Office for National Statistics

Statistical bulletin

Health state life expectancies, UK: 2018 to 2020

The number of years people are expected to spend in different health states in constituent countries and local areas of the UK.

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1 . Main Points

- Healthy life expectancy (HLE) at birth in the UK showed no significant change between 2015 to 2017 and 2018 to 2020.

- In Scotland, there was a statistically significant decrease of more than a year in male HLE at birth between 2015 to 2017 and 2018 to 2020; other constituent countries of the UK saw no significant change.

- For females at age 65 years, HLE in the UK and England increased significantly by 4.8 months between 2015 to 2017 and 2018 to 2020.

- Disability-free life expectancy (DFLE) at birth in the UK decreased significantly for both males and females between 2015 to 2017 and 2018 to 2020; this change was driven by decreases in England and Scotland.

- DFLE at age 65 years showed no significant change in the UK and its constituent countries between 2015 to 2017 and 2018 to 2020.

The estimates in this publication relate to the period 2018 to 2020 and therefore include mortality and health state prevalence data collected in 2020 during the coronavirus (COVID-19) pandemic.

Table 1: Healthy life expectancy (HLE) at birth estimates, UK, constituent countries and English regions, 2018 to 2020

	Males			Females		
	HLE at birth in 2018 to 2020 (years)	Change since 2015 to 2017		HLE at birth in 2018 to 2020 (years)	Change since 2015 to 2017	
		Years	Months		Years	Months
UK	62.8	-0.3	-3.6	63.6	0.0	0.0
England	63.1	-0.2	-2.4	63.9	0.1	1.2
North East	59.1	-0.4	-4.8	59.7	-0.7	-8.4
North West	61.5	0.3	3.6	62.4	0.2	2.4
Yorkshire and the Humber	61.1	-0.6	-7.2	62.1	0.5	6.0
East Midlands	62.0	-0.8	-9.6	61.8	-0.3	-3.6
West Midlands	61.9	-0.2	-2.4	62.6	-0.2	-2.4
East of England	64.6	0.5	6.0	65.0	0.4	4.8
London	63.8	-0.1	-1.2	65.0	0.4	4.8
South East	65.5	-0.6	-7.2	65.9	-0.2	-2.4
South West	64.7	0	0.0	65.5	0.4	4.8
Wales	61.5	0	0.0	62.4	0.3	3.6
Scotland	60.9	* -1.4	-16.8	61.8	-0.9	-10.8
Northern Ireland	61.5	0.3	3.6	62.7	-0.1	-1.2

Source: Office for National Statistics

Notes

1. * denotes countries where HLE has changed significantly either positively or negatively from 2015 to 2017 based on non-overlapping confidence intervals.

2. Change in HLE in months was calculated by multiplying the change in HLE at birth between 2015 to 2017 and 2018 to 2020 by 12.

Table 2: Disability-free life expectancy (DFLE) at birth estimates, UK, constituent countries and English regions, 2018 to 2020

	Males			Females		
	DFLE at birth in 2018 to 2020 (years)	Change since 2015 to 2017		DFLE at birth in 2018 to 2020 (years)	Change since 2015 to 2017	
		Years	Months		Years	Months
UK	62.0	* -0.8	-9.6	60.7	* -1.2	-14.4
England	62.4	* -0.7	-8.4	60.9	* -1.2	-14.4
North East	56.9	* -2.4	-28.8	56.3	* -3.0	-36.0
North West	60.2	-0.2	-2.4	59.1	* -1.1	-13.2
Yorkshire and the Humber	60.0	* -1.3	-15.6	58.5	* -1.9	-22.8
East Midlands	62.0	-0.5	-6.0	60.0	-0.7	-8.4
West Midlands	61.6	-0.9	-10.8	59.9	* -2.1	-25.2
East of England	64.3	0.3	3.6	61.9	-1.0	-12.0
London	64.4	-0.5	-6.0	63.3	-0.6	-7.2
South East	64.3	* -1.0	-12	63.0	-1.0	-12.0
South West	62.6	-0.9	-10.8	61.0	* -1.3	-15.6
Wales	59.4	-0.5	-6.0	59.0	-0.5	-6.0
Scotland	60.3	* -1.1	-13.2	59.5	* -1.7	-20.4
Northern Ireland	60.7	-0.4	-4.8	61.5	-0.2	-2.4

Source: Office for National Statistics

Notes

1. * denotes countries where DFLE has changed significantly either positively or negatively from 2015 to 2017 based on non-overlapping confidence intervals.

