Life expectancy and healthy ageing

InformGloucestershire

Contents

1. Life expectancy

1.1 What is life expectancy?

"Life expectancy" is a measure of estimated length of life in a population. It is the average number of years a person would be expected to live based on their age, gender, and the area in which they live.

The two most commonly used measures are:

Life expectancy at birth, which is defined as the average number of years that a newborn is expected to live if current mortality rates continue.

Life expectancy at age 65, which tells us the average number of years that a person currently aged 65 can be expected to live.

1.2 Current picture

In Gloucestershire male life expectancy at birth is 79.8 years and female life expectancy at birth is 83.6 years (2020-22). This is significantly better than the national average of 78.9 years for males and 82.8 years for females.

Life expectancy at age 65 years in Gloucestershire is a further 19.1 years for males and a further 21.6 years for females. This is significantly better than the national average of 18.4 years for males and 20.9 years for females.

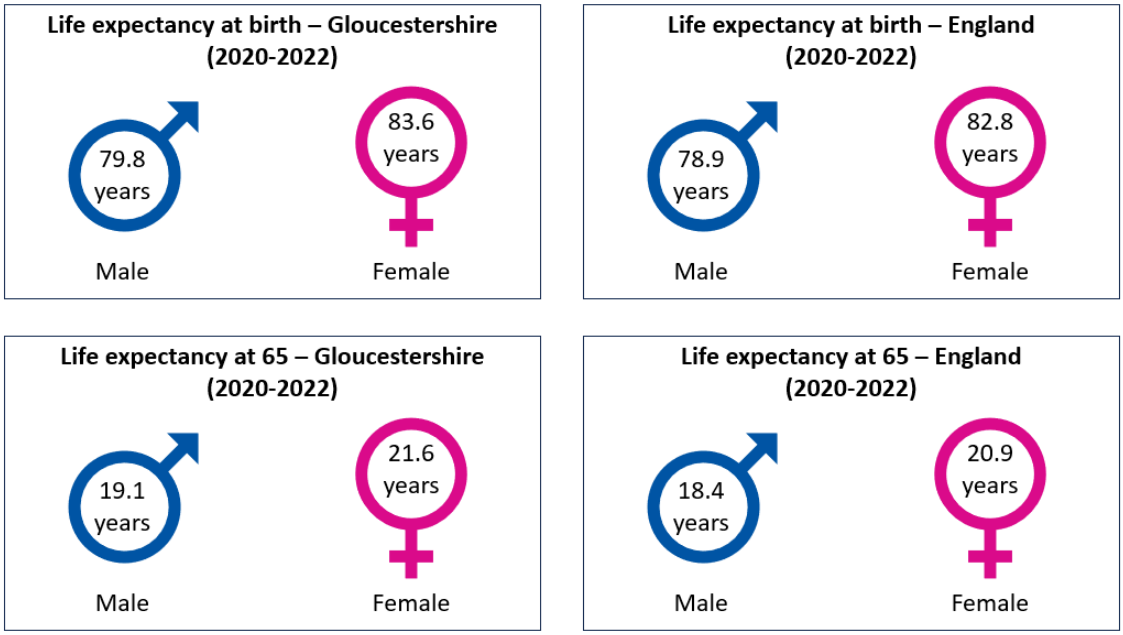

Figure 1: Life expectancy at birth and life expectancy at 65, Gloucestershire and England (2020-2022)[1]

[1] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS

1.3 How does Gloucestershire compare to other areas?

Gloucestershire compares well to England, in terms of life expectancy at birth and at age 65+, having significantly better life expectancy than the national average across all measures.

Life expectancy in Gloucestershire is broadly in line with the region, with the exception of female life expectancy at birth, where Gloucestershire is significantly worse than the South West average.

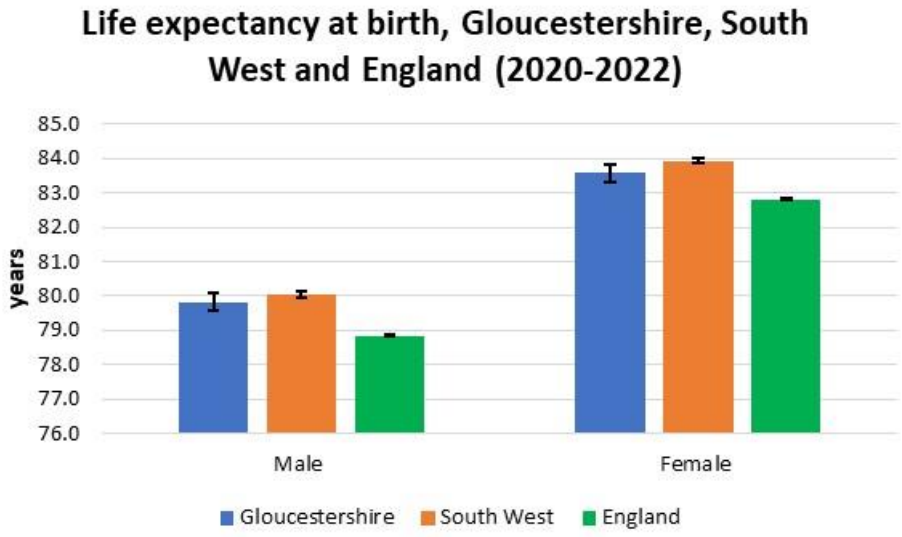

Figure 2: Life expectancy at birth, Gloucestershire, South West and England (2020-2022)[2]

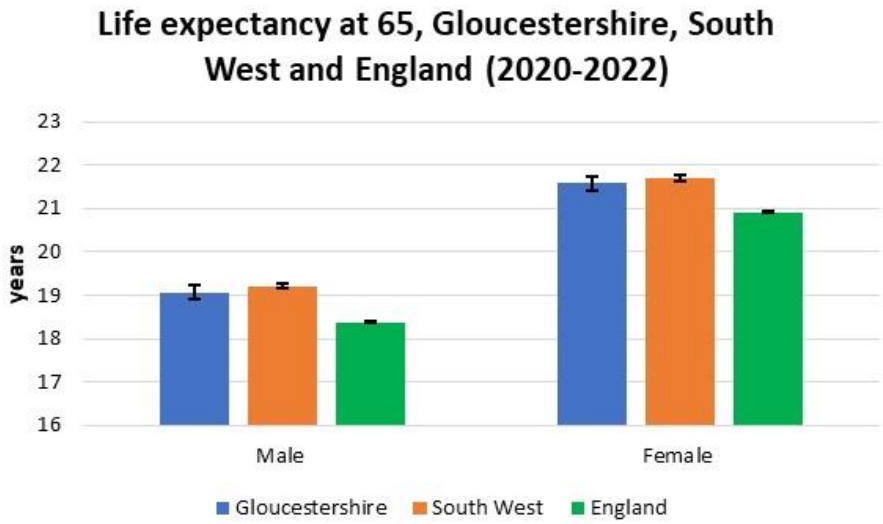

Figure 3: Life expectancy at 65, Gloucestershire, South West and England (2020-2022)[3]

[2] *Ibid.*

[3] *Ibid.*

Gloucestershire compares relatively well to its nearest neighbours[4] in terms of both life expectancy at birth and at age 65.

In absolute terms, the county ranks 8th out of 16 similar authorities when looking at male life expectancy at birth. However, when confidence intervals are considered, the county has a similar male life expectancy at birth to 9 authorities, a better life expectancy than Lincolnshire, Derbyshire, Nottinghamshire and Staffordshire, and a lower life expectancy than Devon and Hampshire.

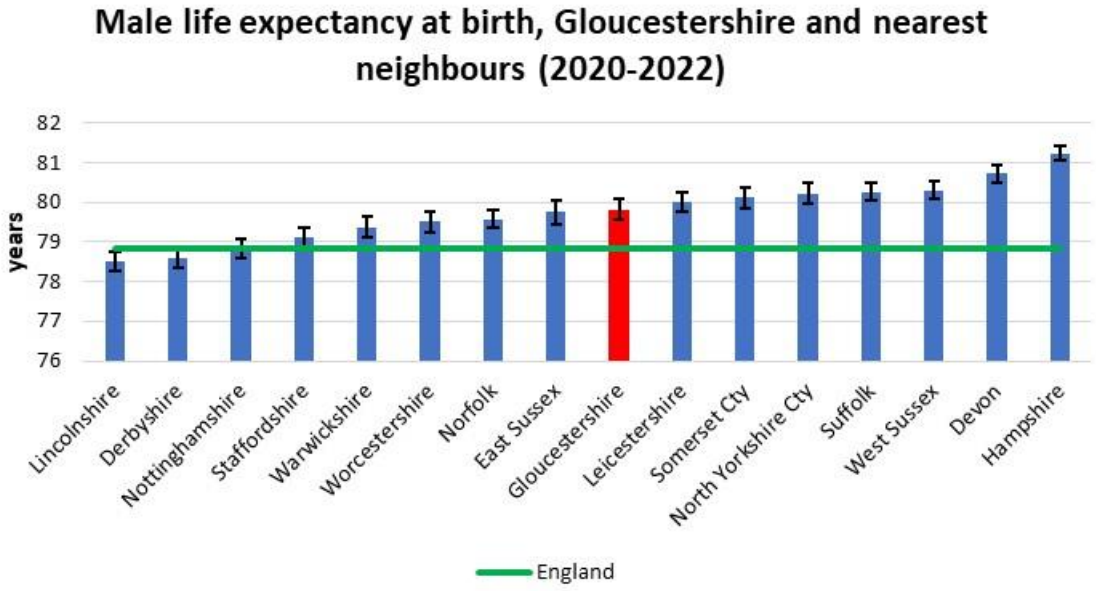

Figure 4: Male life expectancy at birth, Gloucestershire and nearest neighbours (2020-2022)[5]

When looking at female life expectancy at birth the county also ranks 8th out of 16 similar authorities. However, when confidence intervals are taken into account, the county has a similar female life expectancy at birth to 8 authorities, a better life expectancy than Derbyshire, Lincolnshire, Nottinghamshire and Staffordshire, and a lower life expectancy than West Sussex, Hampshire and Devon.

[4] This list is based on the CIPFA nearest neighbour model, which provides a list of Local Authorities which may not be close to one another geographically but share similar characteristics meaning they are useful to compare to one another

[5] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS

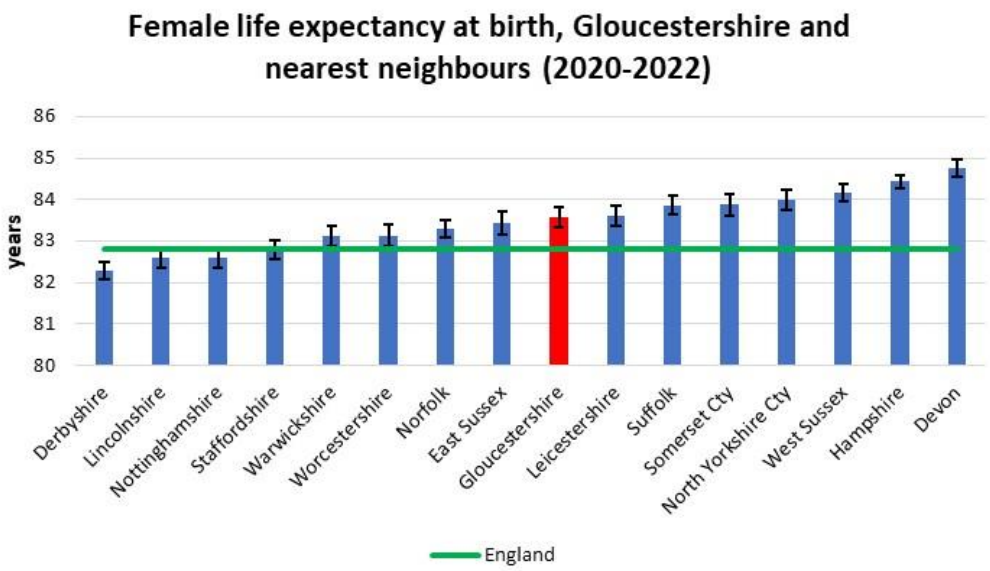

Figure 5: Female life expectancy at birth, Gloucestershire and nearest neighbours (2020-2022)[6]

In absolute terms, the county ranks 7th out of 16 similar authorities when looking at male life expectancy at 65. However, when confidence intervals are considered, the county has a similar male life expectancy at birth to 7 authorities, a better life expectancy than Nottinghamshire, Derbyshire, Staffordshire, Lincolnshire and Warwickshire, and a lower life expectancy than Devon, Hampshire and North Yorkshire.

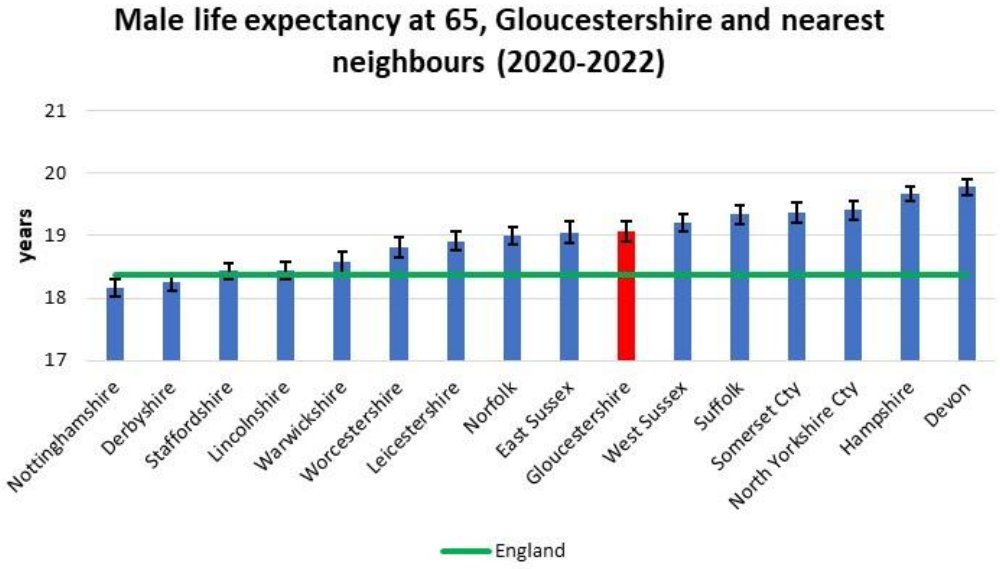

Figure 6: Male life expectancy at 65, Gloucestershire and nearest neighbours (2020-2022)[7]

[6] *Ibid.*

[7] *Ibid.*

When looking at female life expectancy at 65 the county also ranks 7th out of 16 similar authorities. However, when confidence intervals are taken into account, the county has a similar female life expectancy at birth to 6 authorities, a better life expectancy than Derbyshire, Lincolnshire, Nottinghamshire and Staffordshire, Warwickshire and Worcestershire, and a lower life expectancy than West Sussex, Hampshire and Devon.

