). One of these HSE years (2001) and two subsequent waves of ELSA (2006 and 2008) included questions about diet and fruit and vegetable intake.

FACS began in 1999 and was originally a survey of low-income and lone-parent families living in Britain. In 2001 it was extended to include high-income families as well, thereby yielding a complete sample of all British families with dependent children. Around 8,000 individuals were interviewed in this wave. From 2002 to 2005, FACS included a series of questions, within the expenditure module, about choice and access to food.

NHDS is a birth cohort study based on a nationally representative sample of 5,362 births that took place in one week in March 1946 in Britain. Five-day food diaries were used for three waves of the survey, from 1982, 1989 and 1999.

Whitehall II is a cohort study of 10,308 working men and women who were working as civil servants in London in 1985. The eleven waves of the study have consisted of clinical screenings and questionnaires. In wave three (1991-1994), wave five (1997-1999) and wave seven (2002-2004) Whitehall II included a food frequency questionnaire and questions about use of fat in cooking and the use of salt (average consumption in the last 12 months). Questions about diet were also included in the general questionnaire in some waves, including fruit and vegetable consumption in waves one, two, three, five and seven.

For more detail on the surveys see Hall *et al.* (2011).

2.2 Key measures

The variables used in the analysis presented in this report are defined below, grouped into:

- Food-related outcomes (Section 2.2.1)
- Socio-demographic and other variables hypothesised to predict outcomes, and which are controlled for when examining the impact of life events (Section 2.2.2)
- Life events (Section 2.2.3).

2.2.1 Food-related outcomes

This report examines the food-related outcomes summarised in Table 2.1 and detailed below. These outcomes were prioritised for analysis in consultation the Department of Health.

Table 2.1 Food-related outcomes examined

Outcomes	Surveys					
	BHPS YC	FACS	ALSPAC	Whitehall II	ELSA	NSHD
Sharing an evening meal with the family	√	x	x	x	x	x
Choice and access to food	x	√	x	x	x	x
Hand washing before meals	x	x	√	x	x	x
Adding salt to food	x	x	√	√	x	x
Fruit and vegetable consumption	√	x	x	√	√	√

Sharing an evening meal with the family

This outcome was measured on the BHPS Youth Cohort using the question ‘In the past week, how many times have you shared an evening meal with your family?’ From the answer categories of ‘none’, ‘1-2’, ‘3-5’ and ‘6-7’ we have created an outcome measure of shares an evening meal ‘at least once a week’ versus ‘has not shared’ an evening meal with family in the last week.



Choice and access to food

FACS included questions on this topic from which we derived a summary binary indicator score of choice and access. If the respondent answered that they could not afford any of the following items we gave them a score of 1, if they did not mention this for any of the items they were given a score of 0.

- Have a cooked main meal everyday
- Have meat or fish every other day
- Have a roast, meat joint or something similar once a week
- Have fresh fruit on most days
- Have fresh vegetables on most days
- Have cakes and biscuits on most days
- Are able to afford good quality/brand name food on most days.



Hygiene: hand washing before meals

The ALSPAC included one question in the child-based questionnaire in six waves (which the mother answered) on food hygiene in the home. This question was: 'How often in a normal day are the study child's hands cleaned before a meal?' with answer categories of 'always', 'usually', 'sometimes', 'occasionally', and 'never'.

This question was asked when the child was 15 months old, 24 months, 38 months, 54 months, 65 months and 77 months. However, we do not include the final wave (at 77 months) since the question changed slightly from 'are the study child's hands...' to 'does the study child clean his/her hands...'. From the answer categories we created a binary outcome variable of 'always or usually' washed the child's hands versus sometimes, 'occasionally or never' washed the child's hands.



Adding salt to food

The ALSPAC included the following question for mothers on the child-based questionnaire: 'Do you ever add salt to your child's food or use salt in preparing his/her food'. This was in three waves of the survey; when the child was 15 months, 24 months, and 7 years. From this question we created an



outcome measure of 'never' added salt to the child's food (or in preparing their food) versus 'ever' added salt to the child's food.

Whitehall II also included the question: 'How often do you add salt to food while cooking?'. This was included in waves three (1991-1994), five (1997-1999) and seven (2002-2004). The outcome measure we have created is a binary measure of adding salt to food while cooking 'usually or always' versus adding salt to food while cooking 'never, rarely, or sometimes'.

Fruit and vegetable consumption

The BHPS Youth Cohort included the question 'How often do you eat fresh fruit and vegetables?', with answer options of 'everyday or almost everyday', 'about once a week', 'every now and then', and 'never or hardly ever'. From this we created a binary outcome measure of eats fresh fruit and vegetables daily (i.e. those that answered 'everyday or almost everyday') compared to eats fresh fruit and vegetables once a week or less.



In ELSA two questions (in waves zero (2001), three (2006-7) and four (2008-9)) covered fruit and vegetable intake:

1. Using the measures below, how much of the following did you eat yesterday?
 - Salad (cereal bowls), tablespoon to vegetables, tablespoon of pulses, tablespoons of dishes made mainly from vegetables

2. Using the measures below, how much of the following did you eat yesterday?
- Average handfuls of very small fruit, small fruit, medium fruit, half a large fruit, average slices of very large fruit, tablespoons of frozen or tinned fruit, tablespoons of dried fruit, tablespoons of dishes made mainly from fruit, small glasses of fruit juice.

From these two questions we derived a binary outcome variable to indicate whether respondents were consuming the recommended 400g or more of fruit and vegetables a day.

Fruit and vegetable intake was captured in the NSHD as part of five day food diaries in 1982, 1989 and 1999. Respondents recorded their intake of all fruit and vegetables using household measures and estimated portion sizes according to detailed guidance notes and photographs provided at the beginning of the diary. These diary records were then converted into total grams consumed per day (first coding the diaries using the in-house program 'diet in data out' (DIDO) (Price *et al.* 1995) and then calculating foods and nutrient intakes using the in-house suite of programs based on McCance and Widdowson's 'The Composition of Foods' (Paul & Southgate, 1978), its supplements (Holland *et al.* 1988, 1989) and the sixth edition (Food Standards Agency, 2002)¹). For our purposes, we then calculated the average daily intake in grams of all fruit and vegetables (excluding fruit juice) and divided by 80 grams to obtain the average number of portions consumed per day. Fruit juice was then added to this, but limiting to a daily average of 80g (on portion) regardless of whether more was consumed (and less than 80g did not count at all). We then created a binary outcome variable of ate less than five portions of fruit and vegetables on average per day versus ate five or more portions.

Similarly to the BHPS Youth Cohort, the Whitehall II study included one question in waves one (1985) to three (1991-1994), five (1997-1999) and seven (2002-2004) about fruit and vegetables of 'How often do you eat fresh fruit or vegetables' with answer categories of :

- seldom or never
- less than once a month
- 1-3 times a month
- 1-2 times a week
- 3-4 times a week
- 5-6 times a week
- Daily
- 2 or more times daily.

¹ For further details on the dietary assessment procedures refer to Prynne *et al.* (2005).

From this question we created a binary outcome variable of those who answered once or more a day compared to those who answered less than once a day.

2.2.2 Socio-demographic and other predictor variables

The surveys analysed here contain a wealth of information on the circumstances of respondents and their families. This research uses a range of measures to explore what factors predict each outcome. These measures are also used as control variables when exploring the association between life events and outcomes. Table 2.2 below shows which measures we have included in our analysis, a tick indicating this was available for the respondent (or the mother for BHPS, FACS and ALSPAC). Where measures are included from other members of the household other than the respondent (or mother) this is indicated in the table.

Table 2.2

Table 2.2 Socio-demographic and other potential predictor variables examined and controlled for						
	Surveys					
Variable	BHPS YC	FACS	ALSPAC	Whitehall II	ELSA	NSHD
Sex	Of young person	n/a	n/a	√	√	√
Ethnicity	√	√	Of child	√	√	n/a
Age	√	√	√	√	√	n/a
Tenure	√	√	√	√	√	√
Number of children in household	√	√	√	√	√	√
Lone parent or marital status	√	√	√	√	√	√
Education level	√	√	√	√	√	√
Health status	√	x	√	√	√	x
Smoking status	√	√	√	√	√	√
Access to a car	√	x	√	x	x	x
Work grade level/NSSEC	√	x	√	√	√	√

Employment status	Of parents	Of parents	Of partner	x	√	√
Household income	√	x	x	x	√	x
Alcohol consumption	x	√	√	√	√	√
Country of residence	√	x	n/a	n/a	n/a	x
Whether ever tried a cigarette	Young person	x	x	x	x	x
View of financial position	√	x	x	x	x	x
Region	x	√	n/a	n/a	x	x
Eligibility for free school meals	x	√	√	x	x	x
Difficulty affording food	x	x	√	x	x	x

2.2.3 Life events

For each survey used in this report, the life events selected are relevant to the stage of life specific to that study (and where data was available or sufficient numbers experienced the event). A summary of the life events examined for each survey is presented in Table 2.3 (again in relation to the mother or parents for BHPS, FACS and ALSPAC and the respondent for Whitehall II, ELSA and NSHD), and each life event discussed in more detail for each survey in turn in Appendix A. There were a variety of reasons why a life event was not examined for a particular survey, it was not always because the variable was not collected.

Table 2.3

Table 2.3 Life events examined

Life event	Surveys					
	BHPS YC	FACS	ALSPAC	Whitehall II	ELSA	NSHD
Job loss	√	√	√	x	x	√
Job gain	√	√	√	x	x	√
Change in marital status	x	√	√	Separation and widowed separately	Separation and widowed separately	√
Had another child	x	√	√	x	x	x
Quit smoking	x	√	√	√	√	√
Change in health status	x	x	√	√	√	
Change in alcohol consumption	x	x	x	√	√	√
Retired	x	x	x	x	√	x

2.3 Approach to analysis

Trend analysis was conducted to shed light on the first research question. The method used to test the statistical significance of these trends is explained in Appendix B. For the surveys FACS, ELSA and the BHPS Youth Cohort longitudinal weights were applied for the analysis, meaning that only those who responded to all waves from the initial wave(s) (2001 for FACS and ELSA and 2002, 2003 or 2004 for the BHPS Youth Cohort) were included. ALSPAC, Whitehall II and NSHD did not include any weights and so all those mothers or respondents who responded to any of the waves analysed were included in the analysis. As only those who responded to all waves were included for FACS, ELSA and BHPS (i.e. none of the refresh samples were included), this means that we are analysing a specific cohort for each survey, as is the case with ALSPAC. The ELSA trend analysis is therefore the same adults over time, meaning they are aging over the period of interest. The FACS trend analysis is of the same families over time, which means that the children (and parents) are aging over the period of interest. This is also true for the BHPS, where the children are aged 11 to 13 in 2004 and 13 to 15 by 2006, and for ALSPAC, as indicated in the naming of the waves. This is also the case for Whitehall II, which includes people from a range of ages but they are all nevertheless aging over the period analysed (with no refresh

samples), and the NSHD which is a specific age cohort of people born in 1946. This must be kept in mind when interpreting the results.

The longitudinal weights in FACS, ELSA and BHPS attempt to adjust for non-response at the first wave and subsequent attrition. Making full use of the information available to the current wave, non-response weights have been calculated to increase the importance of respondents who are under-represented in the data, and thus we can be confident that the respondent sample is broadly representative of the target population (the target population here being families with children aged under 16 in 2001 for FACS, people aged 50 and over in 2001 for ELSA, and children aged 11 to 13 in 2004 for the BHPS Youth Cohort).

Mother's age or the respondent's age for the trend analysis has been calculated at each wave, and those aged under the youngest age at the final wave excluded from the analysis, to keep the age profile of the youngest age group the same for each wave. For example, if a mother was aged 24 in the initial wave of analysis for BHPS (2004), this mother was excluded from the analysis as there were no mothers younger than 26 in 2006.

Multivariate analyses were used to examine the second and third research questions, identifying the predictors of each outcome and which life events brought about a change in outcomes. Multivariate analysis is used to explore complex associations between more than one statistical variable. Multiple regression analysis allows us to identify which background characteristics (measured at the first wave) are associated with experiencing an outcome when accounting for other, potentially confounding, characteristics. Binary logistic regression is used for all outcomes. An explanation of logistic regression and the relevant statistical output is included in Appendix B.

3 Sharing an evening meal with the family

3.1 Summary

The BHPS Youth Cohort (YC) allowed us to analyse who consistently shared an evening meal with family at least once a week (from 2004 to 2006). However, it should be noted that results in this chapter must be interpreted with caution, as some base sizes are quite small.



There was no significant change in the proportion of families sharing an evening meal at least once a week between 2004 and 2006. Families with older mothers were less likely to share an evening meal with the family at least once a week. Of the two life events examined, the significant finding was that families with a reduction in their Work Intensity Ratio became more likely to share an evening meal.

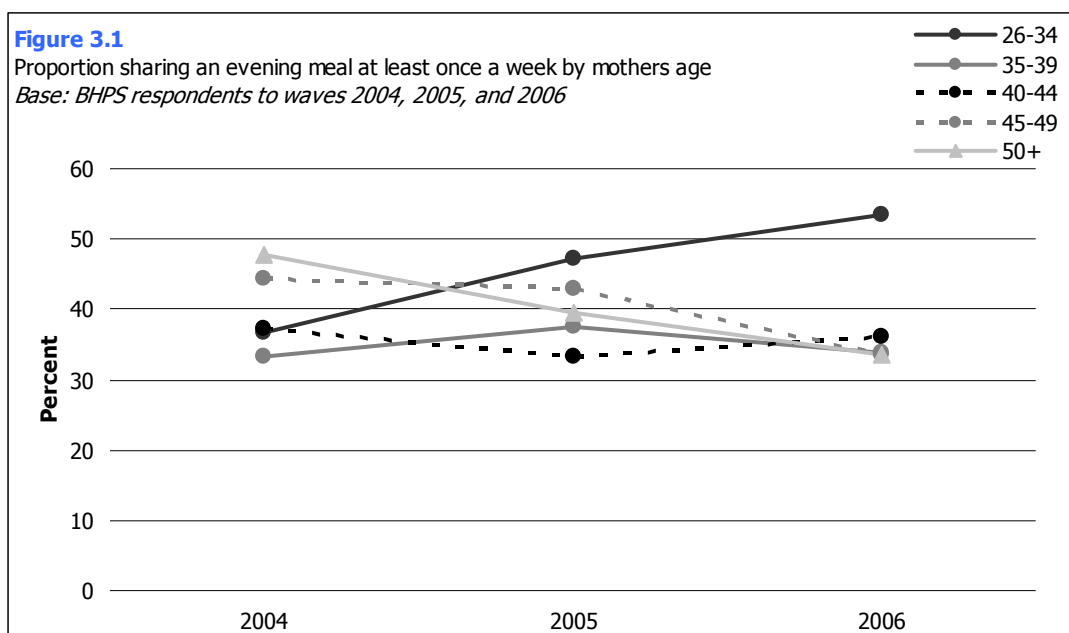
3.2 Trend analysis

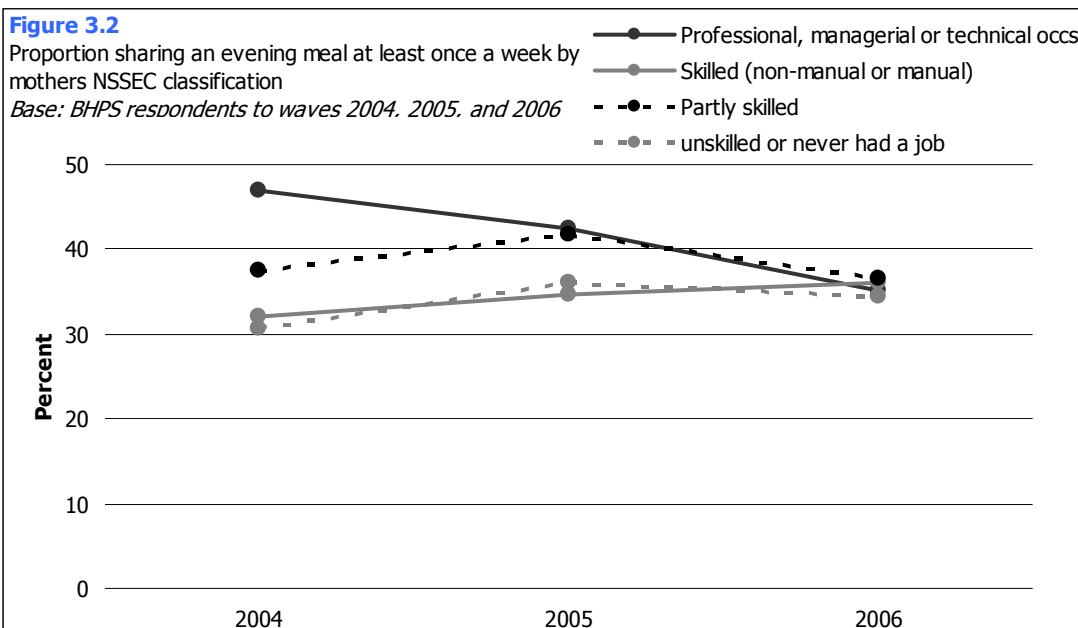
Overall, there was no significant trend in the proportion of families (with children aged 11 to 13 in 2004) sharing an evening meal at least once a week from 2004 to 2006. The trend in this outcome was also not significant for most of the socio-demographic groups examined. There was, however, a significant increase in the proportion of families sharing an evening meal with mothers in the youngest age group (26-34), from 36.7% of these families in 2004 to 53.3% in 2006. On the other hand, there was a significant decrease among families with mothers aged 45-49 (from 44.3% in 2004 to 33.5% in 2006). The proportion of families with mothers in the top NSSEC classification sharing an evening meal at least once a week also decreased significantly, from 47.0% in 2004 to 35.2% in 2006. This trend was also seen among families with mothers with first degrees or higher qualifications, but was only significant at the 10% level ($p=0.071$, 37.4% in 2004 and 29.3% in 2006). Another group to see an increase in the proportion sharing an evening meal was those families where both parents (or the lone parent) were not working, although again this was only significant at the 10% level ($p=0.098$, 43.0% in 2004 and 55.4% in 2006).