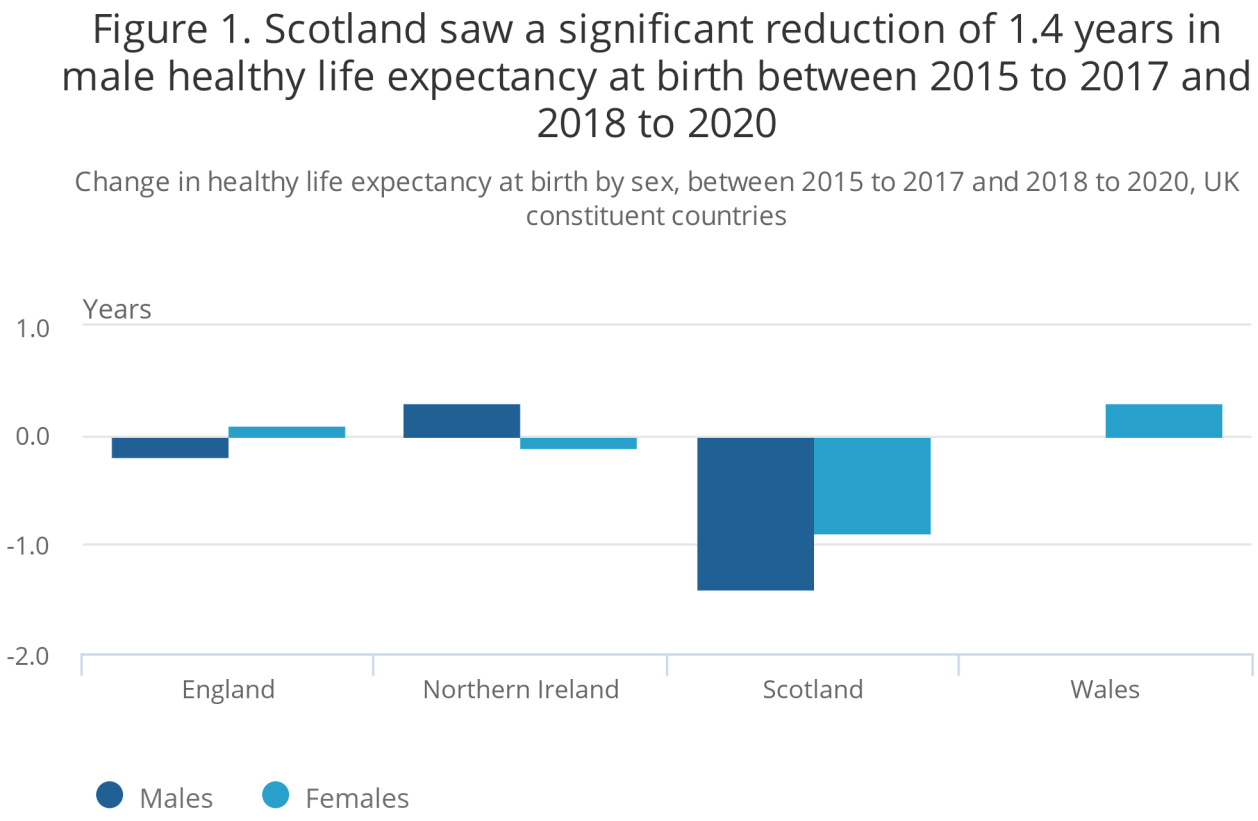
2. Change in DFLE in months was calculated by multiplying the change in DFLE at birth between 2015 to 2017 and 2018 to 2020 by 12.

2 . Healthy life expectancy in the UK

Across the UK, Scotland saw the most notable change in healthy life expectancy (HLE) (Figure 1).

Figure 1. Scotland saw a significant reduction of 1.4 years in male healthy life expectancy at birth between 2015 to 2017 and 2018 to 2020

Change in healthy life expectancy at birth by sex, between 2015 to 2017 and 2018 to 2020, UK constituent countries



Source: Office for National Statistics

Notes:

1. 0 on the Y axis represents no change in HLE.

This is the first time that we have seen a significant decrease in HLE for males in Scotland since 2011 to 2013. There was an increase in HLE for males in Northern Ireland (0.3 years) between 2015 to 2017 and 2018 to 2020, but it was not statistically significant. Increases in female HLE at birth in Wales (0.3 years) and England (0.1 years) were also not statistically significant.

Changes in healthy life expectancy (HLE) at all ages in relation to life expectancy

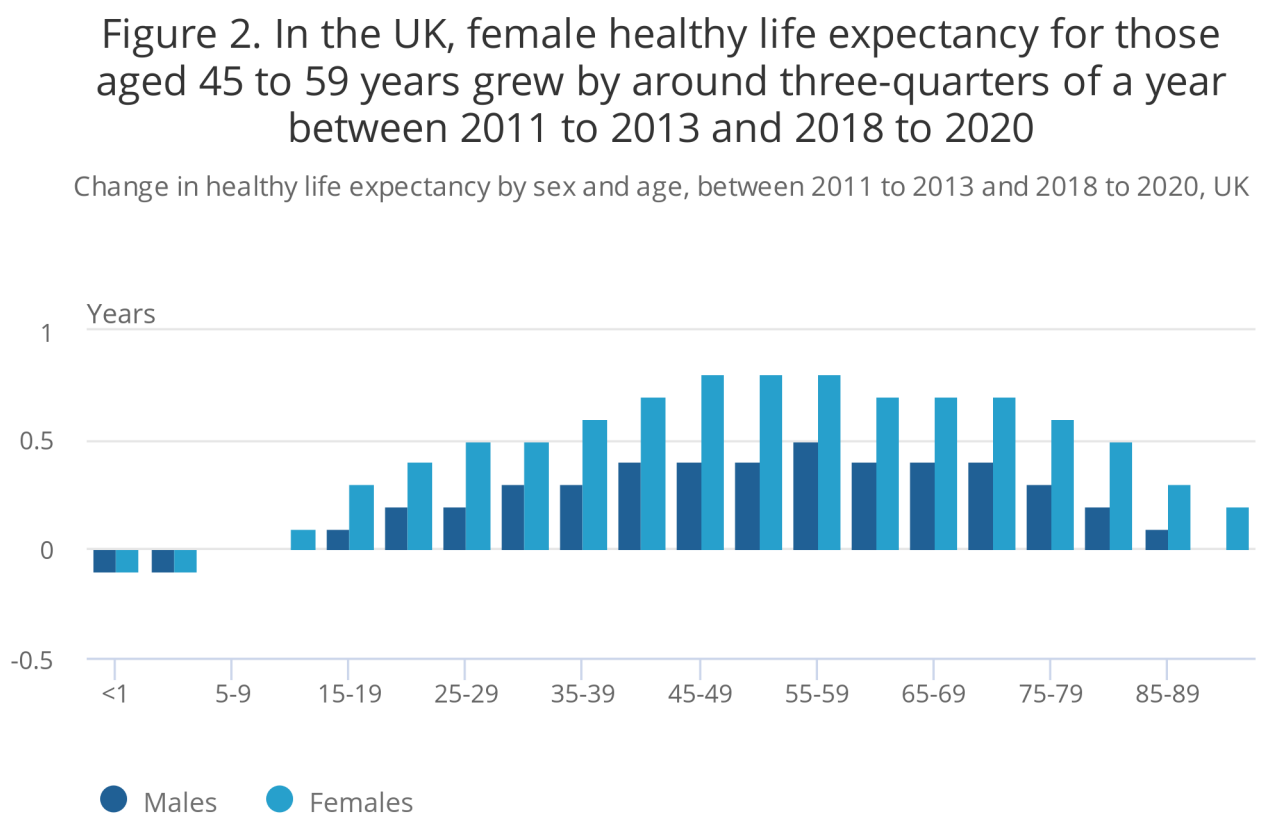
Looking at HLE over the whole age range, it is possible to show how changes in life expectancy and HLE affect the years lived in different health states at different ages. It is informative to assess whether the years lived in good health and poorer states of health are reducing or increasing at different ages since our time series began in 2011 to 2013.

