

# Life Expectancy in Scotland 2018-2020



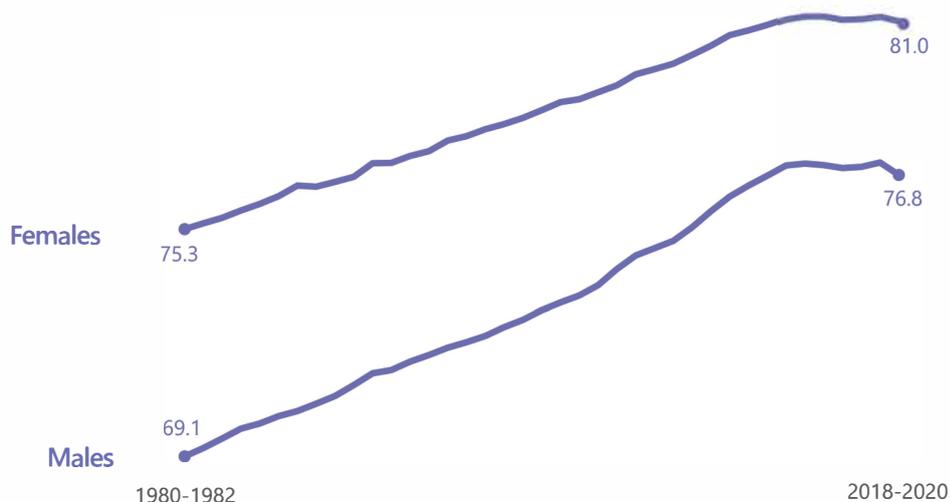
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This statistical report details life expectancy estimates for Scotland and comparisons with estimates for the rest of the UK. It also includes life expectancy estimates for councils, health boards and other areas within Scotland

## Life expectancy has fallen in 2018-2020

Between 2000-2002 and 2012-2014, life expectancy increased by 16.3 weeks per year for males and 9.9 weeks per year for females. But between 2012-2014 and 2017-2019, life expectancy remained almost constant. In the latest year life expectancy has fallen by 17.6 weeks for males and 6.1 weeks for females.

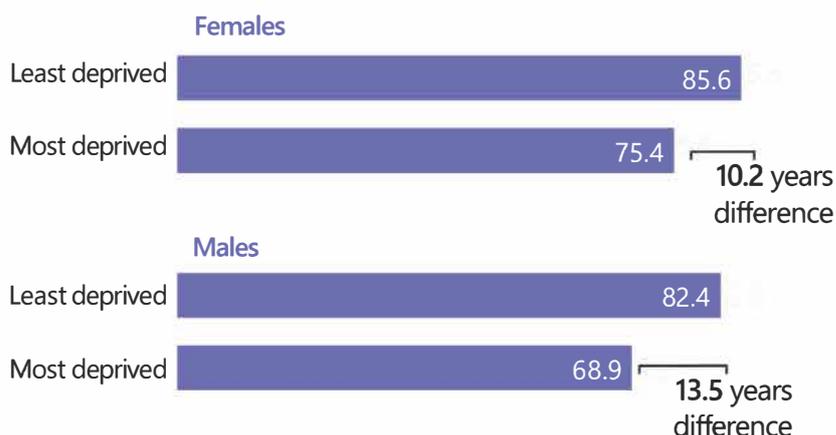
Life expectancy at birth (years)



## Deprivation has a big impact on life expectancy

Life expectancy for females is 10.2 years longer in the least deprived areas compared to the most deprived areas in Scotland. For males that difference increases to 13.5 years.

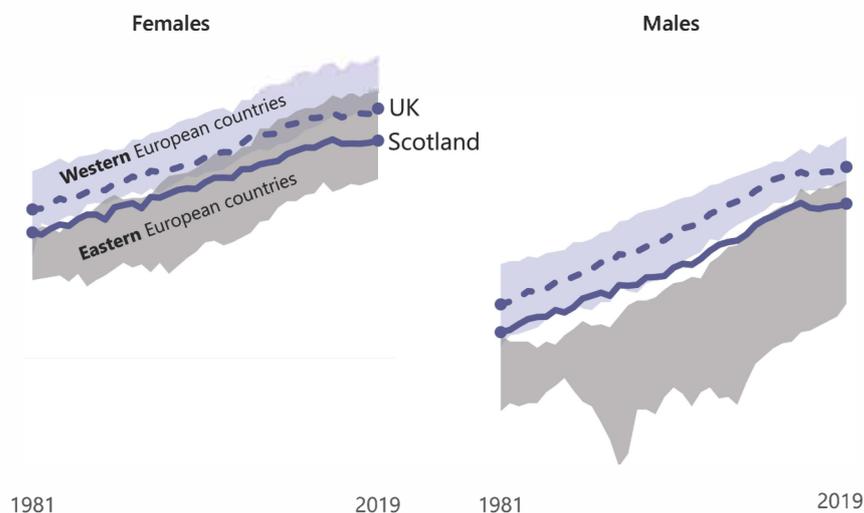
Life expectancy at birth by deprivation (years)



## Scotland has the lowest life expectancy in western Europe.

Life expectancy in Scotland has always been lower than or among the lowest in western Europe, when looking at EU data from Eurostat. Here, eastern Europe is defined as EU8 countries as well as EU2 and Croatia. Western Europe is made up of the other sixteen EU nations.

Life expectancy at birth (years)



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## Key findings

- In Scotland in 2018-2020, life expectancy at birth was 76.8 years for males and 81.0 years for females. This is a decrease of around 17.6 weeks (0.3 years) for males and 6.1 weeks (0.1 years) for females since last year's estimates and represents the biggest annual decrease since the series began.
- This report describes period life expectancy. This is not a prediction of how long someone will live, but is an indicator which summarises the health of the population at a point in time.
- Life expectancy in Scotland has increased since the early 1980s but then remained virtually unchanged between 2012-2014 and 2017-2019. In the most recent year it has now dropped below the 2012-2014 figure.
- COVID-19 deaths accounted for the vast majority of the drop in life expectancy for both males and females. Drug-related deaths also had a negative impact on life expectancy for males.
- 65 year old males in 2018-2020 could expect to live another 17.5 years whilst 65 year old females had a further 19.8 years of life expectancy.
- Scotland has the lowest life expectancy at birth of all UK countries. Average life expectancy in the UK was 79.0 years for males and 82.9 years for females. Over the latest year life expectancy has fallen in all UK countries.
- Female life expectancy at birth was highest in East Renfrewshire (84.0 years) and lowest in Glasgow City (78.3 years).
- Male life expectancy at birth was highest in Shetland Islands (80.6 years) and lowest in Glasgow City (73.1 years)
- The majority of Scotland's council areas have experienced a slow-down or a stall in life expectancy growth since 2012-2014 and many areas now have decreasing life expectancy with Inverclyde, Dundee City and South Ayrshire experiencing some of the biggest decreases.
- The gap in life expectancy between the most and least deprived areas was 13.5 years for males and 10.2 years for females. This gap has become wider over the past few years growing by 1.3 years for males and 1.6 years for females since 2013-2015.

## 1. Introduction

This publication summarises the life expectancy figures for Scotland for the years 2018-2020. It also includes estimates of life expectancy in different areas of Scotland.

### What is 'period' life expectancy?

All of the estimates presented in this report are 'period' life expectancy. They are calculated assuming that mortality rates for each age group in the time period (here 2018-2020) are constant throughout a person's life.

Period life expectancy is often described as how long a baby born now could expect to live if they experienced today's mortality rates throughout their lifetime. It is very unlikely that this would be the case as it means that future changes in things such as medicine and legislation are not taken into consideration.

Period life expectancy is not an accurate prediction of how long a person born today will actually live, but it is a useful measure of population health at a point in time and is most useful for comparing trends over time, between areas of a country and with other countries.

### How national life expectancy is calculated

The latest life expectancy figures are calculated from the mid-year population estimates for Scotland and the number of deaths registered in Scotland during 2018, 2019 and 2020. Life expectancy for Scotland is calculated for each year of age, and represents the average number of years that someone of that age could expect to live if death rates for each age group remained constant over their lifetime.

Life expectancy in Scotland is calculated as a three year average, produced by combining deaths and population data for the three year period. Three years of data are needed to provide large enough numbers to make these figures accurate and also to lessen the effect of very 'good' or 'bad' years. Throughout this publication, the latest life expectancy figures refer to the 2018-2020 period.

### How sub-national life expectancy is calculated

We calculate life expectancy for areas within Scotland using a very similar method to the national figures but with a few key differences. Firstly, we use age groups rather than single year of age. This is to increase the population size of each age group to reduce fluctuations and make sure we are calculating accurate mortality rates. Secondly, we use a maximum age group of 90+ whereas the national figures are calculated up to age 100. These are known as 'abridged life tables.' Because these

methods produce slightly different figures we also calculate a Scotland figure using the abridged method in order to accurately compare with the subnational life expectancy. This Scotland figure is only for comparison and does not replace the headline national figure. You can read more information about the methods in this publication in our [methodology guide](#) on the NRS website.

