

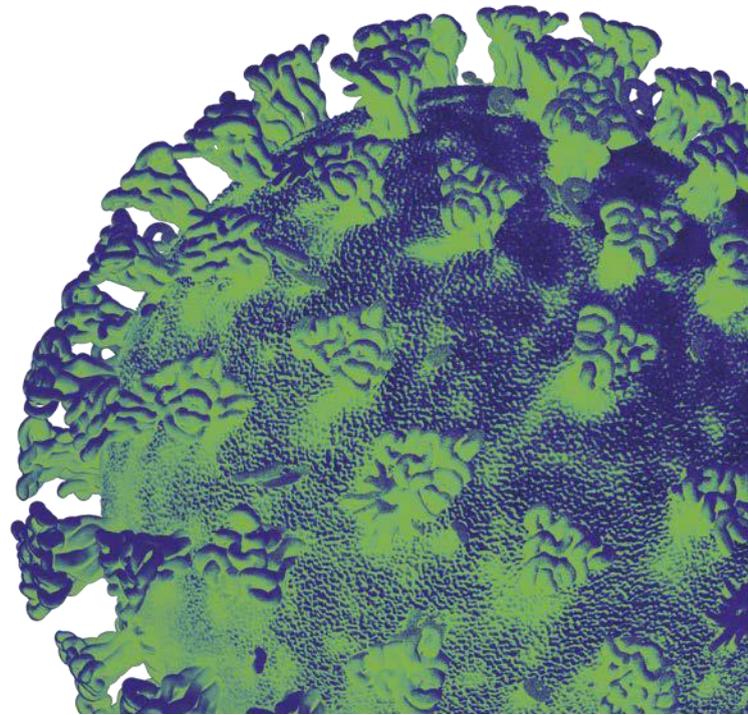
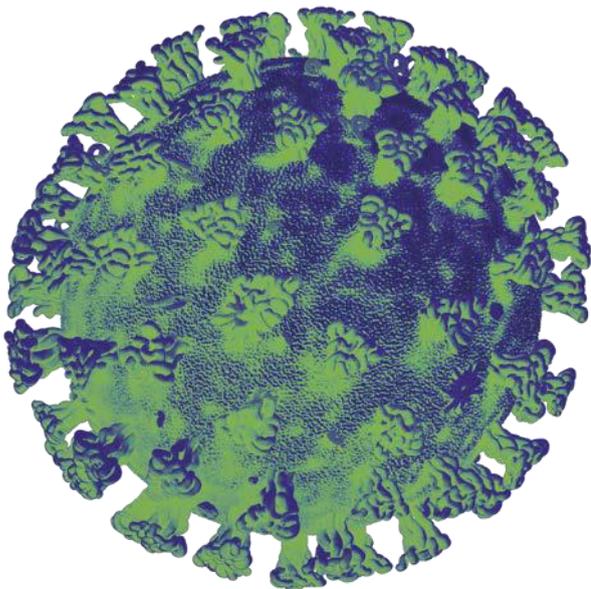
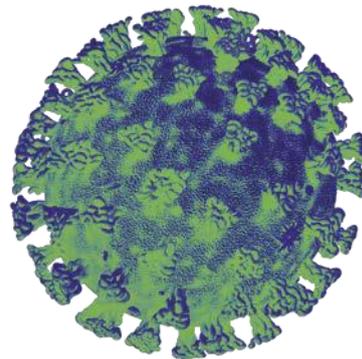


Llywodraeth Cymru
Welsh Government

Science Evidence Advice

Coronavirus (COVID-19) and Health Inequalities

October 2022



Executive summary

‘Celebrate diversity and move to eliminate inequality in all of its forms’ is one of the overarching well-being objectives of the Programme for government. In addition, the Wellbeing of Future Generations Act also sets out Health and Equality as two main policy goals.

Age-standardised mortality rates for COVID-19 have been around twice as high in the most deprived compared to the least deprived Welsh Index of Multiple Deprivation (WIMD) quintile. COVID-19 mortality rates have been higher in certain occupations and population groups (e.g. older people, minority groups).

Health inequalities for COVID-19 can be classified into themes: differences in vulnerability (pre-existing health conditions), differences in susceptibility (by exposure to adverse living conditions and chronic stress), differences in exposure due to working conditions and differences in transmission due to housing conditions or lack of green space. People experience multiple, interacting aspects of inequality (age, gender, occupation, deprivation, ethnicity and disability) at any one time and each influences health outcomes in the pandemic. Many of the inequalities in COVID-19 outcomes affect the same groups as historical inequalities in other risk factors and outcomes, but there are some differences, for instance risk associated with occupations with lots of contacts, especially low paid occupations where people felt they could not afford to self-isolate, and where PPE may have been absent early in the pandemic.

This overview of health inequalities in Wales helps to identify the groups who could also be vulnerable to being more impacted by the cost of living crisis in the coming months and years.

Background

This is an update to a Technical Advisory Cell (TAC) report on Coronavirus and Health Inequalities that was published in October 2020.¹ This report was largely based on evidence and data up to June 2020 – so focusing on the first 3 to 4 months of the pandemic. This report presented evidence that the first wave of the novel coronavirus (COVID-19) outbreak compounded existing health inequalities in Wales, which have shown little improvement in the last ten years, based on the gap in life expectancy between those in living in the most and least deprived areas (quintiles). This report recommended that efforts should be made to ensure the most deprived populations are more protected from the direct effects of COVID-19 in future waves of the pandemic, and from the indirect effects of COVID-19 on the economy which would increase health inequalities in the longer term.