Between 2011 to 2013 and 2018 to 2020, HLE in the UK showed small decreases for males aged 4 years and under, although these were not statistically significant. At all other ages, HLE either increased or did not change for males (Figure 2), with the increases being statistically significant from the age of 35 years to 84 years.

HLE decreased for females aged 4 years and under; this was not statistically significant. Female HLE increased for those aged 10 years and over between 2011 to 2013 and 2018 to 2020, with the increases being statistically significant in those aged 20 years and over (Figure 2).

Figure 2. In the UK, female healthy life expectancy for those aged 45 to 59 years grew by around three-quarters of a year between 2011 to 2013 and 2018 to 2020

Change in healthy life expectancy by sex and age, between 2011 to 2013 and 2018 to 2020, UK



Source: Office for National Statistics

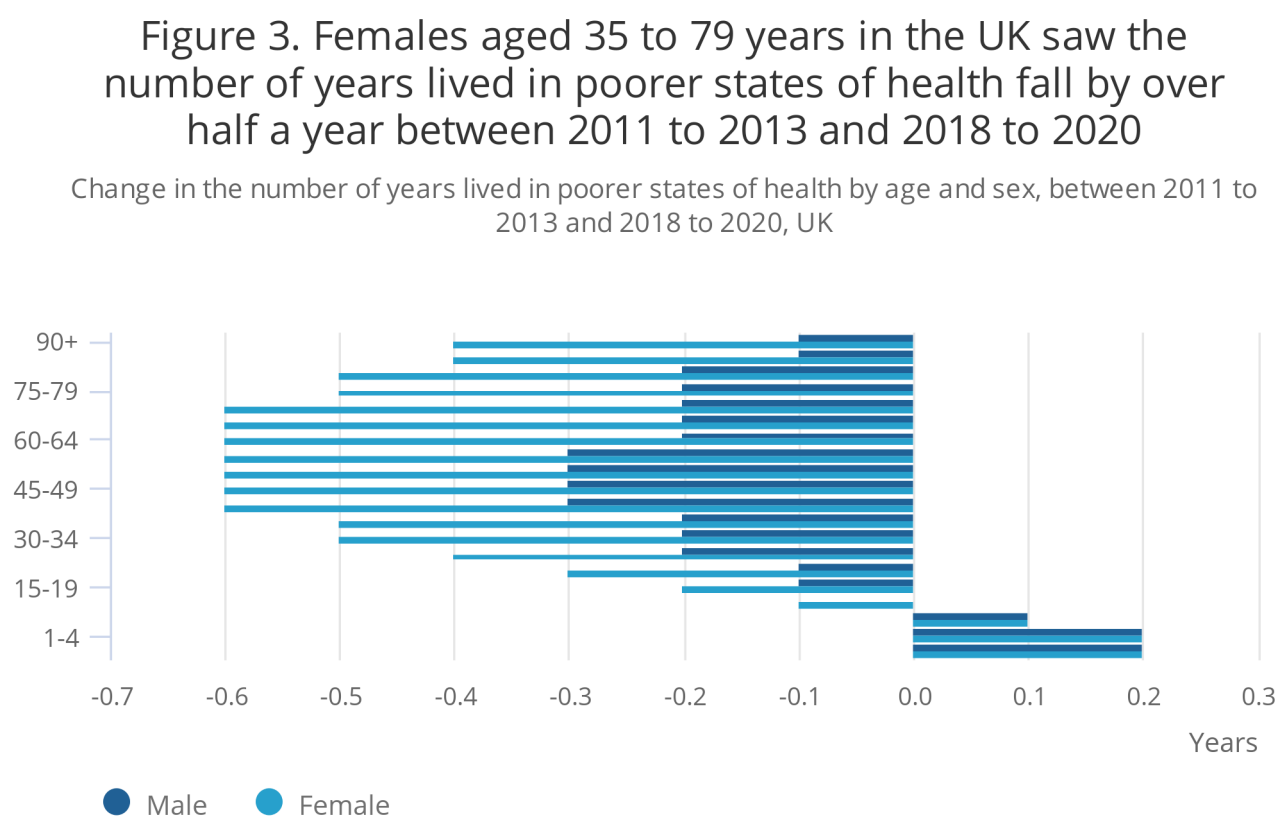
Notes:

1. 0 on the Y axis represents no change in HLE.