### **Uses of life expectancy**

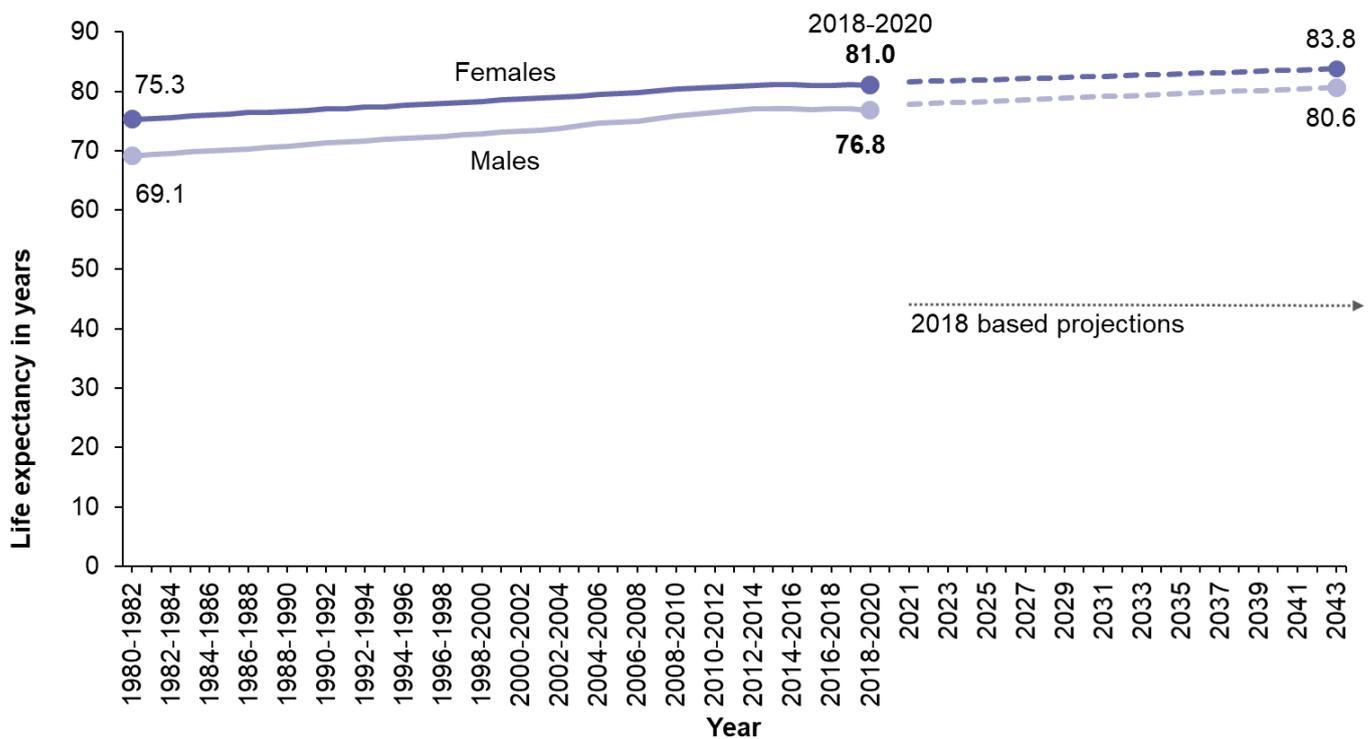
Life expectancy at birth is a very useful indicator of mortality conditions across a population at a particular point in time. It also provides an objective means of comparing trends in mortality over time, between areas of a country and with other countries. This is used to monitor and investigate health inequalities and to set public health targets. Life expectancy is also used to inform pensions policy, research and teaching.

## **2. Life expectancy at birth**

Life expectancy at birth was 76.8 years for males and 81.0 years for females in 2018-2020. Since the last estimate for 2017-2019, life expectancy for males has decreased by 0.3 years and life expectancy for females has decreased by 0.1 years.

[Figure 1](#) shows that life expectancy in Scotland has increased over the past few decades. In 1980-1982, male life expectancy was 69.1 years while for females it was 75.3 years. This represents an increase of 7.7 years for males and 5.7 years for females. In recent years, increases in life expectancy have stalled, but [Figure 1](#) shows that it is projected to increase to 80.6 years for males and 83.8 years for females by the year 2043.

**Figure 1. Life expectancy at birth, Scotland, 1980-1982 to 2043**

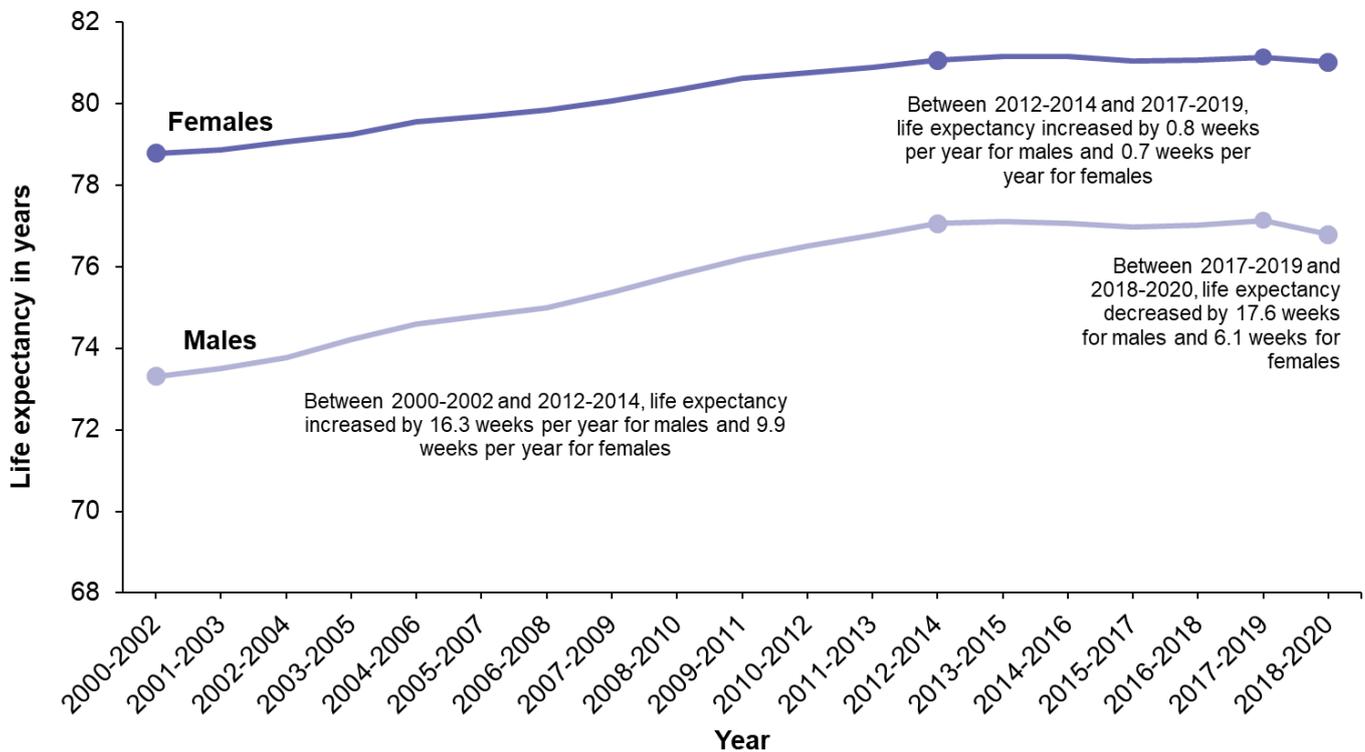


Source: Figures to 2018-2020 are from National Life Tables for Scotland (NRS) based on three years of data. Figures from 2021 are projected single year life expectancies (2018 based, NRS)

### 3. Recent trends in life expectancy

Figure 2 shows the more recent changes in life expectancy at birth in Scotland. Between the estimate in 2000-2002 and the one in 2012-2014, life expectancy increased on average 9.9 weeks a year for females and 16.3 weeks a year for males. In recent years however, the increase in life expectancy has slowed. Between 2012-2014 and 2017-2019, it increased by less than one week per year for both females and males. Between the 2017-2019 and 2018-2020 estimates, life expectancy has fallen by 17.6 weeks for males and 6.1 weeks for females.