The previous report hypothesised that successfully protecting the most deprived population could be measured by a reduction in the COVID-19 mortality gradient in future waves and by a reduction in the gradient in all-cause mortality in 2022, given that it was considered unlikely that inequalities would reduce in the following two years. At the time, there was

¹ [technical-advisory-cell-coronavirus-covid-19-and-health-inequalities.pdf \(gov.wales\)](#)

uncertainty about how many significant waves of infection would be seen with COVID-19. Two years later, COVID-19 is still with us and infecting over 1% of the population at any time.

The impact of the coronavirus pandemic has been monitored closely over the past two years and the objective of this paper is to summarise the impact that the pandemic has had on health inequalities in Wales, including analysing how the impact has changed throughout the course of the pandemic. This report will present evidence to investigate whether partners in Wales have been successful in achieving the previous report's recommendation of protecting the most vulnerable population. Looking forward into the 2022/23 winter months, with the cost-of-living crisis likely to impact the Welsh population, this paper will also consider the impact this could have on health inequalities.

Introduction

Although COVID-19 poses a risk to all individuals, evidence shows that the COVID-19 pandemic has impacted some people more than others, directly and indirectly. For example, COVID-19 disease has been found to directly affect people differently, based on factors such as age, sex, ethnicity, underlying health conditions and socioeconomic deprivation. These 'axes of inequality' interact in different ways – COVID-19 has been described as a 'syndemic' meaning a disease that interacts with existing patterns of risk factors and disease.^{2,3,4}

Evidence shows that COVID-19 has disproportionately affected people from more deprived backgrounds. In Wales, there is strong evidence of a socioeconomic gradient in total hospitalisations, critical care admissions and deaths.

The latest Annual Population Survey ethnicity estimates show that 4.9% of the Welsh population described themselves as Asian, Black, Chinese, mixed ethnicity or other non-White ethnic group for the year ending 31 December 2021.⁵ The ethnicity pay gap in Wales in 2019 was 1.4%, meaning that employees from minority ethnic groups in Wales earned, on average, 1.4% less per hour than White employees.⁶

In the UK, the Office for National Statistics (ONS) analysis found that one in five workers in occupations with closest proximity and highest exposure to COVID-19 are from black and minority ethnic groups, compared with 11% of the working population.⁷ In Wales, ONS analysis found that women and those from a minority ethnic background are more likely to be employed within occupations that have the highest potential exposure to COVID-19 and therefore face a disproportionately elevated risk of COVID-19 occupational exposure

² [Deaths involving the coronavirus \(COVID-19\) by age group, Wales, deaths registered in March 2020 to February 2021 - Office for National Statistics \(ons.gov.uk\)](#)

³ [Updating ethnic contrasts in deaths involving the coronavirus \(COVID-19\), England - Office for National Statistics \(ons.gov.uk\)](#)

⁴ Bamba C, Lynch J, Smith KE. The unequal pandemic: COVID-19 and health inequalities. Policy Press; 2021 Jun 15.

⁵ [Ethnicity and national identity \(Annual Population Survey\): December 2021 | GOV.WALES](#)

⁶ [Ethnicity pay gaps - Office for National Statistics \(ons.gov.uk\)](#)

⁷ [Which occupations have the highest potential exposure to the coronavirus \(COVID-19\)? - Office for National Statistics](#)

compared with White employees. In Wales, the Annual Population Survey 2019 reported that 52.0% of Bangladeshi employees and 50.2% of Black, African, Caribbean and Black British employees are critical workers. In comparison, 33.5% of White employees work in critical roles.⁸

In Wales, between fiscal year end (FYE) 2018 and FYE 2020, 23% of all people lived in relative income poverty. Between 2017 and 2020, 31% of children were living in relative income poverty. This is an increase from 28% of children living in relative income poverty between FYE 2017 and FYE 2019.⁹

With rising costs relating to the cost-of-living crisis, this evidence of reduced household incomes and poverty indicates that many people were already in a position of financial difficulties prior to rising costs. The Opinions and Lifestyle Survey found that in the period 14 to 25 September 2022 around 4 in 10 (44%) of adults in Great Britain who pay energy bills said they found it very or somewhat difficult to afford them in the latest period.¹⁰ The way in which this could increase health inequalities include illness or exacerbation of pre-existing conditions due to living in cold conditions if unable to afford energy, which may be compounded by stress impacts of financial worry.

Mortality

Mortality by occupation

For England and Wales, analysis by the ONS of COVID-19 mortality by occupation between March and December 2020 showed statistically significantly higher COVID-19 mortality rates for those in social care occupations compared with those of the same age and sex in the population (Figure 1).¹¹ Analysis showed elevated mortality rates in male and female ‘caring, leisure and other service occupations’ which includes nursing assistants, care workers and ambulance drivers, male ‘elementary workers’ which includes construction workers and cleaners, bus and taxi drivers, and female ‘process, plant and machine operatives’.¹² These mortality rates were adjusted for age, but not other factors such as ethnic group and place of residence, so do not prove conclusively that the observed differences are necessarily caused by differences in occupational exposure. This data is not available for Wales alone.

