

Statistical bulletin

Changes in self-reported health between Census 2011 and Census 2021, England and Wales: December 2024

Findings from an analysis of changes in self-reported health between 2011 and 2021 in England and Wales by demographic and socioeconomic characteristics.

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1 . Main points

- The percentage of people who reported being in "very good" or "good" (hereafter: good) health increased by 1.0 percentage point in England and by 1.3 percentage points in Wales over the 10 years between Census 2011 and Census 2021.
- The percentage of people in self-reported good health increased despite an ageing of the population; our analysis suggests that an overall decline in the percentage in good health between 2011 and 2021 (a projected decrease of 1.2 percentage points in England and 1.7 percentage points in Wales) might have been expected based on changes in the population structure.
- Improvement in self-reported good health between the two census dates occurred within some, though not all, sociodemographic groups (contributing to a 2% increase in England and a 3% increase in in Wales); this was primarily caused by improvements in self-reported health at older ages.
- In 2011, adults in England aged between 70 and 74 years were 85% less likely to report being in good health than those aged between 35 and 39 years (81% less likely in Wales); these figures were 78% and 71% less likely for England and Wales, respectively, in 2021.
- Although the prevalence of self-reported good health was highest among young adults in both 2011 and 2021, the relative difference in the likelihood of being in good health for people in this age group, compared with those in older age groups, decreased between the two census dates.
- In England in 2011, those aged between 16 and 19 years were 3.4 times more likely to report being in good health than those aged between 35 and 39 years (3.8 times more likely in Wales); these figures were 2.4 and 2.7 times more likely for England and Wales, respectively, in 2021.
- Between 2011 and 2021, there was very little change in the association between self-reported good health and other sociodemographic characteristics, including sex, ethnic group, relative area deprivation, England regions, housing tenure, household composition and unpaid care status.

2 . Data on changes in self-reported health between Census 2011 and Census 2021, England and Wales

[Changes in self-reported health between Census 2011 and Census 2021, England and Wales](#)

Dataset | Released 9 December 2024

Decomposition analysis of changes in self-reported health between 2011 and 2021, including counts, crude rates and results from logistic regression models.

3 . Glossary

Census

Data were collected on self-reported health status and other demographic and socioeconomic characteristics (age, sex, ethnicity, relative area deprivation, regions in England, housing tenure, household composition and unpaid care status) from the population of England and Wales on Census Day (27 March 2011 and 21 March 2021).

Health status

Health status was derived from the general health question in the Census: "How is your health in general?". This analysis grouped responses "very good" and "good health" as "good health". The remaining responses include "fair", "bad", or "very bad" and were grouped together as "not good health".

Logistic regression

Logistic regression is a statistical modelling technique for quantifying the strength of association between the occurrence of an outcome, such as being in good health, and a set of characteristics. The model can be used to understand the independent relationship between health, and demographic and socioeconomic characteristics while "adjusting" or "controlling" for other characteristics.

Odds

Odds provide a measure of the likelihood of an outcome (for example, being in good health). Odds are calculated as the ratio of people who reported being in good health to those who reported being in not good health.

Threefold decomposition

Threefold decomposition breaks down the difference in the mean percentage reporting good health in Census 2011 and Census 2021 into an amount which is attributable to baseline population changes and an amount attributable to changes in the effect size of the variables used in the model.

Twofold decomposition

The twofold decomposition presents the difference in the mean percentage reporting good health in Census 2011 and in Census 2021 by an amount that is explained by differences in the baseline characteristics and a remaining amount that is unexplained by these differences.

4 . Data sources and quality

Data

Data from Census 2011 and Census 2021 were used in these analyses. To fit statistical models to our data, we derived a random sample of 1% of residents in England and 10% of residents in Wales at both census time points. Our sample included:

- those with usual resident status
- those aged 16 years and over
- those not living in a communal establishment

Health status was derived from the self-reported health question in the census. Demographic and socioeconomic variables were also derived from census data. Deprivation status was derived for England residents using the English Index of Deprivation (IMD). For Wales residents we used the Welsh Index of Deprivation (WIMD).

Methods

We used the [Blinder-Oaxaca decomposition \(PDF, 135KB\)](#) to break down changes in self-reported health over time attributable to:

- changes in the baseline sociodemographic characteristics
- changes in the association between sociodemographic characteristics and self-reported health

This method has previously been used by the Office for National Statistics (ONS) in our [Health, demographic and labour market influences on economic inactivity article](#). The method can also be applied to [longitudinal analysis of a population over time](#).

The results are presented as a threefold and twofold decomposition to give users a broader comparison of how demographic and socioeconomic change are associated with changes in health in England and Wales.

We used the [oaxaca package \(PDF, 106KB\)](#) in R to produce linear regression models, calculate bootstrapped standard errors for estimates, and produce tables to present the decomposition results.

We modelled the odds of being in good health according to a range of demographic and socioeconomic characteristics using logistic regression. The models were stratified by country (England or Wales) and census year (2011 or 2021).

Strengths and limitations

Strengths

A strength of using population-level data is its representativeness: Census 2011 and 2021 were estimated to cover 94% and 97% of the usually resident populations of England and Wales, respectively. The use of very large datasets reduced the level of statistical uncertainty around our estimates. We analysed responses to questions that were asked across both censuses and we were therefore able to compare change in the responses to these questions over time.

A strength of decomposition analysis is that it allows us to standardise the differences in health by multiple demographic and socioeconomic factors, and to break them down into components of the change in health.

Limitations

Census 2021 was undertaken during the coronavirus (COVID-19) pandemic, which may have influenced how people perceived their health conditions or illnesses in relation to their self-reported health status compared with Census 2011.

Our analysis did not link individual respondents across both Census time-points, and we are therefore unable to identify changes in health at an individual level in this analysis.

Our analysis was limited to sociodemographic variables that are available for Census 2011 and 2021. For this reason, some additional factors that may influence health (for example, health-related behaviours) were not included.

Decomposition analysis is descriptive and cannot be used to imply causal relationships or interpret the underlying mechanisms of health. Therefore, we are unable to determine whether the components of change identified in our analysis are causing changes in self-reported health directly.

Collaboration

This analysis was funded by and conducted in collaboration with The Health Foundation.

5 . Related links

[General health by age, sex and deprivation, England and Wales: Census 2021](#)

Article | Released 24 February 2023

Insights into general health in England and Wales in 2021, broken down by age and sex and presented at country, regional and local authority level. Additional analyses compare general health with the 2011 Census and examine the relationship between deprivation and health at a national decile (England) or quintile (Wales) level.

[Blinder-Oaxaca Decomposition in R](#)

Article

This article introduces the R package `oaxaca`, which performs the Blinder-Oaxaca decomposition, a statistical method that decomposes the gap in mean outcomes across two groups into a portion that is due to differences in group characteristics, and one portion that cannot be explained by such differences.

6 . Cite this statistical bulletin

Office for National Statistics (ONS), released 9 December 2024, ONS website, statistical bulletin, [Changes in health between Census 2011 and Census 2021, England and Wales: December 2024](#)