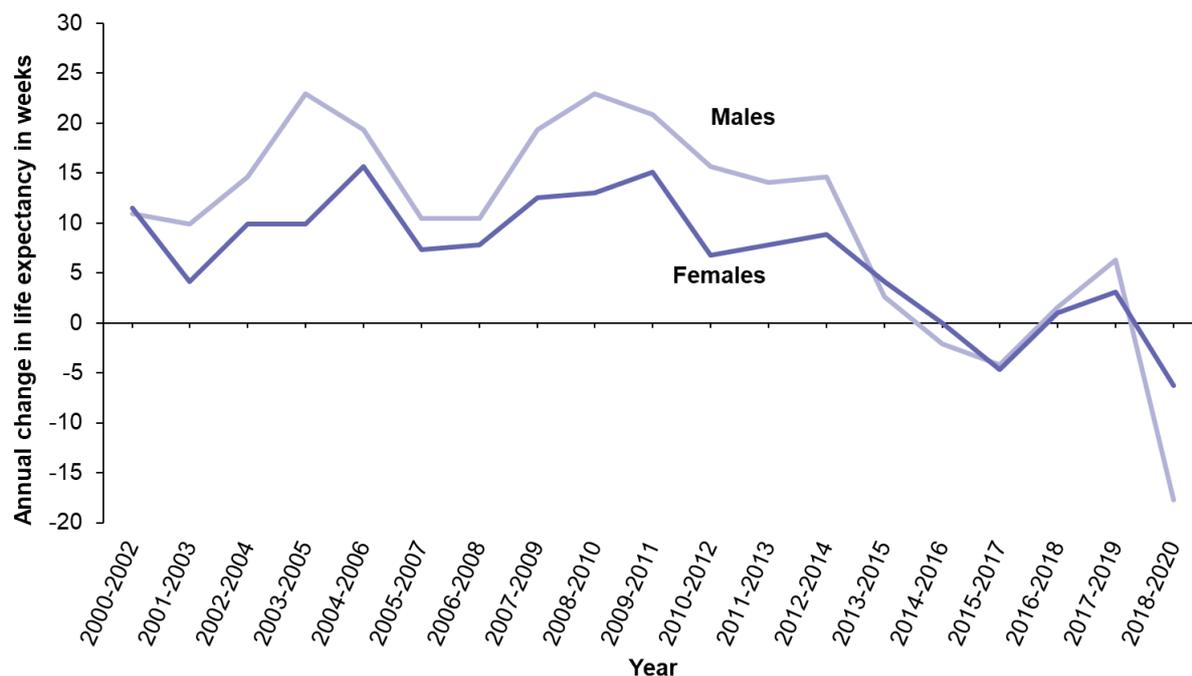
**Figure 2. The slowing rate of improvement in life expectancy in Scotland. 2000-2002 to 2018-2020**



Source: National Life Tables for Scotland (NRS)

Figure 3 shows the annual change in weeks of life expectancy at birth. This has fluctuated since 2000-2002 and while there have been previous occasions where life expectancy has fallen, the size of the fall from 2017-2019 to 2018-2020 is unprecedented.

**Figure 3. Annual change in life expectancy at birth in Scotland, 2000-2002 to 2018-2020**



Source: National Life Tables for Scotland (NRS)

#### 4. What has caused the fall in life expectancy?

Life expectancy is calculated from the number of deaths that happen as a proportion of the population (mortality rate), so in a year with considerably more deaths than usual, a decrease in life expectancy is not unexpected. Analysis of the different causes of death provides some insight into what has caused the fall in life expectancy.

For males, life expectancy in 2018-2020 was 76.8 years, compared to 77.1 years in 2017-2019. This is a fall of 18.1 weeks. [Figure 4a](#) shows that deaths from Covid-19 accounted for most of this decrease (16.7 weeks or around 4 months). Drug-related deaths and deaths from external causes (such as accidents and suicides) also had a negative effect on life expectancy.

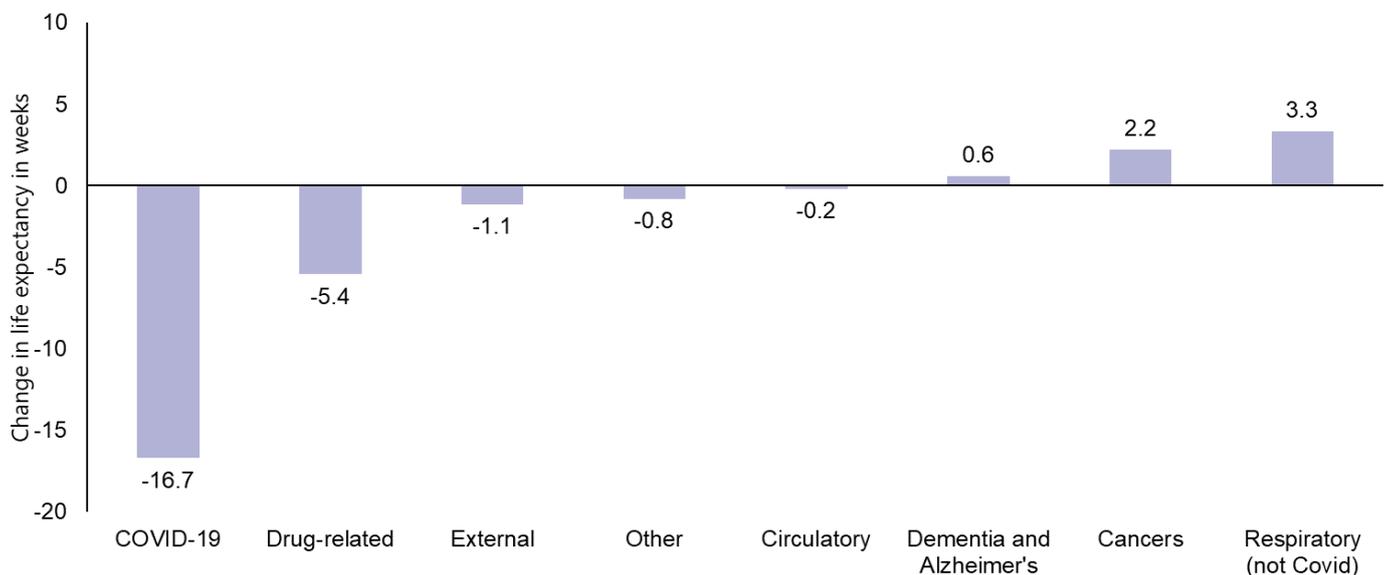
There were small improvements in the number of males dying from cancers and respiratory diseases, which had a small positive effect on life expectancy. It is likely that some people who would otherwise have died from cancer and respiratory diseases died of Covid-19 and that is why deaths from these causes decreased.

### Why are these figures slightly different to those in section 3?

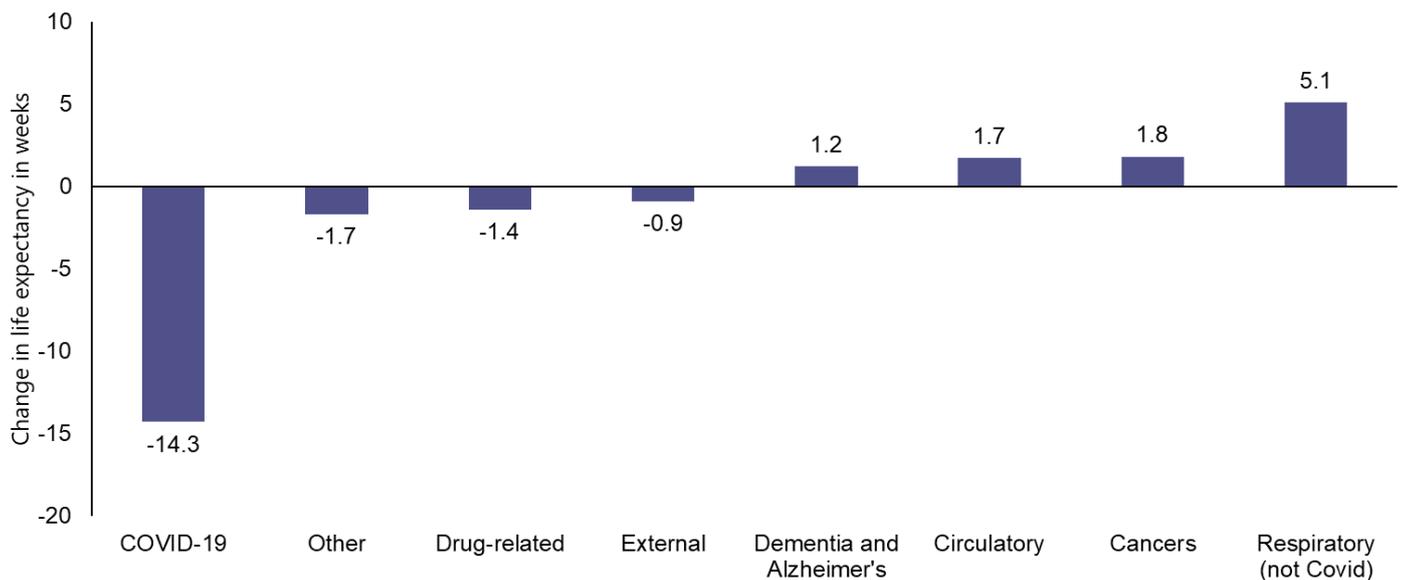
The figures in section 3 are calculated using full life tables (i.e. using single years of age and a maximum age group of 100+).

Because they provide more detailed breakdowns, the figures in this section are calculated using abridged life tables (5 year age groups and a maximum age group of 90+). More information about these methods is available in our [methodology guide](#).

**Figure 4a. Change in male life expectancy by cause between 2017-2019 and 2018-2020**



**Figure 4b. Change in female life expectancy by cause between 2017-2019 and 2018-2020**



For females, life expectancy in 2018-2020 was 81.0 years compared to 81.1 years in 2017-2019, a fall of 8.5 weeks. [Figure 4b](#) shows that the negative effect of Covid-19 deaths on female life expectancy is -14.3 weeks or just over three months. However, there were improvements to mortality from respiratory diseases, cancers, circulatory diseases and dementia and Alzheimer's disease which had a moderating effect on the overall decrease in life expectancy.

Because our life expectancy estimates covers three years and Covid-19 only caused deaths during one year, the actual effect of these deaths will be dampened. In future publications that cover the whole of the pandemic we might expect to get a clearer picture of the real effect of Covid-19 deaths.