The increase in the proportion of families where both parents were not in work sharing an evening meal resulted in a significant difference in 2006 between these families and families where one or both parents were in work. In previous years there was no significant difference between these two types of families. In comparison, the decrease in the proportion of families with mothers in the highest NSSEC classification sharing an evening meal meant that in 2005 and 2006 there was no significant difference between groups based on NSSEC. That is, by 2006 families where the mother was in the highest NSSEC were no longer more likely to share an evening meal than families with mothers in lower NSSEC groups.

There was a significant difference in the outcome between families where the young person had ever tried a cigarette and families where the young person had not. Families where the child had tried a cigarette were more likely to share an evening meal at least once a week (this was significant in 2005, significant at the 10% level in 2006, and not significant in 2004).

Table 3.1, Figures 3.1 & 3.2





3.3 Multivariate analysis of predictors

The only variable which was significant in the multivariate regression analysis (aside from the outcome at the first wave) was mother's age. Families with older mothers were less likely to share an evening meal with the family at least once a week by the third wave. The small base sizes in this survey could be a contributing factor to only finding one significant predictor.

Table 3.2

3.4 The impact of life events on sharing a meal

Two life events are examined in this chapter; whether the family experienced job loss (a decrease from 2004 to 2005 of 0.5 or more in Work Intensity Ratio (WIR)) and, conversely, whether the family experienced job gain. It is hypothesised that these two events could have different impacts on the outcome and so are both of interest. Caution must be exercised in interpreting these results, as very few families experienced either life event².

There was no significant difference between those who were work poor (a WIR of less than 0.5, corresponding to one parent in part-time work if in a couple or the lone parent out of work) for all three waves and those who experienced job gain in the second wave. However, those who *lost* a job (equivalent to either the lone parent losing a part-time job or one parent losing a full-time job) were more likely to share an evening meal at the final wave than those who were work rich (a WIR of 0.5 or more) for all three waves. Thus it would appear that job loss acts as a trigger for changing behaviour

² Sensitivity analysis was conducted by decreasing the amount that the WIR needed to change by (to 0.25) in order for a family to be deemed to have experienced job loss or job gain. Similar results were found using this broader definition.

regarding family meals. It is not surprising that the increased availability of a parent who is no longer working, would be associated with the increased likelihood of families sharing meals.

Additionally, the impact of job loss was independent of the outcome measured at the first wave (the interaction was not significant). That is, irrespective of whether the family shared an evening meal at least once a week at the first wave or not, all families who experienced job loss saw the same increase in likelihood (over those who were work rich for all waves) of sharing an evening meal at the final wave.

Table 3.3

4 Choice and access to food

4.1 Summary

This chapter uses data from FACS to analyse the trends and predictors of poor choice and lack of access to food. It then examines whether any life events have an impact on this outcome. A choice and access summary score is derived from questions asking whether the family can afford certain foods – see Chapter 2 for a description of how we calculated this summary score.

The percentage of families experiencing poor choice and access to food declined from 2002 to 2005. Families with lower socio-economic status, younger mothers, and mothers who smoked were more likely to have poorer choice and access to food.

The life events to have a significant negative impact on choice and access to food were becoming a lone parent and job loss.



4.2 Trend analysis

The trend in the proportion of families (in the aging cohort) experiencing poor choice and access to food (a score of one or more on our summary indicator) decreased sharply from 2002 to 2003 (from 17.0% to 13.1%) and then levelled out over the next two years (13.7% and 12.7% respectively). This pattern was observed for most of the socio-economic groups examined (age group, mother's educational qualifications, family work status, lone parent status, and eligibility for free school meals).

Figure 3.1 shows the trend in the proportion of families experiencing poor choice and access by the mother's highest educational qualifications. There was no change in the proportion of mothers with a degree or higher qualifications experiencing poor choice in access over the four waves, but there was a significant decrease for all other qualification groups. There was also no significant decrease in the proportion experiencing poor choice and access among those who were eligible for free school

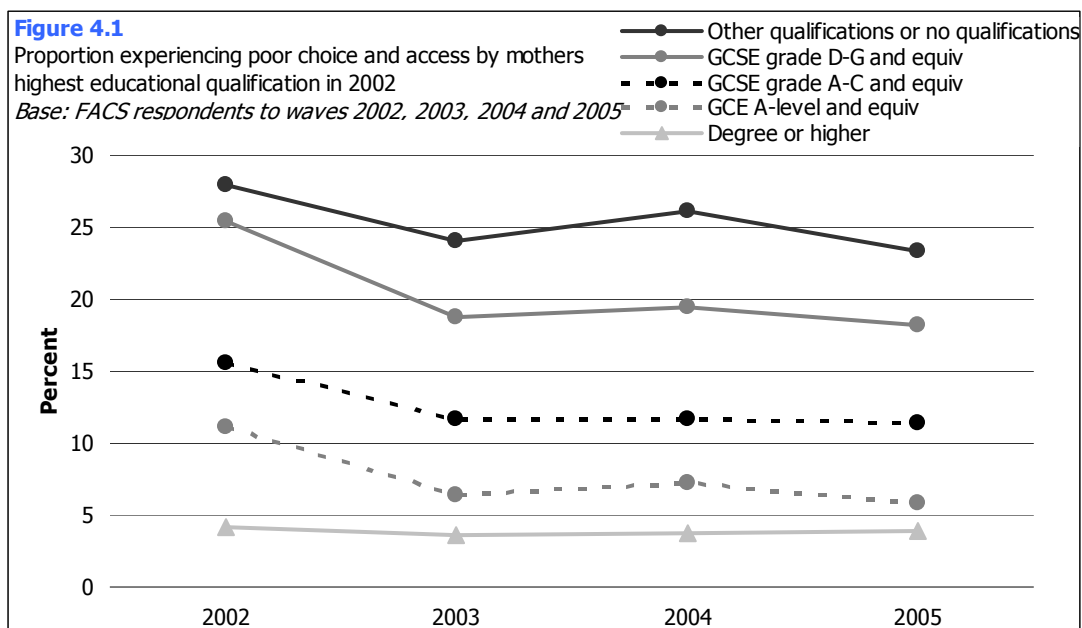
meals, and for some age groups. All other groups experienced a significant decline in the proportion experiencing poor choice and access, with the main decrease between 2002 and 2003, consistent with the overall pattern.

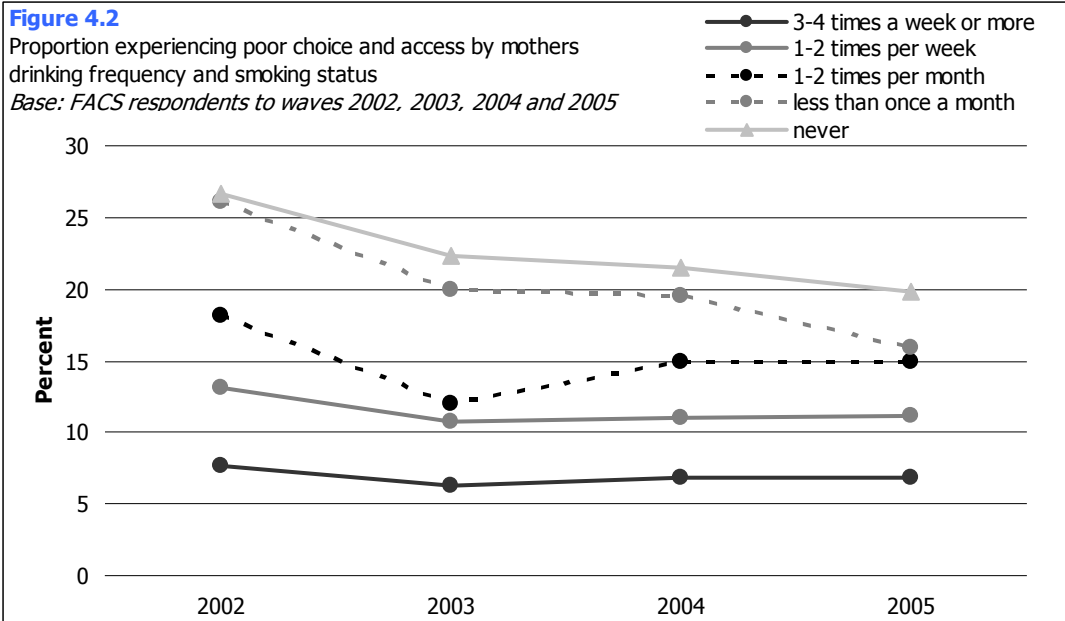
For all four waves, younger mothers were more likely to have poor choice and access, as were mothers with lower educational qualifications. Lone parent families, families with parents not in work, and families eligible for free school meals were all more likely to have poor choice and access.

There was a significant reduction in those with poor choice and access to food for both non-smokers and smokers over the four waves (again with a similar pattern as that observed for the overall sample), but only a significant reduction for those who drank alcohol less than once a month or never, with no change for people who drank more alcohol than this. However, those who drank less alcohol were always more likely to have a poor choice and access score compared to those who drank more alcohol.

Figure 3.2 plots these trends over the four waves.

Table 4.1, Figures 4.1 & 4.2





4.3 Multivariate analysis of predictors

The variables that remained significant in the regression analysis when controlling for other predictors and the outcome at the first wave were:

- Mother's age
- Number of children in the household
- Mother's educational qualifications
- Lone parent status
- Mother's smoking status
- Whether household qualifies for free school meals
- Household income

Families were less likely to have poor choice and access to food at the final wave if the mother was older and had academic qualifications. Families were more likely to have poor choice and access if there were more than two children in the household, if it was a single parent households, if they qualified for Free School Meals, and if they had a lower household income. Drinking alcohol was no longer a significant predictor of poor choice and access at the final wave when other predictors and the outcome at the first wave were controlled for, but families were more likely to have poor choice and access if the Mother smoked.

Table 4.2

4.4 The impact of life events

In this chapter we examine five life events hypothesised to impact on the likelihood of experiencing a change in the choice and access to food score. The impact of each life event is summarised in Table 4.3.

Becoming a single parent negatively impacted on the choice and access score at the final wave. That is, if a mother became a single parent over the period analysed, she was more likely to report a choice and access score of one or more at the final wave. This result was the same regardless of whether she reported a poor choice and access score at the first wave or not.

Job loss and job gain were both significant life events (although job gain was only significant at the 10% level). The odds of reporting a poor choice and access score were 2.8 times higher if the family experienced job loss compared to being work rich for all four waves. The odds of reporting a poor choice and access score were 3.3 times *lower* if the family experienced job gain compared to being work poor for all four waves. There was no difference in the odds of experiencing poor choice and access between those who were work rich for all four waves, and those who experienced job gain in the middle two waves, but those who were work poor for all four waves had the highest odds of reporting poor choice and access. This suggests that long-term unemployment is a key factor in predicting poor choice and access to food.

Neither the mother having a child nor the mother quitting smoking were significant predictors of poor choice and access. So while smoking status at the first wave is a significant predictor of poor choice and access at the final wave, giving up within this period did not appear to improve this outcome. It could be that the impact of quitting smoking required a longer time period to become evident.

Table 4.3

5 Hand washing before meals

5.1 Summary

ALSPAC data are analysed in this chapter to examine the trends and predictors of washing children's hands prior to eating meals, and to identify life events that impact on this.

As children grew older, they became more likely to have washed hands prior to eating. Those of white ethnicity were more likely to have washed hands prior to eating. The impact of six life events on hand washing practice was examined. The only life event associated with a decline in hand washing was the arrival of a sibling in the household.



5.2 Trend analysis

Overall, there was a decline in the proportion of mothers who sometimes, occasionally or never washed their child's hands before meals. This fell over the period examined from 48.9% when the child was 15 months, to 36.1% when the child was 65 months. This decrease was mainly seen from 15 months to 24 months, when the proportion decreased from 48.9% to 37.6%.

While this general trend was observed in most of the socio-demographic groups examined, there was often a narrowing of the gap between groups. For example, while both single mothers and married mothers experienced a similar decrease in the proportion with poor hygiene practices (i.e. only sometimes, occasionally or never washing their child's hands before meals) from the first wave to the next, this proportion amongst single mothers then increased slightly while the proportion amongst married mothers decreased slightly, so that at the last wave the proportions were 36.2% and 36.7% respectively. This was also seen amongst groups based on the mother's highest educational qualifications, although those mothers with degrees were still more likely at the final wave to have poor hygiene practices compared to the other groups.

Age group, father’s job status, and mothers NSSEC were all associated with hygiene practices in the first three or four waves but not in the last wave. There was no significant difference in the proportion sometimes, occasionally or never washing their child’s hands between the groups according to whether the mother found any difficulty affording food for all waves except the third wave.

One demographic variable that did not see a narrowing of the gap in the proportions with poor hygiene practices was ethnicity. There was no significant difference in the first wave in the proportion who sometimes, occasionally or never washed their child’s hands between those of non-white and white ethnic backgrounds. However, there was a significant difference between these groups in subsequent waves, with those of white ethnicity more likely to have poor hygiene practices.

There was a significant association between the frequency of the mother’s drinking and poor hygiene practices for all waves, with mothers who drank more frequently more likely to have poor hygiene practices when it came to washing their child’s hands. Smoking status was also significantly associated with poor hygiene for all waves except the last wave, with those mothers who did not smoke more likely to practice poor hygiene when it came to washing their child’s hands. Health status of the mother was not associated with poor hygiene practices for all waves examined (except at the 10% level in the first wave).

Table 5.1, Figures 5.1 to 5.4

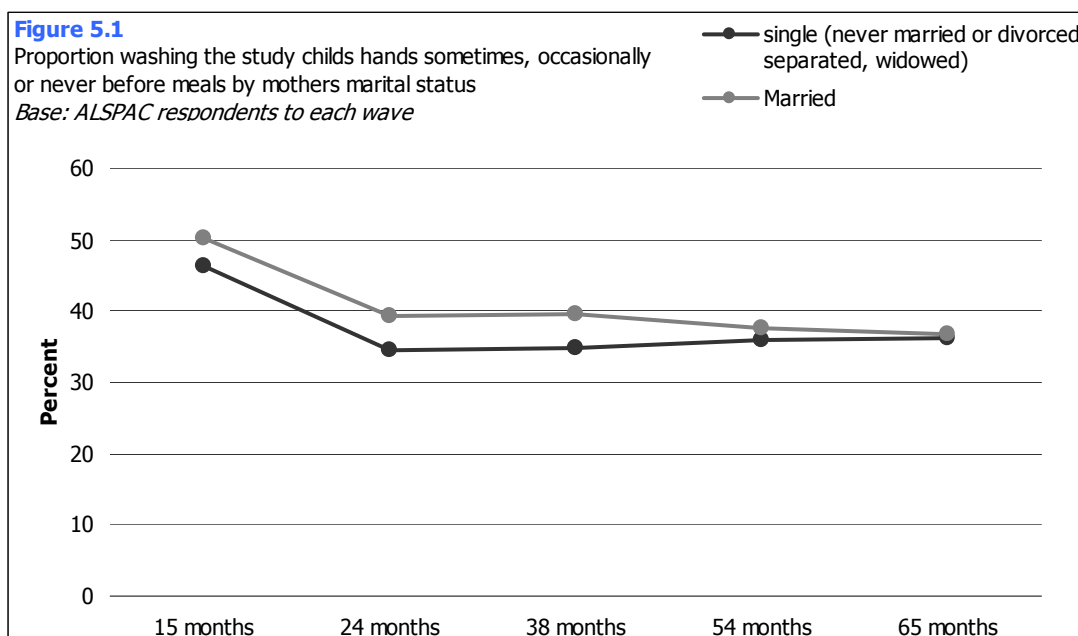


Figure 5.2

Proportion washing the study child's hands sometimes, occasionally or never before meals by mothers' highest educational qualification (when pregnant with study child)