⁸ [Coronavirus and employment: analysis of protected characteristics | GOV.WALES](#)

⁹ [Relative income poverty: April 2019 to March 2020 | GOV.WALES](#)

¹⁰ [Public opinions and social trends, Great Britain - Office for National Statistics](#)

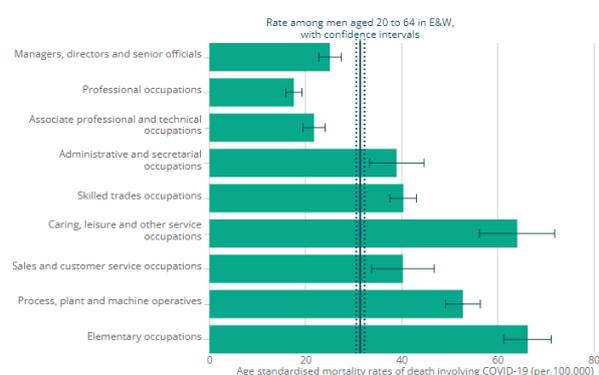
¹¹ [Coronavirus \(COVID-19\) related deaths by occupation, England and Wales - Office for National Statistics \(ons.gov.uk\)](#)

¹²

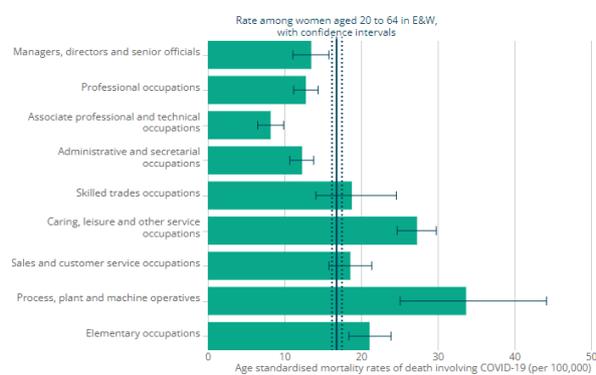
<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/coronaviruscovid19relateddeathsbyoccupationenglandandwales/deathsregistereduptoandincluding20april2020#men-and-coronavirus-related-deaths-by-occupation>

Figure 1. Mortality rate by occupational group and gender, England and Wales.

Age-standardised mortality rates of death involving the coronavirus (COVID-19) in England and Wales, by major occupational group, deaths registered between 9 March and 28 December 2020



Age-standardised mortality rates of death involving the coronavirus (COVID-19) in England and Wales, deaths registered between 9 March and 28 December 2020



A study published in May 2021 reported that a number of occupations showed strongly increased risks for COVID-19 deaths, including security guards, taxi drivers, bus drivers, cleaners and customer service workers. These occupations, which involve contact with the public, often without having high quality personal protective equipment (PPE), certainly early on in the pandemic, had risks of COVID-19 deaths of about 3 to 4 times greater than for managers. After adjusting for region, deprivation and ethnicity, these relative risks reduced to about 1.5 times higher compared with managers, suggesting that differences in risk between occupations are a result of a complex mix of different factors.¹³

Mortality by ethnicity

This section is based on data for England as equivalent analysis does not exist for Wales and may not be possible due to small numbers of people in some ethnic groups.

During each wave of the coronavirus pandemic, the risk of COVID-19 mortality has varied by ethnicity. After adjusting for factors such as location, measures of disadvantage, occupation, living arrangements and pre-existing health conditions, excess COVID-19 mortality risk for most ethnic groups were substantially reduced. People in the Black African ethnic group were at the greatest risk of death involving COVID-19 compared with White British. Black African males were 2.2 times more likely to die from COVID-19 than White British; 1.5 times more likely for females.¹⁴ The excess risk of death involving COVID-19 for people from the Bangladeshi and Pakistani ethnic groups was higher in the second wave (September 2020 to March 2021) than in the first wave. After adjusting for other factors, people in the Bangladeshi, Pakistani, Indian and Black African ethnic groups and Black Caribbean males remained at higher risk of death involving COVID-19 than White British.

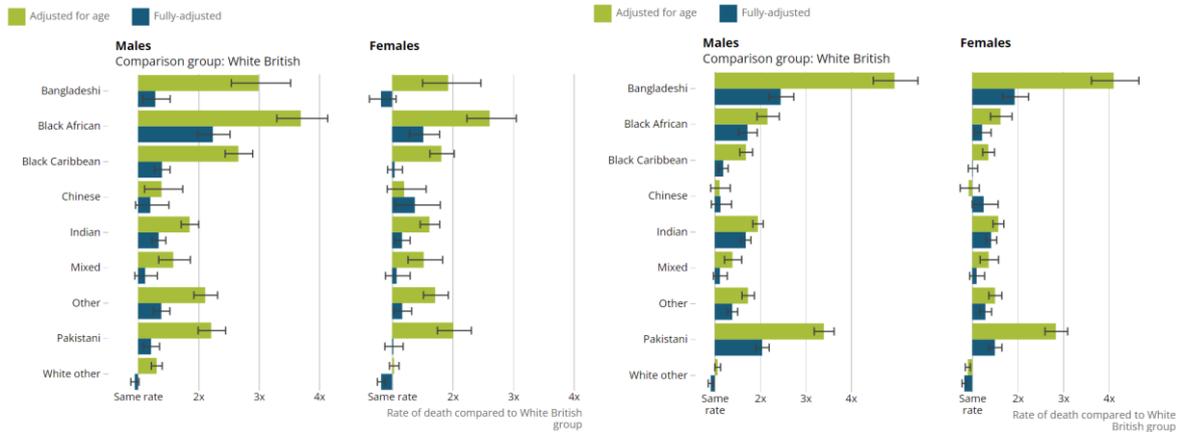
¹³ [New research provides further insight into occupational differences in COVID-19 mortality - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/news-and-comment/news-releases/news-releases/new-research-provides-further-insight-into-occupational-differences-in-covid-19-mortality)

