noo

National Obesity Observatory

# Data sources:
## knowledge of and attitudes towards healthy eating and physical activity

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## Executive Summary

### Purpose and scope of the paper

This paper identifies and describes the main sources of national-level data on knowledge of and attitudes to healthy eating and physical activity in adults and children in England. The paper is intended to support the development and monitoring of public health policies and services related to diet, physical activity and obesity. Descriptions are provided for the available sources of data, the methods used for their collection and their limitations. The focus is on data that are systematically and regularly collected from the national population and are in the public domain. Brief descriptions are given of other potentially available datasets where information is available. The paper does not cover sources of regionally or locally generated data. A brief overview of behaviour change models is included in order to show why data relating to an individuals' knowledge and attitudes are important in public health and health promotion.

## Key sources of knowledge and attitudes data related to healthy eating and physical activity

### Adults:

- **Health Survey for England** – attitudes towards one's own weight; attitudes towards healthy eating; knowledge about healthy eating; knowledge about healthy physical activity levels; attitudes towards physical activity; self-efficacy in relation to physical activity.
- **National Diet and Nutrition Survey** – eating habits and patterns; attitudes towards one's eating habits; attitudes towards one's own physical activity levels; attitudes towards one's own weight; attitudes towards dieting.
- **Low Income Diet and Nutrition Survey** – attitudes towards organic foods, knowledge of, and competency in cooking; attitudes to appetite; attitudes towards variety of foods consumed; attitudes towards physical activity levels at work; weight status over time; attitudes to one's own weight status; influences on food choice; attitudes towards one's current diet; attitudes towards children's diet; knowledge of healthy eating; self-efficacy in relation eating healthily.
- **British Social Attitudes Survey** – attitudes towards eating and physical activity as a reliever of stress; attitudes towards taking part in games or sports; attitudes towards national culture relating to sport; attitudes towards individual responsibility and health; attitudes towards active transport.
- **Active People Survey** – satisfaction with sports provision; attitudes towards one's own levels of physical activity.
- **The Place Survey** – attitudes to provision of sport and leisure facilities and open space in local area; use of sport and leisure facilities.
- **Food Standards Agency Consumer Attitudes Survey** – attitudes towards importance of healthy eating; self-efficacy with regards to cooking; attitudes towards convenience foods; attitudes to eating healthily; attitudes to importance of healthy eating for children; knowledge of healthy eating; patterns of eating - including reduction and increase of consumption of certain

foods; understanding of food labels; attitudes towards food safety and hygiene; sources of information on healthy eating.

- **Sodexo School Food Survey** – parents' attitudes to food provided by school; parental concerns about children's diets; parental attitudes to physical activity; parents' motivation to exercise; parental opinion of own weight status; parental opinion of child's weight status.
- **Change 4 Life Tracking Survey** – attitudes to adopting a healthy lifestyle; attitudes to getting children to lead a healthy lifestyle including healthy eating and being active; attitudes towards overweight; knowledge of consequences of overweight; attitudes to changing physical activity and dietary habits; attitudes to changing physical activity and dietary habits of one's child; attitudes to breastfeeding; knowledge about healthy weaning.

**Children:**

- **Health Survey for England** – attitudes to one's own weight; attitudes towards healthy eating; knowledge about healthy eating; knowledge about healthy physical activity; attitudes towards physical activity; self-efficacy in relation to physical activity.
- **TellUs** – attitudes towards advice on healthy foods; attitudes towards how leisure time is spent; attitudes towards provision of sports and leisure activities in the local area.
- **Sodexo School Food Survey** - attitudes towards one's own diet; knowledge about healthy eating; motivation to eat healthily at school; healthy eating messages at school; attitudes to food provided in school; motivation to exercise outside school.
- **National Diet and Nutrition Survey** – eating habits and patterns; attitudes towards one's own eating habits; attitudes towards one's own physical activity levels; attitudes towards one's own weight; attitudes towards dieting.
- **Low income Diet and Nutrition Survey** – school meal entitlement, school provision of food and cooking lessons; competency, skill and self-efficacy in cooking at home, attitudes towards cooking at home.