Base: ALSPAC respondents to each wave

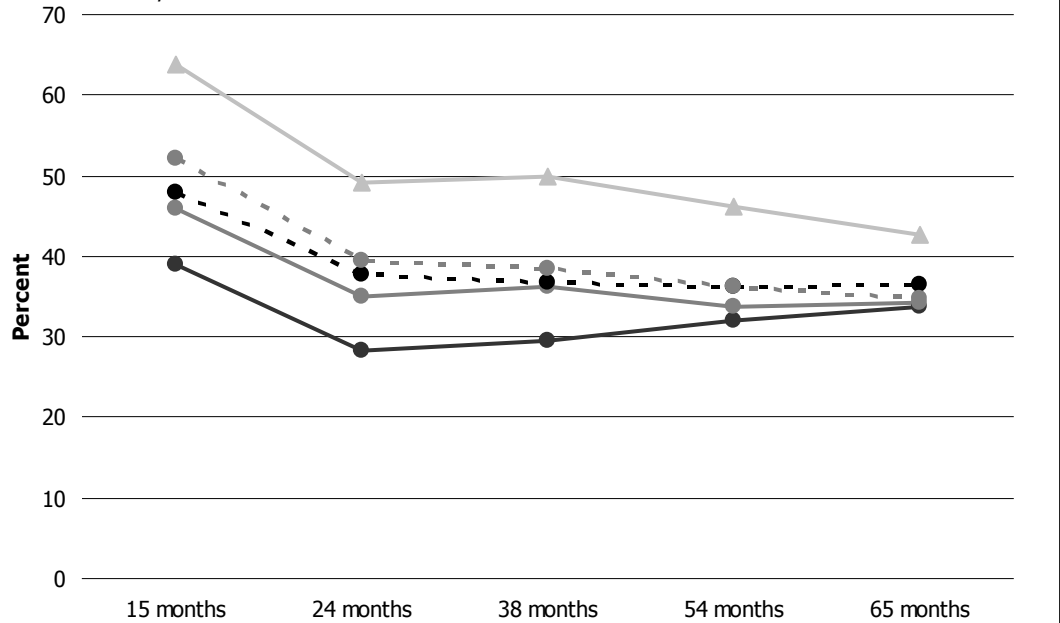


Figure 5.3

Proportion washing the study child's hands sometimes, occasionally or never before meals by child's ethnic background

Base: ALSPAC respondents to each wave

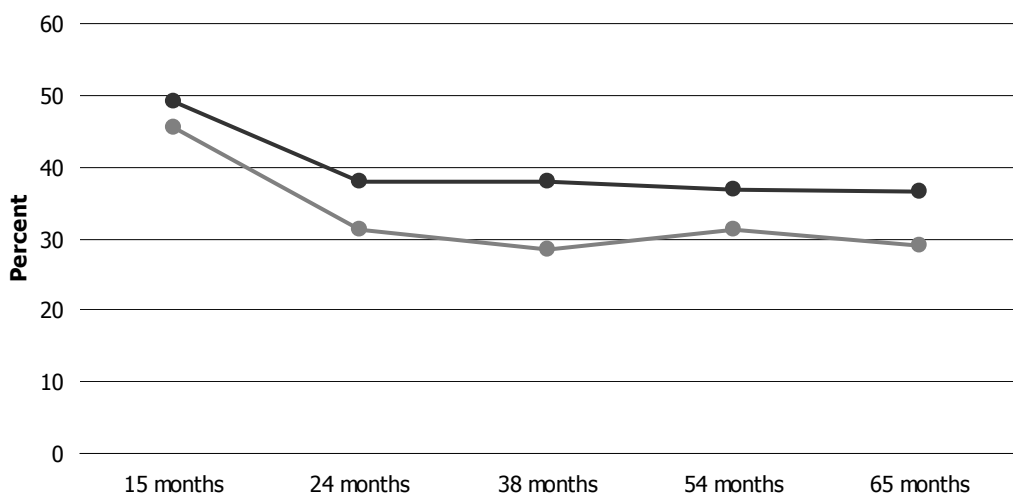
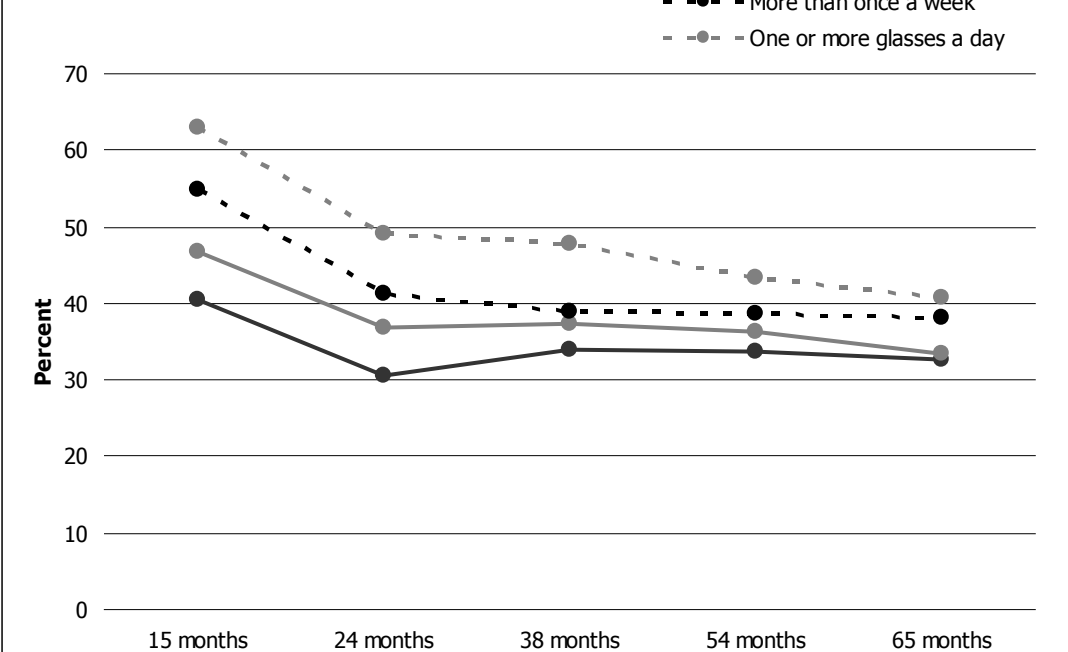


Figure 5.4

Proportion washing the study child's hands sometimes, occasionally or never before meals by mothers' frequency of drinking alcohol
Base: ALSPAC respondents to each wave



5.3 Multivariate analysis of predictors

The only significant predictors of poor hygiene at the final wave (once poor hygiene at the first wave was controlled for) were ethnicity and the number of children in the household. Those of non-white ethnicity (based on the child's ethnic background) were less likely to have poor hygiene practices than those of white ethnicity by the time the child was 65 months old. Those with more than one child (aged 0-15) in the household at the time the study child was aged 8 months were more likely to have poor hygiene practices at 65 months of age, compared to those with only one child.

Table 5.2

5.4 The impact of life events

Six life events were examined for this chapter:

- Change in marital status
- Job loss
- Job gain
- Pregnancy
- Quitting smoking
- Change in health status.

The only life event out of those examined that was significant was whether the mother became pregnant again between the study child ages of 8 months and 33 months. Those mothers who did become pregnant in this period were more likely to report poor

hygiene practices when the study child was aged 65 months (regardless of whether they reported poor hygiene at the first wave or not).

These results, together with those presented in Section 5.2, suggest that it is the presence of a younger sibling (rather than an older sibling) that impacts on whether the study child has his/her hands cleaned always or usually before meals. Those with older siblings were more likely to have this happen while those with younger siblings born during the study period were less likely to always or usually have their hands washed.

A change in health status (from fit and well or mostly well to often unwell or never well) was found to have no impact on the outcome at the final wave. However, only 36 people experienced this life event over the period examined, so caution must be exercised in interpreting this non-significant finding.

Table 5.3

6 Adding salt to food

6.1 Summary

Both ALSPAC and Whitehall II asked participants about the use of salt in their cooking and eating practices – either for themselves (in the case of Whitehall II) or for their children (in ALSPAC).



Whitehall data

demonstrated that

adding salt while cooking was in decline. However, ALSPAC showed that as children got older mothers became more likely to add salt to their food. Many socio-demographic variables were associated with salt use. Mothers with lower educational qualifications were more likely to add salt to their child's food, as were those mothers who smoked and who found it difficult to afford food. Those mothers with more than one child were also more likely to add salt to their children's food. For Whitehall II respondents, females were more likely to add salt to food while cooking, as were those of non-white ethnicity and those with children in the household. However, life events were not found to be significant predictors in both surveys.

6.2 Trend analysis

6.2.1 ALSPAC

As children got older, mothers became more likely to add salt to their food. Overall, the proportion of mothers adding salt to their child's food or while preparing their child's food increased from 24.2% when the children were aged 15 months, to 70.4% when the children were 7 years old. It is, therefore, not surprising that this trend was observed in all socio-demographic groups examined.

The only variables that were significantly associated with the outcome in all three waves were the mother's highest educational qualifications, the mother's NSSEC, the child's ethnic background, and the mother's smoking status. Those mothers with lower

qualifications were more likely to add salt to their child's food, as were those mothers in lower NSSEC groups. Children of non-white ethnicity were more likely to have mothers who added salt, and mothers who smoked were also more likely to add salt to their child's food at all three waves.

The mother's age group, marital status, and reported difficulty in affording food were all associated with adding salt at the last wave but not in the first two waves (or only at the 10% level).

The frequency of mothers' drinking was associated with the use of salt in the first wave but not in the subsequent two waves for which this was measured. Conversely, the health status of the mother was not significantly associated with the use of salt in the first wave, but was significant at the 10% in the second wave and at the 5% level in the third wave. Mothers who were often unwell or never well were more likely to add salt to their child's food at the last wave only.

Table 6.1, Figures 6.1 to 6.3

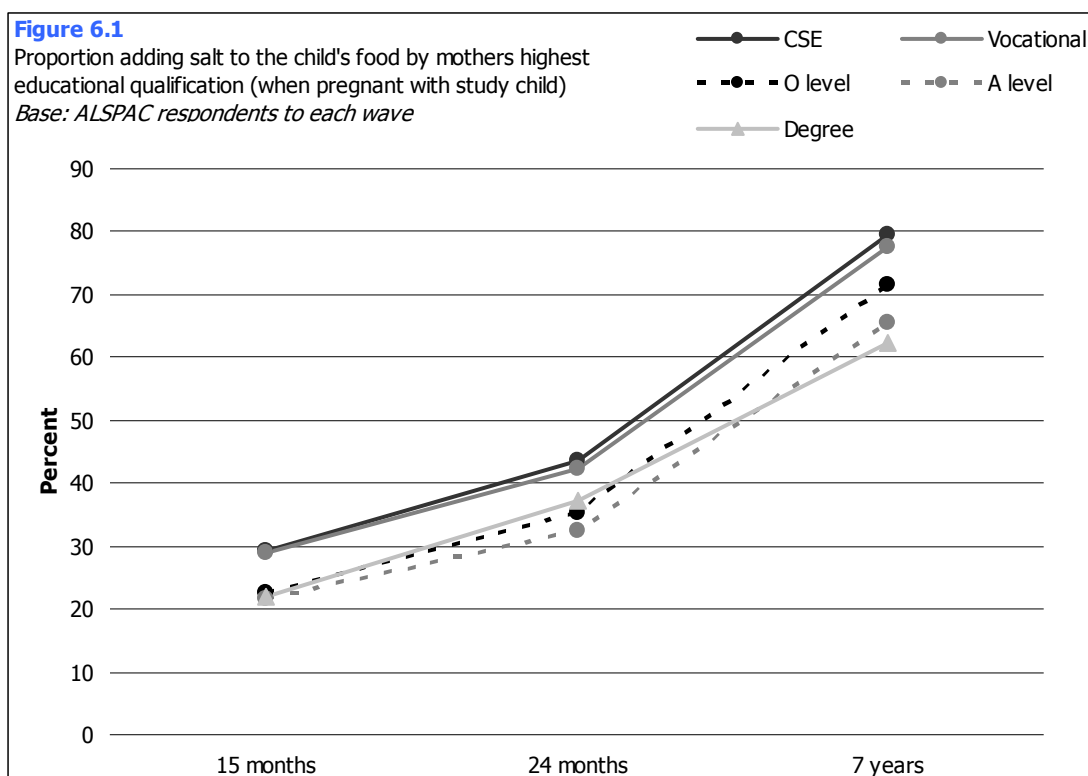


Figure 6.2

Proportion adding salt to the child's food by mothers NSSEC classification (when pregnant with study child)

Base: ALSPAC respondents to each wave

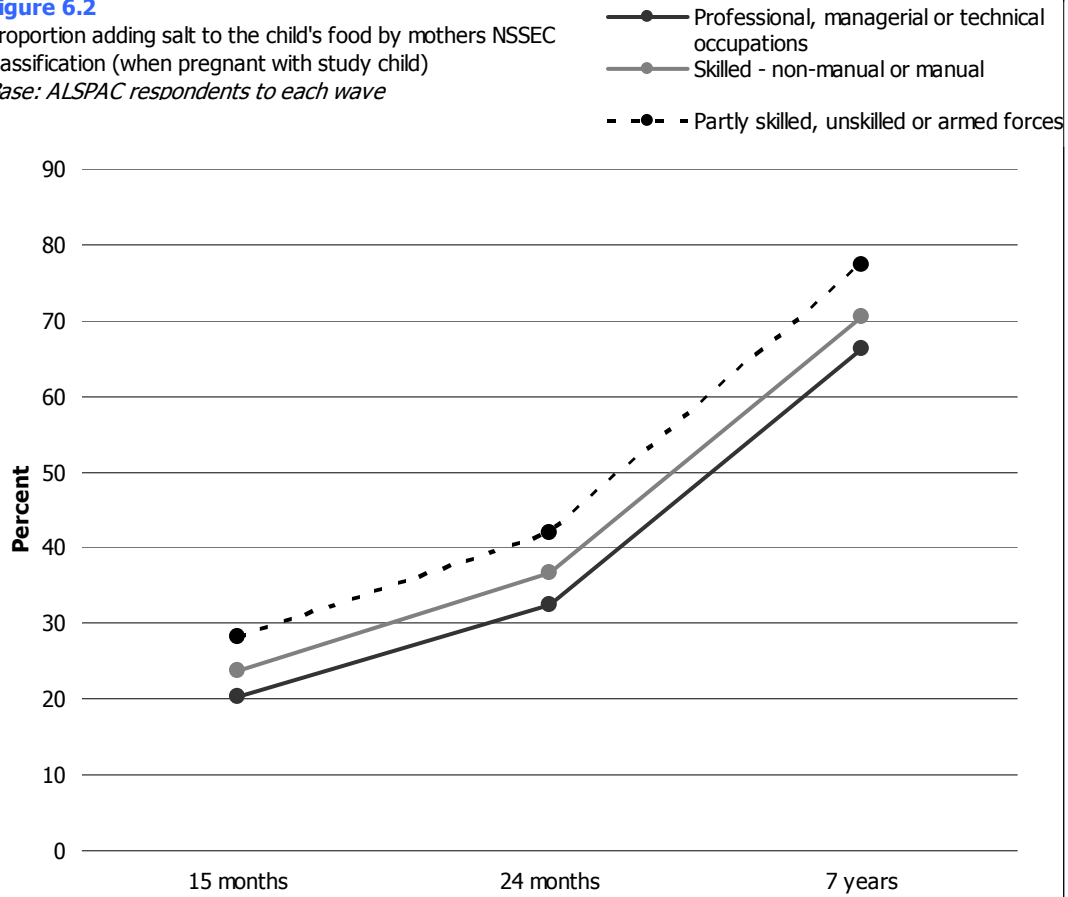
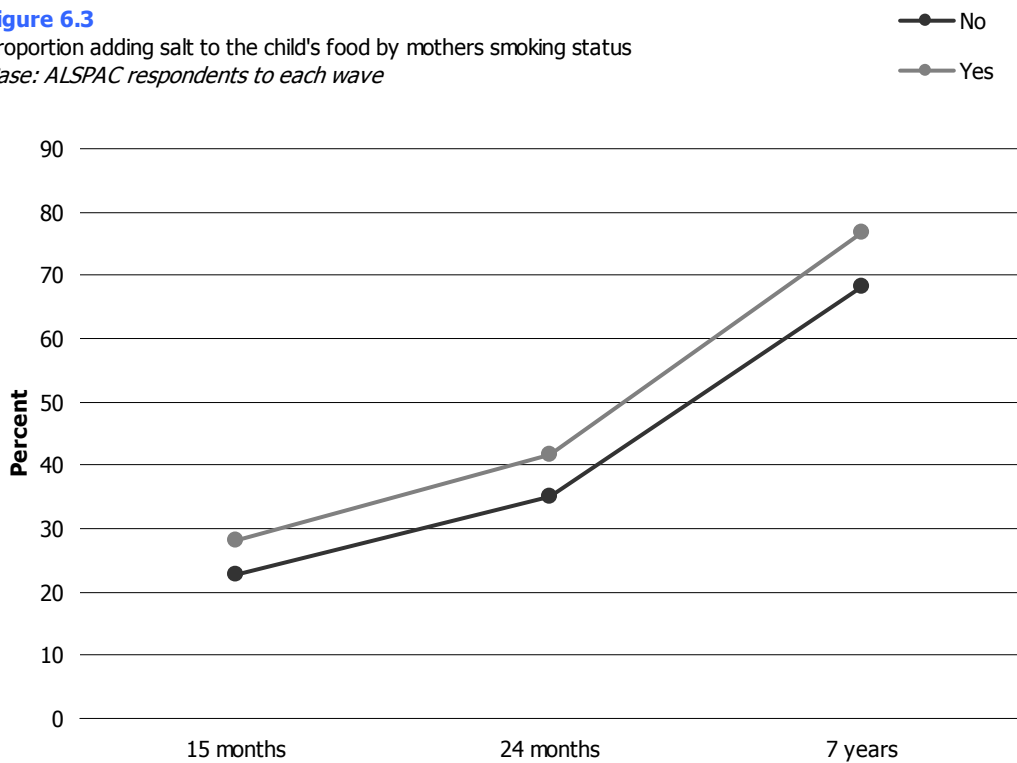


Figure 6.3

Proportion adding salt to the child's food by mothers smoking status

Base: ALSPAC respondents to each wave



6.2.2 Whitehall II

In comparison to ALSPAC, the proportion of Whitehall II respondents adding salt to their food while cooking decreased over the three waves analysed. In 1991-94 53.3% of respondents were adding salt to their food while cooking usually or always, whereas in 2002-04 this proportion had decreased to 41.7%. The decrease was larger between the later waves than between the first and second wave. A similar pattern was seen for most socio-demographic groups, although for those of non-white ethnicity there was no decrease in this proportion between the first and second waves. This was also true for those exceeding the recommended weekly alcohol units – 53.3% of this group usually or always added salt to their food while cooking in both 1991-94 and 1997-99, but this proportion decreased to 44.5% in 2002-04.