## 5. Life expectancy at older ages

In 2018-20, male life expectancy at age 65 was 17.5 years. For females it was 19.8 years. At age 85, males could expect to live for a further 5.6 years and females for a further 6.4 years.

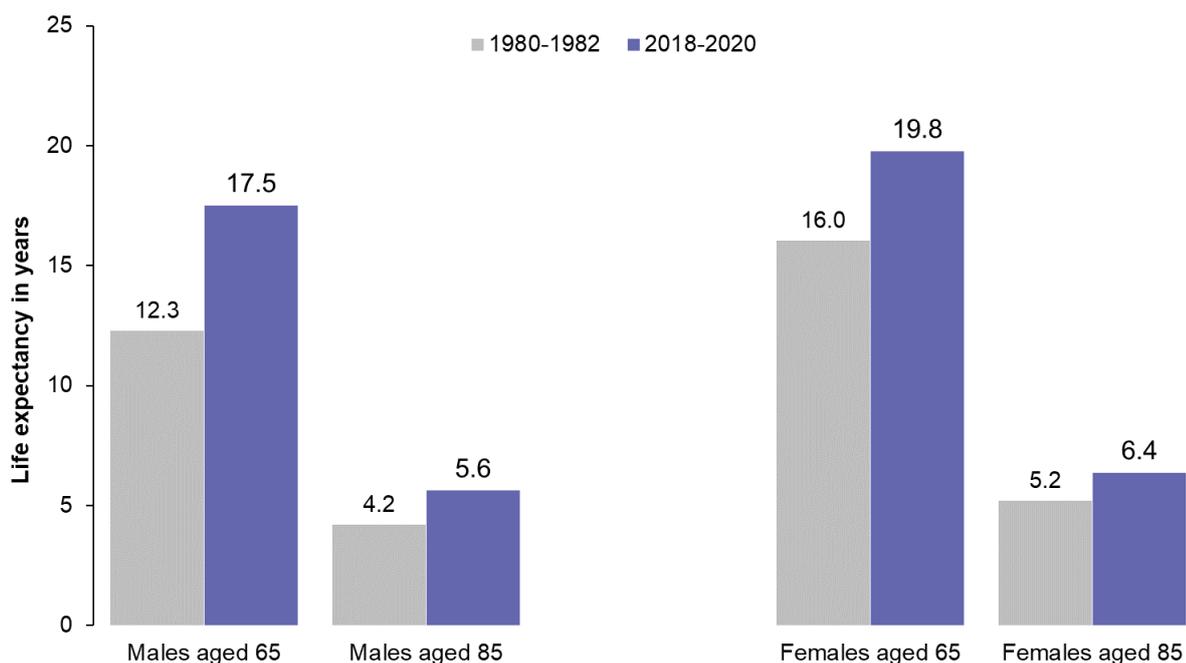
Figure 5 shows how life expectancy at older ages has changed since 1980-1982. Men aged 65 in 2018-2020 can expect to live 5.2 years longer than they would have done in 1980-1982 and men aged 85 can expect to live 1.4 years longer. For women, those aged 65 and 85 in 2018-2020 can expect to live 3.7 years and 1.2 years longer respectively than they would have done in 1980-1982.

Since 2012-2014, the rate of increase of life expectancy at age 65 and 85 has been much slower than it was prior to 2012-2014. Life expectancy has also fallen over the last year at ages 65 and 85.

### What is 'life expectancy at older ages'?

Life expectancy at older ages can be quite a confusing concept-how can a man aged 65 expect to live 17.5 years when life expectancy at birth is 76.8 years? The best explanation for this is that life expectancy is an average which is affected by people dying at younger ages as well as in old age. While the average male life expectancy at birth is 76.8 years, if he makes it to 65 without dying, then the average number of years left is 17.5.

**Figure 5. Life expectancy at older ages in Scotland. 1980-1982 and 2018-2020**



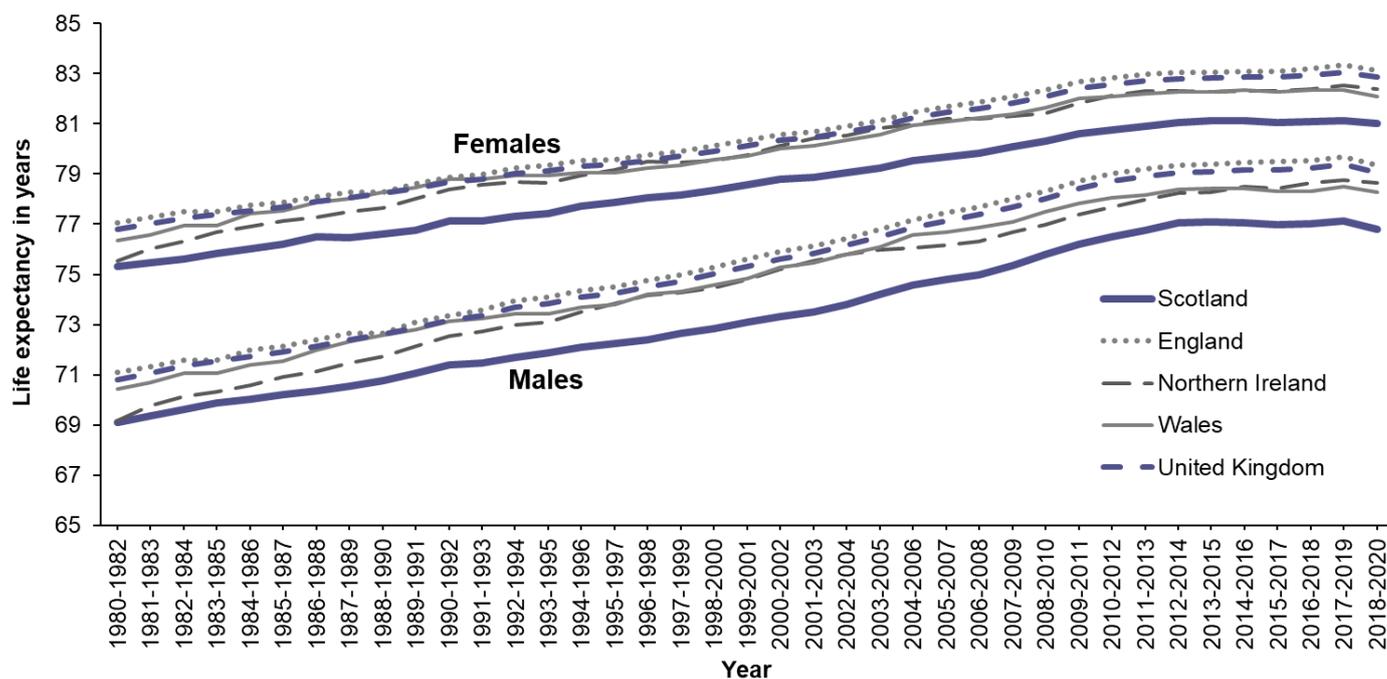
Source: National Life Tables for Scotland (NRS)

## 6. Scotland's life expectancy compared internationally

### Life expectancy in UK countries

Scotland has the lowest life expectancy of all UK countries for both males and females. [Table 1](#) shows that average life expectancy at birth in the UK was 82.9 years for females and 79.0 years for males in 2018-2020. This is higher than the Scottish figure by 1.8 years for females and 2.3 years for males (numbers do not sum due to rounding). [Figure 6](#) shows how this gap between Scotland and the whole of the UK has increased since 1980-1982. It also shows that the slowing in life expectancy increase has happened in the UK as a whole and that all UK countries have seen a fall in life expectancy in the last year. [Table 1](#) also shows a comparison of life expectancy in the UK constituent countries at birth and at age 65.