Improvements in HLE at older ages were occurring at a time when life expectancy was stalling or even reducing in some of the oldest age groups. This caused the years lived in poorer states of health to reduce in these age groups. In contrast, because of decreases in HLE at the youngest ages, the time spent in poorer states of health has increased in these populations because of small improvements in life expectancy (Figure 3).

Figure 3. Females aged 35 to 79 years in the UK saw the number of years lived in poorer states of health fall by over half a year between 2011 to 2013 and 2018 to 2020

Change in the number of years lived in poorer states of health by age and sex, between 2011 to 2013 and 2018 to 2020, UK



Source: Office for National Statistics

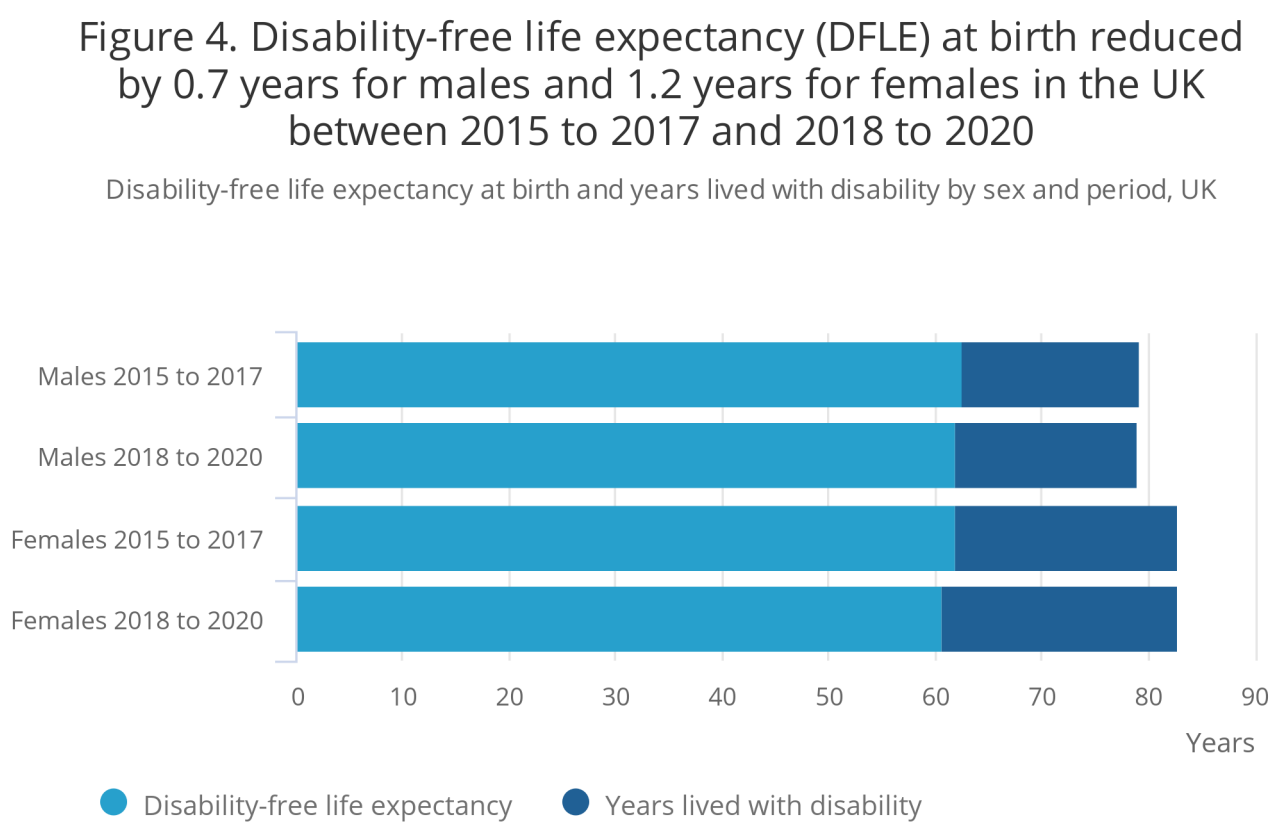
Notes:

1. “Years lived in poorer states of health” is the difference between life expectancy and HLE.
2. 0 on the X axis represents no change in “Years lived in poorer states of health”.