## Introduction

Many lifestyle behaviours have major impacts on people's health. For example - smoking, eating an unhealthy diet and leading a sedentary lifestyle are all correlated with a number of diseases.

An individual's behaviour is influenced in part, by his or her knowledge of, and attitude towards the behaviour in question. Therefore, information on knowledge and attitudes is useful as it allows potential barriers to behaviour and behaviour change to be identified and interventions targeted appropriately. A number of theories from the disciplines of health psychology, sociology and social psychology have been proposed to explain behaviour, behaviour change and related concepts. An individual's knowledge of, beliefs about and attitudes towards a particular behaviour or behaviour change are central to many of these theories, and are key, potentially modifiable determinants.

## Behaviour Change Theories

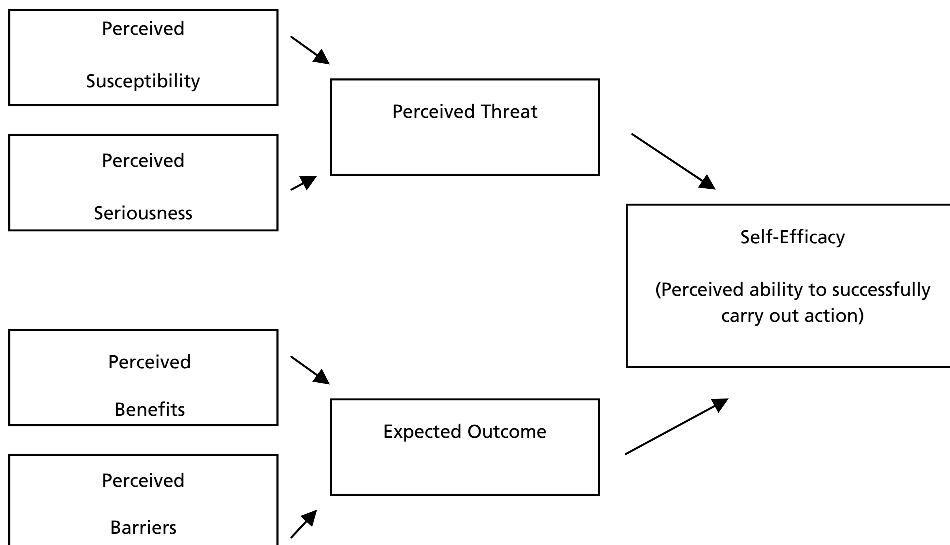
Key behaviour change theories relevant to public health are outlined below:

### The Health Belief model

The heath belief model[1] is based on the idea that an individual's beliefs and attitudes are of paramount importance in changing behaviour; that is in order for a change to take place the individual must first believe that change is both possible and beneficial. The underlying principle of this model is that the benefits of making a change to existing behaviour outweigh the perceived costs of making the change. The model proposes four types of belief as indicators to predict whether an individual will take action to protect or promote health, these are:

- Perceived susceptibility to the problem
- Perceived seriousness or consequences of the problem
- Perceived benefits of a specified action
- Perceived barriers to taking action

**Figure 1: The Health Belief Model**




Source: Adapted from Nutbeam and Harris (2004)

This model demonstrates the relationship between an individual's attitudes towards a particular set of behaviours or conditions, and their subsequent willingness or ability to make changes to improve or protect their health. For example, if a person does not consider their diet to be unhealthy they are unlikely to make any significant changes to it in order to improve their health, especially if they perceive barriers such as substituting food they like, for food they like less. It is therefore important to understand the attitudes and beliefs of individuals in order to successfully plan interventions to improve health, especially if a change in attitude is needed before behaviour change can take place.

One criticism of the health belief model is that it tends to treat behaviour change as discrete event rather than a process or sequence of events. Other theories, such as the stages of change model, consider change as a more dynamic process.