**Figure 6. Life expectancy at birth in UK constituent countries 1980-1982 to 2018-2020, males and females**



**Table 1. Life expectancy at birth and age 65 in UK and constituent countries, 2018-2020**

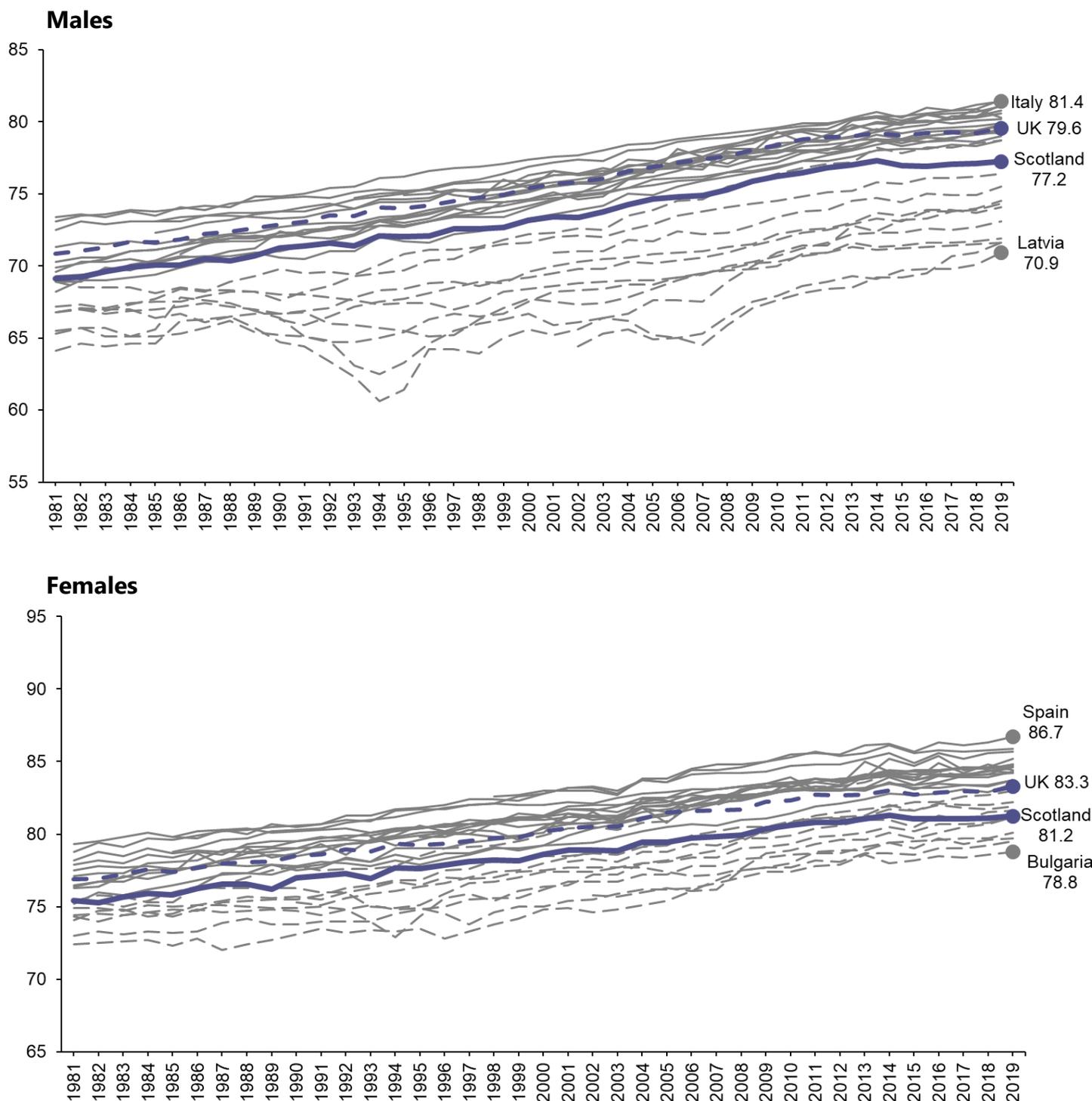
	at birth		at age 65	
	Males	Females	Males	Females
United Kingdom	79.0	82.9	18.5	21.0
England	79.3	83.1	18.7	21.1
Wales	78.3	82.1	18.1	20.5
<b>Scotland</b>	<b>76.8</b>	<b>81.0</b>	<b>17.5</b>	<b>19.8</b>
Northern Ireland	78.7	82.4	18.4	20.7

Source: National life tables (ONS)

### Life expectancy in EU countries

Figure 7 shows life expectancy at birth in Scotland and the UK compared with countries in the EU. These charts are based on a single year of data for comparison with the data available for other countries on Eurostat. The charts only go up to 2019 because 2020 data is not available for many countries at the time of publishing. In 2019, life expectancy for males was highest in Italy (81.4 years) and lowest in Latvia (70.9 years). For females, life expectancy at birth was highest in Spain (86.7 years) and lowest in Bulgaria (78.8 years). The majority of European countries have experienced a slowing in the rate of life expectancy increase from 2012 onwards and a few have effectively stalled. This trend is not universal however with some countries such as the Republic of Ireland continuing to see increases in life expectancy at a similar rate before and after 2012.

**Figure 7: Life expectancy at birth in EU countries. 1981 to 2019**

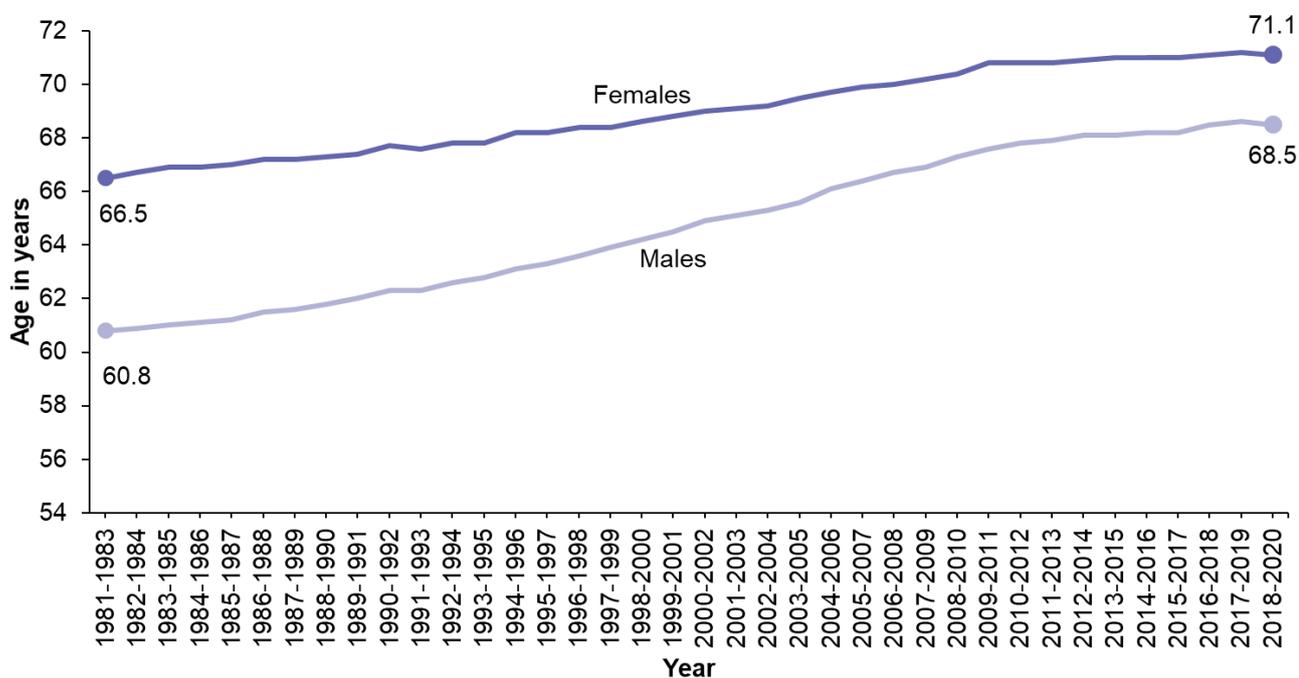


Source: National life tables for Scotland (NRS), National life tables for the UK (ONS), Eurostat (tps00025)  
 Dashed lines represent Eastern European countries which have historically lower life expectancy.

## 7. Life expectancy and population dynamics: time to death statistics

Life expectancy estimates can also be used to look at population ageing. As life expectancy increases, the age at which a person is 'elderly' or approaching death changes. Figure 8 shows the average age at which males and females in Scotland have only 15 years of life remaining. This age has risen from age 66.5 in females in 1981-1983 to 71.1 in 2018-2020. For males, the average age at which 15 years of life remains has risen from 60.8 to 68.5 over the same period.

**Figure 8. Age at which a person has 15 years remaining life expectancy in Scotland, 1981-1983 to 2018-2020**



Source: National Life Tables for Scotland (NRS)

### Why does 'time to death' matter?

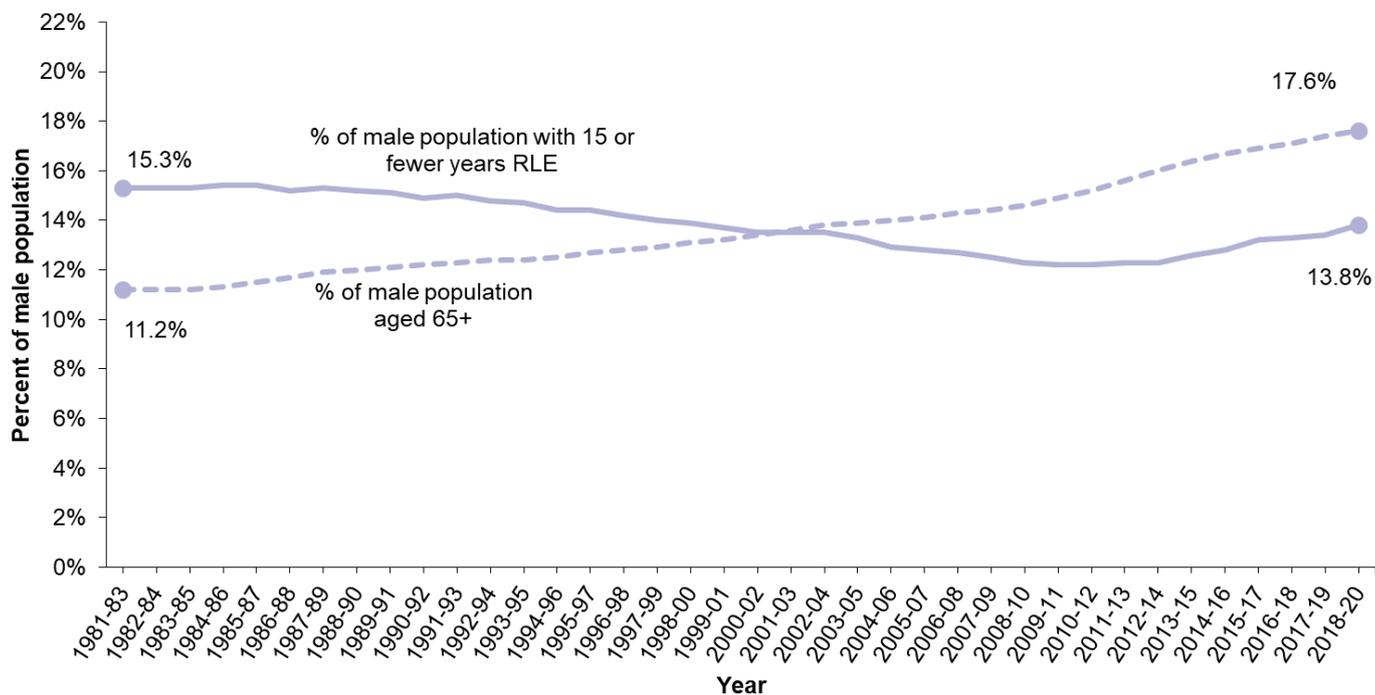
Often, we define the 'elderly' population as those aged over 65. However, studies show that a lot of the health problems related to old age are more closely associated with how long someone has left to live rather than how long they have already lived. This means it may be more useful for health and social care policy to look at how many people have only 15 years of life expectancy remaining, rather than the number of people aged 65 and over.