3 . Disability-free life expectancy in the UK

Figure 4. Disability-free life expectancy (DFLE) at birth reduced by 0.7 years for males and 1.2 years for females in the UK between 2015 to 2017 and 2018 to 2020

Disability-free life expectancy at birth and years lived with disability by sex and period, UK



Source: Office for National Statistics

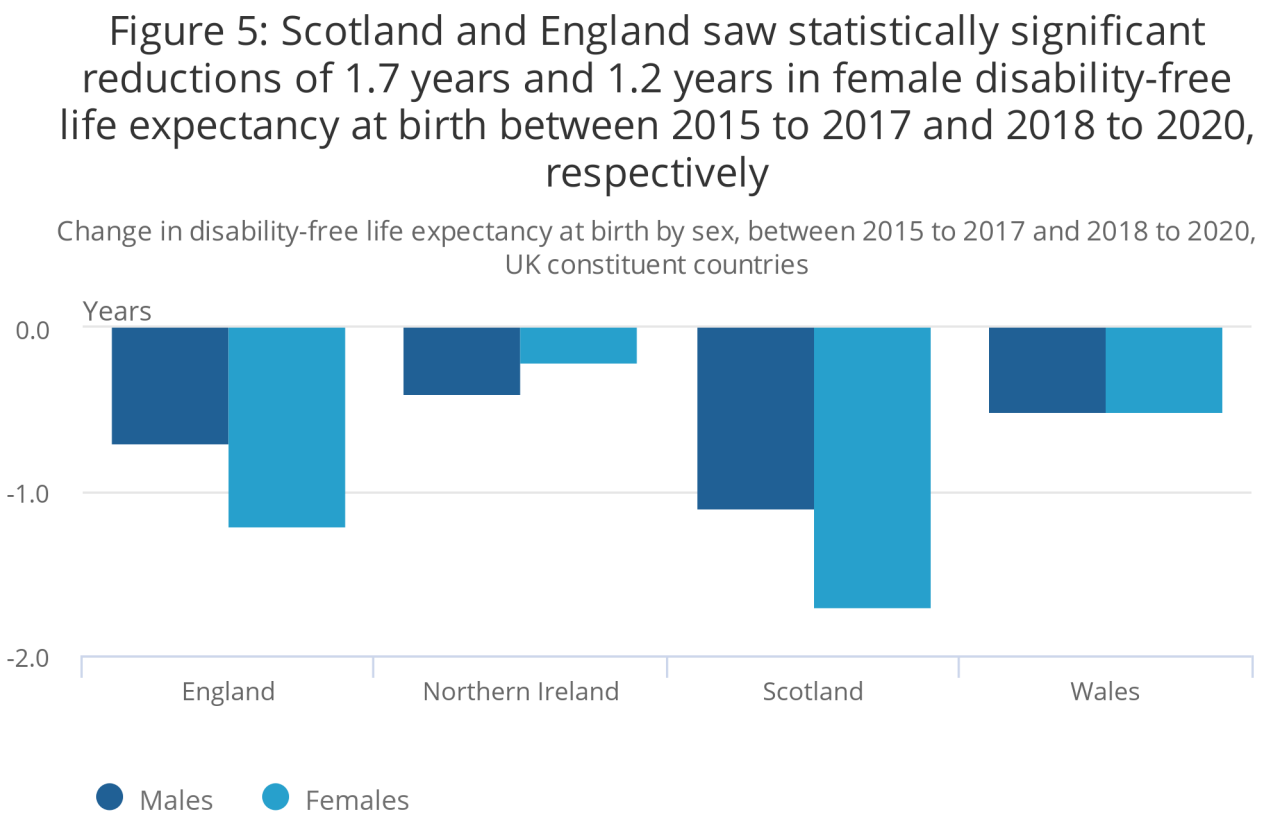
Notes:

1. Years lived disability-free is an estimate of the average number of years lived without activity restriction resulting from a long-lasting physical or mental health condition; it is based upon a self-rated assessment of how health conditions and illnesses reduce an individual's ability to carry out day-to-day activities. Conversely, years with disability are the years lived with activity restriction.

Among the constituent countries of the UK, there were notable reductions in DFLE at birth for both sexes in England and Scotland (Figure 5).

Figure 5: Scotland and England saw statistically significant reductions of 1.7 years and 1.2 years in female disability-free life expectancy at birth between 2015 to 2017 and 2018 to 2020, respectively

Change in disability-free life expectancy at birth by sex, between 2015 to 2017 and 2018 to 2020, UK constituent countries



Source: Office for National Statistics

Notes:

1. 0 on the Y axis represents no change in DFLE.

The reductions in DFLE for each sex in Northern Ireland and Wales were not statistically significant (Figure 5).