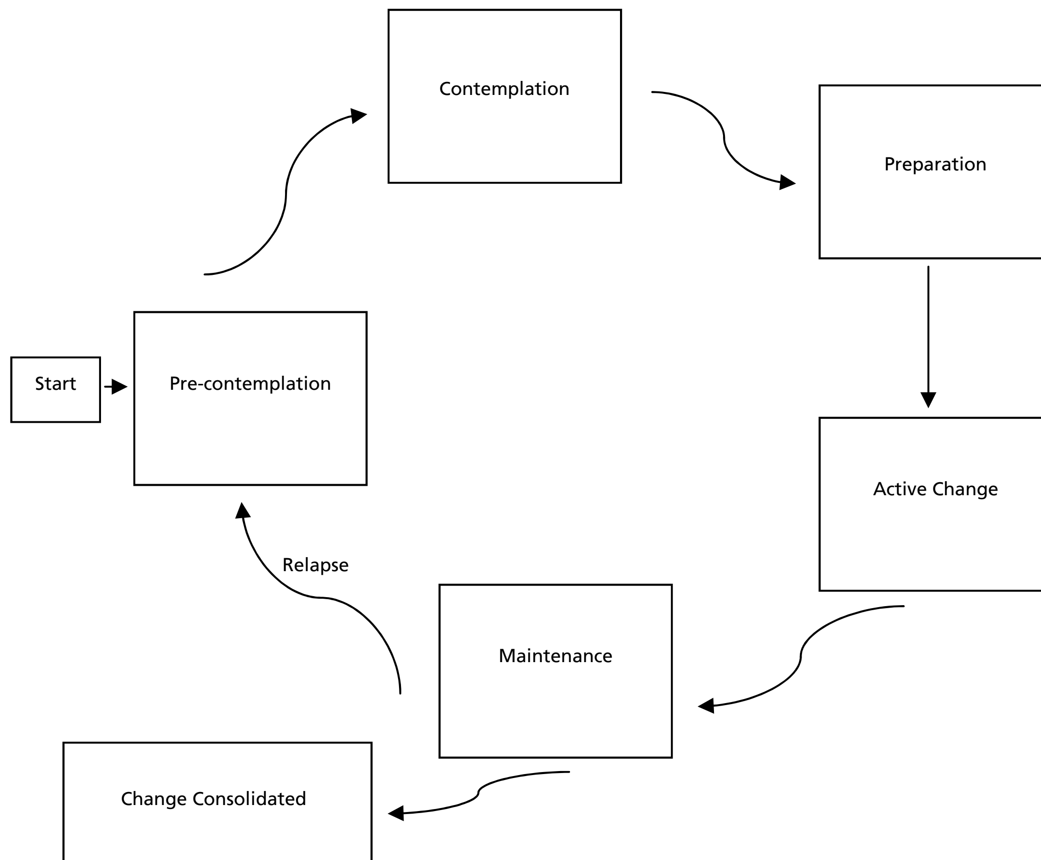
## The Stages of Change Model

The stages of change model[2] describes behaviour change as a process or series of events and identifies five stages of change:

- Pre-contemplation: individual is either not considering change or consciously intends to maintain behaviour;
- Contemplation: individual is considering making a change but is yet to take any action;
- Preparation (or determination): individual has made a definite decision to change and is making any necessary preparations such as buying healthier food;
- Action: individual changes behaviour;
- Maintenance: individual maintains the behaviour. From this stage an individual can either consolidate the change or relapse.

The stages of change model is circular, meaning that relapse does not necessarily mean failure, and an individual may move through the stages many times before successfully consolidating a change.

**Figure 2: The Stages of Change Model**




Source: Adapted from Prochaska and DiClemente (1984)

Although these two models of behaviour change have a different focus, they are not necessarily mutually exclusive. The ideas put forward in the health belief model are aligned with the first three stages of the stages of change model, and could potentially predict the likelihood that change would be consolidated.

These models offer an interesting insight into the process of behaviour change. They do not however, discuss the potential impact of external factors such as social influence, public health interventions or health education on individual behaviour.