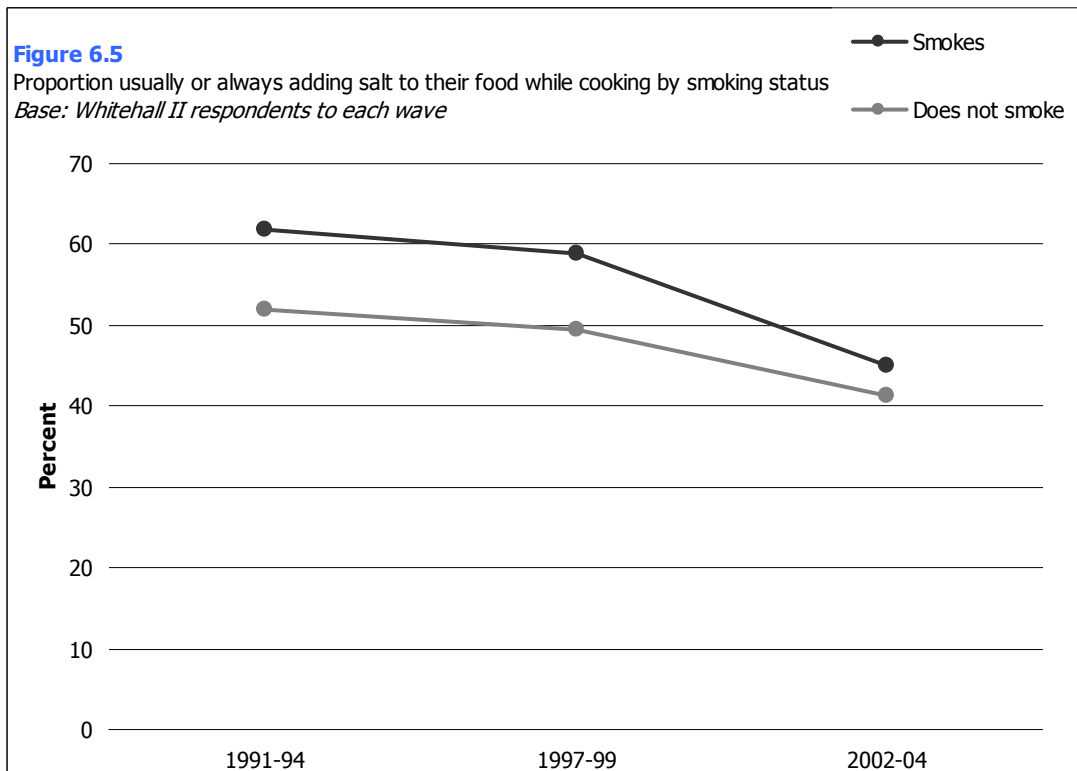
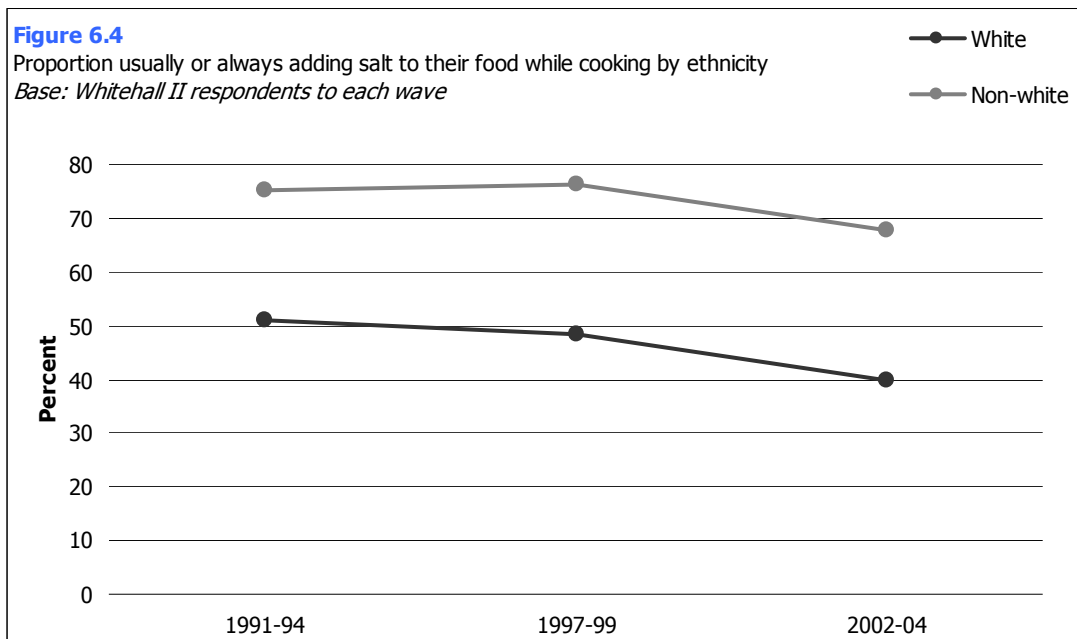
There was a significant difference in the percentage adding salt to their food while cooking for all three waves between age groups, sex, ethnicity groups, and work grade. Older age groups were consistently more likely to add salt to their food while cooking, as were females, those of non-white ethnicity, and those in lower work grade levels. Those with lower educational qualifications were more likely to add salt to their food while cooking at the first wave, but there was no significant difference between these groups at the later two waves. On the other hand, the difference in the proportion adding salt to their food while cooking between those who were married or cohabiting versus those who were single (never married, divorced or separated) was only significant at the 10% level in the first wave, but became significant at the 5% level for the subsequent two waves. In 2002-04 42.6% of those who were married or co-habiting were adding salt to their food while cooking, compared to 38.9% of those who were single.

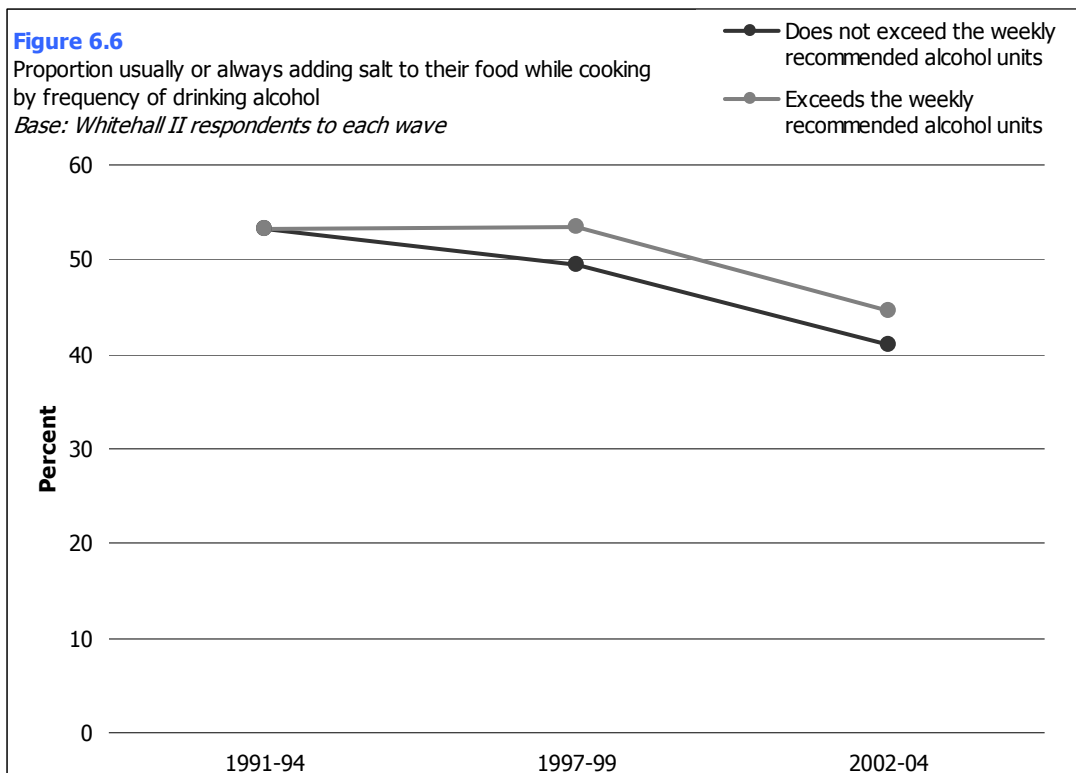
Those who smoked were more likely to add salt to their food while cooking for the first two waves, but by the final wave this difference had disappeared, with the proportion adding salt to their food decreasing more rapidly amongst smokers than non-smokers. However, the opposite was true for drinking frequency. In the first wave, there was no difference in the proportion adding salt to their food while cooking between those who exceeded the weekly recommended units of alcohol and those who did not. As mentioned above, the proportion adding salt to their food amongst those who exceeded the recommended alcohol intake stayed the same between the first two waves, whereas amongst those who did not exceed recommended limits this proportion decreased, resulting in a significant difference between these two groups. Both groups experienced a similar decrease from the second to the third wave.

There was a significant difference in the proportion adding salt to their food while cooking between the two health status groups in the first wave, with those who were in fair or poor health more likely to add salt to their food compared to those who were in

good or very good health. However, this difference became non-significant in the next two waves.

Table 6.2, Figures 6.4 to 6.6





6.3 Predictors

6.3.1 ALSPAC

The predictors of adding salt at the last wave that remained significant in the multivariate analysis were mothers' highest educational qualifications, difficulty affording food, smoking status, and the number of children in the household. Irrespective of whether the mother added salt to her child's food at the first wave, mothers with lower educational qualifications were more likely to add salt to their child's food when the child was age 7. This was also true of mothers who smoked and those who had more than one child in the household when the study child was aged 8 months. Those mothers who found it difficult to afford food when the study child was aged 8 months were also more likely to add salt to the child's food when the child was aged 7 years.

Table 6.3

6.3.2 Whitehall II

The significant predictors of adding salt to food while cooking among the Whitehall II cohort were sex, ethnicity, and presence of children in the household (in addition to the outcome at the first wave). Females were more likely to add salt to their food while cooking at the final wave, as were those of non-white ethnicity and those with children in the household.

Table 6.4

6.4 The impact of life events

6.4.1 ALSPAC

As with the previous chapter using the same dataset, six life events were examined:

- Change in marital status
- Job loss
- Job gain
- Pregnancy
- Quitting smoking
- Change in health status.

None of these life events had any significant impact on whether the mother reported adding salt to her child's food at the final wave. So while an indicator of low income (reporting a difficulty in affording food) was a significant predictor of the outcome at the final wave, job loss and job gain within the period of analysis did not bring about a change in behaviour. Likewise, smoking status at the first wave was a significant predictor but quitting smoking did not lower the odds of adding salt to the child's food at the final wave. As with the previous chapter, the presence of older siblings in the household increased the likelihood of adding salt to the study child's food, but this time there was no impact on the outcome from having another child subsequent to the study child.

6.4.2 Whitehall II

The life events examined for the Whitehall II cohort were a change in marital status (divorced or separated in the second wave), a change in health status from good or very good to fair or poor, quitting smoking in the second wave, and increasing alcohol consumption in the second wave. None of these life events had a significant impact on whether or not salt was added to food while cooking at the final wave.

7 Fruit and vegetable consumption

7.1 Summary

This chapter examines data from the BHPS Youth Cohort, Whitehall II, NSHD, and ELSA on fruit and vegetable consumption.

Data from all of these surveys indicated that this food behaviour is on the increase. Gender was not a significant predictor for the Youth Cohort but was for all of the older age cohorts. Belonging to a higher



socio-economic group (among the older age cohorts) was also predictive of increased fruit and vegetable consumption. A key finding for this chapter was the strong and consistent link between quitting smoking and increasing fruit and vegetable intake.

7.2 Trend analysis

7.2.1 BHPS YC

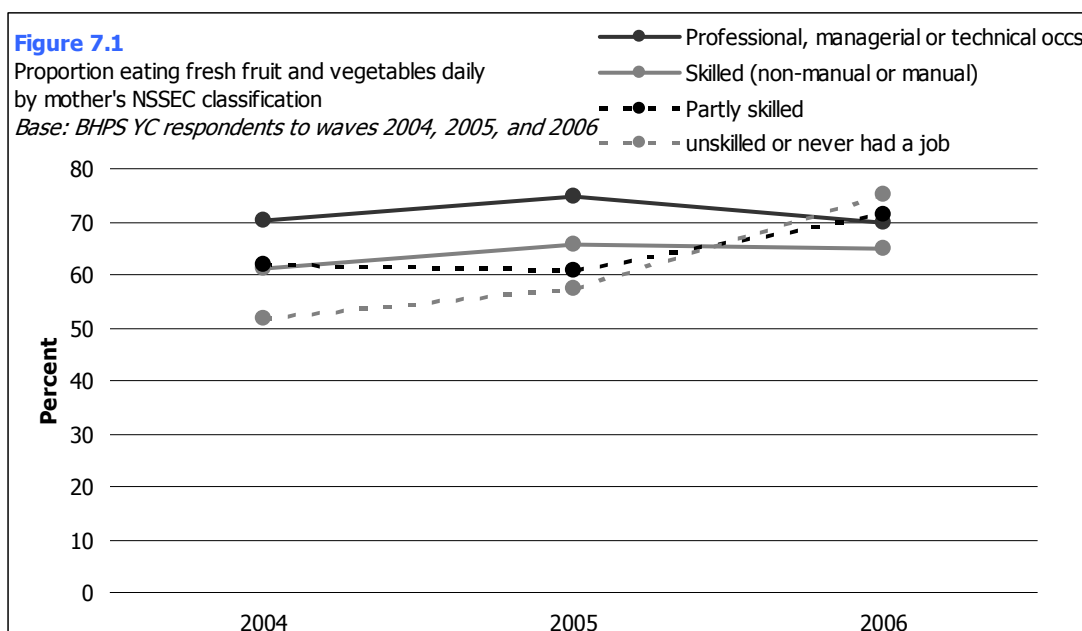
At the ages of 11-13 (the first wave of analysis), 63.1% of the respondents to the youth cohort of the BHPS were consuming fresh fruit and vegetables daily. This percentage had risen to 68.2% by the time they were aged 13-15. This increase was evident in most socio-demographic groups, although within some groups the proportion peaked in 2005.

There was a significant increase amongst those with mothers who had commercial, CSE grade 2-5, apprenticeship or other qualifications lower than GCE O levels, amongst those young persons where one or both parents had a job, where their mother was in a couple, and where their mother was in the lowest NSSEC group (unskilled or never had a job).

There was also an increase in the proportion consuming fresh fruit and vegetables daily amongst young people where their mothers did not smoke, whereas for those whose mothers did smoke there was no significant increase. There was also an increase among young people whose mothers had excellent or good health, and amongst young people who had never tried a cigarette.

Female young people were more likely to consume fresh fruit and vegetables daily than male young people for all three waves, as were those who had never tried a cigarette. The mother's smoking status was also significant for two waves. Those with a mother who did not smoke more likely to consume fresh fruit and vegetables daily. Those with a mother with higher qualifications were also more likely to eat fresh fruit and vegetables daily (significant for all three waves), as were those who were not in a lone parent household (significant in two waves), and those in households where one or both parents were in work (significant in two waves). There was a significant difference in the proportion eating fresh fruit and vegetables daily between NSSEC groups (based on the mother's NS-SEC) in the first two waves - with those in the higher NSSEC groups more likely to consume fresh fruit and vegetables daily - but by the final wave the proportion in the lower groups had surpassed that in the higher grades.