Changes in DFLE at all ages in relation to life expectancy

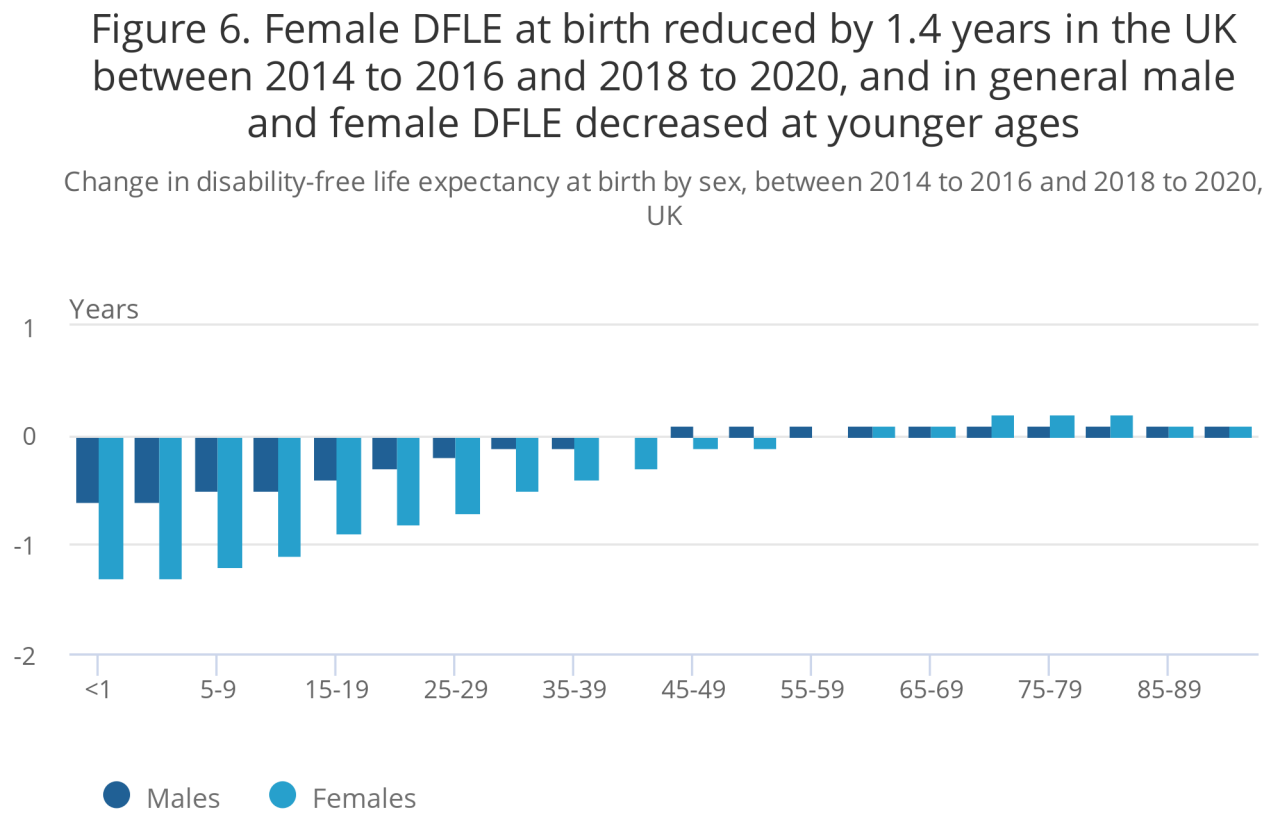
The time series for DFLE estimates begins in 2014 to 2016, rather than 2011 to 2013 as seen with healthy life expectancy (HLE)

The years lived with a disability is the difference between life expectancy and DFLE. It is used to assess whether improvements in length of life are comparable to improvements in years lived without a long-term illness that limits daily activities.

Between 2014 to 2016 and 2018 to 2020, female and male DFLE in the UK decreased among those aged 35 to 39 years and under, and falls were substantially greater among females. However, for those aged 55 to 59 years and over, there were small improvements for both sexes, although these were not statistically significant (Figure 6).

Figure 6. Female DFLE at birth reduced by 1.4 years in the UK between 2014 to 2016 and 2018 to 2020, and in general male and female DFLE decreased at younger ages

Change in disability-free life expectancy at birth by sex, between 2014 to 2016 and 2018 to 2020, UK



Source: Office for National Statistics

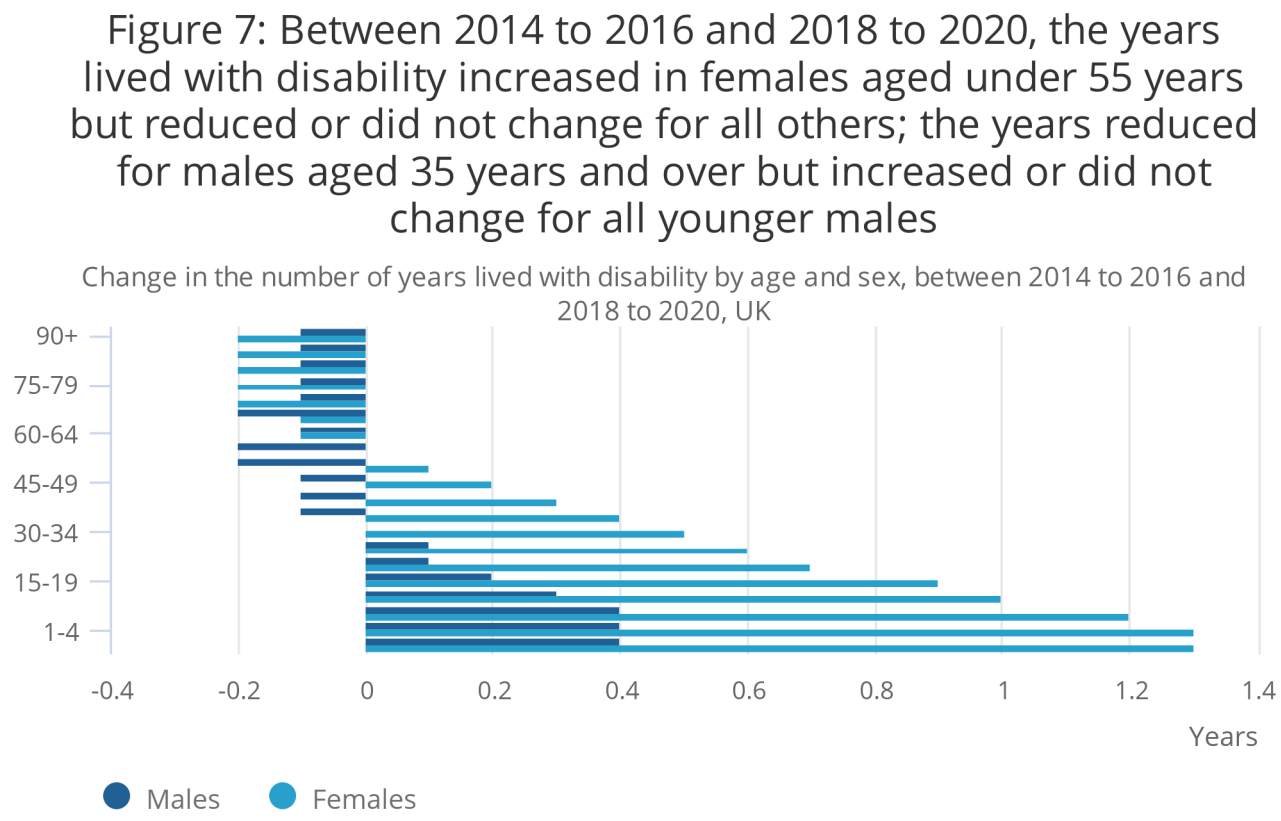
Notes:

1. 0 on the Y axis represents no change in DFLE.

The changes in Figure 6 occurred at a time when life expectancy at most ages was also falling. Changes in both life expectancy and DFLE have an impact on the number of years people can expect to live with a disability (Figure 7).

Figure 7: Between 2014 to 2016 and 2018 to 2020, the years lived with disability increased in females aged under 55 years but reduced or did not change for all others; the years reduced for males aged 35 years and over but increased or did not change for all younger males

Change in the number of years lived with disability by age and sex, between 2014 to 2016 and 2018 to 2020, UK



Source: Office for National Statistics

Notes:

1. 0 on the X axis represents no change in “Years spent with disability”.

Females in the UK aged under 55 years were expected to live more years with a disability, as the reduction in DFLE at these ages far exceeded life expectancy falls. In contrast, at older ages, DFLE improved while life expectancy reduced, causing the years lived with a disability to decrease.

Males observed a different pattern, with those aged 30 and over seeing a reduction in the years lived with a disability, with the largest fall occurring for those aged 50 to 54 years.

4 . Health state expectancies for local areas

Figure 8: Healthy life expectancy at birth and at aged 65 years by sex, local areas of the UK, 2011 to 2013 and 2018 to 2020

Notes:

1. Healthy life expectancy figures are not available for Isles of Scilly and City of London because of insufficient population size.

2. If you wish to more objectively compare the improvement in healthy life expectancy across the time series between areas, you need to take into account the confidence intervals provided in the pivot table.

Download the data

.xlsx

Figure 9: Disability-free life expectancy at birth and at aged 65 years by sex, local areas of the UK, 2011 to 2013 and 2018 to 2020

Notes:

1. Disability-free life expectancy figures are not available for Isles of Scilly and City of London because of insufficient population size.

2. If you wish to more objectively compare the improvement in disability-free life expectancy across the time series between areas, you need to take into account the confidence intervals provided in the pivot table.

Download the data

.xlsx

The accompanying data tables provide a time series, which contains estimates of healthy life expectancy (HLE) and disability-free life expectancy (DFLE) at local area level across the UK.

5 . Health state life expectancies data

Health and disability-free adjustment factor
Dataset | Released 4 March 2022
The proportions used while estimating the good health and disability-free prevalence rates for health state life expectancies in the UK.

Health and disability-free census prevalence
Dataset | Released 4 March 2022
The census prevalence used while estimating the good health and disability-free prevalence rates for health state life expectancies in the UK.

Health state life expectancy, all ages, UK
Dataset | Released 4 March 2022
Pivot tables for health state life expectancy by sex and area type, divided by three-year intervals starting from 2009 to 2011.

Health state life expectancy estimates template
Dataset | Released 11 December 2019
Template for creating life expectancy and health expectancies estimates.

6 . Glossary

Period life expectancy

Life expectancy estimates reported in this bulletin are period-based. Period life expectancy (LE) at a given age for an area is the average number of years a person would live, if he or she experienced the particular area's age-specific mortality rates for that time period throughout his or her life.

Health state life expectancy

A generic term for summary measures of health that add a quality dimension to estimates of life expectancy by dividing expected lifespan into time spent in different states of health. In this release, health state life expectancy encompasses measures based on health-related wellbeing (healthy life expectancy) and functional health status (disability-free life expectancy).

Healthy life expectancy

An estimate of lifetime spent in "very good" or "good" health, based on how individuals perceive their general health.

Disability-free life expectancy

An estimate of lifetime free from a limiting persistent illness that limits day-to-day activities; it is based upon a self-rated assessment of how health conditions and illnesses reduce an individual's ability to carry out day-to-day activities. Day-to-day activities include:

- washing and dressing
- household cleaning
- cooking
- shopping for essentials
- using public or private transport
- walking a defined distance and climbing stairs
- remembering to pay bills
- lifting objects from the ground or a work surface in a kitchen
- other moderate manual tasks such as gardening, and gripping objects such as cutlery

95% confidence intervals

A measure of the uncertainty around a specific estimate. It is expected that the interval will contain the true value on 95 occasions if repeated 100 times. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. At a national level, the overall level of error will be small compared with the error associated with a local area.