Figure 9 shows the percentage of the male and female population of Scotland that has on average 15 or fewer years of remaining life expectancy. In both cases, the percentage has fallen between 1981-1983 and 2010-2012, by 3.1% for males and 2.7% for females. Figure 9 also shows that the percentage of male and female population aged 65 and above has grown over the same period. As the large birth cohorts from the baby boom years have become older and life expectancy has increased, the number of people over 65 has increased in Scotland. At the

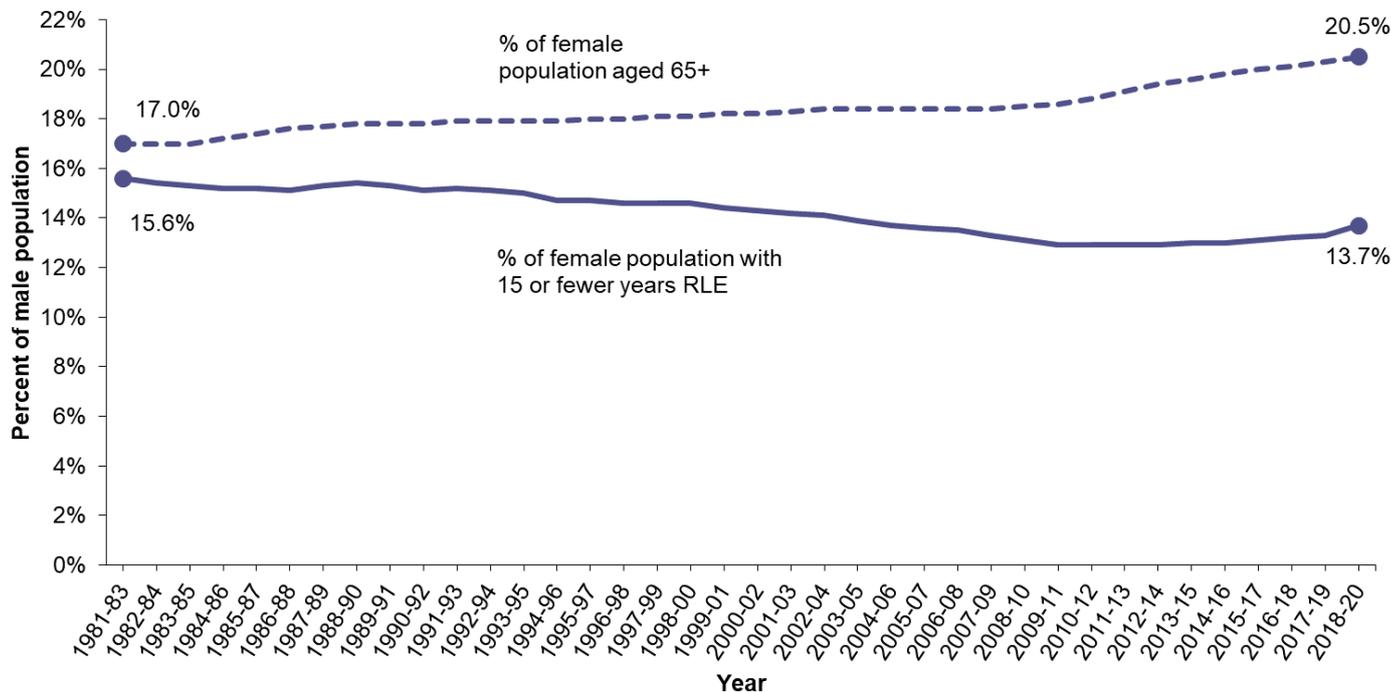
same time, from the 1980s until the early 2010s, life expectancy was increasing, so the average age at death was also increasing. This means that although the elderly population was growing, the number of people close to death was decreasing. Figure 9 show that when improvements to life expectancy began to slow, the percent of the population with 15 or fewer years remaining life expectancy stopped decreasing, indicating that the number of people approaching the end of their lives is no longer decreasing in Scotland. Since 2012-2014, this group has begun to increase slightly.

**Figure 9: Percent of population aged 65 years or older and with 15 or fewer years of remaining life expectancy. 1981-1983 to 2018-2020**

**Males**



**Females**

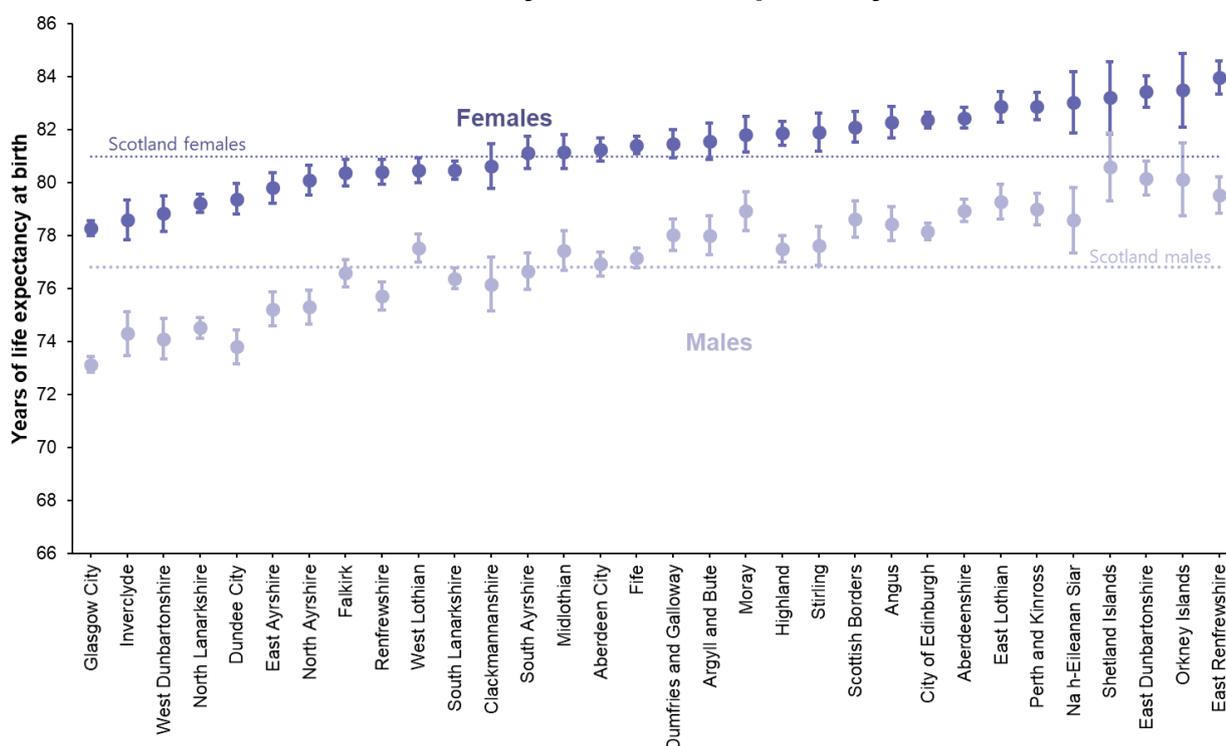


Source: National Life Tables for Scotland (NRS)

## 8. Life expectancy in council areas

Figure 10 shows that the council area where life expectancy at birth was highest for females was East Renfrewshire (84.0 ( $\pm 0.6$ ) years.) The council area where life expectancy was highest for males was Shetland Islands (80.6 ( $\pm 1.3$ ) years.) In contrast, life expectancy was lowest in Glasgow City, where females could expect to live for 78.3 ( $\pm 0.3$ ) years and males for 73.1 ( $\pm 0.3$ ) years. This represents 5.7 fewer years of life for females and 7.5 fewer years of life for males compared with East Renfrewshire and Shetland Islands respectively.