## Social Cognitive Theory

Social cognitive theories offer a vehicle through which more abstract theories may be translated into something meaningful for use in public health and health promotion. Social cognitive theory[3] is central to health promotion theory as it addresses both the primary determinants of health behaviour as well as the ways in which behaviour change can be encouraged. It is helpful in that it highlights the relationship between an individual and their environment, and the importance of how people judge what is going on around them.[4] For example, the likelihood of an individual eating five

portions of fruit and vegetables per day will be influenced by the number of people around that individual who consider healthy eating to be important, and who are outspoken about this view. This phenomenon has been described as 'reciprocal determinism'[1] and is a description of how a person's behaviour and their environment interact - suggesting that public health interventions are less likely to change individual behaviour if they ignore the social and physical environment.

### Applying behaviour change theory to healthy eating and physical activity

There are numerous studies that have been conducted to identify determinants of healthy eating and physical activity applying the principles of behaviour change theories. A systematic review[5] of such studies identified social interaction and the building of social networks as important factors across all groups and ages, particularly among children, young people and older adults. Negative experiences of school sports lessons were found to present a significant barrier for individuals through to middle age, especially amongst girls and women. A lack of appropriate and realistic role models was also cited as a considerable barrier across all groups. One of the key messages of the review is that participation in physical activity is more heavily influenced by the perception of activities as enjoyable and providing social networks than any perceived health benefit.

Other studies have identified similar barriers to physical activity in relation to the physical environment and argue that surroundings which are perceived as unpleasant or unsafe act as a deterrent to physical activity.[6] A major theme is that if an activity is perceived as not being enjoyable it will be avoided if possible. The impact of the views of others on behaviour is also a major fact. People tend to conform or engage in behaviour which is valued by their peers whenever possible.

Self-efficacy is another important component of behaviour change theory and a determinant in motivation to change eating behaviour[7] and physical activity levels. Some studies have suggested that self-efficacy - an individual's belief that they are capable of change - is the most important factor in changing behaviour. Actual knowledge and skills are needed for self-efficacy, therefore motivational education techniques may be key to creating lasting behaviour change. The theory also cites the importance of the perceived value or benefits of behaviour change which is consistent with the Health Belief model of behaviour change.

A review[8] looking at psychological interventions for overweight or obesity concured with theories of behaviour change and advocates an individual approach to weight management. The paper presented a review of available research evidence from randomised controlled trials where a psychological weight management intervention was compared with other types of intervention. The review concluded that behavioural and cognitive behavioural therapies make a significant difference to the success of weight management interventions especially when combined with diet and physical activity.

Guidance for behaviour change interventions, including those to challenge overweight and obesity has been produced by the National Institute for Health and Clinical Excellence.[9] This guidance advocates a holistic approach to behaviour change which takes in to account individual needs. It describes a stepped approach to building behaviour change interventions including planning and design, delivery and evaluation and discusses how interventions may be tailored to specific populations.

These theories of behaviour change have also contributed to the development of social marketing as a tool for promoting health. Social marketing[10] applies the principles of social science and those used in commercial marketing and sales to understand and communicate information about health related behaviours in a bid to influence change.

These theories of behaviour change highlight the importance of examining knowledge and attitudes in order to develop interventions in an attempt to facilitate or prevent behaviour change. The purpose of this report therefore is to examine the available data sources to identify the data available regarding attitudes to and knowledge of healthy eating and physical activity.

## Sources of data

A summary of the main data sources providing information on attitudes and knowledge about healthy eating, physical activity and weight status is provided below and in Table 1. Details of the specific questions asked by the surveys are detailed in a supplement (available as a separate electronic document).

### Health Survey for England

The Health Survey for England (HSE)[11] is an annual survey designed to measure health and health related behaviours in adults and children living in private households in England. It has been undertaken since 1991. In recent years sample sizes have typically been around 16,000 adults and 4,000 children. The survey consists of an interview for all participants, with an additional nurse visit for a sub-sample of the survey population. The HSE sample size is currently not sufficiently robust to enable analyses of data at geographical boundaries smaller than Strategic Health Authority, although larger sample sizes can be achieved to permit lower level analysis by aggregating several years data.