¹⁴ [Updating ethnic contrasts in deaths involving the coronavirus \(COVID-19\), England - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/news-and-comment/news-releases/news-releases/ethnic-contrasts-in-deaths-involving-the-coronavirus-covid-19)

Figure 2. Comparing COVID-19 mortality by ethnicity in the first wave with the second wave (data for England)

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 24 January 2020 to 11 September 2020

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 12 September 2020 to 31 March 2021

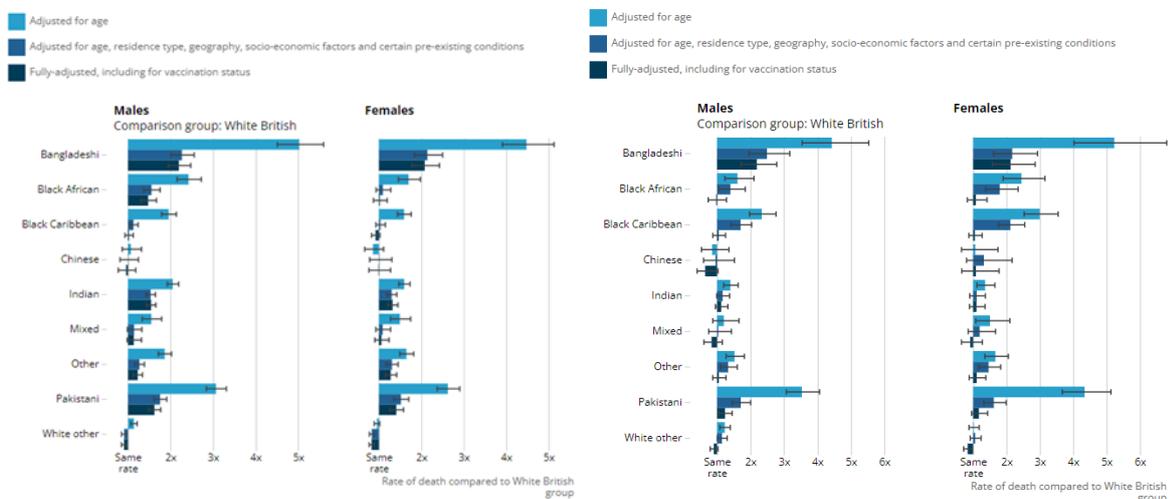


In the third wave of the COVID-19 pandemic (June 2021 to December 2021), when adjusted for age, location, measures of disadvantage, occupation, living arrangements and pre-existing health conditions, Black Caribbean and Black African ethnic groups were at higher risk of COVID-19 mortality than White British. However, after also adjusting for vaccination status, there was no evidence of greater risk of death involving COVID-19 compared with White British. This suggests that differences in vaccination coverage between these ethnic groups explain a significant part of the excess risk, but there could also be some residual confounding where characteristics of the population that are associated with risk of COVID-19 outcomes are also negatively associated with vaccination uptake.

Figure 3. Hazard ratios of death involving COVID-19 by ethnic group and sex (data for England)

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 8 December 2020 to 12 June 2021

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 13 June 2021 to 1 December 2021



We do not have comparable data on mortality by ethnic group for Wales but if we did, the numbers may be too small to identify significant differences in mortality rates. More detailed analysis for England can be found in the [Appendix](#).

Mortality by age

Figure 4 shows that COVID-19 has had a disproportionate effect on older people in terms of mortality. COVID-19 mortality generally increases with age. This was consistently observed in the first 15 months of the coronavirus pandemic, with 59% of deaths involving coronavirus in people aged 80 years and over in Wales between March 2020 and May 2021, despite accounting for only 6% of the Wales population. Similarly, 84% of deaths involving coronavirus were in people aged 70 years and over, despite accounting for only 15% of the population. In contrast, only 2% of deaths involving coronavirus were in people aged below 50 years in Wales between March 2020 and May 2021, despite accounting for 59% of the Wales population.^{15,16}