Table 7.1, Figure 7.1



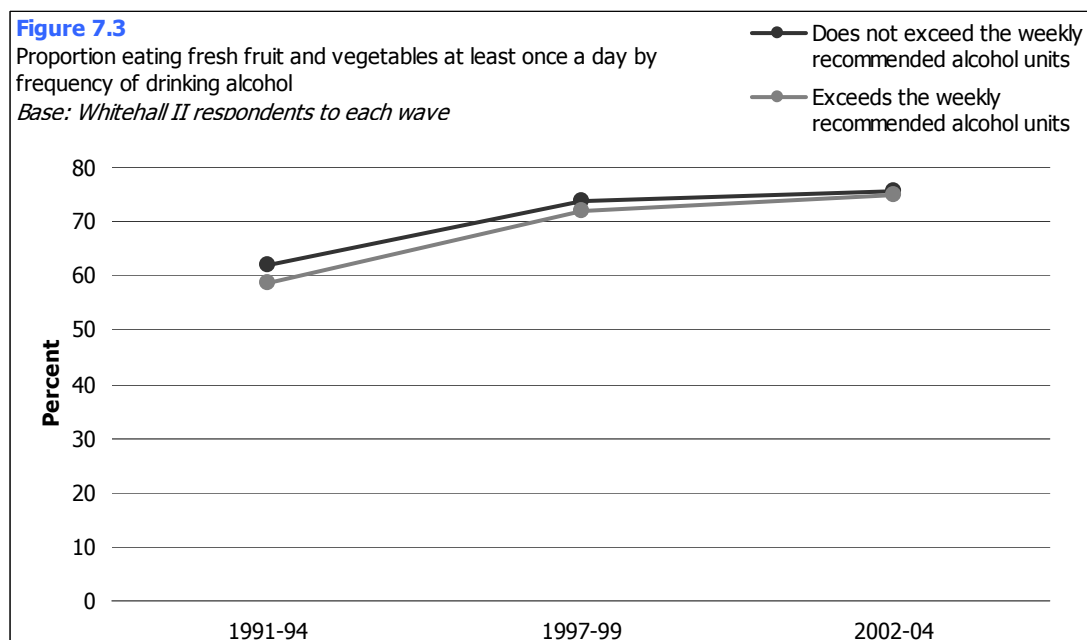
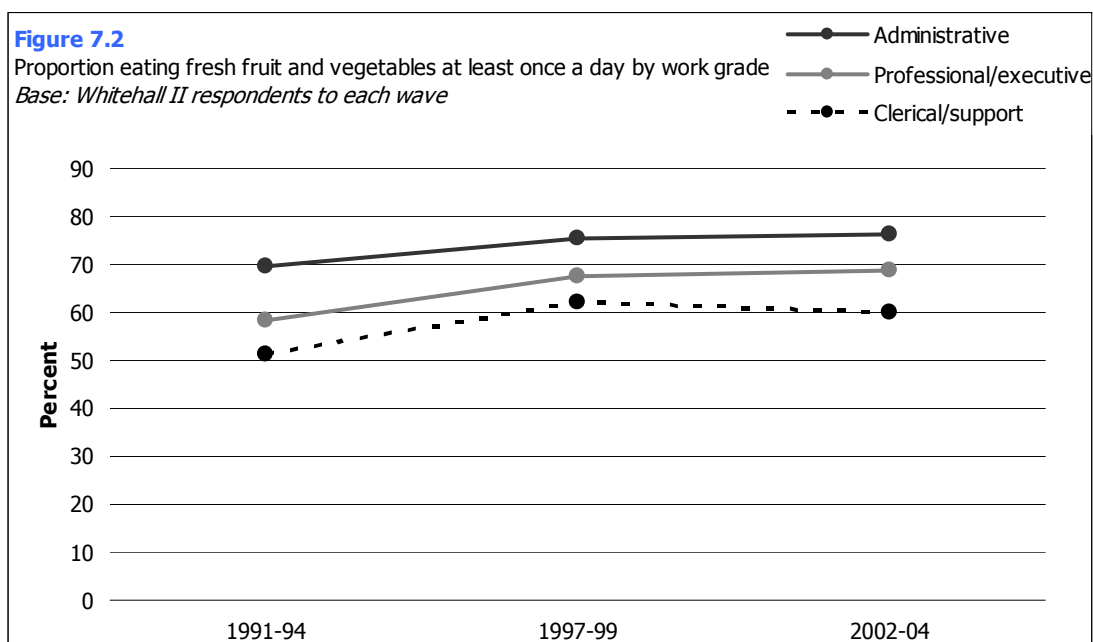
7.2.2 Whitehall II

There was a significant increase in the proportion of Whitehall II respondents eating fresh fruit and vegetables at least once a day, from 61.4% in 1991-94 to 75.3% in 2002-04.

There was a significant difference in the proportion eating fresh fruit and vegetables at least once a day between all of the socio-demographic groups examined. Those in older age groups were more likely to eat fresh fruit and vegetables at least once a day than those in younger age groups, as were females, those of white ethnicity, those with higher education levels and higher work grades, and those who were married or co-habiting compared to those who were single, divorced or separated.

Those who smoked were less likely to consume fresh fruit and vegetables at least once a day for all three waves, as were those who reported fair or poor health compared to those who reported good or very good health. Those who exceeded the recommended units of alcohol in a week were less likely to consume fresh fruit and vegetables at least once a day for the first wave, but there was no significant difference between this group and those who did not exceed recommended levels in the subsequent two waves.

Table 7.2, Figures 7.2 and 7.3



7.2.3 ELSA

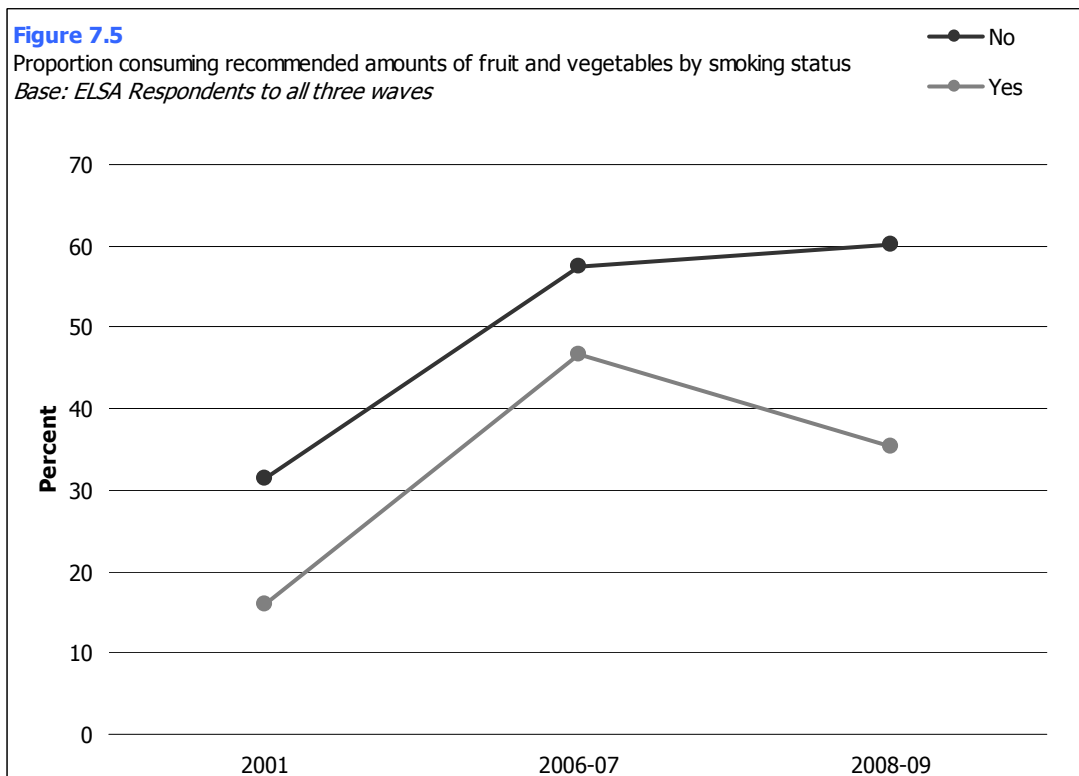
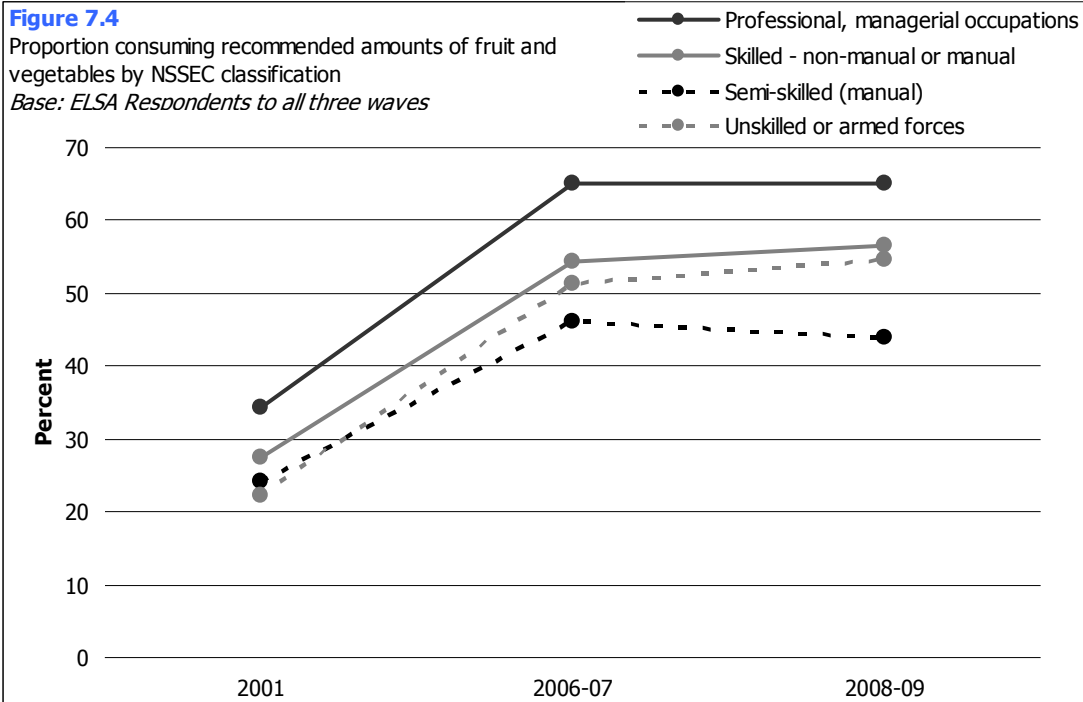
As with Whitehall II, over the period examined for ELSA there was a significant increase in the proportion of respondents consuming the recommended daily amounts of fruit and vegetables – from 28.9% in 2001 to 57.3% in 2008-09. While all socio-demographic

groups experienced this increase between 2001 and 2006-07, some groups subsequently had a decrease in the proportion eating recommended amounts of fruit and vegetables from 2006-07 to 2008-09. For example, the proportion consuming the recommended amount among those aged 80 or over in 2001 was 28.7%, which rose to 65.7% by 2006-07, but then decreased to 52.9% by 2008-09. The same was true for those who smoked, with percentages of 15.9% in 2001, 46.6% in 2006-07 and 35.4% in 2008-09.

There were significant differences for all three waves in the proportion consuming recommended amounts of fruit and vegetables between levels of qualification groups and NSSEC groups. Those with higher qualifications or in higher NSSEC groups were more likely to consume recommended amounts of fruit and vegetables. There was no significant difference between age groups for the first two waves but those in the middle age groups were more likely to consume the recommended portions of fruit and vegetables at the last wave. Differences in this proportion were not significant for all three waves for gender, employment status, and marital status.

In all three waves there was a significant difference in the proportion consuming recommended amounts of fruit and vegetables between those who smoked and those who did not smoke, with those who did not smoke more likely to eat the recommended amounts. Health status also had significant differences for the first and third waves, and a significant difference at the 10% level in the second wave ($p=0.094$), with those in very good or good health more likely to consume more fruit and vegetables than those in worse health. The proportion consuming recommended amounts of fruit and vegetables did not differ between groups based on alcohol consumption for all three waves.

Table 7.3, Figures 7.4 and 7.5



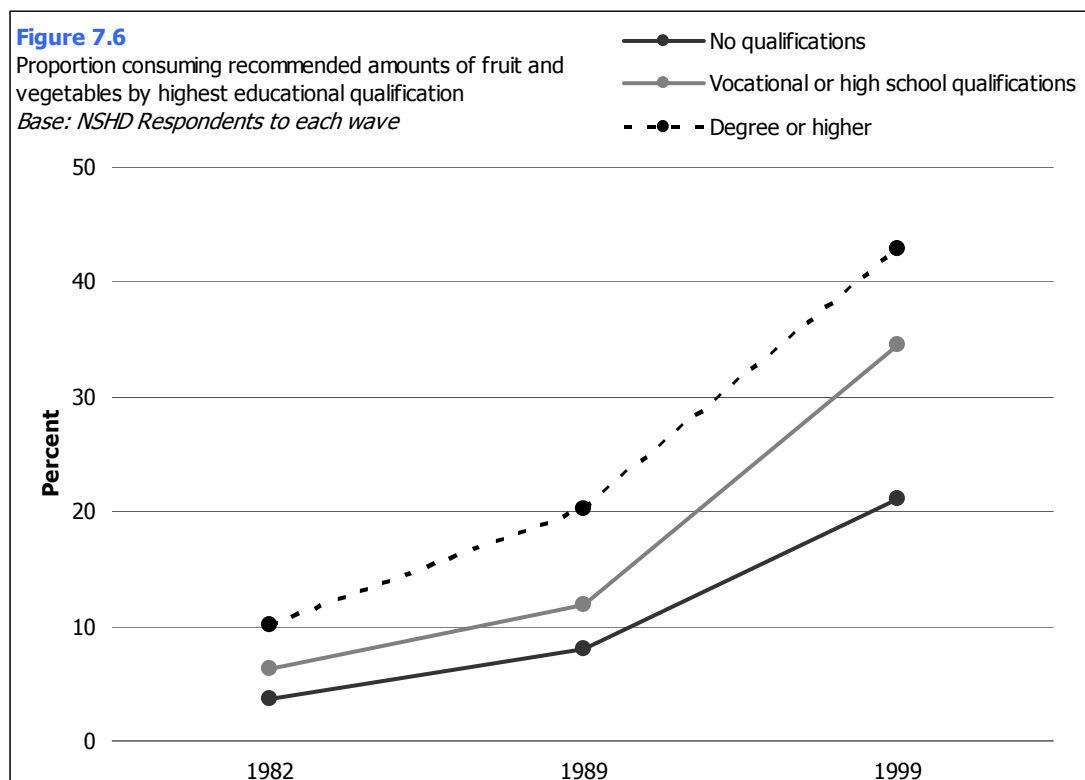
7.2.4 NSHD

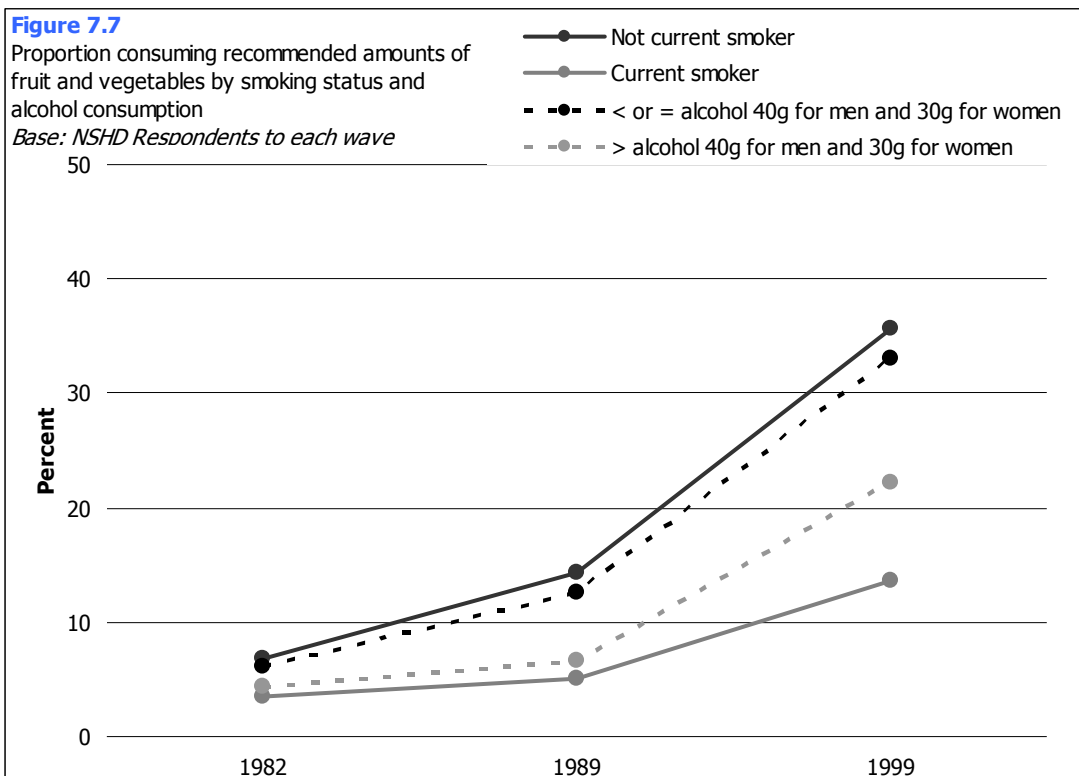
Overall there was a significant increase in the proportion of NSHD respondents to the food diaries eating the daily recommended amount of fruit and vegetables, from 5.8% in 1982 to 31.7% in 1999. This increase was experienced in all of the socio-demographic groups we looked at.