**Figure 10. Life expectancy at birth in council areas with 95% confidence intervals, 2018-2020 (ordered by female life expectancy)**



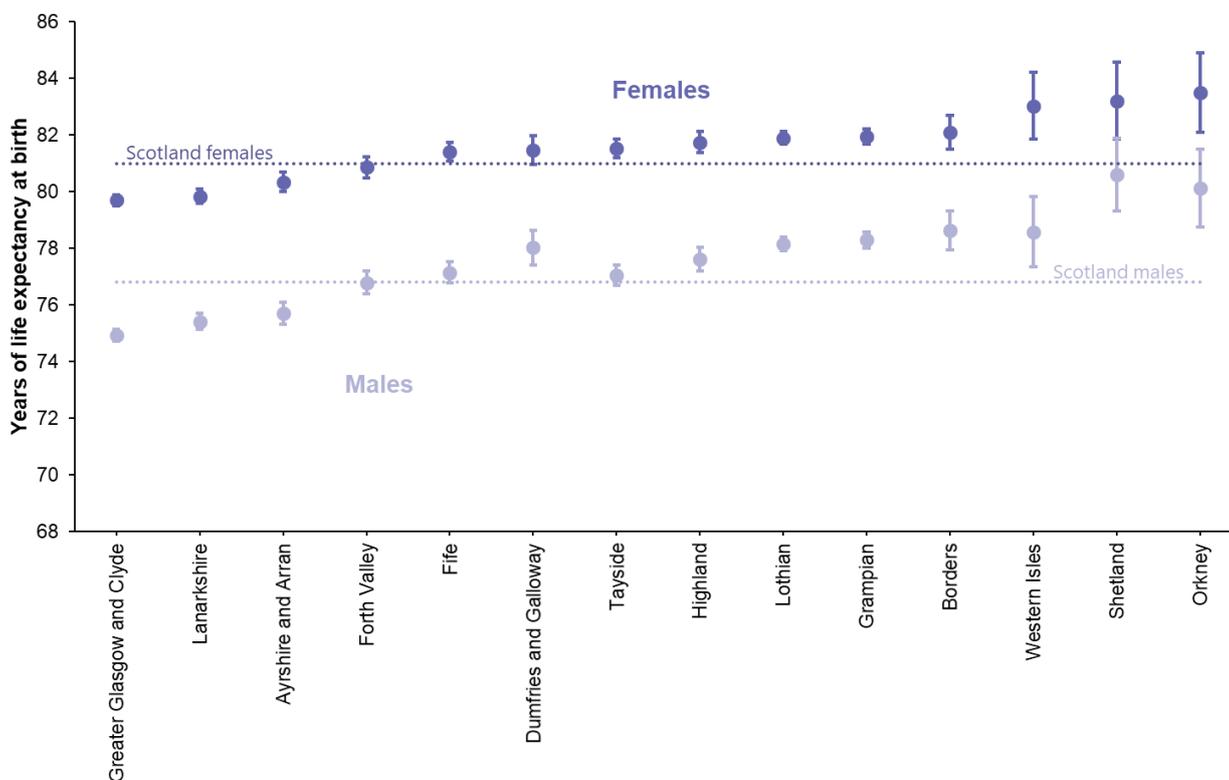
Source: National Life Tables for Scotland (NRS)

### What are 95% confidence intervals?

This is a measure of the uncertainty around the subnational life expectancy estimates. In this report, confidence intervals are quoted in brackets, for example: 81 ( $\pm 0.7$ ) years. These represent the range of values that the actual value is likely to lie within. The wider the confidence intervals, the less accurate the estimate is. Estimates from larger populations (such as health boards) will have smaller confidence intervals and therefore be more accurate than estimates from smaller populations (such as parliamentary constituencies) which have large confidence intervals.

## 9. Life expectancy in NHS health boards

**Figure 11: Life expectancy at birth in NHS health boards with 95% confidence intervals, 2018-2020 (ordered by female life expectancy)**



Source: National Life Tables for Scotland (NRS)

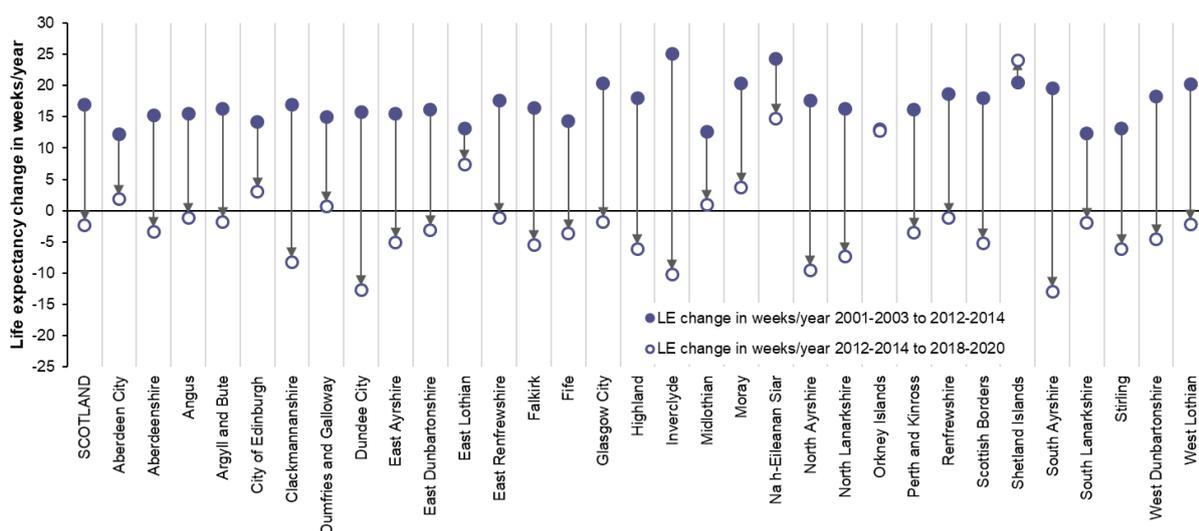
Figure 11 shows life expectancy at birth in NHS health boards in Scotland. Shetland health board had the highest life expectancy at birth for males who could expect to live for 80.6 ( $\pm 1.3$ ) years. Life expectancy at birth was highest in Orkney for females who could expect to live for 83.5 ( $\pm 1.4$ ) years. The health board with the lowest life expectancy at birth was Greater Glasgow and Clyde, where males could expect to live 74.9 ( $\pm 0.2$ ) years and females could expect to live 79.7 ( $\pm 0.2$ ) years. As with the council level estimates, please note the very large confidence intervals around the estimates for the smallest communities, especially the island health boards.

## 10. The stall in life expectancy growth across Scotland's council areas

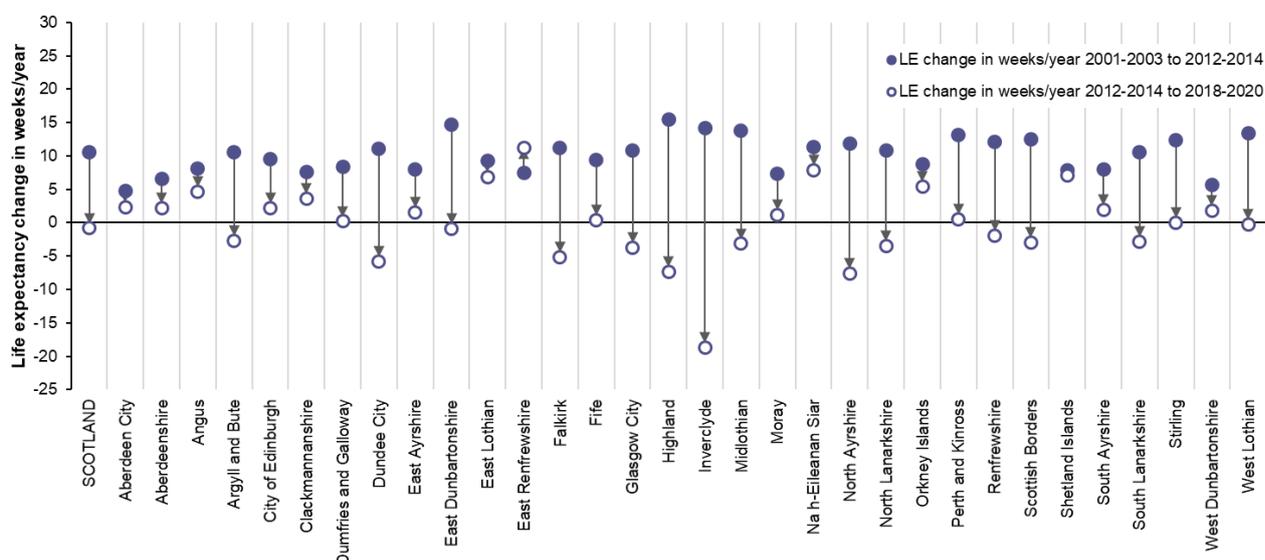
As can be seen in Figure 3, the rate of life expectancy change has stalled over the last few years in Scotland. This stall in life expectancy growth has been seen all across Scotland, however, in some areas the change has been greater than others. Figure 12 shows that in some council areas, for example Dundee City, South Ayrshire and Inverclyde, the annual rate of growth has fallen dramatically since 2012-2014. Figure 12 also shows that while some council areas have seen modest increases in the rate of change (for example, Shetland Islands), the vast majority of areas are now experiencing a slower rate of growth in life expectancy and many areas now have decreasing life expectancy.