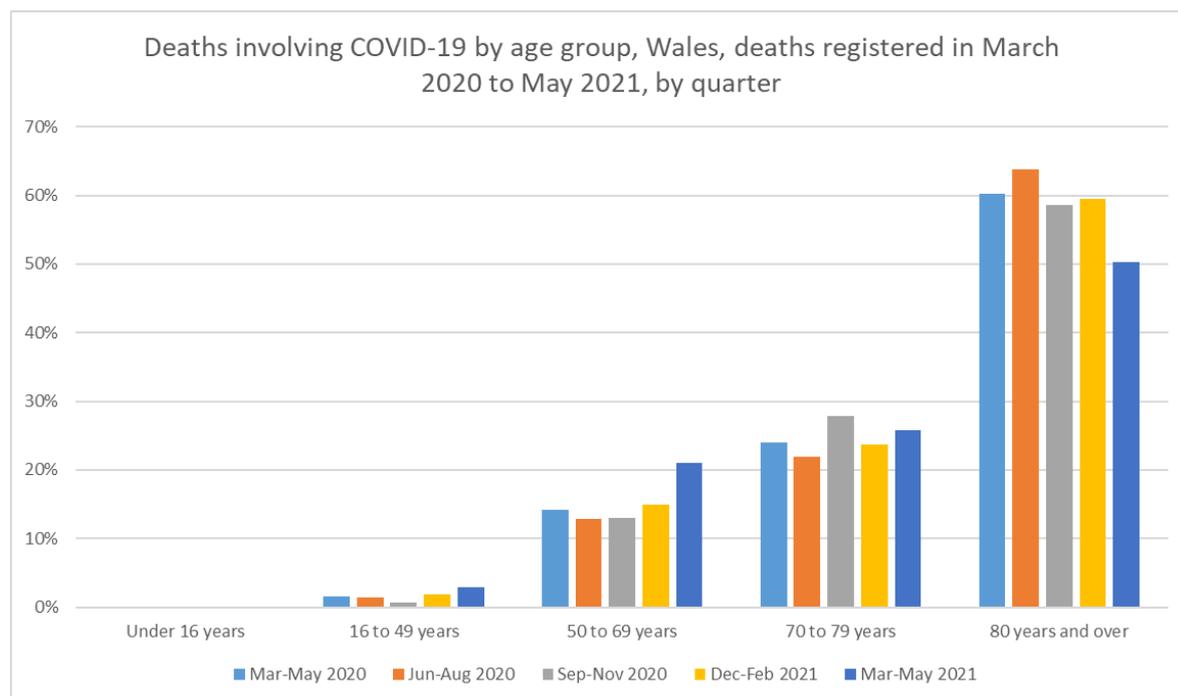
The COVID-19 vaccination programme launched in December 2020, with priority initially focused on older age groups. By 15 April 2021, 65% of people aged 70 and over in Wales had received two vaccine doses compared with 12% of people aged 20 to 59 years. Hence part of the impact that vaccine protection had on COVID-19 mortality in older age groups can be observed by comparing COVID-19 mortality from before the vaccine rollout (Sep-Nov 2020) with after the vaccine rollout (Mar-May 2021). The percentage of deaths involving coronavirus for people aged 70 years and over reduced from 86% between September 2020 and November 2020, to 76% between March 2021 and May 2021. Continued booster vaccination programmes have continued to focus on the older population. Most recently there has been the autumn booster programme, where (amongst other specified groups) all people aged 50 years and over are eligible.¹⁷

¹⁵ [Deaths involving the coronavirus \(COVID-19\) by age group, Wales, deaths registered in March 2020 to May 2021 - Office for National Statistics \(ons.gov.uk\)](#)

¹⁶ [Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland - Office for National Statistics \(ons.gov.uk\)](#)

¹⁷ [Autumn COVID-19 booster roll-out begins today in Wales | GOV.WALES](#)

Figure 4. Trend in COVID-19 deaths by age group.



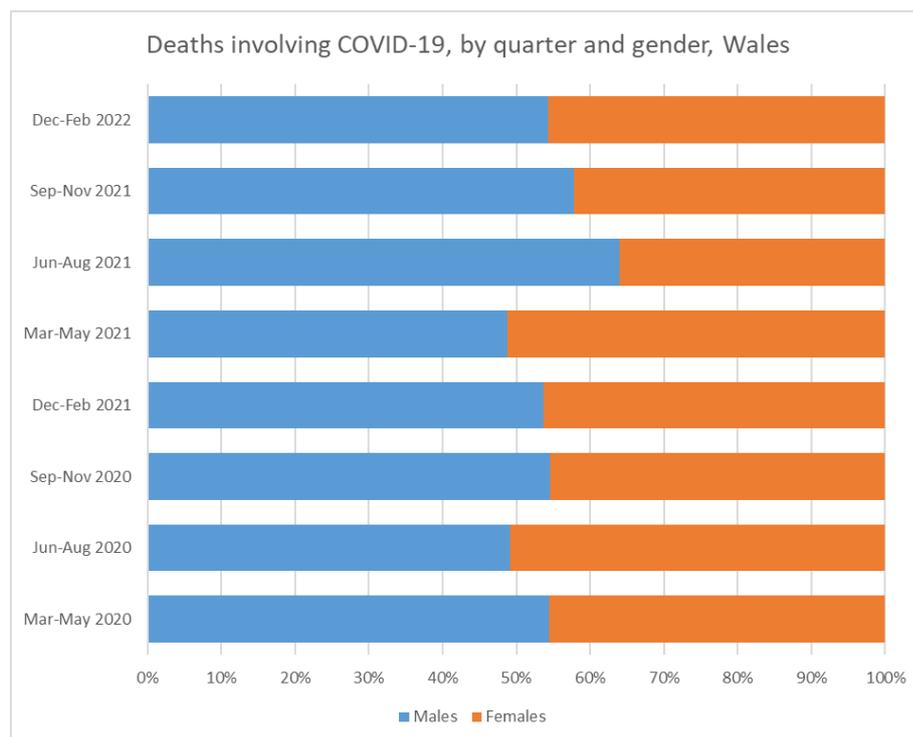
Mortality by sex

The latest ONS population estimates for Wales state that 49% of the Welsh population are male.¹⁸ However, Figure 5 shows that during periods of high mortality involving COVID-19 (spring 2020, winter 2020/2021, autumn 2021 and winter 2021/2022, the number of male deaths were consistently higher than for females, which suggests that COVID-19 has disproportionately affected males.¹⁹

¹⁸ [Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/population-demography/population/population-in-the-uk)

¹⁹ [Deaths involving COVID-19 by month of registration, UK - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/health-and-social-care/deaths/deaths-involving-covid-19)

Figure 5. COVID-19 deaths by quarter and gender, Wales



Mortality by deprivation

Figure 6 and 7 use the 2019 Welsh Index of Multiple Deprivation (WIMD), Public Health Wales Observatory deaths by WIMD data and ONS mid-2020 population estimates for Wales by WIMD.