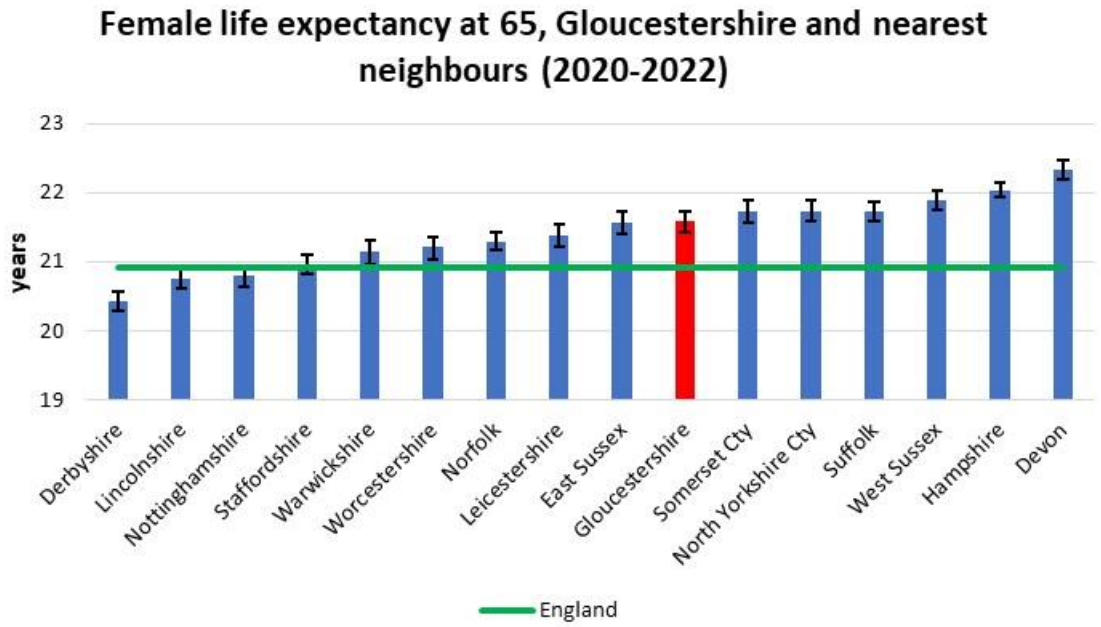

Figure 7: Female life expectancy at 65, Gloucestershire and nearest neighbours (2020-2022)[8]

1.4 Variation across Gloucestershire

There is geographical variation within Gloucestershire, with male life expectancy at birth ranging from 77.8 years in Gloucester, to 80.9 years in Cotswold, a difference of 3.1 years. Female life expectancy at birth ranges from 81.7 years in Gloucester to 84.7 years in Cotswold, a difference of 3.0 years.

When compared to the national average, Gloucester is significantly worse than the England in terms of male and female life expectancy at birth. All other districts have significantly better life expectancy than England across both measures.

Male life expectancy at 65 is lowest in Gloucester where it stands at 17.9 years and highest in Cotswold where it stands at 19.7 years, a difference of 1.8 years. Female life expectancy at 65, ranges from 20.5 years in Gloucester to 22.2 years in Cotswold and Tewkesbury, a difference of 1.7 years.

[8] *Ibid.*

In Gloucester, male life expectancy at 65 is significantly worse than the national average, while for females it is in line with the national average. All other districts have significantly better life expectancy at 65 than England for males and females. Cotswold also has a significantly higher life expectancy than the South West across all measures.

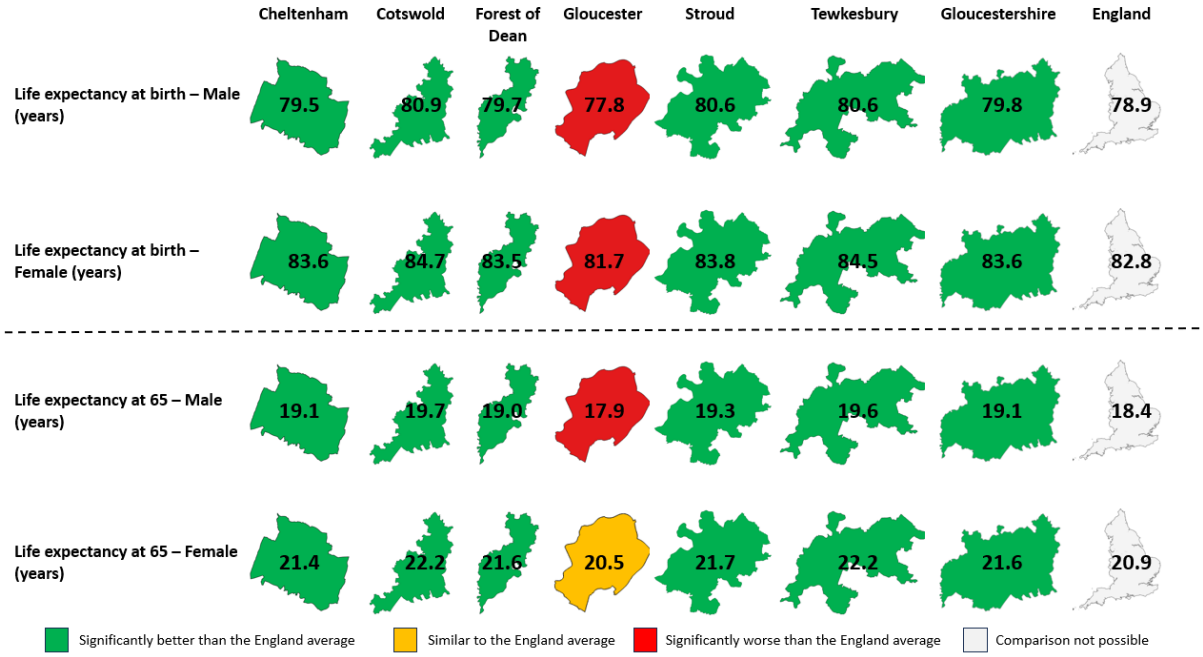

Figure 8: Life expectancy at birth and life expectancy at 65 in Gloucestershire districts (2020-2022)[9]

[9] *Ibid.*

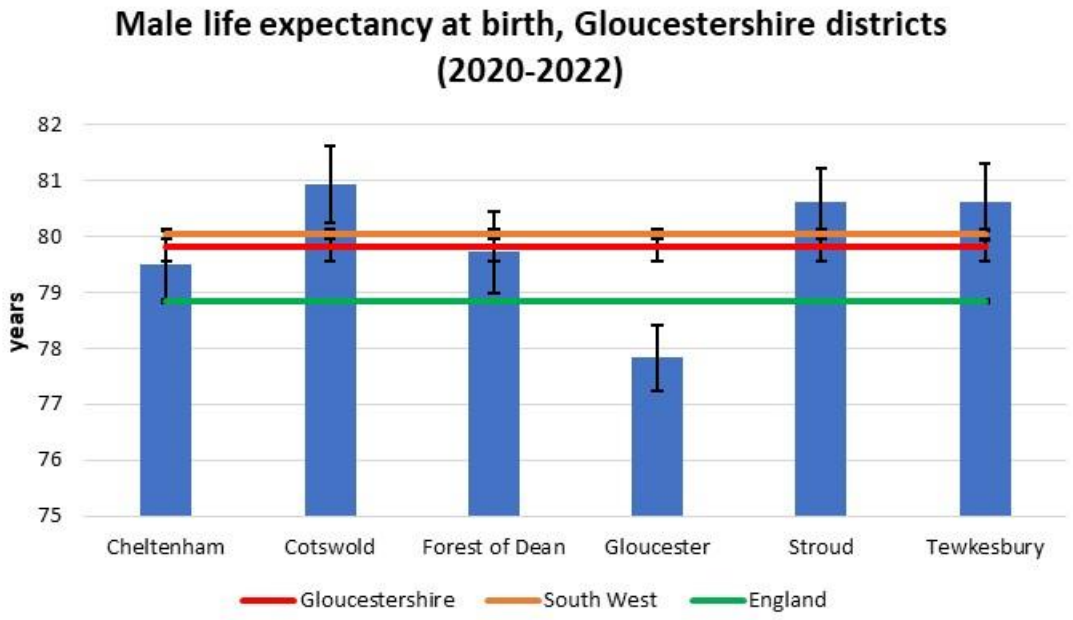

Figure 9: Male life expectancy at birth, Gloucestershire districts (2020-2022)[10]

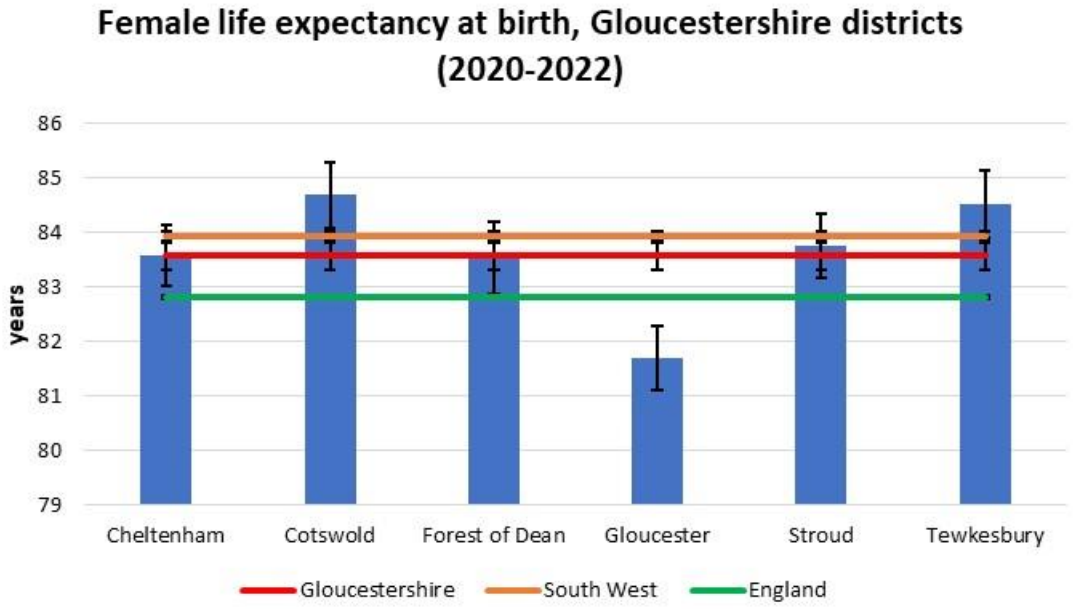

Figure 10: Female life expectancy at birth, Gloucestershire districts (2020-2022)[11]

[10] *Ibid.*

[11] *Ibid.*

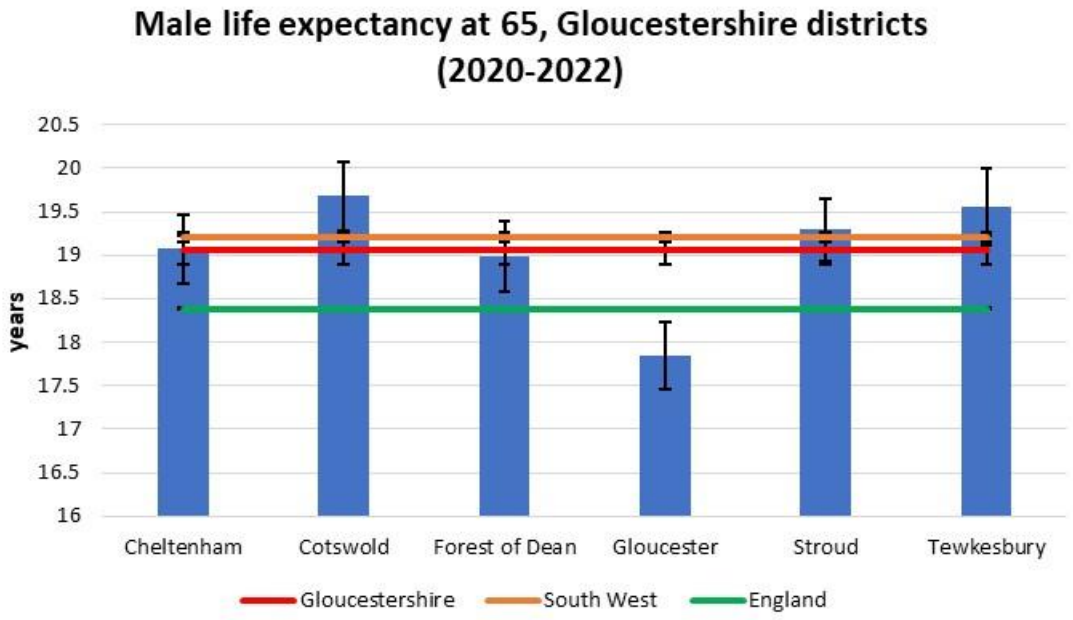

Figure 11: Male life expectancy at 65, Gloucestershire districts (2020-2022)[12]

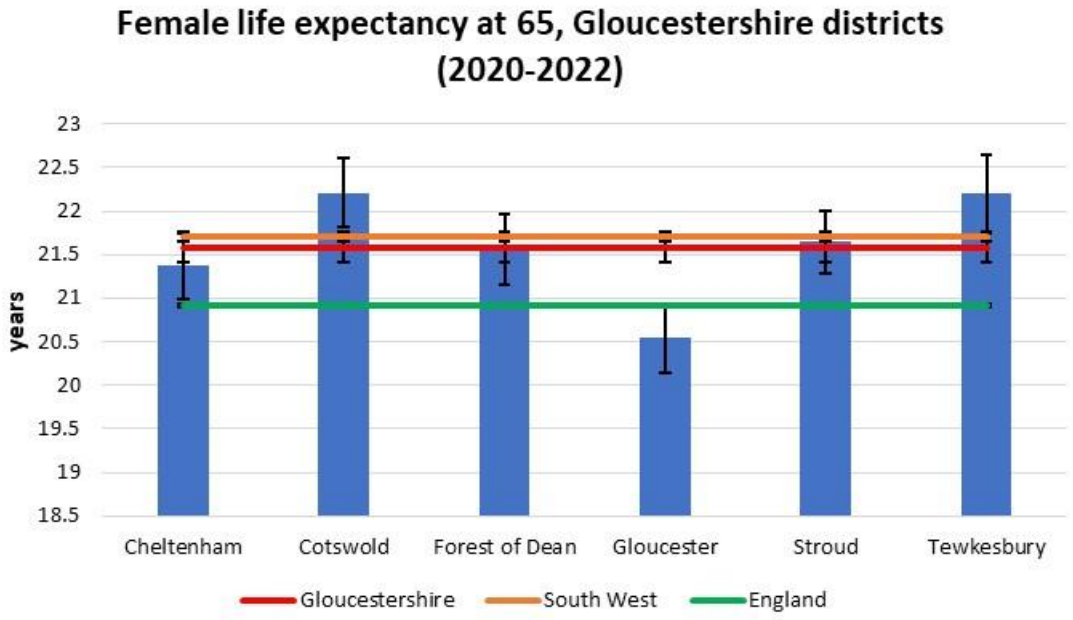

Figure 12: Female life expectancy at 65, Gloucestershire districts (2020-2022)[13]

[12] *Ibid.*

[13] *Ibid.*

1.5 Inequalities

1.5.1 Sex

Looking over the last thirty years females have consistently had a higher life expectancy than males, with many researchers believing that there is a biological and clinical reason for this. For example, males typically have a higher incidence of respiratory and cardiovascular diseases, infections, cancers, and autoimmune diseases than females[14]. Lifestyle factors are also likely to contribute to this life expectancy gap, for example in 2022, 13.5% of males in Gloucestershire were current smokers compared to 9.7% of females[15]. The life expectancy gap (the difference) between males and females, in Gloucestershire in the period 2020-2022, was 3.8 years. This means that females are expected to live on average 3 years and 10 months longer than males[16]. This gap is not unique to Gloucestershire and is also observed at a regional and national level.