**Figure 12: Change in the rate of life expectancy growth in council areas, before and after 2012-2014**

### Males



### Females



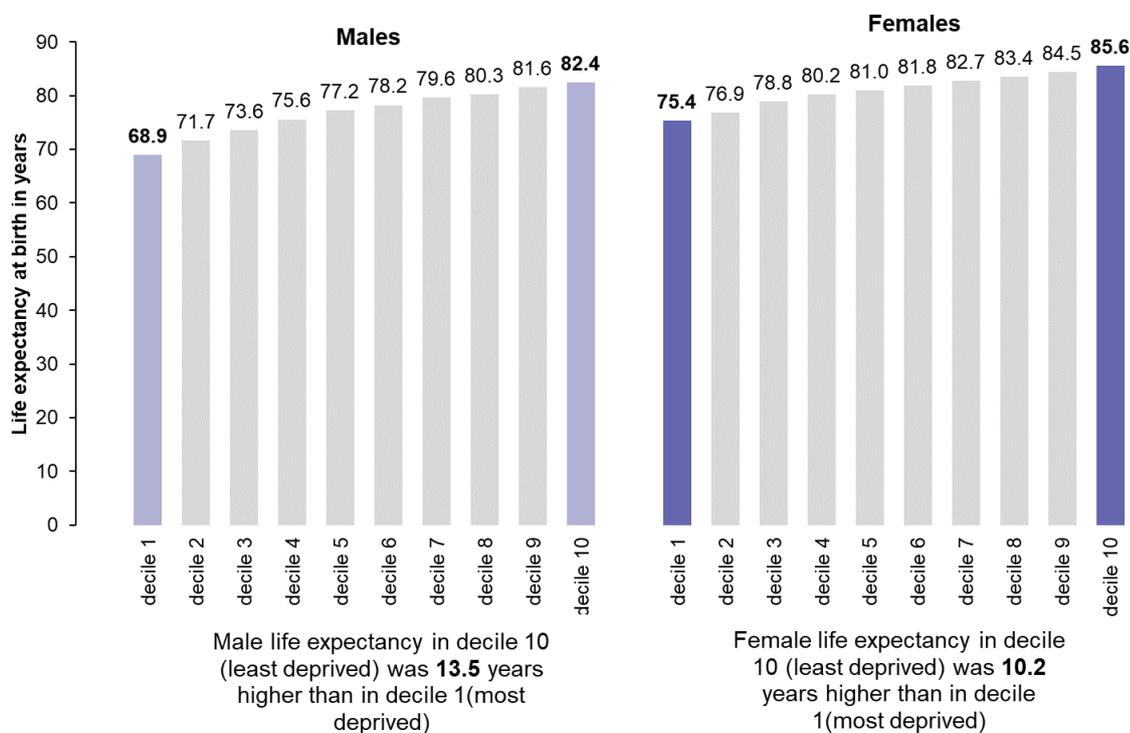
## 11. Life expectancy by deprivation

While life expectancy varies between geographical areas like council areas and health boards, the difference in life expectancy is far greater when we split Scotland by deprivation. [Figure 13](#) shows life expectancy at birth in SIMD (Scottish index of multiple deprivation) deciles. For males life expectancy at birth was 68.9 ( $\pm 0.3$ ) years in deprivation decile 1 (the 10% most deprived areas) compared with 82.4 ( $\pm 0.3$ ) years in decile 10 (the 10% least deprived areas), a gap of 13.5 years. For females life expectancy at birth was 75.4 ( $\pm 0.3$ ) years in decile 1 and 85.6 ( $\pm 0.2$ ) years in decile 10, a gap of 10.2 years. Over the last few years this gap has widened. In 2013-2015, the life expectancy gap between the most and least deprived areas was 12.2 years for males and 8.6 years for females.

### SIMD

The Scottish index of multiple deprivation is a measure of how deprived an area is. A score is given to all of Scotland's datazones based on several indicators of deprivation. The datazones are then ranked 1 to 6,976 based on their score. The rankings are split into 10 equally sized groups for SIMD deciles and five groups for SIMD quintiles. More information can be found on the [Scottish Government website](#).

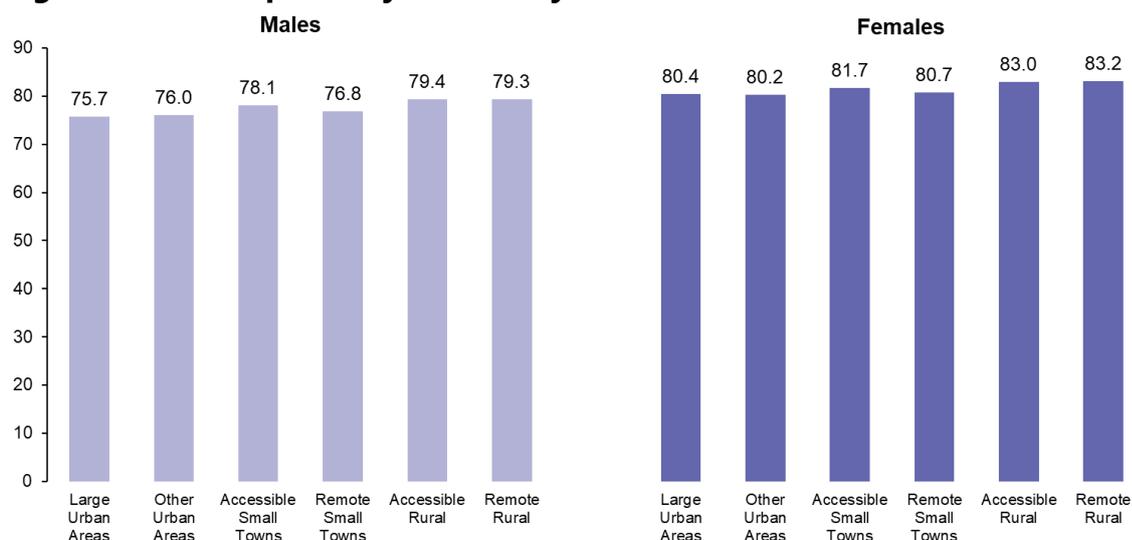
**Figure 13: Life expectancy at birth by SIMD decile, 2018-2020**



## 12. Life expectancy in urban and rural areas

Life expectancy also varies by rurality across Scotland with people living in more rural areas generally living longer and spending more years in good health than those in more urban areas. Figure 13 shows life expectancy by Urban-Rural 2018 based classification. For males life expectancy was highest in 'Accessible Rural' areas at 79.4 ( $\pm 0.3$ ) years and for females it was highest in 'Remote Rural' areas at 83.2 ( $\pm 0.3$ ) years. Life expectancy was lowest for males in 'Large Urban' areas (75.7  $\pm 0.2$  years) and lowest for females in 'Other Urban' areas (80.2  $\pm 0.1$  years).

**Figure 14: Life expectancy at birth by urban-rural classification 2018-2020**



## 13. Related statistics, methodology and background

- Life tables for the UK and constituent countries are available on the [Office for National Statistics website](#).
- Healthy Life expectancy for Scotland and areas within Scotland are available on the [National Records of Scotland website](#). This includes Scottish council areas, health boards and areas split by Scottish index of multiple deprivation. The next release will be in December 2021.
- The number and causes of deaths registered in Scotland each year are published in the [Vital Events Reference Tables](#).

### Methodology and comparisons across the UK

The National Records of Scotland website has a guide that describes the [methodology](#) used to produce the life expectancy statistics for Scotland. This methodology is similar to that used to produce life expectancy estimates in other UK constituent countries.

### **Quality of administrative data sources**

Life expectancy is calculated using mid-year population estimates and deaths data as inputs. Information about the quality of deaths data is available on the [Vital Events section](#) of the NRS website.

### **Information on background and source data**

Further details on data source(s), timeframe of data and timeliness, continuity of data, accuracy, etc. can be found in the [About this Publication document](#) that is published alongside this publication on the NRS website.

## **14. Notes on statistical publications**

The United Kingdom Statistics Authority (UKSA) has designated these statistics as National Statistics, in line with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics (available on the [UKSA website](#)).

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is National Records of Scotland's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

### **National Records of Scotland**

We, the National Records of Scotland, are a non-ministerial department of the devolved Scottish Administration. Our aim is to provide relevant and reliable information, analysis and advice that meets the needs of government, business and the people of Scotland. We do this as follows:

- Preserving the past – We look after Scotland’s national archives so that they are available for current and future generations, and we make available important information for family history.
- Recording the present – At our network of local offices, we register births, marriages, civil partnerships, deaths, divorces and adoptions in Scotland.
- Informing the future – We are responsible for the Census of Population in Scotland which we use, with other sources of information, to produce statistics on the population and households.

You can get other detailed statistics that we have produced from the Statistics section of our website. Scottish Census statistics are available on the [Scotland’s Census website](#).

We also provide information about future publications on our website. If you would like us to tell you about future statistical publications, you can register your interest on the [Scottish Government ScotStat website](#).

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