The HSE is modular but has a number of core elements which are included each year. Since 2001 these have included a number of dietary recall questions relating to fruit and vegetable consumption in the previous 24 hours. The 2007 HSE had a focus on healthy lifestyles and collected data on knowledge, attitudes and behaviour, which provided a significant amount of information which is relevant here. The total sample size for the 2007 survey was 14,386 of which 7,504 were children aged 0-15 (due to a boosted sample of children). These data are reported at regional level although numbers are relatively small and not suitable for further sub-group analyses. 2007 is the only year in which specific questions relating to attitudes towards healthy eating and physical activity have been asked, meaning that the data source cannot be used for surveillance of changing attitudes over time. The Health Survey for England is currently undergoing review and will become the Health and Social Care Survey in 2011. Questions on attitudes and knowledge are not part of the annual core dataset.

### National Diet and Nutrition Survey

The National Diet and Nutrition Survey (NDNS)[12] was established in 1992 by then Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Health (DH). It is currently jointly funded and managed by the Food Standards Agency (FSA), with a contribution from the DH. The NDNS was originally set up as a series of cross-sectional

surveys of diet and nutritional status of the population. The surveys have been split into four age groups: pre-school children in 1992 to 1993; older adults in 1994 to 1995; school-age children in 1997 and adults from 2000 to 2001. One survey was carried out every two to three years. Data on consumption by individuals were gathered using a weighed intake dietary record for four to seven days.

In April 2008, the NDNS changed to a rolling programme with data collected annually from approximately 500 adults and 500 children (older than 18 months old). The survey sample is designed to be representative of the UK population. Sample boosts have been carried out in Scotland, Wales and Northern Ireland. There is scope for boosts in other population groups or add-on studies.

The NDNS asks a series of questions relating to attitudes towards eating and exercise, specifically exploring motivation to eat healthy or unhealthy foods and the extent to which this is emotionally motivated.

### Active People Survey

The Active People Survey[13] is conducted by Sport England and aims to measure adult's participation in sport and physical activity at population level. This also includes questions relating to how people feel about the amount of exercise they do and what they think of sports facilities in their area.

The first Active People Survey was conducted between October 2005 and October 2006 and used telephone interviewing of 363,724 across England, approximately 1,000 in each local authority in England.

The Active People Survey has since run annually, however the total sample size has been halved to 500 per local authority (180,000 in total) with an opportunity for local authorities to fund boost samples for their own area. This opportunity was taken up by 14 local authorities in the 2007/08 survey.

### The Place Survey

The Place Survey[14] is conducted biennially between September and December and seeks to explore adult's attitudes towards their local area, including access to health services and sports facilities. The survey developed from the Best Value Performance Indicator Survey which was first carried out in 2001. The surveys contain the same core questions nationally, although local authorities were able to add further questions from a central bank for use in their own locality. The Place Survey must be conducted by every local authority biennially, although individual local authorities may undertake it on an annual basis if they choose.

The Place Survey was completed by a sample of 543,713 nationally, however sample sizes varied between local authorities. Measures were put in place to protect the quality of the data due to the surveys being carried out by local authorities independently, including guidance on sampling method and the use of an appropriate sampling frame. In addition to this results were submitted centrally using standardised tools.

### TellUs Survey

TellUs[15] is a series of annual online surveys to gather quantitative information on the views and experiences of children and young people. It is carried out by Ipsos MORI. The surveys have been running since 2006 and are intended to provide evidence for the National Indicators for local authorities and local authority partnerships. The survey aims to help local authorities judge the impact of their services on perceived quality of life for children and young people. Children are asked attitude questions on their perceptions of the information and advice they get on eating healthy food and also questions relevant to physical activity such as their view on and use of local playgrounds.

TellUs is completed by a sample of children in all local authority areas across England. Pupils usually complete questionnaires on-line via a dedicated website. Other completion methods are also available for children with particular needs. The sample size is calculated with a view to obtaining a sufficient number of responses to allow robust analysis at local area level. Sampling mechanisms take account of different types and sizes of schools together with socio-economic factors. The sample includes maintained schools, pupil referral units, academies and city technology colleges. Data are collected at school level, and aggregated up to local authority level.