The picture is similar for life expectancy at age 65. The gap between males and females for life expectancy at 65 is around two years and six months[17].

1.5.2 Deprivation

In Gloucestershire, as elsewhere, those from the most deprived areas live shorter lives and spend more time in ill health.

Information about deprivation is produced for small areas known as Lower Super Output Areas. This is because this granularity helps to identify 'pockets' (or concentrations) of deprivation that may be missed in analyses based on larger areas such as districts and counties. The most timely life expectancy data at small area level covers the period 2018-2020. It showed that males born in the most deprived deciles of Gloucestershire could expect to live 7 years and 7 months less than those born in the most affluent deciles. Females born in the most deprived areas could expect to live 7 years and 10 months less than those born in the most affluent areas[18].

A similar picture is observed when looking at life expectancy at age 65. Males living in the most deprived deciles of Gloucestershire could expect to live 3 years and 7 months less than those living in the most affluent areas. Females living in the most deprived areas could expect to live 3 years and 6 months less than those born in the most affluent areas[19].

[14] Feraldi, A., & Zarulli, V. (2022). Patterns in age and cause of death contribution to the sex gap in life expectancy: A comparison among ten countries. Genus, 78(1), 23.

[15] Annual Population Survey, ONS

[16] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS

[17] *Ibid.*

[18] PHOF, OHID.

[19] *Ibid.*

1.6 Change over time

In the late 1990's and early 2000's, local and national life expectancy at birth rose steadily. This has been attributed to improvements in public health and the environment (such as immunisation and road safety), medical advances in diagnosing and treating diseases (such as heart disease and cancer), as well as lifestyle changes, (such as a decline in smoking and changes to smoking legislation).

However, over the last ten years this improvement had levelled off, which the Marmot Review (2010) suggests may be a result of social and economic conditions, many of which have shown increased inequalities, or deterioration since 2010[20]. In the most recent years (since 2018-2020) there has been a decline in life expectancy nationally and locally for both males and females. This has meant that both locally and nationally life expectancy at birth during the period 2020-2022 is lower for both males and females than in the period 2017-2019, although for females in Gloucestershire the difference was not statistically significant.

Life expectancy in Gloucestershire has been similar or better than the national average for both males and females over time.

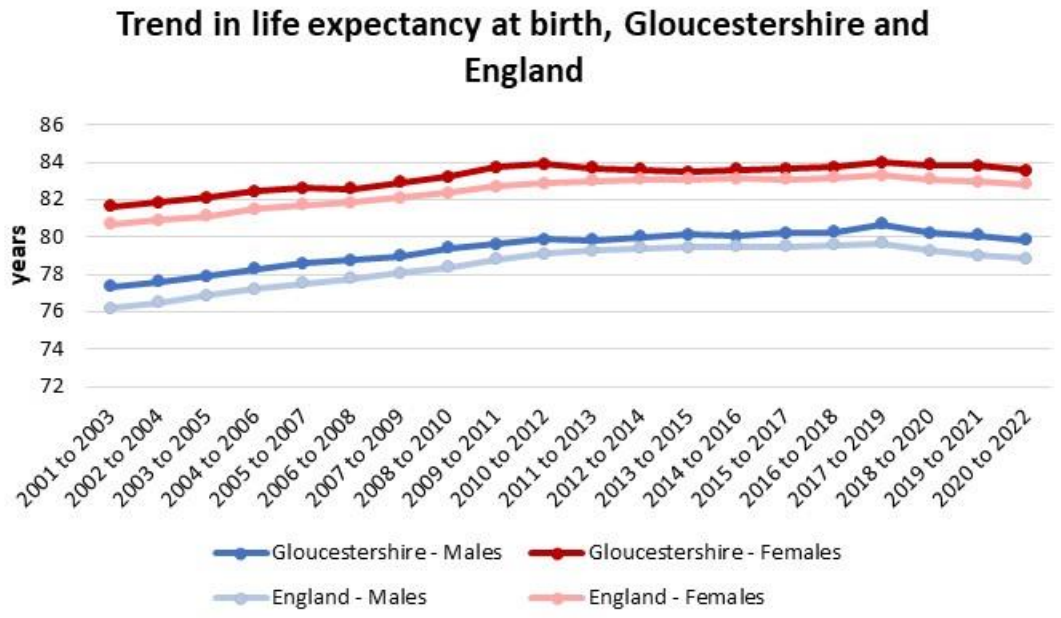

Figure 13: Trend in life expectancy at birth, Gloucestershire and England[21]

A similar picture is also observed when looking at life expectancy at 65 as shown in Figure 14.

[20] Health Equity in England: The Marmot Review 10 Years on, Institute of Health Equity

[21] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS

The recent fall in life expectancy is likely to be largely attributable to the COVID-19 pandemic which led to increased mortality rates during the period 2020-2022. The estimates in this report rely on the assumption that recent levels of mortality (i.e in 2020-2022), which were unusually high, will continue for the rest of someone's life[22]. However, if mortality rates improve in the coming years, it is possible that life expectancy will return to an improving trend after a period of stabilisation[23]. This will require further monitoring over time.

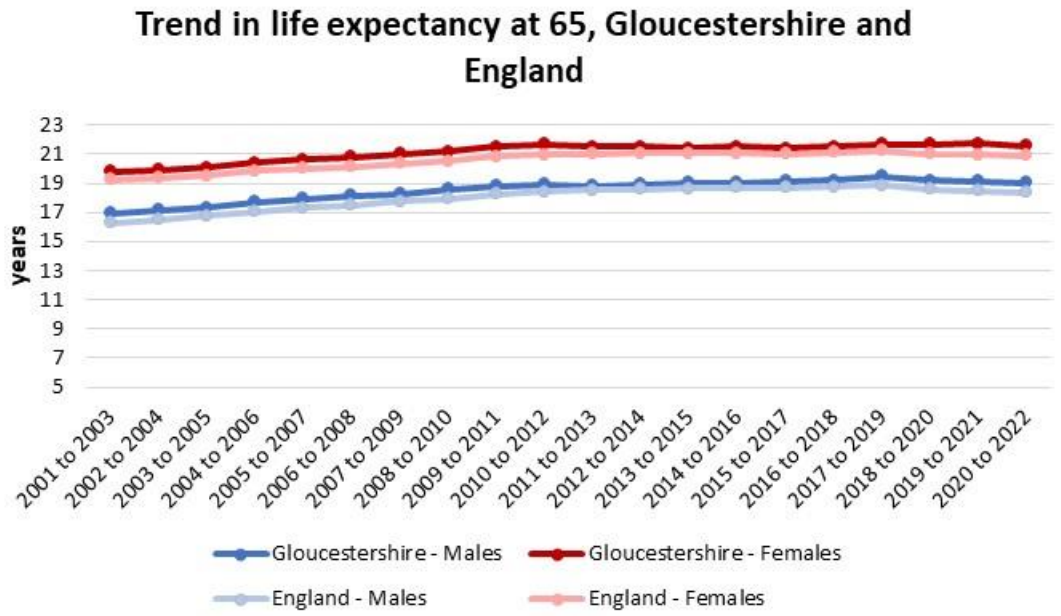

Figure 14: Trend in life expectancy at 65, Gloucestershire and England[24]

1.6.1 Variation across Gloucestershire

Gloucestershire's districts broadly followed the trend in life expectancy at birth observed at a county and national level. Life expectancy at birth for both males and females was lower in 2020-2022 than 2017-2019 for all districts, although it's worth noting the differences were generally not statistically significant.

However, there are some differences between the districts. Figure 15 shows Stroud and Tewkesbury saw a smaller decline in male life expectancy at birth between 2017-2019 and 2020-2022, than other districts. The Forest of Dean saw a larger decline in male life expectancy at birth between 2019-2021 and 2020-2022, with a decline of 0.8 years.

[22] Has the Coronavirus pandemic caused life expectancy in the UK to fall? | National Statistical (ons.gov.uk)

[23] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS

[24] *Ibid.*

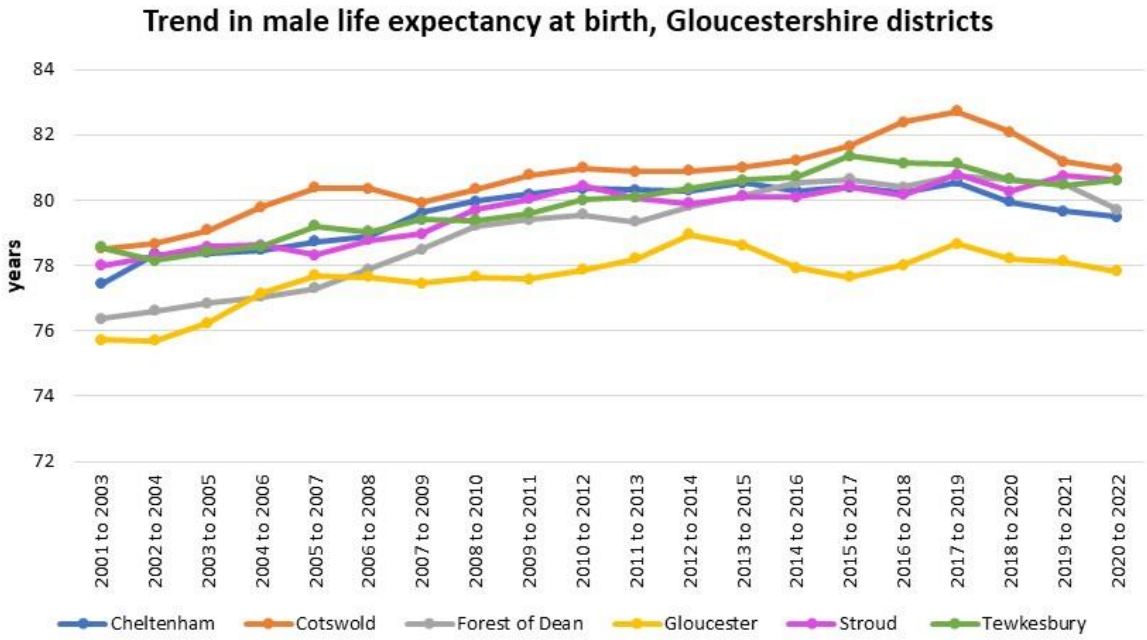

Figure 15: Trend in male life expectancy at birth, Gloucestershire districts[25]

Figure 16 shows Gloucester saw a more pronounced decline in female life expectancy at birth between 2017-2019 and 2020-2022 than other districts.

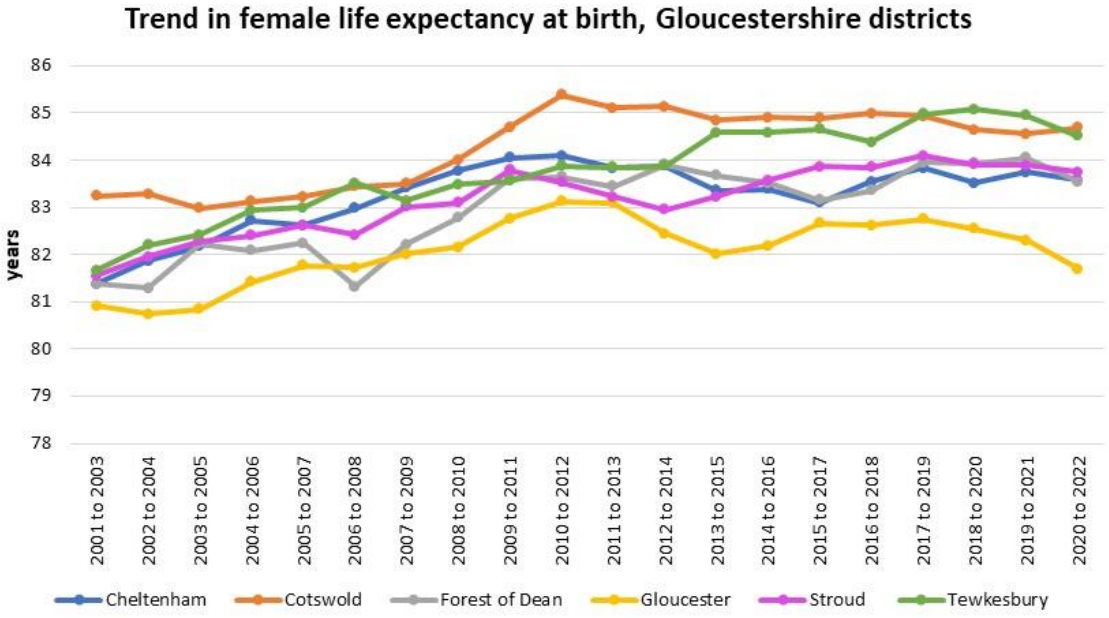

Figure 16: Trend in female life expectancy at birth, Gloucestershire districts[26]

[25] *Ibid.*

[26] *Ibid.*

When looking at life expectancy at 65 the picture is mixed. Figure 17 shows most districts saw a decline in male life expectancy at 65 between 2017-2019 and 2020-2022, the exception was Stroud which saw no change.