Figure 6 shows that the age-standardised mortality rate from all causes per 100,000 people in Wales increased significantly in 2020 compared with 2019. Between 2019 and 2020, the mortality rate generally increased more for the most deprived quintiles than the least deprived quintiles, suggesting direct and indirect harms from the COVID-19 disease and pandemic response had a greater impact on deaths in the most deprived populations than in the least deprived populations. The 2021 mortality rate generally remained above 2019 levels. However, the 2021 mortality rate was lower for each deprivation quintile compared with 2020, except for the “Next least deprived” quintile. Inequalities in mortality from all causes increased between 2019 and 2020, and decreased between 2020 and 2021, although the inequality remained greater in 2021 compared with 2019.

Figure 6. Age standardised mortality rates for all causes by WIMD quintile, 2019-2021.

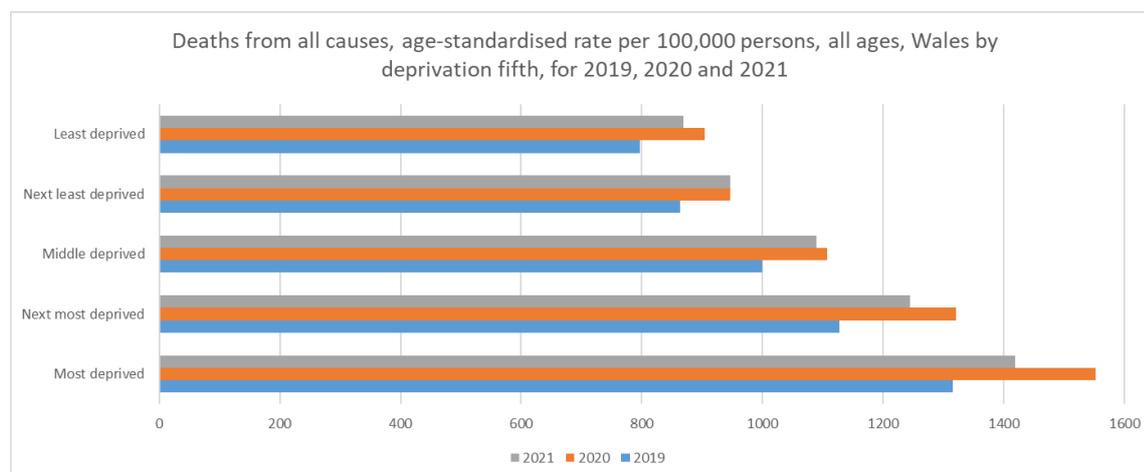


Figure 7 shows that the age-standardised mortality rate from underlying COVID-19 causes increased with increasing population deprivation in 2020 and 2021. Comparing the age-standardised mortality rate for the “Most deprived” and “Least deprived” populations, Figure 7 shows that the mortality gradient from COVID-19 reduced between 2020 and 2021. Between March 2020 and December 2020, the age-standardised mortality rate from underlying COVID-19 causes for the most deprived quintile was 2.2 times that of the least deprived quintile. However, between January 2021 and December 2021, the mortality rate for the most deprived quintile was 1.8 times that of the least deprived quintile, suggesting a reduction in the mortality gradient in 2021 compared with 2020.

The COVID-19 vaccination programme launched in December 2020, with priority focus on protecting the most vulnerable populations who are at greater risk of death from COVID-19 disease. ONS analysis found that age-standardised mortality rates for deaths involving COVID-19 were consistently lower for people who have had a third dose or booster at least 21 days ago than unvaccinated people or people who received a second dose at least six months ago.²⁰ It is possible that a combination of protection offered by vaccination, improved understanding of COVID-19 disease and increased availability of COVID-19 treatments contributed to reducing the mortality gradient between the most and least deprived populations between 2020 and 2021.

²⁰ [Deaths involving COVID-19 by vaccination status, England - Office for National Statistics](#)

Figure 7. Age-standardised mortality rate from COVID-19 by WIMD quintile in Wales, for 2020 and 2021.