### Food Standards Agency Consumer Attitudes Survey

The Foods Standards Agency (FSA)[16] conducted the first Consumer Attitudes Survey in 2000. Since then it has been run annually, with the exception of 2008 when it was reviewed. The survey includes questions exploring attitudes to food safety as well as towards cooking and healthy eating.

The latest data from 2007 was collected using face-to-face interviews in participants' homes. The total sample of 2,627 adults was stratified across England, Scotland, Wales and Northern Ireland making the data robust at country level.

### Low Income Diet and Nutrition Survey

The Low-Income Diet and Nutrition Survey (LIDNS)[17] was commissioned by the FSA to provide nationally-representative evidence on food and nutrient intakes, sources of nutrients and nutritional status of people on low income. An additional aim was to examine the relationship between dietary intake and factors associated with food choice in low income populations. The survey was carried out by a consortium of three organisations led by the Health Research Group at the National Centre for Social Research (NatCen).

The survey aimed to study a representative sample of the 15% of the most materially deprived populations within the UK. A total of 3,728 people from 2,477 households were included in the survey which took place between November 2003 and January 2005. The survey included adults (aged 19 and above) and children (aged 2- 18). Information was collected via face-to-face interview and self-completion questionnaire and included environmental, economic and social factors. The LIDNS also gives information regarding how able people feel to cook or prepare food for themselves and the impact this has on food choices.

### British Social Attitudes Survey

The British Social Attitudes Survey[18] has been conducted annually since 1983 with the exceptions of 1988 and 1992 when funding was diverted to the British Election Study (BES) following general elections. In 1997 a scaled down version was conducted alongside the BES. The central aim of the British Social Attitudes Survey is, as the name suggests, to examine attitudes towards various social, economic, political and moral issues, including questions relating to attitudes towards sporting activities and physically active modes of transport.

The National Centre for Social Research holds primary responsibility for the British Social Attitudes Survey and use a combination of face to face interviews and self-completion questionnaire to collect data. A multi-stage stratified random sample of British adults (over 18) is conducted using the postcode address file (PAF), the total sample in 2007 being 4,124.

### Sodexho School Food Survey

Sodexho[19] is a private sector company providing various food services including school meals. In 1990 they began carrying out surveys on the types of food school children ate as well as their preferences and attitudes towards food and nutrition. The latest available survey data are from the 2005 survey. In addition to the core survey, it included extra questions on intake of fruit and vegetables and water consumption. No information is available in the report on the size or demographics of the sample.

## Datasets not Currently in the Public Domain

### Change4Life Tracking Survey

Change4Life[20] is a national initiative aimed at improving the health of the population in England by promoting healthy eating and physical activity as a lifestyle change rather than a short term intervention. A tracking survey began in November 2008 and has been carried out continuously since this time (with regular updates/additions) to monitor the progress of the programme and detect any changes in attitudes or behaviours which may be attributable to it.

### Healthy Foundations

The Department of Health was recently completed Healthy Foundations life-stage segmentation work aimed at providing an understanding of motivations for health related behaviours. The survey was undertaken with a total of 5380 people aged 12-74 in England, 452 of who were aged 12-15. Unfortunately no further information on the data set is available at this time.

### Commercial datasets

Commercial datasets holding similar types of data to that which are publicly available are held by various companies such as CACI, Experian and Mintel. Some commercial

datasets have been used by public bodies for population segmentation.[a] Sport England have for example combined data from the Active People Survey and MOSAIC modelled profiles from Experian. Further details of these datasets have not been included in this report as there is a charge to access this data.

TGI is an international private sector company which undertakes bespoke surveys and provide data.  TGI surveys collect information on many different aspects of their respondents, including product and brand use as well as leisure activities, use of services, media exposure and preferences, attitudes and motivations and demographics. All TGI data are weighted to match known demographic profiles, and follow standard guidelines. The coverage provided by TGI is included in the question breakdown in a supplement (available as a separate electronic document), information relating to this source has however been omitted from the breakdown in Table 1 due to the fact that there are no data available in the public domain.