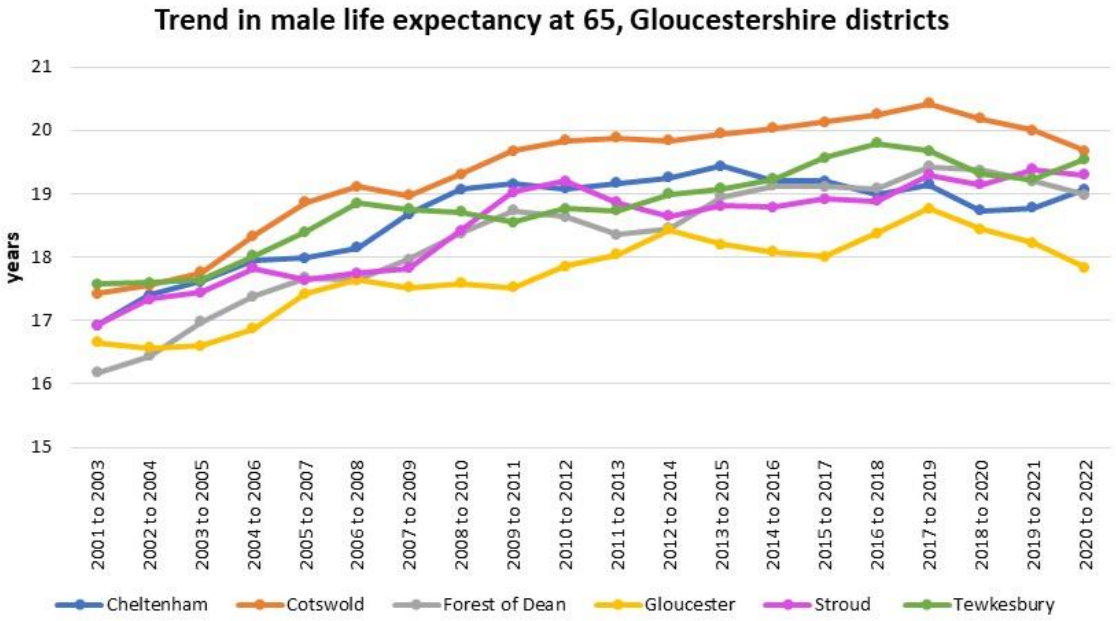

Figure 17: Trend in male life expectancy at 65, Gloucestershire districts[27]

Figure 18 shows female life expectancy at 65 increased in Forest of Dean and Stroud between 2017-2019 and 2020-2022, while falling in other areas.

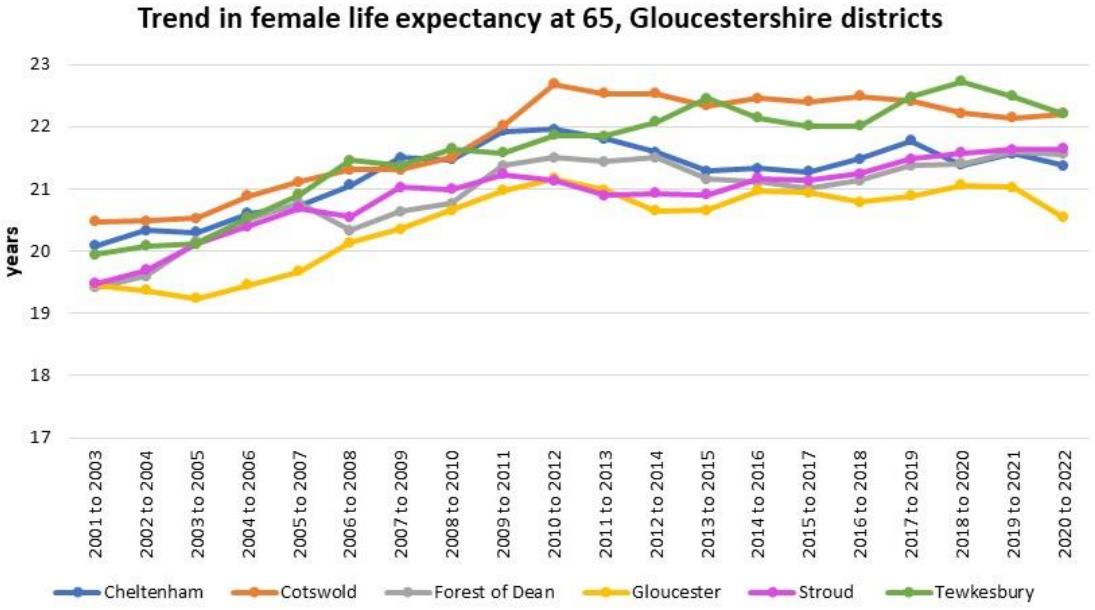

Figure 18: Trend in female life expectancy at 65, Gloucestershire districts[28]

[27] *Ibid.*

[28] *Ibid.*

1.6.2 Inequalities – sex

During the period 2001-2003 to 2018-2019 males in Gloucestershire saw a greater improvement in life expectancy at birth than females. This saw the sex gap in life expectancy narrow from 4.3 years in 2001-2003 to 3.3 years in 2017-2019. Since 2017-2019, male life expectancy at birth has worsened at a faster rate than female life expectancy. This has meant the life expectancy gap between males and females has widened, standing at 3.7 years in 2020-2022. This trend has also been reflected at a national level and when looking at life expectancy at 65.

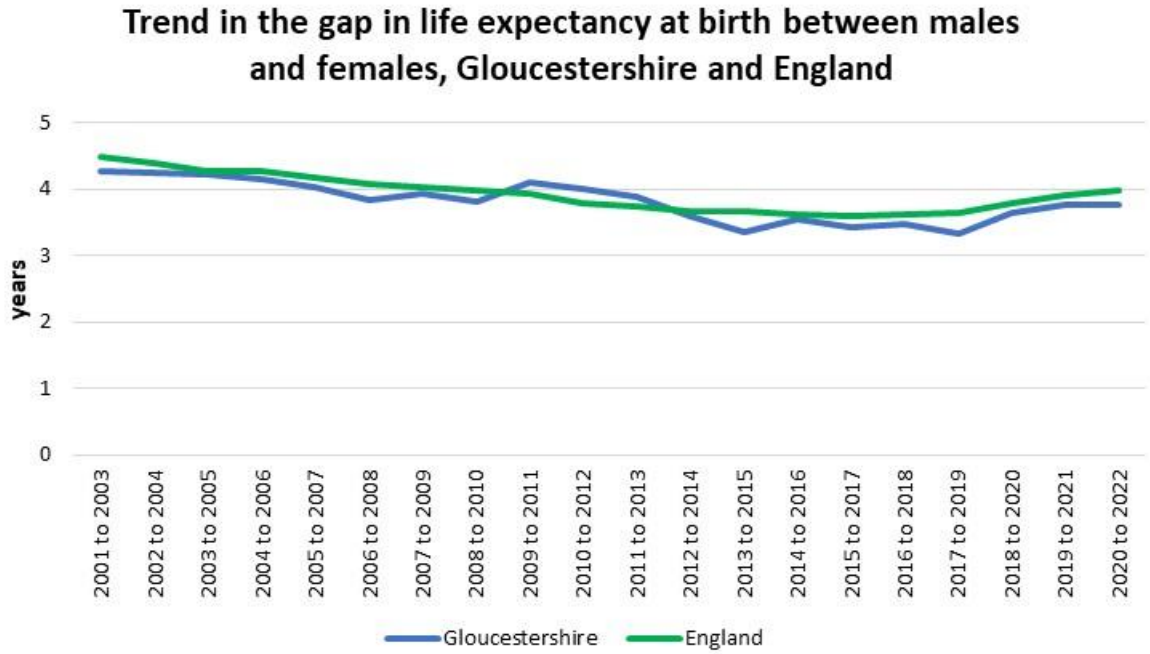

Figure 19: Trend in the gap in life expectancy at birth between males and females, Gloucestershire and England[29].

2. Drivers of mortality

Figure 20 shows the causes of mortality that contribute to the life expectancy gap between the 20% most deprived communities in Gloucestershire and the 20% least deprived communities in Gloucestershire, by cause of death for the COVID-19 affected period 2020-21.

Deaths in younger people, especially in babies, contribute to a larger proportion of the gap, as more years of life are lost. The largest difference in life expectancy between the most and least deprived communities for both males and females is circulatory diseases (30.3% for males and 23.9% for females). This was followed

[29] *Ibid.*

by other causes[30] for males (14.7%) and respiratory diseases for females (16.9%).

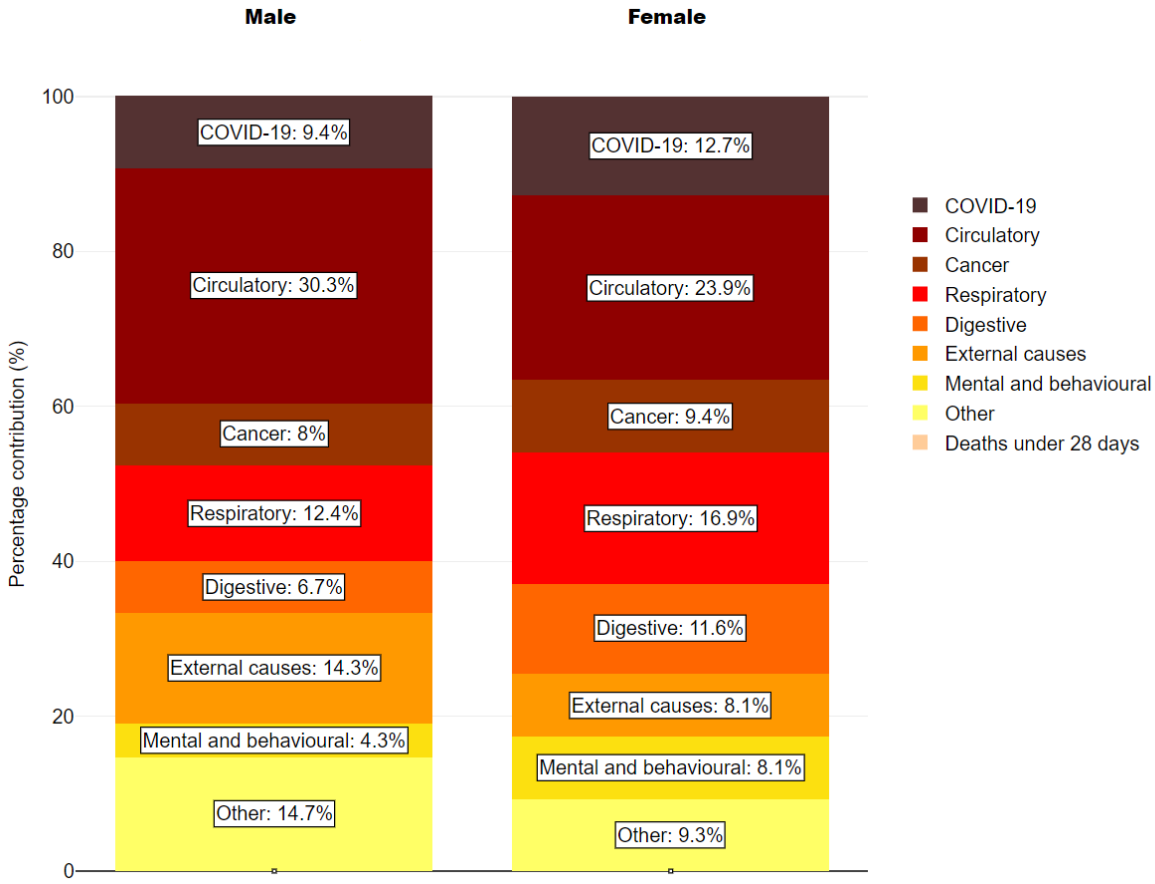

Figure 20: Breakdown of the life expectancy gap between the most and least deprived quintiles of Gloucestershire by cause of death, 2020 to 2021[31]

3. Healthy Life Expectancy

3.1 What is Healthy Life Expectancy?

Healthy life expectancy measures the average number of years a person would expect to live in good health rather than with a disability or in poor health. Good health measures an individual's perception of being disability free through a self-reported lack of long-lasting physical or mental health conditions that limit their daily activities. This information is based on death registration combined with survey information which asks people about their self reported health, this means it can be subjective. In addition, declining survey sample sizes at a local authority level means healthy life expectancy information is currently only available at regional and national level. Data for other local area types has not been

[30] Includes all other causes of death not listed

[31] Segment Tool, OHID

published because of quality concerns[32]. The available data also has limitations in that it can not be broken down to look at healthy life expectancy at age 65, although information is available for the broader age group 65-69. This means it is not directly comparable with data around overall life expectancy so has been excluded from this report.

3.2 Current picture

In the South West healthy life expectancy at birth for males is 64.6 years and for females it is 64.2 years (2020-22). This is significantly better than the national average of 62.4 for males and 62.7 years for females.