There were significant differences in all three waves in this proportion between highest qualification groups and NSSEC groups, with those with higher qualifications or in higher NSSEC groups more likely to consume five or more portions of fruit and vegetables per day on average. There were also significant differences between the genders with females more likely to consume the recommended amounts of fruit and vegetables than males (significant at the 10% level in the first wave and at the 5% level for the next two waves). Differences between marital status groups were significant at the 10% level for the first two waves (with those who were single, separated, divorced or widowed more likely to consume five or more portions of fruit and vegetables than those who were married) but not significant at the last wave, although the proportion of married people consuming five or more portions surpassed that of the single, separated, divorced or widowed in this wave. There was no difference in this proportion between job status groups (although those in paid employment were marginally more likely to consume five plus a day at the first wave – significant at the 10% level).

Those who smoked were always (for the three waves examined here) less likely to consume five or more portions of fruit and vegetables per day on average than those who did not currently smoke. There was no significant difference between groups with different levels of alcohol consumption at the first wave, but at the second and third waves those who consumed more alcohol were less likely to eat five or more portions of fruit and vegetables per day on average.

Table 7.4, Figures 7.6 and 7.7





7.3 Predictors

7.3.1 BHPS Youth Cohort

The significant predictors of eating fresh fruit and vegetables daily at the last wave in the BHPS youth cohort were whether the young person had ever tried a cigarette (those who had were less likely to eat fresh fruit and vegetables daily), tenure (those whose parents owned the house were more likely to eat fresh fruit and vegetables daily), mother's smoking status (those with mothers who smoked were less likely), and mother's NSSEC (those with mothers in the higher groups were less likely by the final wave than those in the unskilled or never had a job category).

Table 7.5

7.3.2 Whitehall II

Sex, age group, ethnicity, education level, work grade, smoking status and marital status all remained significant predictors of eating fresh fruit and vegetables at least once a day once other factors were controlled for. Women were more likely to consume fresh fruit and vegetables at least once a day at the final wave, as were those in older age groups, those of white ethnicity, those with higher education levels, and those in higher work grades. Single, separated or divorced people were less likely than their married or cohabiting counterparts to consume fresh fruit and vegetables at least once a day.

Table 7.6

7.3.3 ELSA

The significant predictors of consuming the recommended daily intake of fruit and vegetables at the final wave in ELSA once controlling for other factors were sex, age group, tenure, NSSEC, and smoking status. Females were more likely to meet recommendations as were those in older age groups (although not those in the oldest age groups), those in higher NSSEC groups, and those who did not smoke. All of these findings are similar to the findings from Whitehall II.

Table 7.7

7.3.4 NSHD

The significant predictors of consuming the recommended daily intake of fruit and vegetables at the final wave in the NSHD were sex, highest educational qualifications, NSSEC and smoking status. Females were more likely to eat the recommended amount of fruit and vegetables, as were those with higher educational qualifications, those in higher NSSEC groups, and those who did not smoke. Again, these findings are similar to the findings from Whitehall II and ELSA.

Table 7.8

7.4 The impact of life events

7.4.1 BHPS Youth Cohort

Two life events examined for this cohort, due to data restrictions. These were job gain and job loss (an increase or decrease of at least 0.5 in the WIR, based on both parents or a lone parent). Neither of these either events were found to have a significant impact on eating fresh fruit and vegetables daily by the final wave.

7.4.2 Whitehall II

The life events examined for the Whitehall II cohort were separation (separated or divorced in the second wave), becoming a widow, a change in health status from good or very good to fair or poor, quitting smoking in the second wave, and increasing alcohol consumption in the second wave. All of these except the last were significantly associated with eating fresh fruit and vegetables at least once a day in the final wave. Those who became separated, divorced or widowed in the second wave were less likely by the final wave than those who remained in couples to consume fresh fruit and vegetables at least once a day, as were those whose health deteriorated over the period examined (compared to those with good or very good health over all three waves). Those who quit smoking were much more likely to consume fresh fruit and vegetables at least once a day at the final wave compared to those who continued smoking for all three waves.

Table 7.9

7.4.3 ELSA

For ELSA we assessed the life events of: quitting smoking in the second wave; becoming separated, divorced or widowed; experiencing a change in health status (from very good or good to fair or bad health); retiring from employment; and finally, increasing alcohol consumption in the second wave (from consuming alcohol on three or less days in a week to four or more days). The only life event found to impact on fruit and vegetable consumption among ELSA respondents was quitting smoking. Those who quit smoking in the second wave were more likely to consume the recommended amount of fruit and vegetables at the final wave compared to those who continued smoking.

Table 7.10

7.4.4 NSHD

The life events examined for the NSHD were: quitting smoking; a change in employment status; becoming separated, divorced or widowed (combined); and a change in level of alcohol consumption. Only quitting smoking was a significant life event predictor eating the recommended level of fruit and vegetables at the final wave. Those who stopped smoking were more likely to consume five or more a day by the last wave, compared to those who smoked for all three waves. This finding is consistent with the finding for ELSA.

Table 7.11

Discussion

This report has examined trends in food-related behaviours for different cohorts of the population. For some types of behaviour – such as children sharing an evening meal with their parents – there has been no overall change in rate over the period reviewed. However, for other types of behaviour there was evidence of a change over time. For example, the proportion of families with children who experienced poor choice and access to food declined (between 2002 and 2005).

Many patterns of food-related behaviour are very stable within the individual. The strongest predictor of whether a behaviour occurred at the last survey wave was always whether or not it had occurred at the first wave. The odds ratios for this association tended to be very high, between 5 and 10. Across survey waves the same socio-demographic factors continued to play a key role in predicting which groups experienced the worst food choices and behaviours. However, the direction of association did vary with type of behaviour. While wealthier families may be more likely to eat more fresh fruit and vegetables and less fat than more disadvantaged families, they may also be less likely to meet certain food hygiene standards (hand-washing before meals).

Across a number of surveys men were found to be less likely than women to eat their five items of fresh fruit a day. Although this pattern might be changing, as the sex difference in rate was not always evident among younger generations.

This report focused specifically on the impact that life events might have on food-related behaviours and choices. One key life event that had a negative impact (for example on eating five-a-day) was the loss of a spouse, either through divorce, separation or bereavement. Such a finding highlights the importance of support such as that in Meals on Wheels type-programmes for older people who transition from being with a partner to living alone.

Becoming a lone parent also had a negative impact on children's food behaviours. We might hypothesise that the mechanisms for this were more likely to be economic than social given that the food-related issues particularly affected were those relating to access. Parent-child ratios, however, may also be a factor influencing some food-behaviours. While having children in the household may benefit parents in terms of salt being added less to food than in households without children, the more children there are in the household the more likely it is that the use of salt creeps up again.

The birth of a new child was a life event that triggered a decline in food hygiene practices for the existing children in the household. Mothers of new born babies may be appropriate targets for food hygiene messages that highlight the needs of older children, alongside the guidance they already receive relating to their baby.

One negative life event – job loss – was found to have a positive impact on one aspect of food behaviour. Families that experienced a reduction in their work intensity ratio became more likely to eat together as a family. If a consequence of recession will be more families eating together, a challenge for policy around flexible working and workload management will be to find ways of supporting the continuation of this practice alongside people's return to work.

A positive life event that was associated with positive changes in food choices and behaviours was quitting smoking. People who stopped smoking became more likely to eat more fresh fruit and vegetables, and children whose mothers stopped smoking also became more likely to eat more fresh fruit and vegetables. This fits with a wider pattern that emerged, of clustering in risky behaviours. This provides support for calls for more joined-up health promotion, which addresses healthy eating and food choices alongside other health-related behaviours, like smoking, drinking alcohol, and physical exercise.

More can be done to utilise the longitudinal nature of the food-related survey data available. For example, to examine the other outcomes for which there was insufficient space to cover in this report. Much more could also be done to examine the population in terms of profiling multiple risk factors. With sufficient data points sequencing of changes in risk taking behaviour might identify health behaviour changes that are 'gateways' to other improvements in health-related choices.

Appendix A Description of life events

Life events in BHPS YC

Job gain and job loss were the two key life events considered for this survey. Other life events (such as parental separation or mother quitting smoking) were of low frequency and were therefore not suitable for the analysis. Job gain and loss are assessed by creating a measure of Work Intensity Ratio (WIR). This is based on the ratio of parents in employment in each family, taking into account the number of hours each parent works; either not in work (0 hours per week), in part-time work (less than 30 hours per week) or in full-time work (30+ hours per week). Table 2.4 presents the categorisation given to single-parent and couple families according to the working hours of each parent.

Table 2.4

Table 2.4 Work Intensity Ratio (WIR) categorisation for single-parent and couple families		
WIR	Lone-parent family	Couple family
1	Parent working full-time	Both parents working full-time
0.75	-	One parent working full-time, the other part-time
0.5	Parent working part-time	One parent working full-time, the other not working OR both parents working part-time
0.25	-	One parent working part-time, the other not working
0	Parent not working	Both parents not working

To assess changes in a family's work intensity, we calculate differences in WIR from one year to the next. For job loss, the focus was on families who experienced a year-on-year *decrease* in WIR of at least 0.5, which was *not* followed by a subsequent increase during the period. This is equivalent to a single parent losing a part-time job or, in the case of couple families, one parent losing their full-time job. The change is hence substantial and is likely to significantly affect the circumstances of the whole family, including resident children, particularly because the family's work intensity does not 'recover' during the period.

To experience a decrease in WIR of a magnitude of 0.5 or more, a family needs to have a WIR of at least 0.5 in the earlier sweep, i.e. to be 'work-rich'. Therefore, the main comparison group is with families who continuously had a high level of employment (WIR of at least 0.5). For job gain, the focus is on families who experienced a year-on-year *increase* in WIR of at least 0.5, which was *not* followed by a subsequent decrease during the period. The main comparison group for job gain is families who continuously had a low level of employment, i.e. were 'work-poor' (WIR of less than 0.5).

It needs to be noted that a family may have experienced a substantial loss in WIR yet still remained 'work rich' - for example, a lone parent who changed from full-time to part-time work, or a couple family where one parent stopped their full-time job but the other was still employed on a full-time basis. However, even in such cases the change is deemed to be significant enough to be likely to influence the circumstances of the family.

Life events in FACS

Parental separation: For this analysis the mother must have been in a couple at the first (or first and second) wave(s) and then separated, divorced or widowed in the second or third wave, and did not re-partner. The reason for this is to focus on the separation event by excluding the added complexity of any subsequent re-partnering event. We compare separated families with families that remained intact during the period.

Job loss and gain: To investigate changes in family employment levels we again created a measure of Work Intensity Ratio (WIR) similar to that for BHPS. This was based on the ratio of parents in employment in each family, taking into account the number of hours each parent works; either not in work (0-15 hours per week), in part-time work (16-29 hours per week) or in full-time work (30+ hours per week). Table 2.4 above presents the categorisation given to single-parent and couple families according to the working hours of each parent (note that the definition of part-time work differs between FACS and BHPS).

Had another child: For this analysis we look at whether there was an increase in the number of children in the household in the second or third wave of analysis. The comparison group is households with the same number of children for all four waves.

Quit smoking: For this analysis we calculated whether the mother was a smoker in the first wave (or first two waves) and subsequently stopped smoking for all remaining waves. We compare these households to households where the mother smoked for all four waves, and also to households where the mother did not smoke for any of the four waves.

Life events in ALSPAC

Parental separation: For this analysis the mother must have been in a couple at the first (or first and second) wave(s) and then separated, divorced or widowed in the second or third wave, and did not re-partner. We compare separated families with families that remained intact during the period.

Change in health status of the mother: For this analysis we compare mothers who were well or mostly well for the entire analysis period to those who were well in the first one or two waves, but then reported they often felt unwell or never felt well for all of the following waves.

Job loss/job gain: ALSPAC did not ask how many hours were worked, so we were unable to calculate WIR as with BHPS and FACS. For the analysis of job loss and job gain in ALSPAC, we look at couple families only and examine the job status of the mother's partner. Specifically, we classify the family as experiencing job loss if the partner was employed in the first wave (or the first and second wave) and subsequently became unemployed. For job gain we look at the converse of this. These two groups are compared to those partners who were employed for all waves analysed, and those partners who were unemployed for all waves respectively.

Mother became pregnant again: For this analysis the comparison group is those mothers who did not become pregnant again following the birth of the study child, for the entire period analysed. The event we look at is becoming pregnant by the time the study child was 33 months old (i.e. by the third wave that the outcome variable was measured for).

Mother quit smoking: For this analysis we compare those mothers who smoked in the first (or first and second) waves, but subsequently did not smoke for all remaining waves analysed, to those mothers who smoked for all waves.

Life events in Whitehall II

Separation: For this analysis the respondent must have been in a couple (married or cohabiting) at the first wave and then separated or divorced in the second wave, and did not re-partner. We compare separated respondents with respondents that remained in a couple during the period of analysis.

Widowed: Again, the respondent must have been in a couple at the first wave and then became a widow in the second wave (and did not re-partner). These respondents are compared to those respondents who remained in a couple for all three waves.

Quit smoking: We compare those respondents who smoked in the first wave but no longer smoked in the second and third waves, to those who smoked for all three waves.

Change in health status: Those whose self-reported health status changed from being very good or good in the first wave to fair or poor for the next two waves are compared to those who had very good or good health for all three waves.

Change in alcohol consumption: For this we compare those who did not exceed the recommended weekly alcohol units (21 units for men and 14 units for women) for all three waves, to those who did not exceed these limits for the first wave and subsequently drank more than these recommended units for the next two waves.

Life events in ELSA

Separation: For this analysis the respondent must have been in a couple (married or cohabiting) at the first wave and then separated or divorced in the second wave, and did not re-partner. We compare separated respondents with respondents that remained in a couple during the period of analysis.

Widowed: Again, the respondent must have been in a couple at the first wave and then became a widow in the second wave (and did not re-partner). These respondents are compared to those respondents who remained in a couple for all three waves.

Quit smoking: We compare those respondents who smoked in the first wave but no longer smoked in the second and third waves, to those who smoked for all three waves.

Change in health status: Those whose self-reported health status changed from being very good or good in the first wave to fair or bad for the next two waves are compared to those who had very good or good health for all three waves.

Change in alcohol consumption: For this we compare those who consumed alcohol on three or less days in the past week for all three waves, to those who did this for the first wave and subsequently drank on four or more days in the past week for the next two waves.

Retired: Those who were employed in the first wave and retired in the second wave are compared to those who remained employed for all three waves.

Life events in NSHD

Job loss/gain: Those who were in paid employment for all three waves are compared to those who were in paid employment for the first wave and not in paid employment for the second and third waves, or those who were not in paid employment in the first wave but were in the next two waves. As we only have information on whether or not the respondent was in paid employment or not, we can make no distinction between those

who lost their jobs and became unemployed, or chose to end their jobs through retirement or for other reasons.

Change in marital status: As there were only 15 respondents who were widowed in the second wave, we did not look at separation and widowhood separately. Rather, we compared those who remained in a couple for all three waves to those who became either separated, divorced or widowed in the second wave.

Quit smoking: Those who currently smoked in the first wave and then reported not smoking in the second and third waves are compared to those who smoked for all three waves.

Change in alcohol consumption: For this survey we analyse those who consumed less than or equal to 40g of alcohol for men and 30g of alcohol for women on average per day in the first wave and subsequently consumed more than 40g or 30g for the next two waves (on average per day), to those who consumed less than or equal to these amounts on average per day for all three waves.

Appendix B Tables to the chapters

For guidance on interpreting the tables below, see section Notes to Tables at the beginning of the report.

Tables for Chapter 3: Sharing an evening meal with the family

Table 3.1		Sharing an evening meal at least once a week by socio-demographics		
<i>Base: Respondents to all three waves</i>		<i>BHPS</i>		
		Wave		
		2004	2005	2006
Socio-demographics^a	%	%	%	
<i>Mother's age group</i>				
26-34	36.7	47.1	53.3	
35-39	33.1	37.6	33.8	
40-44	37.4	33.2	36.1	
45-49	44.3	43.1	33.5	
50+	47.8	39.4	33.7	
<i>Mother's educational qualifications at the first wave</i>				
First or higher degree	37.4	37.4	29.3	
Teaching, nursing or other higher qualifications	39.9	35.6	35.5	
GCE A levels	33.9	30.2	26.8	
GCE O levels or equivalent	39.2	39.2	40.6	
Commercial, CSE Grade 2-5, apprenticeship, or other qualification.	29.6	47.4	37.0	
No qualifications	42.7	41.2	41.1	
<i>Family work status</i>				
one or both parents (or lone parent) have a job	36.9	38.0	34.1	
both parents are unemployed or inactive	43.0	43.4	55.4	
<i>Lone parent status</i>				
Couple	37.5	38.3	35.8	
Lone parent	42.1	39.4	38.0	

<i>Mother's NSSEC</i>			
Professional, managerial or technical occupations	47.0	42.4	35.2
Skilled (non-manual or manual)	32.1	34.6	36.0
Partly skilled	37.5	41.8	36.7
Unskilled or never had a job	30.6	36.1	34.4
<i>Mother's smoking status</i>			
Yes	39.9	38.5	38.4
No	37.6	37.8	34.8
<i>Mother's health status</i>			
Excellent	35.6	39.0	36.6
Good	38.6	41.5	36.3
Fair	44.2	27.1	38.8
Poor or very poor	33.3	41.8	29.9
<i>Child ever tried a cigarette</i>			
Yes	44.9	50.0	41.0
No	37.2	34.9	34.4
<i>Child's sex</i>			
Male	38.4	39.6	35.7
Female	38.2	37.2	36.9
All	38.4	38.4	36.2
<i>Bases (unweighted)</i>	749	736	749

^a Socio-demographic variables are measured at each wave where appropriate.