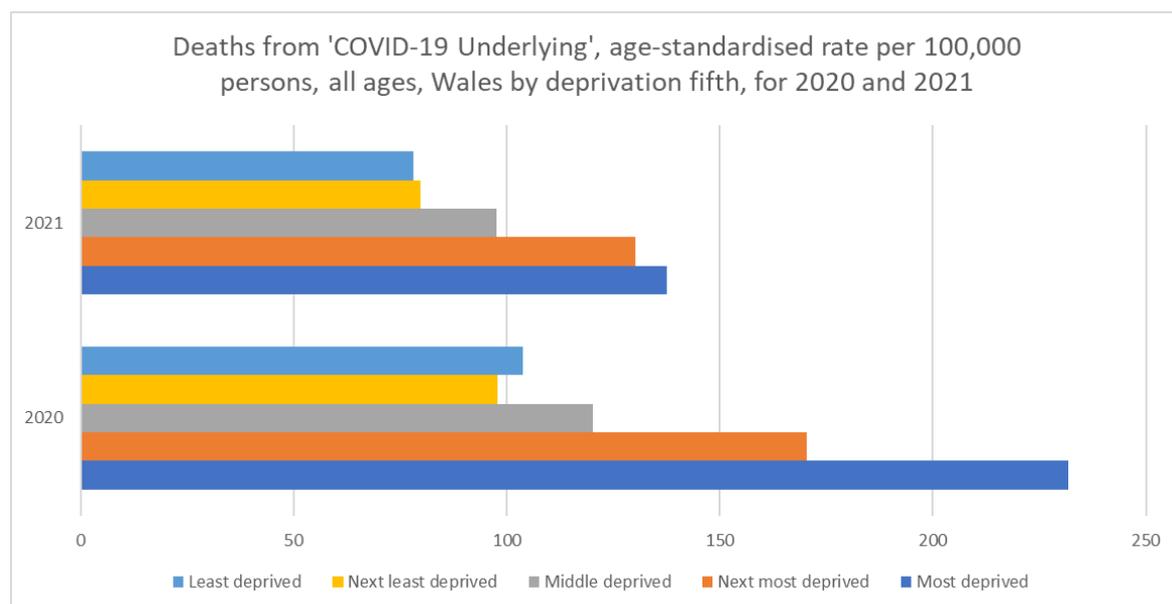


Figure 8 shows a long-term trend in the age-standardised avoidable mortality rates by sex and selected deprivation quintiles for Wales.²¹ In this definition, COVID-19 is classed as an avoidable cause of death, although clearly the proportion of deaths that are completely avoidable has changed over time, particularly since vaccination roll-out but also as clinical management has evolved. The avoidable mortality definition was agreed by the Organisation for Economic Co-operation and Development (OECD) and includes deaths in people aged under 75 only.

In 2020, the male and female avoidable age-standardised mortality rates in the most deprived areas of Wales were statistically significantly higher than in the least deprived areas. Between 2019 and 2020, the avoidable mortality rate increased for males and females living in both the most and least deprived areas of Wales. However, these increases were only statistically significant for females living in the most deprived areas in Wales.

The absolute gap in avoidable mortality between the most and least deprived areas of Wales widened in 2020 to the highest level since 2003 for males and since 2001 for females. When excluding COVID-19, the absolute gap in avoidable mortality between the most and least deprived areas of Wales in 2020 is decreased.

In 2020, males living in the most deprived areas of Wales were 2.8 times (an increase from 2.7 in 2019) more likely to die from an avoidable cause than those living in the least deprived area. In 2020, females living in the most deprived areas of Wales were 2.6 times (a decrease from 2.7 in 2019) more likely to die from an avoidable cause than those living in the least deprived area.

²¹ [Socioeconomic inequalities in avoidable mortality in Wales - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/articles/socioeconomic-inequalities-in-avoidable-mortality-in-wales)

Figure 8. Long term trend in age standardised avoidable mortality rates by most and least deprived WIMD quintiles.

Age-standardised avoidable mortality rates by sex and selected deprivation quintiles, Wales, 2001 to 2020

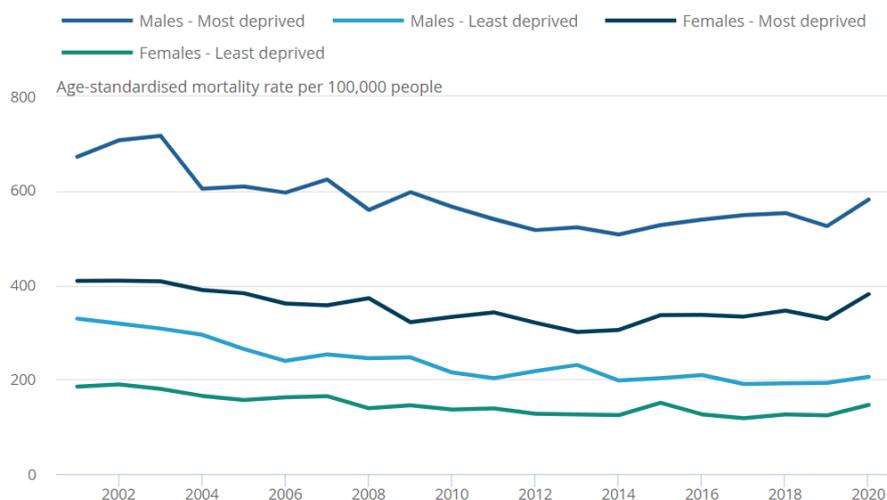


Figure 9 focuses on the age-standardised avoidable mortality rates with an underlying cause of COVID-19 by sex and selected deprivation quintiles for Wales in 2020.²² In 2020, males and females living in the most deprived areas of Wales were 2.8 and 3.6 times more likely to die from an avoidable death with an underlying cause of COVID-19 than those living in the least deprived area respectively.

Figure 9. Age standardised avoidable mortality rates with an underlying cause of death of COVID-19 by sex, most and least deprived WIMD quintiles in 2020.

Age-standardised avoidable mortality rates with an underlying cause of COVID-19 by sex and selected deprivation quintiles, Wales, 2020