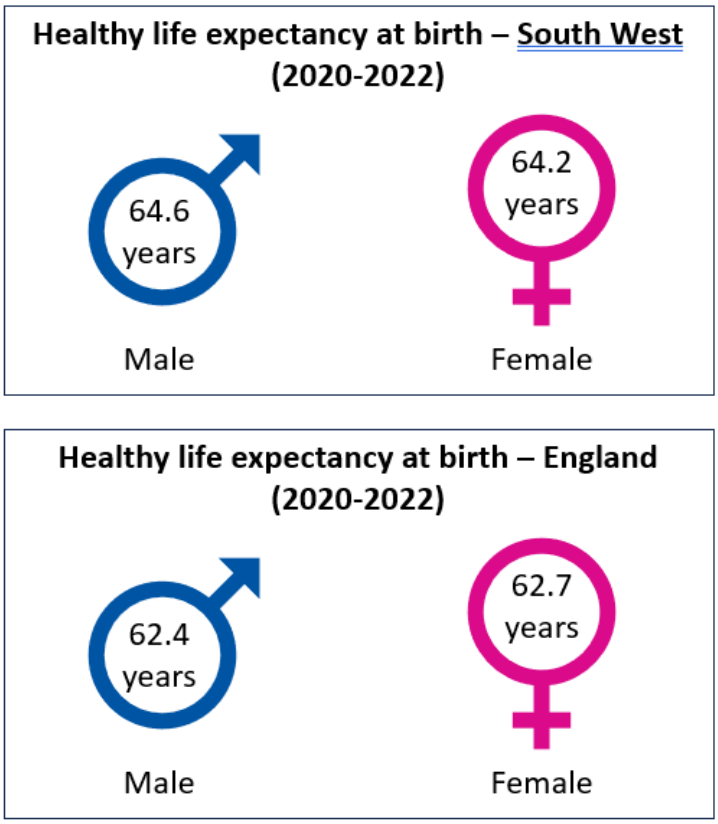

Figure 21: Healthy life expectancy at birth, South West and England (2020-2022)[33]

3.3 Change over time

Healthy life expectancy at a regional and national level remained largely unchanged between 2011-2013 and 2017-2019. Between 2017-2019 and 2020-2022 healthy life expectancy fell, reflecting the trend observed in overall life

[32] Health state life expectancies in England, Northern Ireland and Wales - Office for National Statistics (ons.gov.uk)

[33] Health state life expectancies in England, Northern Ireland and Wales: between 2011 to 2013 and 2020 to 2022, ONS

expectancy. Interestingly in the South West, the fall in healthy life expectancy for females was later than nationally, with healthy life expectancy increasing between 2017-2019 and 2019-2021, before falling significantly between 2010-2021 and 2020-2022.

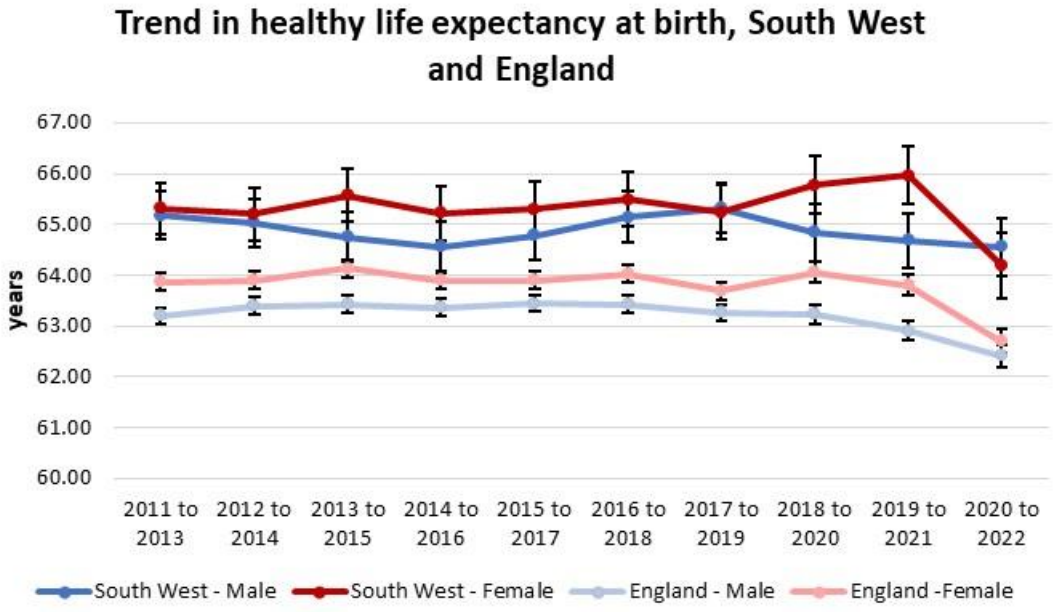

Figure 22: Trend in healthy life expectancy at birth, South West and England[34]

4. Time spent in poor health

Comparing estimated life expectancy and healthy life expectancy gives an indication of how long someone is likely to live in poor health.

4.1 Current picture

Due to the absence of healthy life expectancy data at county level, the following section will focus on the picture across the South West.

This suggests that a South West male could expect to live around 15.5 years or 19.3% of their life in poor health. This is slightly lower than the equivalent figures for England.

[34] *Ibid.*

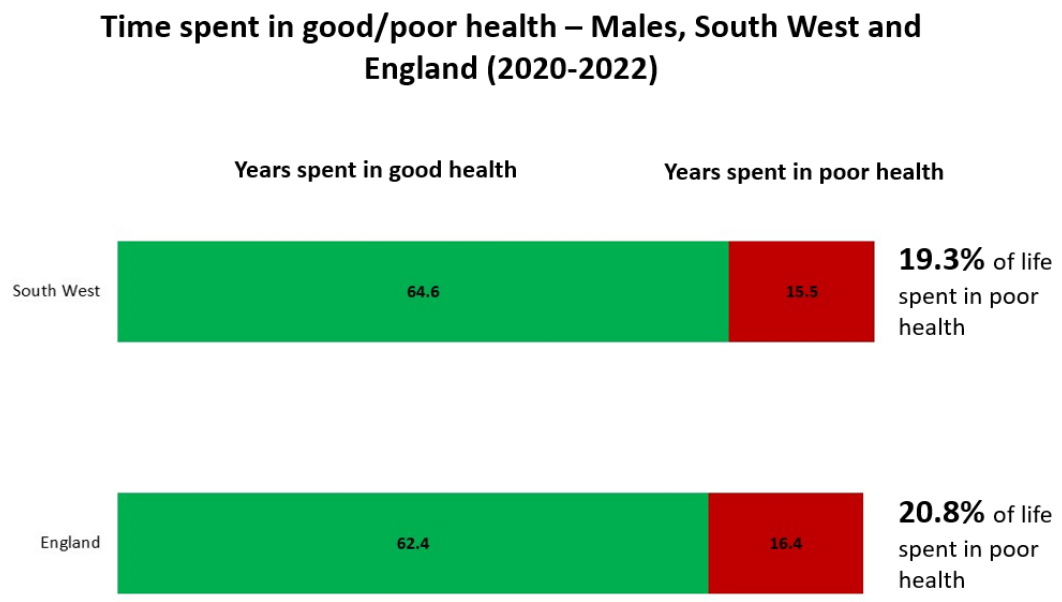

Figure 23: Time spent in good/poor health – Males, South West and England (2020-2022)[35]

Figure 24 shows that a South West female could expect to live around 19.8 years or 23.5% of their life in poor health. This is slightly lower than the equivalent figures for England.

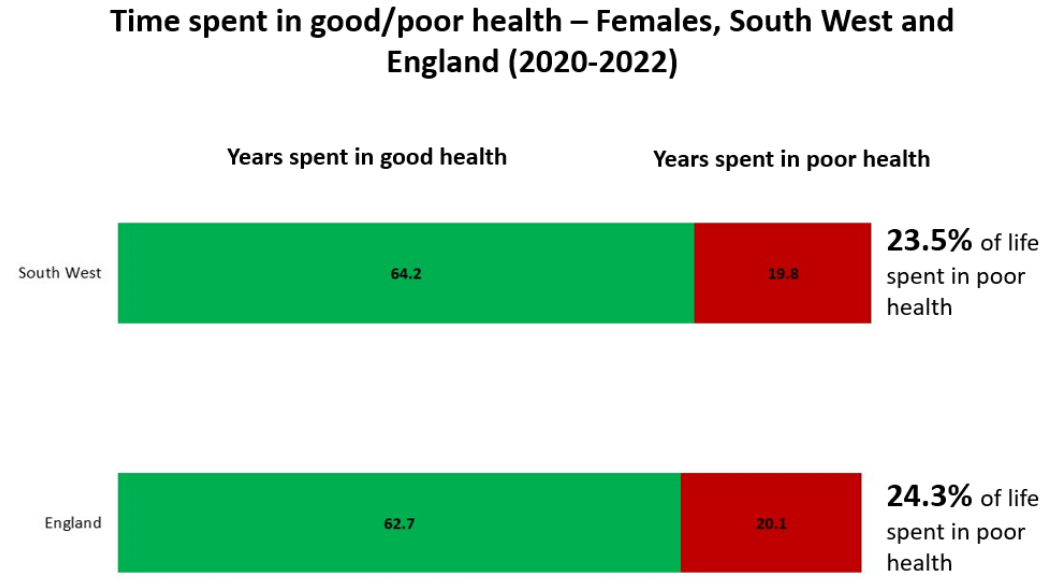

Figure 24: Time spent in good/poor health – Females, South West and England (2020-2022)[36]

[35] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS and Health state life expectancies in England, Northern Ireland and Wales: between 2011 to 2013 and 2020 to 2022, ONS

[36] Life expectancy for local areas between 2001 to 2003 and 2020 to 2022, ONS and Health state life expectancies in England, Northern Ireland and Wales: between 2011 to 2013 and 2020 to 2022, ONS

4.2 Inequalities

4.2.1 Sex

Data for the South West and England suggests that while females live longer, they spend longer in poor health than males. This reflects the conclusions of a global study which found non-fatal conditions that cause illness and disability, such as musculoskeletal problems, mental health issues and headache disorders, particularly affect women. At the same time men are disproportionally affected by conditions that cause premature death, such as cardiovascular diseases, respiratory and liver diseases, Covid-19 and road injuries. The health differences between women and men continue to grow with age, leaving women with higher levels of illness and disability throughout their lives, as they tend to live longer than men[37].

5. Long-term conditions

5.1 What are long-term conditions?

This section looks at the age of diagnosis of long-term conditions that carry a high risk of mortality or negatively impact a person's daily function or quality of life.

Examples of long-term conditions include diabetes, heart disease and chronic obstructive pulmonary disease. The effective management of these conditions is widely recognised to be one of the greatest challenges facing the NHS and Social Care. They can affect many parts of a person's life, from their ability to work and have relationships to housing and education opportunities.

The prevalence of long-term conditions tends to increase with population ageing. There are two reasons for this. Firstly, for many conditions such as cardiovascular disease and dementia, the probability of developing the condition increases with age. Secondly, many health conditions are chronic and incurable, so levels of illness are cumulative.

[37] Differences across the lifespan between females and males in the top 20 causes of disease burden globally: a systematic analysis of the Global Burden of Disease Study 2021, Vedavati Patwardhan, PhD , Gabriela F Gil, MPH, Alejandra Arrieta, Jack Cagney, Erin DeGraw, Molly E Herbert et al

5.2 Current picture in Gloucestershire

Analysis produced by Gloucestershire ICB gives an insight into the average age of first diagnosis[38] for the most commonly diagnosed long-term conditions[39]. In addition to being some of the most commonly diagnosed long-term conditions, they were also selected for this analysis due to them being potentially preventable, and well coded in primary care (as part of a Quality Outcomes Framework (QOF)). This approach ensures that only conditions where there is consistent coding and high completion are used, which as well as giving a more accurate summary, better enables comparisons between sex and districts.

This analysis uses locally sourced data, this has benefits as it means we have the ability to further explore the data if required, breaking it down by smaller geographies or additional characteristics. However, there are also limitations, we do not have equivalent data for other areas, meaning we are not able to see how we compare to areas outside of the county.

The results below show the majority of included diagnosed conditions are diagnosed when an individual is in their late 50's or 60's.

Amongst males, diabetes[40] was diagnosed on average at the youngest age (55.0 years), similar to the age of diagnosis for rheumatoid arthritis (55.2 years) but significantly younger than the average age of diagnosis for all other conditions (56.0 to 78.5 years) rheumatoid arthritis was the earliest diagnosed condition amongst females (52.3 years) and was diagnosed significantly earlier than all other conditions (55.7 to 80.8 years).

Dementia was diagnosed significantly later than all other conditions amongst both males and females.

[38] The ICB is not able to see exact dates of birth for patients, therefor the ages used have been calculated using the diagnosis date minus their current age. As such some accuracy may be lost but the general picture will be largely unaffected.

[39] These include Atrial Fibrillation, Cancer, Chronic Kidney Disease, Chronic Obstructive Pulmonary Disease, Coronary Heart Disease, Dementia, Diabetes, Heart Failure, Hypertension. Osteoporosis, Peripheral Arterial Disease, Rheumatoid Arthritis, Stroke and TIA and Lung Disease.

[40] This includes type 1 and type 2 diabetes

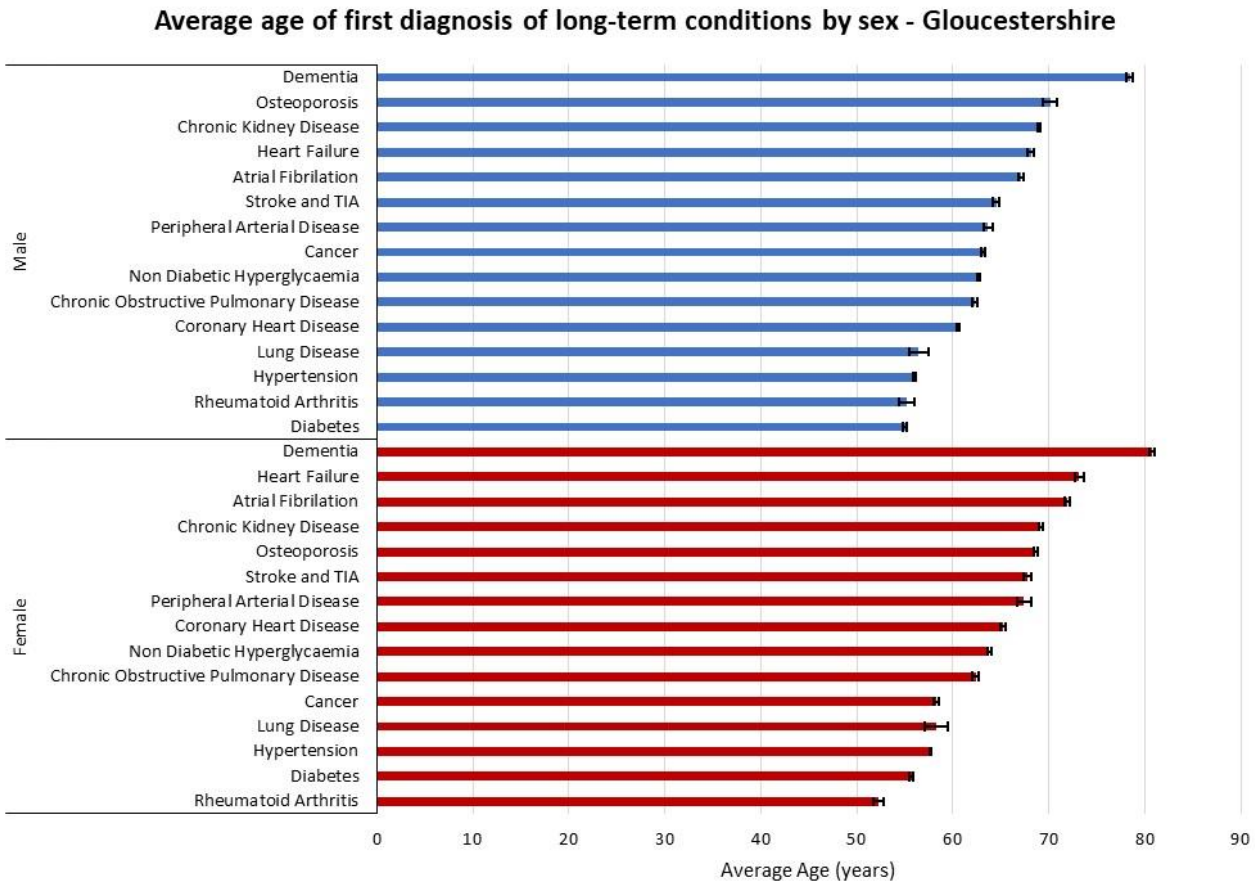

Figure 25: Average age of first diagnosis by sex - Gloucestershire[41]

5.3 Variation across Gloucestershire

Gloucestershire's districts broadly reflect the picture seen at county level. Amongst males, diabetes is the earliest diagnosed condition in Cheltenham, Cotswold and Stroud, while in Forest of Dean, Gloucester and Tewkesbury rheumatoid arthritis was the earliest diagnosed condition. Dementia was the latest diagnosed condition in all districts.