Table 3.2 Multivariate analysis of predictors of sharing an evening meal at least once a week at final wave

Base: Respondents to all three waves				BHPS
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Shared an evening meal at least once a week at the first wave (p<0.001)</i>				
No	1		462	
Yes	6.93	0.17	270	4.95, 9.72
<i>Mother's age at the first wave (p=0.036)</i>				
19 to 34	1		118	
35 to 39	0.72	0.27	200	0.42, 1.24
40 to 44	0.56	0.25	260	0.34, 0.93
45 to 49	0.38	0.32	99	0.21, 0.72
50 or over	0.62	0.35	55	0.31, 1.22

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: young persons sex, whether the young person had ever tried a cigarette, country, tenure, number of children in the household, lone parent status, ethnicity, mother's educational qualifications, mothers health status, mothers smoking status, mothers religion, mother's access to a car, mother's opinion of financial status, mother's social class, family job status, and household income.

Table 3.3 Multivariate analysis of life events and sharing an evening meal at least once a week at the final wave

Base: Respondents to all three waves				BHPS
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events^a				
Work rich for all 3 waves	1		431	
Job loss	7.08	0.73	17	1.70, 29.51

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in table 3.2.

Tables for Chapter 4: Choice and access to food

Table 4.1 Choice and access score of one or more by socio-demographics				
<i>Base: Respondents to all four waves</i>				FACS
Socio-demographics^a	Wave			
	2002	2003	2004	2005
	%	%	%	%
<i>Mother's age group</i>				
20-24	36.0	31.0	32.8	28.0
25-29	25.7	21.1	23.2	25.2
30-34	17.2	13.1	18.0	17.9
35-39	15.6	12.3	13.3	12.1
40-44	12.5	10.1	9.8	8.9
45-49	10.8	7.9	9.6	9.5
50+	9.2	10.4	6.0	9.9
<i>Mother's educational qualifications at the first wave</i>				
Degree or higher	4.1	3.6	3.8	3.9
GCE A-level and equiv	11.2	6.4	7.3	5.8
GCSE grade A-C and equiv	15.6	11.7	11.6	11.4
GCSE grade D-G and equiv	25.4	18.7	19.4	18.1
Other qualifications or no qualifications	27.9	24.1	26.2	23.3
<i>Family work status</i>				
One or both parents work 16+ hrs	10.3	7.6	8.0	7.6
Both parents (or lone parent) not working 16+ hrs	45.6	40.1	43.0	41.4
<i>Lone parent status</i>				
Couple	10.9	8.1	8.5	7.4
Lone parent	35.5	27.7	29.0	28.8
<i>Eligible for free school meals</i>				
No	12.9	9.6	10.1	9.0
Yes	52.7	44.7	47.2	48.5
<i>Mother's smoking status</i>				
Yes	26.9	22.3	23.2	21.9
No	12.6	9.1	9.8	9.2
<i>Mother drinks alcohol</i>				

3-4 times a week or more	7.7	6.2	6.9	6.9
1-2 times per week	13.1	10.7	11.1	11.1
1-2 times per month	18.2	12.0	15.0	15.0
less than once a month	26.1	19.9	19.5	15.9
never	26.6	22.3	21.5	19.8
All	17.0	13.1	13.7	12.7
<i>Bases (unweighted)</i>	3807	3806	3811	3812

^a Socio-demographic variables are measured at each wave where appropriate.

Table 4.2 Multivariate analysis of predictors of having a choice and access score of one or more at final wave

Base: Respondents to all four waves				FACS
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Choice and access score of 1 or more at the first wave (p<0.001)</i>				
No	1		3145	
Yes	6.11	0.12	659	4.84, 7.72
<i>Mother's age group at the first wave (p=0.001)</i>				
17-24	1		221	
25-29	1.05	0.22	382	0.68, 1.63
30-34	0.53	0.22	819	0.35, 0.82
35-39	0.62	0.22	1087	0.41, 0.96
40-44	0.56	0.23	847	0.36, 0.89
45-49	0.65	0.28	339	0.37, 1.14
50+	0.32	0.52	109	0.12, 0.89
<i>Number of children in the household at the first wave (p=0.007)</i>				
One	1		1097	
Two	0.83	0.14	1818	0.63, 1.10
Three or more	1.30	0.16	889	0.96, 1.76
<i>Mother's educational qualifications (p=0.001)</i>				
Degree or higher	0.50	0.26	590	0.30, 0.82
GCE A-level/SCE Higher grades(A-C) and equiv	0.44	0.24	467	0.27, 0.70
GCSE grade A-C and equiv	0.66	0.14	1481	0.50, 0.88
GCSE grade D-G and equiv	0.80	0.17	571	0.58, 1.11
Other / no qualifications	1		695	
<i>Lone parent status at wave one (p<0.001)</i>				
Couple	1		2752	
Lone parent	1.91	0.13	1052	1.47, 2.48
<i>Eligible for free school meals at wave one (p<0.001)</i>				
No	1		3386	
Yes	1.81	0.15	418	1.34, 2.43

<i>Mother's smoking status at wave one (p=0.001)</i>				
Yes	1.47	0.12	1197	1.16, 1.85
No	1		2607	
<i>Household income at wave one (p<0.001)</i>	0.997	0.00	3804	0.996, 0.999

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: family employment status, ethnicity, tenure, mothers drinking frequency, Government Office Region.

Table 4.3 Multivariate analysis of life events and poor choice and access at final wave

<i>Base: Respondents to all four waves</i>				FACS
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events^a				
<i>Job loss</i>				
Work rich for all 4 waves	1		2280	
Job loss	2.76	0.39	60	1.28, 5.94
Work poor for all 4 waves	3.19	0.35	124	1.62, 6.28
<i>Job gain</i>				
Work poor for all 4 waves	1		124	
Job gain	0.30	0.66	32	0.08, 1.11
<i>Parental separation</i>				
Couple for all 4 waves	1		2388	
Parental separation	2.21	0.33	108	1.16, 4.21

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in table 4.2.

Tables for Chapter 5: Hand washing before meals

Table 5.1 Sometimes, occasionally or never washed child's hands before meals by socio-demographics

Base: Respondents to each wave					ALSPAC
Socio-demographics ^a	Wave				
	15 months	24 months	38 months	54 months	65 months
	%	%	%	%	%
<i>Mother's age group</i>					
20-24	43.6	33.6	33.1	32.7	28.9
25-29	49.5	38.6	37.5	37.3	36.1
30-34	51.4	38.8	39.3	36.8	37.3
35-39	51.6	38.2	36.4	36.6	35.9
40+	45.8	30.0	36.0	34.7	34.1
<i>Mother's educational qualifications when pregnant</i>					
CSE	38.9	28.4	29.5	32.0	33.6
Vocational	46.0	34.9	36.1	33.7	34.2
O level	47.8	37.6	36.8	36.2	36.6
A level	52.1	39.5	38.6	36.2	34.6
Degree	63.7	49.2	50.0	46.3	42.8
<i>Partner's work status</i>					
Employed	50.7	39.2	39.6	37.6	36.9
Unemployed	43.2	34.3	33.8	33.8	32.8
<i>Lone parent status</i>					
Single (never married or divorced, separated, widowed)	46.1	34.4	34.7	35.8	36.2
Married	50.3	39.3	39.5	37.6	36.7
<i>Mother's NSSEC</i>					
Professional, managerial or technical occupations	55.0	41.9	40.7	39.4	37.7
Skilled - non-manual or manual	49.7	37.8	38.0	37.5	37.4
Partly skilled, unskilled or armed forces	42.3	33.5	34.5	33.8	34.5
<i>Difficulty affording food</i>					
Very difficult	55.2	36.9	34.1	34.7	31.9
Fairly difficult	47.0	39.1	35.9	38.0	33.0
Slightly difficult	48.5	37.7	41.7	39.8	37.5

Not difficult	49.9	38.3	38.3	37.0	36.4
<i>Child's ethnic background</i>					
White	49.1	37.8	38.0	36.7	36.5
Non-white	45.5	31.3	28.3	31.2	29.0
<i>Mother's smoking status</i>					
No	52.1	39.8	39.8	38.2	36.6
Yes	40.7	32.9	33.7	33.6	35.5
<i>Mother drinks alcohol</i>					
Does not drink	40.4	30.7	34.0	33.7	32.6
Less than once a week	46.8	36.7	37.3	36.4	33.5
More than once a week	54.8	41.2	38.9	38.6	38.1
One or more glasses a day	63.0	49.2	47.8	43.5	40.8
<i>Mother's health status</i>					
Fit and well	47.9	37.6	39.1	38.1	37.0
Mostly well	50.1	38.8	38.2	36.2	35.8
often unwell or never well	51.1	42.2	37.0	36.7	32.6
All	48.9	37.6	37.5	36.5	36.1
<i>Bases (unweighted)</i>	10786	10151	9886	9457	8779

^a Socio-demographic variables are measured at each wave where appropriate.

Table 5.2 Multivariate analysis of predictors of washing the study child’s hands occasionally, sometimes or never before meals at final wave

<i>Base: Respondents to the first and last waves</i>				ALSPAC
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Occasionally, sometimes or never washed the study child’s hands at the first wave (p<0.001)</i>				
No (always or usually washed child’s hands)	1		3825	
Yes	5.00	0.05	4048	4.51, 5.54
<i>Number of children in the household at the first wave (p<0.001)</i>				
One	1		3532	
Two	0.78	0.06	2967	0.70, 0.87
Three or more	0.91	0.07	1374	0.79, 1.04
<i>Child’s ethnic background</i>				
White	1		7575	
Non-white	0.73	0.14	298	0.55, 0.95

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: mother’s age group, mother’s marital status, mother’s educational qualifications, mother’s social class, difficulty affording food, mother’s health status, mother’s smoking status, mother’s frequency of drinking alcohol, partner’s employment status, child eligible for free school meals, tenure, mother’s access to a car.

Table 5.3 Multivariate analysis of life events and washing the study child’s hands at the final wave

<i>Base: Respondents to the first and last waves</i>				<i>ALSPAC</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events ^a				
<i>Pregnancy</i>				
Did not become pregnant since the birth of the study child	1		2946	
Became pregnant again by the time the study child was 33 months	1.33	0.09	1341	1.12, 1.58

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in table 5.2.

Tables for Chapter 6: Adding salt to food

Table 6.1 Mother ever adds salt to child's food by socio-demographics			
<i>Base: Respondents to each wave</i>			<i>ALSPAC</i>
Socio-demographics^a	Wave		
	15 months	24 months	7 years
	%	%	%
<i>Mother's age group</i>			
21-24	22.6	38.7	72.2
25-29	23.6	35.9	74.6
30-34	25.1	36.6	71.0
35-39	27.1	39.2	69.9
40+	24.8	41.7	67.7
<i>Mother's educational qualifications</i>			
CSE	29.3	43.6	79.5
Vocational	28.9	42.1	77.5
O level	22.7	35.4	71.7
A level	21.6	32.3	65.6
Degree	22.1	37.1	62.5
<i>Partner's work status</i>			
Employed	23.7	35.4	69.2
Unemployed	25.6	44.5	72.0
<i>Lone parent status</i>			
Single (never married or divorced, separated, widowed)	24.0	38.0	73.3
Married	24.0	36.2	68.7
<i>Mother's NSSEC</i>			
Professional, managerial or technical occupations	20.3	32.4	66.2
Skilled - non-manual or manual	23.7	36.7	70.3
Partly skilled, unskilled or armed forces	28.3	41.9	77.4
<i>Difficulty affording food</i>			
Very difficult	26.6	30.5	[73.0]
Fairly difficult	26.5	37.1	75.1

Slightly difficult	24.4	38.6	73.7
Not difficult	23.6	36.0	68.9
<i>Child's ethnic background</i>			
White	23.6	36.4	70.0
Non-white	34.5	51.4	78.5
<i>Mother's smoking status</i>			
No	22.9	35.0	68.1
Yes	28.1	41.7	76.8
<i>Mother drinks alcohol</i>			
Does not drink	24.7	37.0	70.9
Less than once a week	25.0	36.4	70.7
More than once a week	22.2	36.5	69.1
One or more glasses a day	27.7	35.7	69.2
<i>Mother's health status</i>			
Fit and well	23.0	35.6	68.1
Mostly well	24.4	37.6	70.7
often unwell or never well	26.7	39.8	74.3
All	24.2	37.1	70.4
<i>Bases (unweighted)</i>	10711	10119	6448

^a Socio-demographic variables are derived for each wave where appropriate.

Table 6.2 Adding salt to food while cooking usually or always by socio-demographics

<i>Base: Respondents to each wave^a</i>		<i>Whitehall II</i>	
Socio-demographics	Wave		
	1991-94	1997-99	2002-04
	%	%	%
<i>Respondent's age group</i>			
45-49*	50.2	41.0	-
50-54	57.6	48.1	36.0
55-59	61.5	52.8	38.0
60-64	61.6	57.0	42.4
65+	-	57.0	48.0
<i>Respondent's sex</i>			
Male	50.6	48.1	39.4
Female	59.3	56.0	47.5
<i>Respondent's ethnic background</i>			
White	51.0	48.4	39.7
Non-white	75.1	76.2	67.8
<i>Respondent's educational qualifications</i>			
Up to 16 years of age	55.7	52.2	43.0
17-18 years of age	53.3	48.3	38.8
Over 18 years of age	51.8	48.9	40.6
<i>Respondent's work grade level</i>			
Administrative	49.4	41.4	33.0
Professional/executive	53.0	44.8	37.5
Clerical/support	62.6	61.9	49.2
<i>Respondent's marital status</i>			
Married/cohabiting	53.8	51.9	42.6
Single, divorced or separated	51.5	46.6	38.9
<i>Respondent's smoking status</i>			
Yes	61.9	59.0	45.0
No	51.9	49.6	41.4
<i>Respondent's drinking frequency</i>			

Does not exceed the weekly recommended alcohol units	53.2	49.4	41.0
Exceeds the weekly recommended alcohol units	53.3	53.3	44.5
<i>Respondents' health status</i>			
Fair or poor	55.8	52.4	40.4
very good or good	52.4	50.1	41.9
All	53.3	50.4	41.7
<i>Bases (unweighted)</i>	<i>8343</i>	<i>5386</i>	<i>5654</i>

^a Socio-demographic variables are derived for each wave where appropriate.

Table 6.3 Multivariate analysis of predictors of adding salt to the child's food at the final wave

Base: Respondents to the first and last waves				ALSPAC
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Ever added salt to the child's food at the first wave (p<0.001)</i>				
No	1		4177	
Yes	7.76	0.11	1357	6.23, 9.66
<i>Mother's educational qualifications (p<0.001)</i>				
CSE	1		655	
Vocational	0.92	0.15	465	0.69, 1.25
O level	0.81	0.11	2013	0.65, 1.01
A level	0.61	0.12	1480	0.49, 0.77
Degree	0.55	0.12	921	0.43, 0.70
<i>Difficulty affording food at the first wave (p=0.003)</i>				
Very difficult	1.77	.31	78	0.97, 3.25
Fairly difficult	1.44	.13	393	1.11, 1.87
Slightly difficult	1.21	.08	994	1.03, 1.42
Not difficult	1		4069	
<i>Number of children in the household at the first wave (p=0.002)</i>				
One	1		2497	
Two	1.19	.07	2130	1.04, 1.35
Three or more	1.35	.09	907	1.13, 1.63
<i>Mother's smoking status</i>				
No	1		4525	
Yes	1.33	0.09	1009	1.12, 1.58

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: mother's age group, mother's marital status, mother's social class, mother's health status, mother's frequency of drinking alcohol, partner's employment status, child eligible for free school meals, tenure, mother's access to a car.

Table 6.4 Multivariate analysis of predictors of adding salt to food while cooking usually or always at final wave

Base: Respondents to the first and last waves				Whitehall II
	Regression output			
	Adjusted Odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Added salt to food while cooking usually or always, at the first wave (p<0.001)</i>				
No	1		1894	
Yes	7.29	.07	2171	6.29, 8.44
<i>Sex (p=0.035)</i>				
Male	1		3047	
Female	1.20	0.09	1018	1.01, 1.42
<i>Ethnicity (p<0001)</i>				
White	1		3775	
Non-white	2.54	0.15	290	1.91, 3.38
<i>Number of children in the household at the first wave (p=0.011)</i>				
None	1		1747	
One	.78	.10	782	0.64, 0.95
Two	.90	.09	1104	0.75, 1.07
Three or more	.70	.13	432	0.54, 0.90

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: age group, marital status, educational qualifications, tenure, work grade level, smoking status, frequency of drinking alcohol, and health status.

