

Announcement of methodological change

**Health Survey for England: Impact of
changing how we measure height, weight
and body mass index**

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Summary

This section briefly outlines key differences that have been made to the measurement of height, weight, and body mass index between the 2019 and the 2021 editions of the Health Survey for England publication series.

What has changed?

The usual Health Survey for England data collection methodology was adapted in 2021 to reflect restrictions caused by the COVID-19 pandemic and the sensitivities of potential participants. The main change was that interviews were carried out by telephone, rather than in person to reduce contact between participants and interviewers. Estimates of height and weight were based on self-reported rather than in-home measurement, as in all previous Health Survey for England survey years.

The household response rate in 2021 was markedly lower than was usual, e.g. in 2019, 60% of eligible households participated.

Full details of the differences between the 2021 survey and previous years, and information on household and individual response to the survey, can be found in the Methods report which accompanies the 2021 edition of the Health Survey for England publication series: [Health Survey for England, 2021 - NHS Digital](#)

What is the effect of this change?

Because of these differences, findings from 2021 are not directly comparable with those from previous years. Past trends are discussed in the text and shown in the tables of the 2021 edition of this publication series. However, any apparent differences or similarities between these and 2021 estimates may be influenced by how the surveys were carried out, so caution is advised if making inferences about changes in 2021.

Background

This section provides information on what we collect in the Health Survey for England, how it is used to measure height, weight and body mass index, and the impact of the COVID-19 pandemic on the survey series.

Health Survey for England

The Health Survey for England monitors trends in the nation's health and care, providing information about adults aged 16 and over, and children aged 0 to 15, living in private households in England. It estimates the proportion of people in England who have health conditions and the prevalence of risk factors and behaviours associated with certain health conditions and how prevalence varies within the population. Each survey includes core questions (e.g., about smoking, alcohol, general health); measurements such as height, weight, and blood pressure; and analysis of blood and saliva samples. In addition, there are question modules on specific topics that vary from year to year.

Measuring height, weight, and body mass index

The Health Survey for England is the main data source for monitoring overweight and obesity in the general population in England. Height and weight have been directly measured during the interviewer visit in each year of the Health Survey for England series, and these values are used to calculate body mass index (BMI).

Impact of the COVID-19 pandemic

Due to the COVID-19 pandemic the Health Survey for England 2020 survey was stopped in March 2020 and unfortunately never re-started. There was no publication for Health Survey for England 2020.

Health Survey for England 2021 Fieldwork (i.e., data collection) restarted in January 2021 with participants being offered a telephone interview or video interview rather than in-home interviewing. In-home nurse visits re-started in October 2021 and ran until June 2022.

Description of changes

This section describes changes to the survey fieldwork procedures on the collection of height and weight measurements.

Summary of changes between the Health Survey for England in 2019 and 2021

The table below summarises the elements of the Health Survey for England and differences between 2019, which was a typical survey year, and 2021, where many changes were made to adapt to the Covid-19 pandemic.

	2019	2021
Fieldwork dates	January 2019 to March 2020	January 2021 to June 2022
Recruitment method	Doorstep recruitment	Invitation by letter to opt in (Jan-Mar 21) Doorstep recruitment (April 21-Mar 22)
Interview Mode	Face-to-face	Telephone Video (trials in Jan-April 21 but uptake was low)
Nurse Mode	Face-to-face up to 6 weeks after interviewer stage	Face-to-face from October 2021 to June 2022 (longer gap between stages)
Methodology	Computer-Assisted Personal Interviewing (CAPI) Paper self-completions completed during interview	CAPI via telephone Paper self-completions completed after interview and posted back
Measurements	Height and weight measurements taken by interviewer	Height and weight measurements taken by nurse Self-reported height and weight asked at interview

The household response rate in 2021 was markedly lower than was usual, e.g. in 2019, 60% of eligible households participated. Fieldwork time was extended to increase the numbers participating.

Changes to the measurement of height and weight

Interviewer-measured height and weight

Findings within previous editions of the Health Survey for England publication series (2019 and earlier) are based on interviewer-measured height and weight.

Height was measured using a portable stadiometer with a sliding head plate, a base plate and connecting rods marked with a measuring scale. Participants were asked to remove their shoes. One measurement was taken, with the participant stretching to the maximum height and the head positioned in the Frankfort plane. The reading was recorded to the nearest millimetre. Participants who were pregnant, unable to stand or were unsteady on their feet were not measured.

For the weight measurement, participants were asked to remove their shoes and any bulky clothing. A single measurement was recorded to the nearest 100g. Participants who were pregnant, unable to stand, or unsteady on their feet were not weighed. Participants who weighed more than 200kg were asked for their estimated weight because the scales are inaccurate above this level. No adjustment was made for the weight of clothing.

Self-reported height and weight

Findings within the 2021 edition are based on self-reported height and weight.

Participants were asked to report how tall they were without shoes, and how much they weighed without clothes or shoes. Participants could give measurements in either imperial or metric units, and these were converted to metric units if necessary (metres for height, kilograms for weight). If the participant did not know their height and/or weight or they were unwilling to provide the information, the interviewer recorded this.

Body mass index (BMI)

To define overweight or obesity, a measurement is required that allows for differences in weight due to height. A widely accepted measure of weight for height, BMI, defined as weight in kilograms divided by the square of the height in metres (kg/m^2), is used for this purpose in the Health Survey for England series.

Estimating overweight and obesity in 2021

Adults typically overestimate height and underestimate weight compared with measured values. The prevalence of obesity using BMI would be underestimated if based only on self-reported height and weight.

The estimates of overweight and obesity for HSE 2021 were produced by applying adjustments to self-reported values of height and weight in order to more accurately predict measured height and weight. The adjustments are described within the methodology study [Health Survey for England predicting height, weight and body mass index from self-reported data](#).

Impact

This section describes the impact of these changes on how you can interpret statistics within the Health Survey for England publication series.

Epidemiological studies that have explored differences between self-reported and measured height and weight have shown that self-report measures introduce an element of bias (reporting bias). Adults, on average, overestimate height and underestimate weight compared with measured values.

Analysis has been completed using data from the Health Survey for England from 2011 to 2016, in which years both self-reported and interviewer-measured heights and weights were available. The findings of this analysis were consistent with previous studies. The gap between self-reported and interviewer-measured values was greater for height among men and for weight among women. Other factors associated with underestimation of weight included socioeconomic status and ethnicity.

The estimates of overweight and obesity for HSE 2021 used adjustments to self-reported values of height and weight in order to more accurately predict measured height and weight. These were based on the HSE 2011-16 data, and it is possible that these might not be entirely applicable to the more recent data if, for example, misreporting of weight has increased in recent years.

Additionally, the reduced household response rate in 2021 was markedly lower compared with 2019, increasing the potential impact of non-response bias on the findings from the 2021 survey.

Because of these changes, findings from 2021 are not directly comparable with those from previous years.

Past trends are discussed in the text and shown in the tables of the 2021 edition of this publication series. However, any apparent differences or similarities between these and 2021 estimates may be influenced by how the surveys were carried out, so caution is advised if making inferences about changes in 2021.

Further information

This section signposts to places where you can find more information about the changes discussed in this document.

[Health Survey for England, 2021 - NHS Digital](#) in the Methods report and in the overweight and obesity chapter

[Health Survey for England predicting height, weight, and body mass index from self-reported data](#)

[The Health Survey for England 2020-21 feasibility study](#)

[Health Survey for England - Health, social care and lifestyles - NHS Digital](#)