Gloucester had the earliest age of diagnosis amongst males for all conditions. Conversely Cotswold had the latest age of diagnosis for all conditions except hypertension, where Stroud had the latest average age of diagnosis, and lung disease and dementia where Tewkesbury had the latest average age of diagnosis.

Gloucester males have a significantly earlier age of diagnosis than all other districts for chronic kidney disease, coronary heart disease, hypertension and non diabetic hyperglycemia, for other conditions the age of diagnosis is not significantly different to other districts.

[41] Gloucestershire ICB, June 2024

Cotswold males have a significantly later age of diagnosis than all other districts for non diabetic hyperglycemia and heart failure, for other conditions the age of diagnosis is not significantly different to other districts.

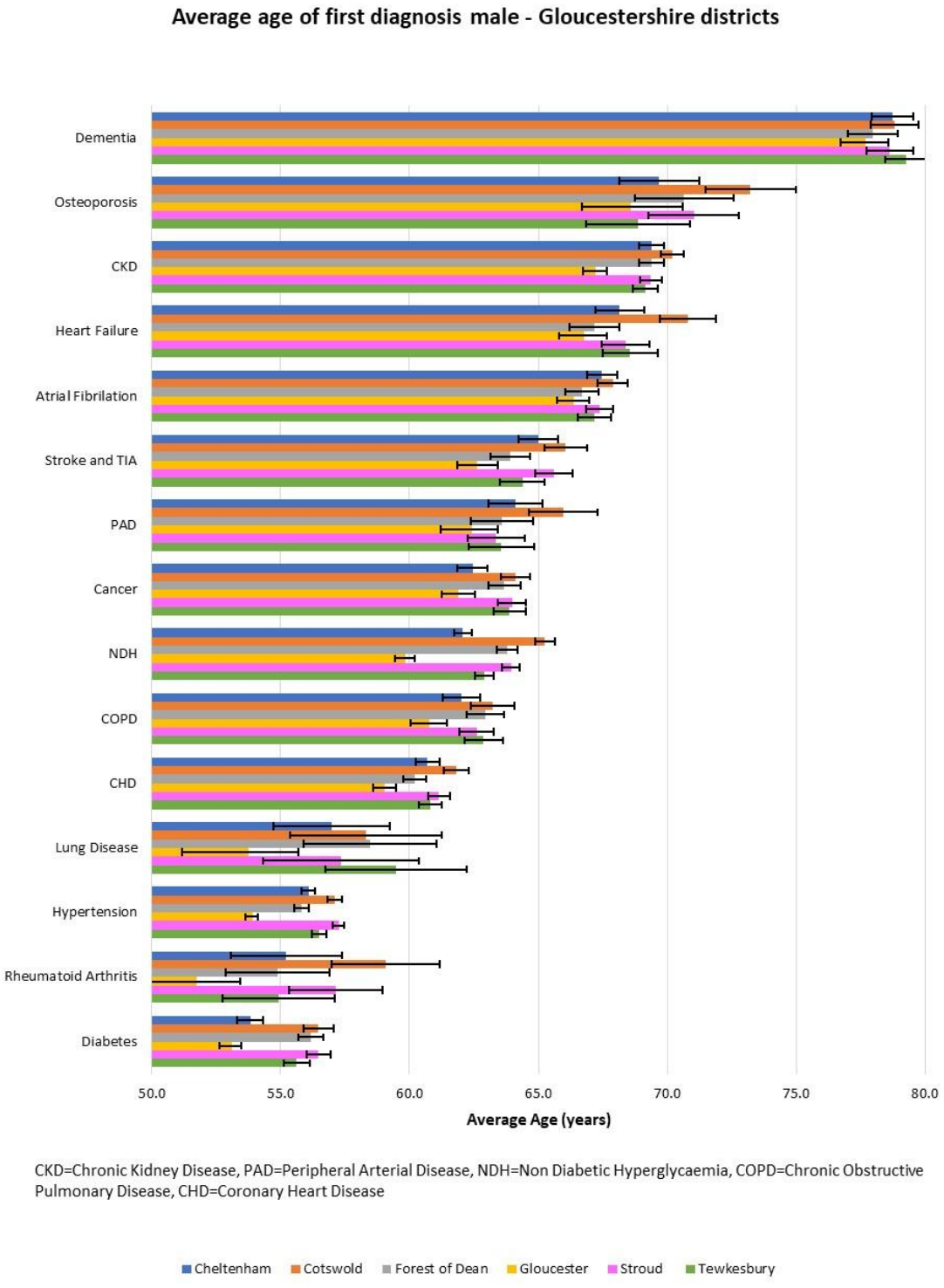

Figure 26: Average age of first diagnosis male – Gloucestershire districts[42]

[42] *Ibid.*

When looking at variation in age of diagnosis amongst females, the picture is also broadly similar to the county average. Across all districts the earliest diagnosed condition amongst females is rheumatoid arthritis whilst the latest diagnosed condition is dementia.

Gloucester had the earliest age of diagnosis amongst females for all conditions except lung disease (earlier average onset seen in Cheltenham), osteoporosis (earlier average onset seen in Tewkesbury) and atrial fibrillation (earlier average onset seen in the Forest of Dean).

Conversely Cotswold had the latest age of diagnosis for most conditions except atrial fibrillation chronic kidney disease and dementia (later average onset seen in Cheltenham), cancer (latest average onset seen in the Forest of Dean), and hypertension and stroke and TIA (latest average onset seen in Stroud.

Gloucester females have a significantly earlier age of diagnosis than all other districts for chronic kidney disease, diabetes, hypertension and non-diabetic hyperglycemia. For all other conditions the age of diagnosis is not significantly different to other districts.

Cotswold females have a significantly later age of diagnosis than all other districts from non diabetic hyperglycemia, for other conditions the age of diagnosis is not significantly different to other districts.

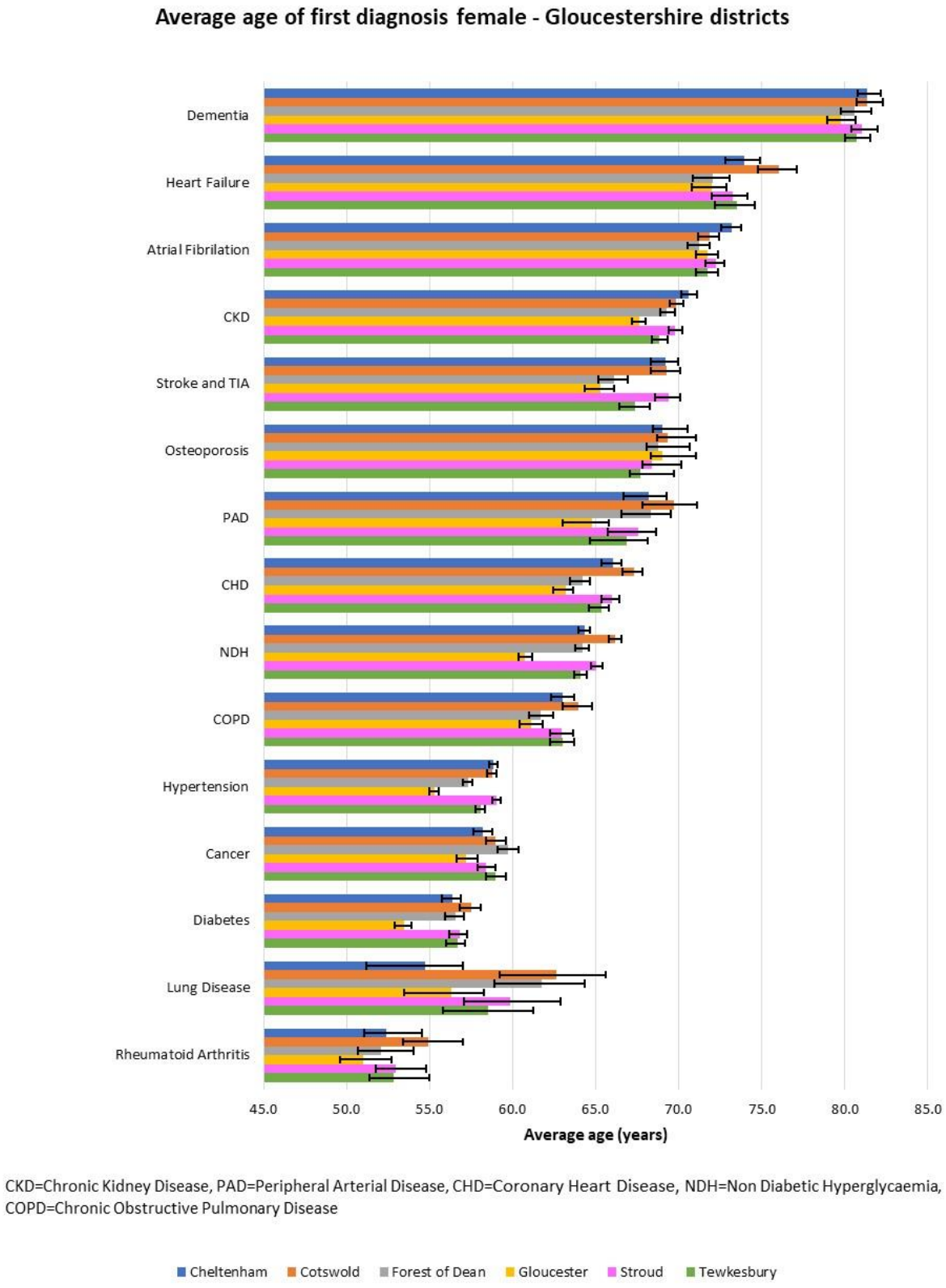

Figure 27: Average age of first diagnosis female – Gloucestershire districts[43]

[43] *Ibid.*

Figure 28 shows how the districts compare to the county in terms of the average age of diagnosis for males, they key findings for each district are summarized below:

Cheltenham

- Diabetes and non diabetic hyperglycemia are diagnosed significantly earlier in Cheltenham than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Cotswold

- Atrial fibrillation, chronic obstructive pulmonary disease, dementia and lung disease are diagnosed at a similar age to the county average.
- All other conditions are diagnosed significantly later than at a county level.

Forest of Dean

- Diabetes and non diabetic hyperglycemia are diagnosed significantly later in the Forest of Dean than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Gloucester

- Atrial fibrillation, dementia, lung disease, osteoporosis and peripheral arterial disease are diagnosed at a similar age to the county average.
- All other conditions are diagnosed significantly earlier than at a county level.

Stroud

- Cancer, diabetes, hypertension, non diabetic hyperglycemia and stroke and TIA are diagnosed significantly later in Stroud than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Tewkesbury

- Hypertension is diagnosed significantly later in Tewkesbury than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Key	
	Signficicantly later age of diagnosis than the county average
	Similar age of diagnosis to the county average
	Signficicantly earlier age of diagnosis than the county average

	Gloucestershire	Cheltenham	Cotswold	Forest of Dean	Gloucester	Stroud	Tewkesbury
Atrial Fibrilation	67.1	67.5	67.9	66.7	66.3	67.4	67.2
Cancer	63.2	62.4	64.1	63.7	61.9	64.0	63.9
Chronic Kidney Disease	69.0	69.4	70.2	69.4	67.2	69.4	69.1
Chronic Obstructive Pulmonary Disease	62.3	62.0	63.2	62.9	60.8	62.6	62.9
Coronary Heart Disease	60.6	60.7	61.8	60.2	59.1	61.1	60.8
Dementia	78.5	78.7	78.8	78.0	77.7	78.6	79.3
Diabetes	55.0	53.8	56.5	56.2	53.1	56.5	55.6
Heart Failure	68.1	68.1	70.8	67.2	66.8	68.4	68.6
Hypertension	56.0	56.1	57.1	55.8	53.9	57.2	56.5
Lung Disease	56.5	57.0	58.3	58.5	53.8	57.3	59.5
Non Diabetic Hyperglycaemia	62.7	62.1	65.3	63.8	59.8	63.9	62.9
Osteoporosis	70.2	69.7	73.2	70.6	68.6	71.0	68.9
Peripheral Arterial Disease	63.7	64.1	66.9	63.6	62.4	63.4	63.6
Rheumatoid Arthritis	55.2	55.2	59.1	54.9	51.7	57.1	54.9
Stroke and TIA	64.5	65.0	66.1	63.9	62.6	65.6	64.4

Figure 28: Average age of first diagnosis of long term conditions for males, districts compared to the Gloucestershire average[44]

Figure 29 shows how the districts compare to the county in terms of the average age of diagnosis for females, they key findings for each district are summarized below:

Cheltenham

- Atrial fibrillation, chronic kidney disease, hypertension and stroke and TIA Diabetes and non diabetic hyperglycemia are diagnosed significantly later in Cheltenham than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Cotswold

- Atrial fibrillation, cancer, dementia, lung disease, osteoporosis. peripheral arterial disease are diagnosed at a similar age to the county average.
- All other conditions are diagnosed significantly later than at a county level.