Tables for Chapter 7: Fruit and vegetable consumption

Table 7.1 Eating fresh fruit and vegetables daily by socio-demographics			
<i>Base: Respondents to all three waves</i>			<i>BHPS</i>
Socio-demographics^a	Wave		
	2004	2005	2006
	%	%	%
<i>Mother's age group</i>			
26-34	54.1	62.3	57.9
35-39	68.4	62.7	58.8
40-44	63.1	70.9	75.7
45-49	63.2	67.4	66.7
50+	68.1	62.1	74.7
<i>Mother's educational qualifications at the first wave</i>			
First or higher degree	76.8	84.8	80.4
Teaching, nursing or other higher qualifications	66.3	68.3	69.6
GCE A levels	58.9	63.0	71.4
GCE O levels or equivalent	65.7	69.2	67.9
Commercial, CSE Grade 2-5, apprenticeship, or other qualification.	48.1	48.7	66.2
No qualifications	51.1	52.9	57.3
<i>Family work status</i>			
one or both parents (or lone parent) have a job	65.5	67.7	71.3
both parents are unemployed or inactive	51.2	57.1	52.2
<i>Lone parent status</i>			
Couple	64.3	68.8	70.7
Lone parent	58.6	56.2	60.8
<i>Mother's NSSEC</i>			
Professional, managerial or technical occupations	70.3	74.7	69.8
Skilled (non-manual or manual)	61.2	65.7	64.9
Partly skilled	61.8	60.8	71.4
Unskilled or never had a job	51.6	57.4	75.0

<i>Mother's smoking status</i>			
Yes	55.9	62.1	58.8
No	66.3	68.1	72.6
<i>Mother's health status</i>			
Excellent	67.4	72.7	73.9
Good	60.5	67.8	66.6
Fair	63.6	63.4	70.1
Poor or very poor	66.7	52.2	64.0
<i>Child ever tried a cigarette</i>			
Yes	49.1	48.3	56.6
No	66.0	71.1	73.1
<i>Child's sex</i>			
Male	58.1	61.4	63.9
Female	68.1	69.9	72.5
All	63.1	65.6	68.2
<i>Bases (unweighted)</i>	728	714	726

^a Socio-demographic variables are measured at each wave where appropriate.

Table 7.2 Eating fresh fruit and vegetables at least once a day by socio-demographics

<i>Base: Respondents to each wave</i>		<i>Whitehall II</i>		
Socio-demographics	Wave			
	1991-94	1997-99	2002-04	
	%	%	%	
<i>Respondent's age group</i>				
45-49*	60.1	66.3	-	
50-54	61.1	72.2	71.0	
55-59	64.3	73.6	74.0	
60-64	70.0	78.4	77.1	
65+	-	79.8	78.0	
<i>Respondent's sex</i>				
Male	59.1	71.4	73.9	
Female	66.3	77.9	78.7	
<i>Respondent's ethnic background</i>				
White	62.6	74.3	76.3	
Non-white	49.4	61.4	64.9	
<i>Respondent's educational qualifications</i>				
Up to 16 years of age	54.3	67.3	68.0	
17-18 years of age	61.2	72.2	75.2	
Over 18 years of age	66.3	75.8	80.1	
<i>Respondent's work grade level</i>				
Administrative	69.6	75.5	76.3	
Professional/executive	58.3	67.6	68.8	
Clerical/support	51.1	62.0	60.1	
<i>Respondent's marital status</i>				
Married/cohabiting	63.0	75.0	77.8	
Single, divorced or separated	56.3	68.3	67.8	
<i>Respondent's smoking status</i>				
Yes	42.5	53.0	55.3	
No	64.4	75.7	77.1	
<i>Respondent's drinking frequency</i>				

Does not exceed the weekly recommended alcohol units	61.9	73.7	75.6
Exceeds the weekly recommended alcohol units	58.6	71.8	74.9
<i>Respondent's health status</i>			
Fair or poor	54.8	63.9	68.0
very good or good	63.6	74.7	76.8
All	61.4	73.3	75.3
<i>Bases (unweighted)</i>	<i>8310</i>	<i>7079</i>	<i>6777</i>

^a Socio-demographic variables are measured at each wave where appropriate.

Table 7.3 Eating five or more portions of fruit and vegetables a day by socio-demographics

<i>Base: Respondents to all three waves</i>		<i>ELSA</i>	
Socio-demographics	Wave		
	2001	2006-07	2008-09
	%	%	%
<i>Respondent's age group</i>			
56-59*	28.0	53.0	50.8
60-64	29.7	55.3	57.0
65-69	30.9	57.1	59.5
70-74	23.7	56.7	62.3
65-79	28.0	58.2	63.8
80+	28.7	65.7	52.9
<i>Respondent's sex</i>			
Male	27.3	53.8	55.5
Female	30.2	58.3	58.9
<i>Respondent's ethnic background</i>			
White	28.4	55.9	56.9
Non-white	46.0	[70.4]	*
<i>Respondent's educational qualifications</i>			
NVQ4/NVQ5/Degree or equiv	44.7	74.4	70.4
Higher Ed. below degree	33.4	62.9	66.3
NVQ3/GCE A Level equiv	30.0	62.2	53.3
NVQ2/GCE O Level equiv	30.8	58.9	61.0
NVQ1/CSE other grade equiv	20.7	47.1	49.4
Foreign/other	27.7	54.9	57.5
No qualification	22.9	46.1	48.9
<i>Respondent's employment status</i>			
Employed	30.3	54.3	57.3
Retired	28.7	58.2	58.6
Unemployed or other economically inactive	25.9	51.9	51.3
<i>NSSEC</i>			
Professional, managerial occupations	34.2	65.1	65.1

Skilled - non-manual or manual	27.5	54.4	56.5
Semi-skilled (manual)	24.2	46.2	44.1
Unskilled or armed forces	22.2	51.3	54.5
<i>Respondent's marital status</i>			
Married/cohabiting	29.1	56.8	58.7
Single, divorced or separated	26.5	49.5	52.2
Widowed	29.8	59.7	56.3
<i>Respondent's smoking status</i>			
No	31.5	57.6	60.1
Yes	15.9	46.6	35.4
<i>Respondent's drinking frequency</i>			
Less than or equal to 3 days a week	28.5	57.3	57.6
4 or more days a week	29.5	53.4	56.6
<i>Respondent's health status</i>			
Very good or good	30.6	57.9	60.4
Fair	25.8	53.6	52.2
Bad or very bad	22.4	46.8	36.1
All	28.9	56.1	57.3
<i>Bases (unweighted)</i>	<i>2378</i>	<i>1371</i>	<i>1663</i>

^a Socio-demographic variables are measured at each wave where appropriate.

Table 7.4 Eating five or more portions of fruit and vegetables a day by socio-demographics			
<i>Base: Respondents to each wave</i>			<i>NSHD</i>
Socio-demographics	Wave		
	1982	1989	1999
	%	%	%
<i>Respondent's sex</i>			
Male	5.0	10.4	25.2
Female	6.7	13.3	37.4
<i>Respondent's educational qualifications</i>			
No qualifications	3.7	8.0	21.1
Vocational or high school qualifications	6.2	11.8	34.5
Degree or higher	10.1	20.1	42.9
<i>Respondent's employment status</i>			
Not in paid employment	4.3	12.3	30.1
In paid employment	6.3	11.7	32.1
<i>NSSEC</i>			
Professional or intermediate	8.1	17.2	40.2
Skilled - non-manual or manual	5.3	9.5	26.6
Partly skilled or unskilled	3.2	6.3	23.3
<i>Respondent's marital status</i>			
Single, separated, divorced or widowed	8.2	14.4	28.8
Married	5.5	11.3	32.4
<i>Respondent's smoking status</i>			
Yes	3.5	5.0	13.7
No	6.9	14.3	35.7
<i>Respondent's drinking frequency (average daily consumption)</i>			
=< 40g for men and 30g for women	6.1	12.5	33.1
> 40g for men and 30g for women	4.3	6.6	22.3
All	5.8	11.9	31.7
<i>Bases (unweighted)</i>	<i>2411</i>	<i>2256</i>	<i>1772</i>

^a Socio-demographic variables are measured at each wave where appropriate.

Table 7.5 Multivariate analysis of predictors of eating fresh fruit and vegetables daily at final wave

<i>Base: Respondents to all three waves</i>				<i>BHPS</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Ate fresh fruit and vegetables daily at the first wave (p<0.001)</i>				
No	1		258	
Yes	9.82	0.19	461	6.75, 14.29
<i>Young person ever tried a cigarette (p<0.001)</i>				
No	1		597	
Yes	0.43	0.24	122	0.26, 0.69
<i>Tenure of the home at first wave (p=0.045)</i>				
Own outright or buying with the help of a mortgage	1.59	0.23	551	1.01, 2.51
Rent	1		168	
<i>Mother's smoking status at first wave (p=0.085)</i>				
Yes	0.68	0.22	187	0.44, 1.05
No	1		532	
<i>Mother's NSSEC classification at first wave (p=0.017)</i>				
Professional, managerial or technical occupations	.29	0.40	236	0.13, 0.63
Skilled (non-manual or manual)	.42	0.38	269	0.20, 0.88
Partly skilled	.45	0.40	160	0.20, 0.98
Unskilled or never had a job	1		54	

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: young persons sex, mother's age group, country, number of children in the household, lone parent status, ethnicity, mother's educational qualifications, mothers health status, mothers religion, mother's access to a car, mother's opinion of financial status, family job status, and household income.

Table 7.6

Multivariate analysis of predictors of eating fresh fruit and vegetables at least once a day at final wave

Base: Respondents to the first and last waves				Whitehall II
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
<i>Ate fresh fruit and vegetables at least daily at the first wave (p<0.001)</i>				
No	1		1755	
Yes	5.00	0.08	2998	4.32, 5.80
<i>Sex (p<0.001)</i>				
Male	1		3372	
Female	1.98	0.10	1381	1.64, 2.40
<i>Ethnicity (p=0001)</i>				
White	1		4395	
Non-white	0.63	0.14	358	0.48, 0.83
<i>Age group at first wave (p<0.001)</i>				
39-44	1		1282	
45-49	1.23	0.10	1284	1.01, 1.50
50-54	1.42	0.11	993	1.15, 1.76
55-59	1.54	0.11	1017	1.24, 1.92
60-64	0.94	0.20	177	0.63, 1.38
<i>Education level (p=0.018)</i>				
Up to 16 years of age	1		1468	
17-18 years of age	1.26	0.10	1210	1.04, 1.54
Over 18 years of age	1.45	0.10	2075	1.20, 1.75
<i>Work grade level (p<0.001)</i>				
Administrative	1		1848	
Professional/Executive	0.61	0.09	2237	0.51, 0.73
Clerical/Support	0.35	0.14	668	0.26, 0.46
<i>Smoking status at first wave (p<0.001)</i>				
Yes	0.61	0.10	569	0.49, 0.74
No	1		4184	
<i>Marital status at first wave (p=0.031)</i>				
Married/cohabiting	1		3717	
Single, separated or divorced	0.82	0.09	1036	0.69, 0.98

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: tenure, frequency of drinking alcohol, health status.

Table 7.7 Multivariate analysis of predictors of eating five or more portions of fruit and vegetables a day at final wave

<i>Base: Respondents to all three waves</i>				<i>ELSA</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
Ate five or more portions of fruit and vegetables per day at the first wave (p<0.001)				
No	1		1144	
Yes	2.72	0.13	499	2.13, 3.48
Sex (p=0.029)				
Male	1		762	
Female	1.27	0.11	881	1.03, 1.57
Age group (p=0.014)				
48-54	1		487	
55-59	1.18	0.15	350	0.90, 1.62
60-64	1.50	0.16	271	1.11, 2.12
65-69	1.51	0.18	242	1.08, 2.16
70-74	1.41	0.19	175	0.96, 2.03
75-79	1.08	0.26	71	0.64, 1.79
80+	0.62	0.31	47	0.33, 1.13
Smoking status at first wave (p=0.002)				
No	1		1389	
Yes	0.64	0.14	254	0.49, 0.85
Tenure at first wave (p<0.001)				
Owner occupied	1		1418	
Rented (or rent free)	0.59	0.15	225	0.44, 0.79
NSSEC at first wave (p<0.001)				
Professional/managerial	1		646	
Skilled (manual or non-manual)	0.75	0.12	716	0.59, 0.96
semi-skilled (manual)	0.49	0.17	205	0.35, 0.69
unskilled or armed forces	0.88	0.25	76	0.54, 1.44

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: ethnicity, number of children in the household, marital status, educational qualifications, household income, frequency of drinking alcohol, health status, employment status.

Table 7.8 Multivariate analysis of predictors of eating five or more portions of fruit and vegetables a day at final wave

<i>Base: Respondents to the first and last waves</i>				<i>NSHD</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Predictors at wave one^a				
Ate five or more portions of fruit and vegetables per day at the first wave (p<0.001)				
No	1		1130	
Yes	4.47	0.26	81	2.69, 7.41
Sex (p<0.001)				
Male	1		621	
Female	2.15	0.14	590	1.64, 2.82
Highest educational qualifications (p<0.001)				
No qualifications	1		319	
Vocational or high school qualifications	1.81	0.18	690	1.26, 2.59
Degree or higher	2.62	0.24	202	1.64, 4.17
Smoking status at first wave (p=0.004)				
No	1		897	
Yes	0.62	0.16	314	0.45, 0.86
NSSEC at first wave (p=0.001)				
Professional or intermediate	1		503	
Skilled (manual or non-manual)	0.59	0.15	502	0.44, 0.8
Partly skilled or unskilled	0.54	0.22	206	0.35, 0.83

^a Only significant variables are presented in the table. The following variables were tested and not included in the multivariate models because they were not significant: number of children in the household, tenure, marital status, employment status, consumption of alcohol.

Table 7.9 Multivariate analysis of life events and eating fresh fruit and vegetables at least once a day at the final wave

<i>Base: Respondents to both the first and last waves</i>				<i>Whitehall II</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events^a				
<i>Quit smoking</i>				
Smoked for all three waves	1		158	
Quit smoking in the second wave	3.70	0.36	73	1.82, 7.51
<i>Separated or divorced</i>				
Married/cohabiting for all three waves	1		2320	
Separated or divorced in the second wave	0.47	0.40	36	0.22, 1.02
<i>Widowed</i>				
Married/cohabiting for all three waves	1			
Widowed in the second wave	0.39	0.45	31	0.16, 0.93
<i>Change in health status</i>				
Good or very good health for all three waves	1		2552	
Health deteriorated in the second wave	0.35	0.29	67	0.20, 0.62

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in Table 7.6.

Table 7.10 Multivariate analysis of life events and eating five or more portions of fruit and vegetables per day at final wave

<i>Base: Respondents to all three waves</i>				<i>ELSA</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events^a				
<i>Quit smoking</i>				
Smoked for all three waves	1		143	
Quit smoking in the second wave	1.97	0.29	72	1.11, 3.51

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in Table 7.7.

Table 7.11 **Multivariate analysis of life events and eating five or more portions of fruit and vegetables per day at the final wave**

<i>Base: Respondents to both the first and last waves</i>				<i>NSHD</i>
	Regression output			
	Adjusted odds ratio	Standard Error	Bases (unweighted)	95% Confidence interval
Life events^a				
<i>Quit smoking</i>				
Smoked for all three waves	1		152	
Quit smoking in the second wave	3.58	0.37	69	1.73, 7.40

^a Only significant life events are presented in the table, the odds ratios are adjusted for the variables presented in Table 7.8.

Appendix C Technical terms and procedures

Significance tests of trends

To test the statistical significance of the trends in each outcome (and each outcome within socio-demographic groups), panel time-series random effects logistic regression models were used. The outcome variable was regressed against a variable indicator of the waves of the survey. If the coefficient on this variable was significant, then there was a statistically significant trend in the outcome variable. A separate regression model was performed for each socio-economic group.

Statistical modelling

Logistic regression analysis is used in this report to examine the background variables and life events associated with each outcome while controlling for other predictors. A wide range of possible predictor variables (those listed in Section 2.2.2) were tested in each model using a forward stepwise procedure, and any that were significant were included in the final model. This gives an estimate of the independent effect of each predictor variable on the outcome when all the other independent variables were included in the model.

The results of the regression analyses are presented in tables (Appendix A) showing odds ratios for the final models, together with the probability that the association is statistically significant. The predictor variable is considered to be significantly associated with the outcome variable if $p < 0.05$. The models show the odds of being in the particular category of the outcome variable (e.g. having a choice and access score of one or more in the last wave) for each category of the independent variable (e.g. marital status categories). Odds are expressed relative to a reference category, which has a given value of '1'. Odds ratios greater than 1 indicate higher odds, and odds ratios less than 1 indicate lower odds. Also shown are the 95% confidence intervals for the odds ratios. Where the interval does not include 1, this category is significantly different from the reference category.

Understanding odds ratios

To understand an odds ratio we first need to describe the meaning of odds. The definition of odds is similar but significantly different to that of probability. This is best explained in the form of an example. If 200 individuals out of a population of 1000 experienced persistent poverty, the probability (p) of experiencing persistent poverty is $200/1000$, thus $p = 0.2$. The probability of not experiencing persistent poverty is therefore $1 - p = 0.8$. The odds of experiencing persistent poverty are calculated as the

quotient of these two mutually exclusive events. So, the odds in favour of experiencing persistent poverty to not experiencing persistent poverty, is therefore $0.2/0.8=0.25$. Suppose that 150 out of 300 people living in rented housing experience persistent poverty compared to 50 out of 150 who live in owner occupied housing. The odds of a person living in rented housing experiencing persistent poverty are $0.5/0.5=1.0$. The odds of a person living in owner-occupied housing of experiencing persistent poverty is $0.3333/0.6666=0.5$. The odds ratio of experiencing persistent poverty is the ratio of these odds, $1.0/0.5=2.0$. Thus the odds of experiencing persistent poverty are twice as high among people who live in rented housing (compared to people who live in owner occupied housing – the ‘reference category’).