Table 1 provides a summary of the key information from each of the data sets as well as an indication of the topic coverage. A detailed breakdown of the questions asked by each source is provided in a supplement (available as a separate electronic document).

[a] The term segmentation in this context refers to a process of identifying a target audience and locating sub-groups within the sample which are of particular interest.  This could refer to demographic or epidemiological mapping and is useful in identifying areas of need for specific interventions.

**Table 1 Summary of Data Sources and Methods of Data Collection**

| | | | | | | | Type of data covered** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data source** | **Frequency of Data Collection** | **Year of first data collection** | **Year of latest data reporting** | **Total Sample*** | **Adult Sample*** | **Child Sample*** | **1** | **2** | **3** | **4** | **5** |
| Health Survey for England | Annual | 2007 (food and activity module) | 2008 (however 2007 was last year for attitudes data) | 14,386 | 6,882 | 7,504 | ✓ | ✓ | ✓ | ✓ | ✓ |
| National Diet and Nutrition Survey | Annual | 1992 | 2008 | 1000 (approx) | 500 (approx) | 500 (approx) | | ✓ | ✓ | ✓ | |
| Active People Survey | Annual | 2005/06 | 2009 | 180,000 | 180,000 | 0 | | | | ✓ | |
| The Place Survey | Biennial | 2008 | 2008 | 543,713 nationally (varied numbers by local authorities) | 543,713 | 0 | | | | ✓ | |
| TellUs Survey | Annual | 2006 | 2009 | 253,755 | 0 | 253,755 | ✓ | | | ✓ | |
| FSA Consumer Attitudes Survey | Annual | 2000 | 2007 | 2,627 | 2,627 | 0 | ✓ | ✓ | ✓ | ✓ | |
| Low Income Diet and Nutrition Survey | One off collection | 2005 | 2005 | 3,728 | NA | NA | ✓ | ✓ | ✓ | ✓ | |
| British Social Attitudes Questionnaire | Annual | 1983 | 2007 | 4,124 | 4,124 | 0 | | | ✓ | ✓ | |
| Sodexho School Food Survey | Biennial | 1990 | 2005 | 2775 | 1351 | 1424 | ✓ | ✓ | ✓ | ✓ | |
| Change4Life Tracking Survey | Continuous | Nov 2008 | 2010 | | unknown | Unknown | ✓ | | ✓ | ✓ | |

NA = Information not available

*Sample size based on most recent available data

**See key below for description of data types

### Data Type

Questionnaires include one or more questions relating to:

1. Individuals attitudes towards the practice of healthy eating, views on their own diet, barriers to healthy eating and enjoyment of food
2. Individuals knowledge of what constitutes a healthy diet, knowledge of cooking techniques and responsibility for shopping and cooking
3. Individuals attitudes towards weight, dieting for weight loss, body image and emotional motivation to eat
4. Individuals attitudes towards their own participation in physical activity, willingness to participate and access to facilities
5. Individuals knowledge of recommended physical activity levels

## Discussion

There are many national surveys that gather information on knowledge of, and attitudes towards healthy eating, physical activity weight management and weight status. The types of data collected vary greatly from survey to survey.

It is apparent that few surveys ask detailed questions regarding motivators and barriers to healthy eating and physical activity. It may however be possible to synthesise a picture of attitudes and knowledge from the various data sources described, and to gain some idea of how these attitudes may change over time. It is important to consider the differing methodologies of the various surveys – each data set should be analysed individually in the first instance, and the results compared where possible. This exercise should also provide a foundation from which gaps in the data may be accurately identified and addressed.

Many of the data in this area are collected annually or biennially, so some trends could potentially be identified. The collection of data over time may also be useful in assessing the effectiveness of national public health programmes that address healthy eating and physical activity. Collecting data on knowledge and attitudes is useful for a number of reasons, primarily because it allows barriers to behaviour change to be identified and interventions targeted appropriately.

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## Reader Information

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