Forest of Dean

- Cancer is diagnosed significantly later than at a county level.
- Stroke and TIA is diagnosed significantly earlier than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Gloucester

- Atrial fibrillation, heart failure, lung disease, osteoporosis and rheumatoid arthritis are diagnosed at a similar age to the county average.
- All other conditions are diagnosed significantly earlier than at a county level.

Stroud

[44] *Ibid.*

- Chronic kidney disease, diabetes, hypertension, non diabetic hyperglycemia and stroke and TIA are diagnosed significantly later in Stroud than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Tewkesbury

- Diabetes is diagnosed significantly later than at a county level.
- Osteoporosis is diagnosed significantly earlier than at a county level.
- All other conditions are diagnosed at a similar age to the county average.

Key	
	Signficicantly later age of diagnosis than the county average
	Similar age of diagnosis to the county average
	Signficicantly earlier age of diagnosis than the county average

	Gloucestershire	Cheltenham	Cotswold	Forest of Dean	Gloucester	Stroud	Tewkesbury
Atrial Fibrilation	72.0	73.2	71.8	71.2	71.7	72.2	71.7
Cancer	58.3	58.2	59.0	59.7	57.2	58.4	59.0
Chronic Kidney Disease	69.2	70.6	69.8	69.3	67.6	69.8	68.8
Chronic Obstructive Pulmonary Disease	62.4	63.0	63.9	61.7	61.1	63.0	63.0
Coronary Heart Disease	65.2	66.0	67.3	64.2	63.2	66.0	65.3
Dementia	80.8	81.4	81.3	80.6	79.8	81.0	80.7
Diabetes	55.7	56.3	57.5	56.5	53.5	56.8	56.6
Heart Failure	73.2	73.9	76.0	72.1	72.0	73.2	73.5
Hypertension	57.7	58.8	58.7	57.3	55.3	59.0	58.0
Lung Disease	58.3	54.7	62.6	61.7	56.3	59.8	58.5
Non Diabetic Hyperglycaemia	63.8	64.3	66.2	64.2	60.7	65.0	64.1
Osteoporosis	68.6	69.0	69.3	68.8	69.0	68.4	67.7
Peripheral Arterial Disease	67.4	68.2	69.7	68.3	64.8	67.5	66.9
Rheumatoid Arthritis	52.3	52.4	54.9	52.0	51.0	53.0	52.8
Stroke and TIA	67.8	69.2	69.3	66.1	65.3	69.4	67.4

Figure 29: Average age of first diagnosis of long term conditions for females, districts compared to the Gloucestershire average[45]

5.4 Inequalities

5.4.1 Sex

Figure 25 shows at a county level the average age of diagnosis was earlier for men than women for all conditions except cancer, osteoporosis and rheumatoid arthritis.

The differences between sexes were statistically significant for all conditions except chronic kidney disease, chronic obstructive pulmonary disease and lung disease.

A similar picture is broadly observed at district level.

[45] *Ibid.*

6. Multi-morbidity

6.1 What is multi-morbidity?

Multimorbidity is the presence of 2 or more long-term health conditions in a single individual. It impacts an individual's quality of life, mental health and wellbeing, daily function, and often results in greater healthcare utilisation the more co-existing conditions they have.

6.2 Current picture

Analysis produced by Gloucestershire ICB gives an insight into the number of people in Gloucestershire with multi-morbidities[46].

This analysis uses locally sourced data, this has benefits as it means we have the ability to further explore the data if required, breaking it down by smaller geographies or additional characteristics. However, there are also limitations, we do not have equivalent data for other areas, meaning we are not able to see how we compare to areas outside of the county.

The results suggest there are around 129,188 people in the county with multi-morbidities. This equates to a rate of 186.8 per 1,000 population.

6.3 Variation across Gloucestershire

Gloucester district has the highest number of people with multi-morbidities with 26,487 people having two or more long-term conditions. However, Figure 30 shows the Forest of Dean has the highest rate of people with multi-morbidities with a rate of 221.6 people per 1,000 population. This means the Forest of Dean had a significantly higher rate of people with multi-morbidities than the county average and all other Gloucestershire districts. Tewkesbury also had a significantly higher rate of people with multi-morbidities than the county average, while in Cotswold and Gloucester the rates were similar, and in Cheltenham and Stroud they were significantly lower than the Gloucestershire rate.

[46] This includes the following conditions: Asthma, Atrial Fibrillation, Cancer, Chronic Kidney Disease (stages 3a-5), Chronic Obstructive Pulmonary Disease, Coronary Heart Disease, Dementia, Depression, Diabetes, Epilepsy, Heart Failure, Hypertension, Learning Disability, Mental Health Problems, Obesity, Stroke or TIA. It does not match exactly with those used in the section looking at the average age of first diagnosis.

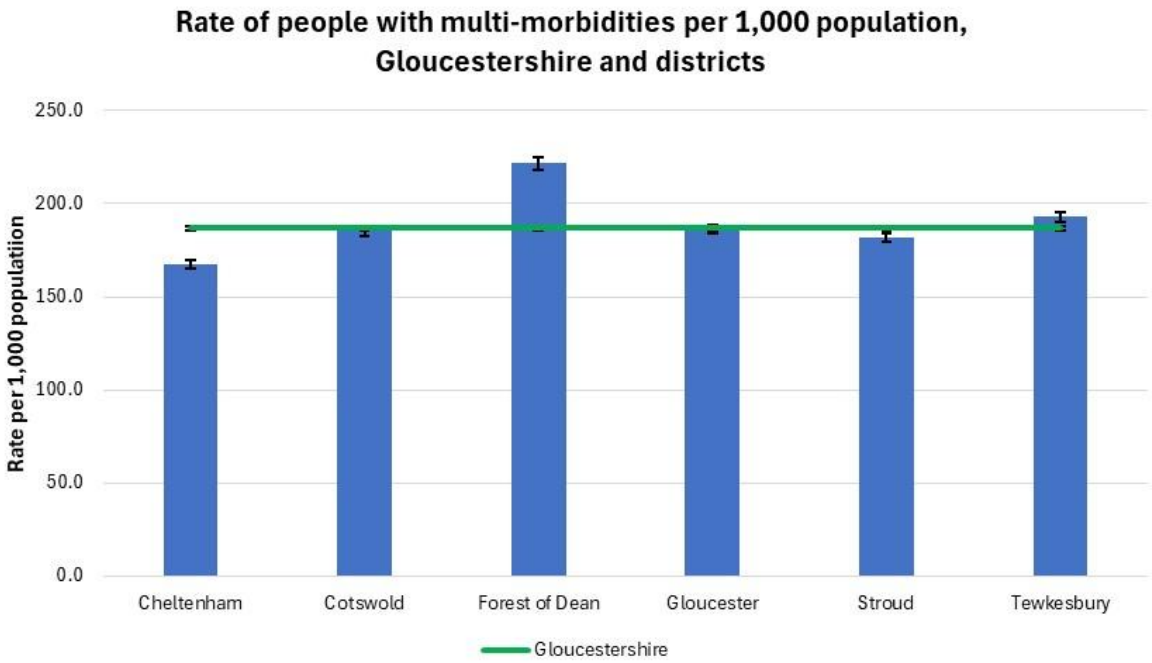

Figure 30: Rate of people with multi-morbidities per 1,000 population, Gloucestershire and districts[47]

6.4 Inequalities

6.4.1 Age

The prevalence of multi-morbidities increases with age. Figure 31 shows that from the age group 15-19 year olds upwards, the rate of multi-morbidity is significantly higher than the rate observed for the previous age group. The rate of multi-morbidity is highest amongst those aged 85+, where it stands at 736.7 per 1,000 population. A similar picture is broadly observed across all districts.

[47] Gloucestershire, ICB, June 2024

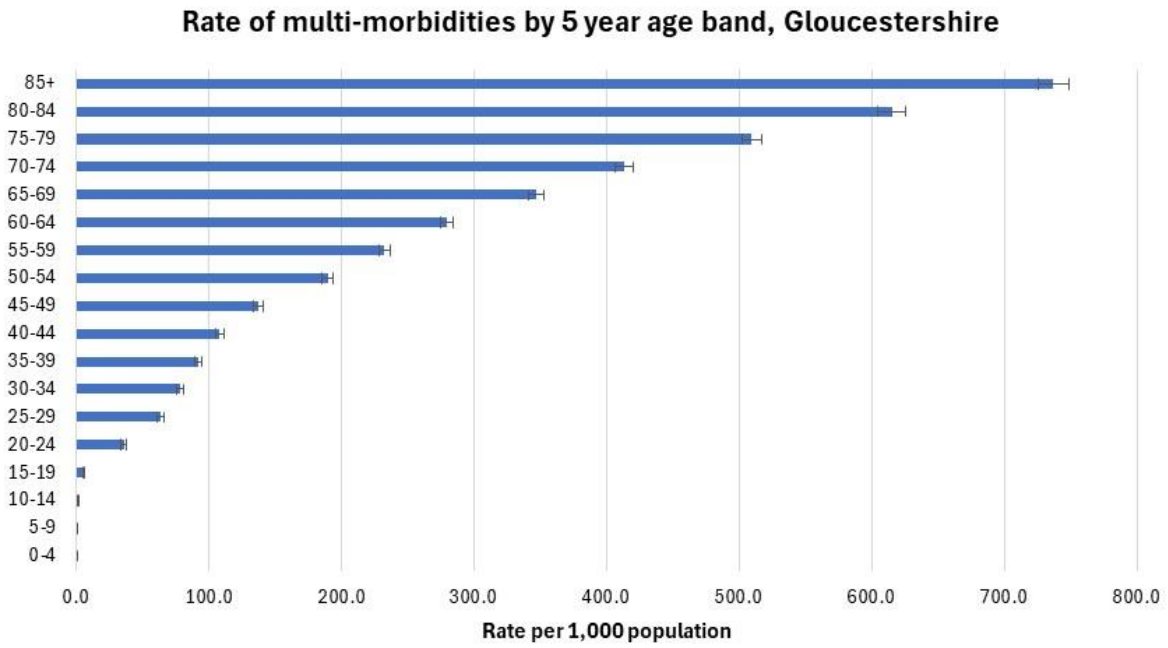

Figure 31: Rate of multi-morbidities by 5 year age band, Gloucestershire[48]

This is not unique to Gloucestershire but is recognised in numerous studies, with a summary by NICE stating 'Multimorbidity is almost universal in older adults, and prevalence increases with age'[49].

7. Healthspan

7.1 What is Healthspan?

Healthspan developed by Outcomes Based Healthcare aims to provide an objective measure of the amount of time individuals spend in 'good health'[50]. It bases this on the age at which people develop their first significant long term health condition[51]. It is worth noting the list of conditions used in this measure are significantly broader than those currently measured by the analysis undertaken

[48] *Ibid.*

[49] Multimorbidity – How Common is it?, NICE

[50] It is worth noting the data is experimental and is therefore subject to change as methods are revised. It is intended to be used alongside other sources of data to give a more comprehensive understanding of a population's health state.

[51] Conditions include; Alcohol Dependence, Asthma, Atrial Fibrillation, Bronchiectasis, Cancer, Cerebrovascular Disease, Chronic Kidney Disease, Chronic Liver Disease, Chronic Pain, Chronic Obstructive Pulmonary Disease, Coronary Heart Disease, Cystic Fibrosis, Depression, Diabetes, Epilepsy, Heart Failure, Hypertension, Inflammatory Bowel Disease, Multiple Sclerosis, Osteoarthritis, Osteoporosis, Parkinson's Disease, Peripheral Vascular Disease, Pulmonary Heart Disease, Rheumatoid Arthritis, Sarcoidosis, Serious Mental Illness, Sickle Cell Disease, Autism, Learning Disability, Physical Disability, Incurable Cancer, End Stage Renal Failure, Liver Failure, Neurological Organ Failure, Severe Chronic Obstructive Pulmonary Disease, Severe Heart Failure, Severe Interstitial Lung Disease, Dementia, Intermediate Frailty Risk, High Frailty Risk

by Gloucestershire ICB using local primary care data. In addition some conditions are present at birth or childhood, which may skew the average age of the first long term condition.

Additionally, some of the conditions used by Healthspan are not considered preventable, for example, congenital learning disabilities.

7.2 Current picture

In Gloucestershire, the average estimated age at which a male develops their first significant condition is 55.6 years and for females it is 54.3 years (2021-22). This is better than the national average of 51.8 for males and 49.3 years for females.

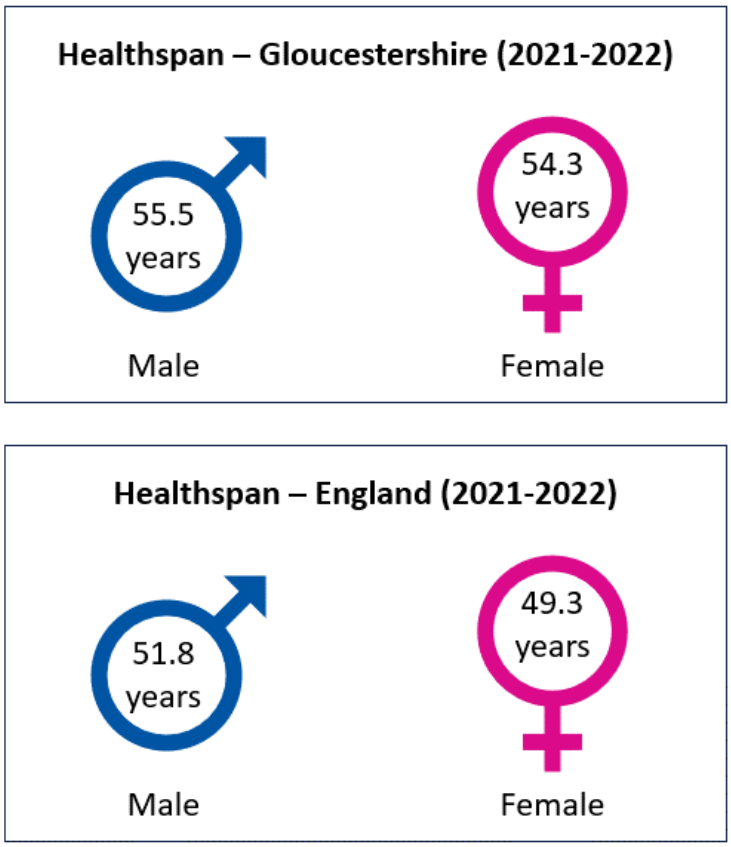

Figure 32: Healthspan, Gloucestershire and England (2021-2022)[52]

Figure 33 shows the distribution of ages at which someone is diagnosed with their first significant condition. It displays the range of values from the 5th to 95th percentile, the interquartile range (25th to 75th percentile) and the median value. They show that at a national, regional and local level there is substantial variation at the age at which males and females are diagnosed with their first significant condition. Gloucestershire and the South West have very similar characteristics, the picture when compared to England is broadly similar, although the age of

[52] Healthspan, Outcomes Based Healthcare, May 2024

diagnosis is slightly skewed towards younger ages, although the difference is not significant.