Statistical significance

The term "significant" refers to statistically significant changes or differences. Significance has been determined using the 95% confidence intervals, where instances of non-overlapping confidence intervals between estimates indicate the difference is unlikely to have arisen from random fluctuation. In some circumstances, significance has also been tested using z scores.

7 . Measuring the data

This statistical bulletin presents estimates of life expectancy, healthy life expectancy and disability-free life expectancy for the UK, constituent countries, regions, local government administrations including combined authorities and Welsh health boards.

Data sources

Life expectancy uses death registrations data held by the Office for National Statistics (ONS). Mid-year population estimates by age, sex and geographical area are used in combination with death registrations to calculate age-specific mortality rates used in life tables.

In addition, health state life expectancies use data collected as part of the Annual Population Survey (APS) (PDF, 689KB) and data from the 2011 Census.

Health state prevalence rates are obtained from the three-year reweighted APS dataset used in healthy life expectancy and disability-free life expectancy calculations.

As the method requires imputation and modelling, data from the 2011 Census are used to produce imputation adjustment factors and census-based health state prevalence. These figures are made available with the datasets accompanying the release.

There were boundary changes in this release that had differential impacts for life expectancy and health state life expectancy.

Northamptonshire county has been abolished and, in its place, two new unitary authorities have been created, which are North Northamptonshire and West Northamptonshire.

The estimates for the new boundaries have been made available back to the period from 2011 to 2013.

The boundary changes are shown in Table 4.

Table 3: Boundary changes in England affecting this release

Old code	Old name	New code	New name
E10000021	Northamptonshire	E06000061	North Northamptonshire
		E06000062	West Northamptonshire

Method for estimating life expectancy

The health state life expectancy estimates reported in this bulletin are period-based and estimated using a Sullivan life table. A Health state life expectancy estimates template is available, which shows how the Sullivan life table is deployed to derive these estimates.

Abridged life tables are used in preference to complete life tables for smaller populations because death counts can be too sparse for examining mortality for single years of age. These tables are also used because mid-year population estimates are not available or sufficiently reliable to produce these by single year of age.

Subnational estimates

Subnational life expectancy estimates for Scotland's council areas and Northern Ireland's local government districts have been calculated using the same method as for England and Wales. Responsibility for the production of other statistics for Scotland and Northern Ireland is with the National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA), respectively. Estimates contained in this report may differ from estimates produced separately by constituent countries because of survey source and methodological differences.

Quality

Early access for quality assurance purposes

We provide early access for quality assurance purposes to a small number of external bodies including Public Health England, the Department of Health and Social Care, Welsh Government, National Records of Scotland, the Northern Ireland Research and Development Agency, and Public Health Wales. The recipients are not permitted to share the findings or the report wider within their organisations or to external organisations.

More quality and methodology information (QMI) is available in the Health State Life Expectancies QMI.

8 . Strengths and limitations

The strengths of the health state life expectancies release are that:

- it covers all UK local areas, and estimates are comparable with countries and regions
- the estimates using abridged life tables align closely with those based on complete life tables
- the mortality data used have complete population coverage; estimates have high precision and are representative of the underlying population at risk
- it provides a quality-of-life dimension to length of life, which is useful for assessing health and social care needs and fitness for work to changing state pension ages

The limitations of the health state life expectancies release are that:

- the APS sample sizes for some local authority populations are small, leading to volatility in estimates and wide confidence intervals
- survey data are not routinely collected for those aged under 16 years, and only sparsely for those aged 85 years and over, requiring imputation of prevalence from census data for these age groups
- the measures of health status are subjective self-reports

9 . Related links

Method changes to life and health state expectancies
Methods paper | 29 November 2016
Report outlining the changes to life expectancy, healthy life expectancy and disability-free life expectancy.

Proposed method changes to UK health state life expectancies
Methods paper | 7 December 2017
This report assesses three methods for future estimation of health state life expectancies and is consulting on these methods.

Health state life expectancies, UK: 2017 to 2019
Statistical bulletin | 25 January 2021
The number of years people are expected to spend in different health states among local authority areas in the UK.

Life expectancy for local areas of the UK: between 2001 to 2003 and 2018 to 2020
Statistical bulletin | 23 September 2021
Subnational trends in the average number of years people will live beyond their current age measured by "period life expectancy".

Health state life expectancies by national deprivation deciles, England: 2017 to 2019
Statistical bulletin | 22 March 2021
Life expectancy and years expected to live in "Good" health and disability-free using national indices of deprivation to measure socioeconomic inequalities in England.

Health state life expectancies by national deprivation deciles, Wales: 2017 to 2019
Statistical bulletin | 22 March 2021
Life expectancy and years expected to live in "Good" health and disability-free using national indices of deprivation to measure socioeconomic inequalities in Wales.

National life tables - life expectancy in the UK: 2018 to 2020
Statistical bulletin | 23 September 2021
Trends in the average number of years people will live beyond their current age measured by period life expectancy, analysed by age and sex for the UK and its constituent countries.

Life Expectancy in Northern Ireland 2018-20
Statistical bulletin | 15 December 2021
This report presents the latest official estimates of life expectancy for Northern Ireland, as well as healthy and disability-free life expectancy. This is a new, annual publication that is replacing the Health Inequalities -- Life Expectancy Decomposition series.

Life Expectancy in Scotland, 2018-2020
Statistical release | Last updated 23 September 2021
Annual publication of life expectancy at birth estimates for Scotland.