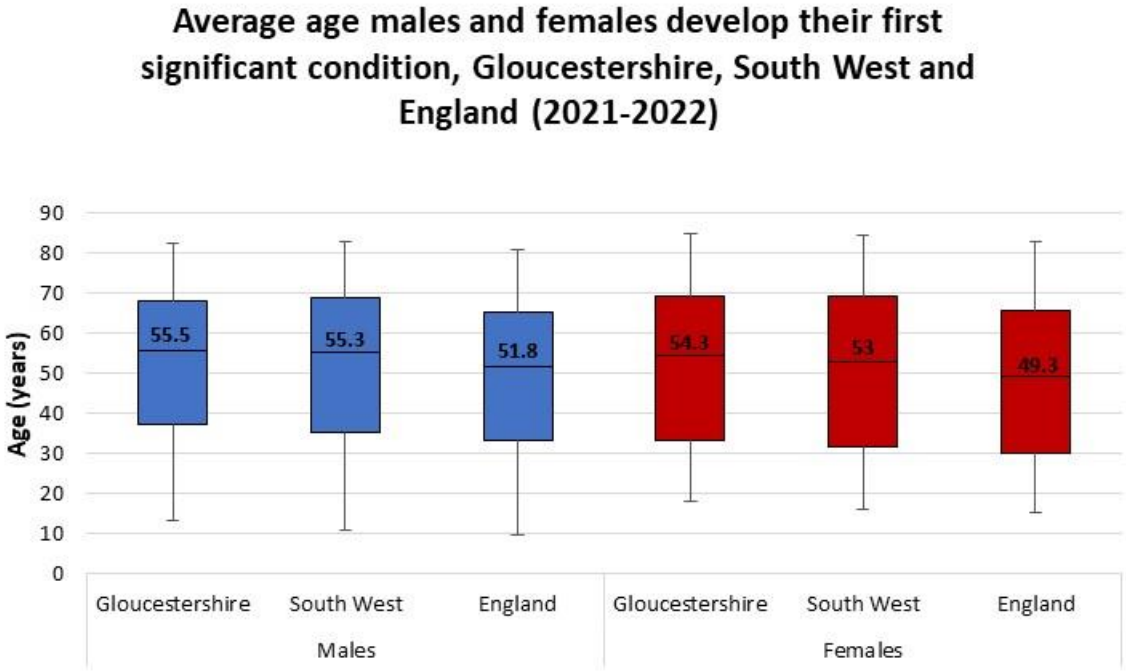

Figure 33: Average age males and females develop their first significant condition, Gloucestershire, South West and England (2021-2022)[53]

7.3 Inequalities

7.3.1 Sex

Figure 34 shows at a county level, on average females develop their first significant condition at a slightly younger age to males (54.3 years for females compared to 55.5 years for males). This picture was also reflected at a regional and national level.

In addition, the interquartile range is wider for females than males. This means there is more variability in the age at which females develop their first significant condition than males. This may reflect the fact the picture seen when looking at the time spend in good or poor health, which showed females were more likely to be in poor health for longer.

[53] *Ibid.*

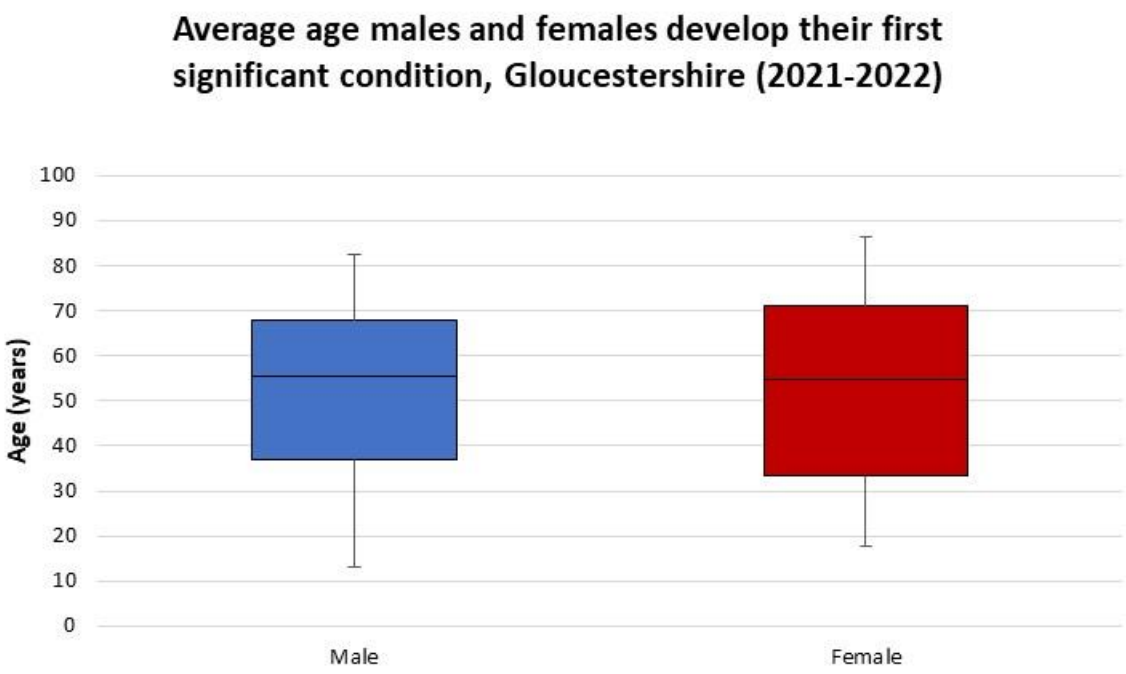

Figure 34: Average age males and females develop their first significant condition, Gloucestershire (2021-2022)[54]

8. Time spent with a significant condition

Comparing healthspan to lifespan[55] gives a measure of how long an individual is likely to spend in good health (without a significant condition) as a proportion of their overall lifespan.

8.1 Current picture

Figure 35 shows that on average a Gloucestershire male could expect to live around 24.8 years or 30.9% of their life with a significant condition. This is slightly lower than the equivalent figures for England. A Gloucestershire female could expect to live around 30.8 years or 36.2% of their life with a significant condition. This is lower than the equivalent figures for England.

[54] *Ibid.*

[55] Lifespan is based on the average age of death

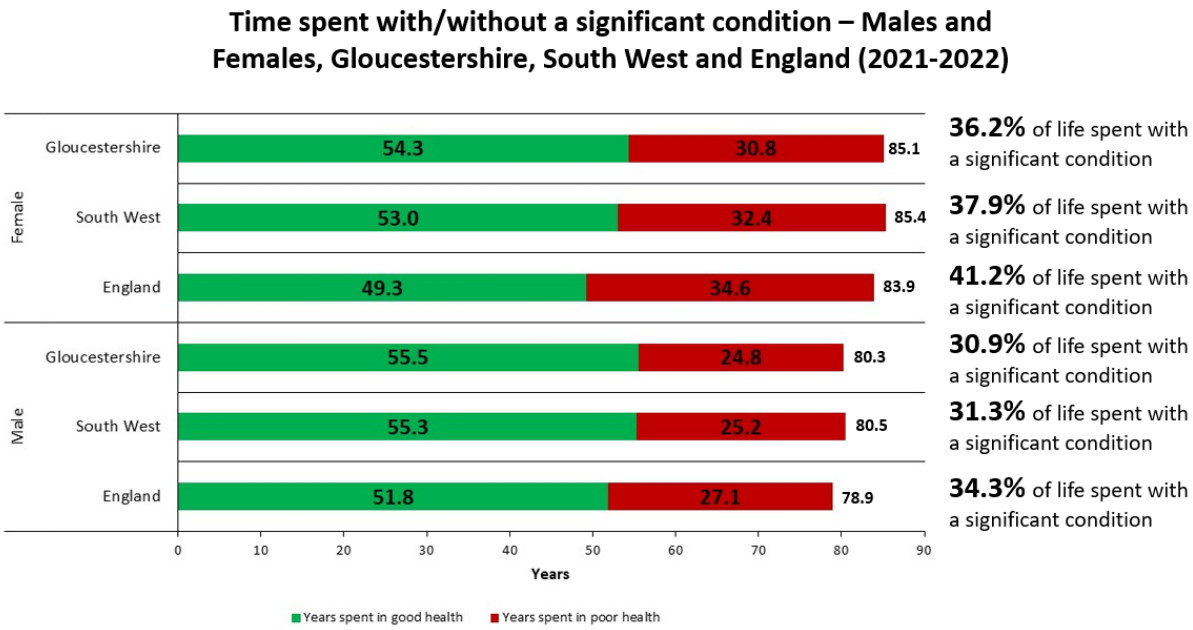

Figure 35: Time spent with/ without a significant condition – Males and Females, Gloucestershire, South West and England (2021-2022)[56]

8.2 Inequalities

8.2.1 Sex

Data for Gloucestershire, South West and England suggests that while females have a longer lifespan, they spend a greater proportion of their life with a significant condition. This reflects the picture seen when comparing healthy life expectancy and life expectancy figures.

9. Other inequalities

The information available around life expectancy and quality of health is limited, it can not be broken by most protected characteristics[57]. However additional data sources, and national studies can help build our understanding of how life expectancy and quality of life can vary between different groups.

Data around premature mortality shows that in 2020-22, the risk of someone with severe mental illness (SMI) dying prematurely (under 75 years) is over 5 and a half times greater than in the general population in Gloucestershire. This inequality is significantly higher than the England average (3.8 x higher)[58].

[56] Healthspan, Outcomes Based Healthcare

[57] These include ethnicity, disability, religion, sexual orientation, gender identity, marriage and civil partnership status and pregnancy and maternity

[58] PHOF, OHID

In 2022-23, 48 deaths were notified to the Gloucestershire LeDeR programme[59]. The average age of death for people with learning disabilities was 64 years for males and 63 years for females. This is significantly lower than the general population where the average age of death was 83 years for males and 86 years for females[60]. National research shows the average age of death for people with a learning disability who are from an ethnic minority is 34 years, just over half the life expectancy of white counterparts[61].

Inclusion health is an umbrella term used to describe people who are socially excluded, who typically experience multiple interacting risk factors for poor health, such as stigma, discrimination, poverty, violence, and complex trauma. They include; people who experience homelessness, people with drug and alcohol dependence, vulnerable migrants and refugees, Gypsy, Roma, and Traveller communities, people in contact with the justice system, victims of modern slavery, sex workers and other marginalised groups. A systematic review carried out by UCL found that mortality in high-income countries was approximately 12 times higher in women in inclusion health groups compared with the general population, and 8 times higher in men[62].

This shows there are many factors which may influence life expectancy and quality of health, which all need to be taken into consideration.

10. Conclusion

In Gloucestershire life expectancy is better than the national average. However, there is variation in life expectancy across the county, with life expectancy in Gloucester being lower than the other parts in the county.

Improvements in life expectancy have stalled in the previous ten years, nationally and locally, and the COVID pandemic has also coincided with a decline in life expectancy.

Data around quality of health and the average age of diagnosis of significant conditions shows that both males and females are likely to live a significant proportion of their life in poor health. The importance of this has been recognised by the Chief Medical Officer's 2023 report which states the need for medicine, government and wider society to work together to ensure that older age is as

[59] LeDeR Progamme.

[60] *Ibid.*

[61] *Ibid.*

[62] 'The health impact of social exclusion: a systematic review and meta-analysis of morbidity and mortality data from homeless, prison, sex work and substance use disorder populations in high-income countries, UCL

healthy, independent and enjoyable as possible into the future[63]. The report outlines a number of recommendations to achieve this:

- The NHS, social care, central and local government must start planning more systematically on the basis of where the population will age in the future, rather than where demand was 10 years ago. This includes building or adapting housing and transport to be appropriate for an older population.
- Central and local government (the State) have the principal responsibility for environmental factors which can delay or prevent the probability of early ageing (primary prevention). Making it easy and attractive for people to exercise throughout their lives is one of the most effective ways of maintaining independence into older age. Reducing smoking, air pollution and exposure to environments that promote obesity are other examples where the State has a major role to play in delaying or preventing ill health and disability over a lifetime and into older age.
- Delaying disease to the greatest possible extent, to delay the period of disability in older age, should be the aim of public health and medicine
- The medical profession needs to respond to the inexorable rise of multimorbidity
- As well as physical health being intrinsically linked with mental health and wellbeing, those living with long term conditions will often experience barriers to connecting socially and engaging in meaningful employment.

Healthy ageing is not just important for those working in the health arena. Population projections suggest over the coming years the proportion of Gloucestershire's population aged 65+ will increase from 21.3% of the total population in 2018 to 27.9% in 2043. This has a significant impact on dependency ratios, Gloucestershire's dependency ratio (which is the ratio of people aged 0-15[64]. The changing population structure will mean that all service areas will need to consider the impact of healthy ageing. For example as the workforce is ageing there will be more people in work managing long term conditions, disability, and sickness. Employers will need to adapt to be age-friendly, be flexible and support people manage long term conditions.

[63] Chief Medical Officer's annual report 2023: health in an ageing society, Department for Health and Social Care

[64] 2018 based sub-national population projections, ONS

10.1 Further resources

At a local level work has been undertaken to explore some of the issues which may influence healthy ageing. These include a DPH report on social connections[65] and a JSNA which looks at long-term conditions[66].

11. Notes and caveats

The availability of data means that some inequalities maybe masked, particularly those relating to deprivation and ethnicity. Over time we will look to build our understanding of these inequalities by exploring additional data sources, this means this report might be subject to revision if new insights become available.

[65] No person is an island: Social connections in Gloucestershire, Gloucestershire County Council

[66] Long term conditions: JSNA, Gloucestershire County Council