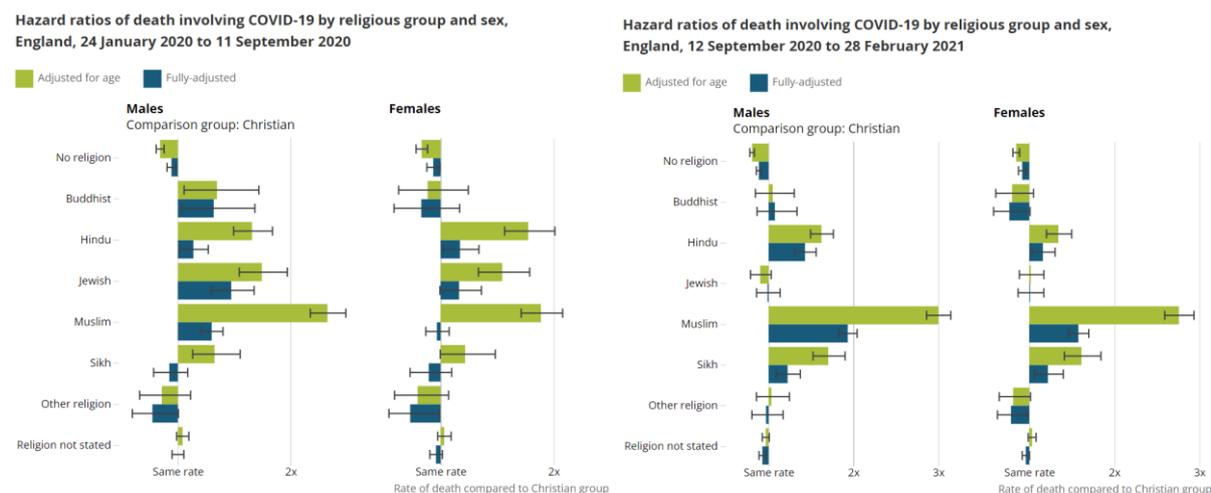


Mortality by religious group

Note this section is based on data for England only.

²² [Socioeconomic inequalities in avoidable mortality in Wales - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk)

Figure 10. Hazard ratio for death from COVID-19 by religious group, data for England only.



Patterns of excess COVID-19 mortality risk by religious group have changed over the course of the pandemic. After adjustments, the Hindu population and Muslim men were disproportionately affected in both the first and second waves. However, Jewish and Buddhist males were only observed to be at increased risk relative to the Christian group in the first wave and were not at increased risk in the second wave. Conversely, Sikh males and females and Muslim women were observed to be at increased risk relative to the Christian group only in the second wave and were not at increased risk in the first wave.

We do not have comparable data on mortality by ethnic group for Wales but if we did, the numbers may be too small to identify significant differences in mortality rates. More detailed analysis for England can be found in the [Appendix](#).

Mortality by disability

Note this section is based on data for England only.

Research by the ONS used self-reported disability status on the 2011 Census as an indication of people being disabled or non-disabled. It was reported that when modelling the risk of death involving COVID-19, after adjusting for age, residence type, geography, socio-economic and demographic factors, health characteristics and vaccination status, a significantly greater risk of death remained for all disabled people compared with non-disabled people; this remained largely unchanged across the three waves of the coronavirus pandemic.

The risk of death involving COVID-19 was 1.4 times greater for more-disabled men and 1.3 times greater for less-disabled men, compared with non-disabled men. For more-disabled women, the risk of death involving COVID-19 was 1.6 times greater and 1.3 times greater for less-disabled women, compared with non-disabled women.

Hospitalisations

Hospitalisations by deprivation

Figure 11 shows that the age-standardised rate for admissions to hospital for COVID-19 positive patients increased with increasing population deprivation throughout the COVID-19 pandemic. In the first 12 months of the pandemic, the age-standardised COVID-19 admission rate in the most deprived quintile was 1.4 times that of the least deprived quintile. In the second 12 months of the pandemic, the age-standardised COVID-19 admission rate in the most deprived quintile was 1.7 times that of the least deprived quintile.

Figure 11. Age standardised rate for COVID-19 hospital admissions, by WIMD quintile, March 2020 to February 2022.

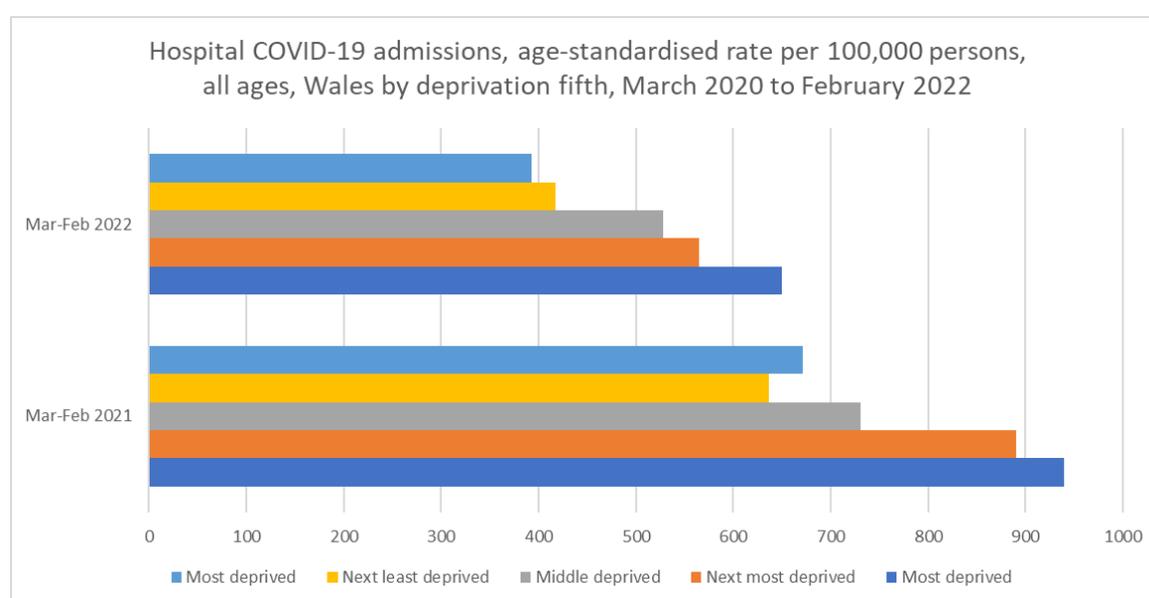
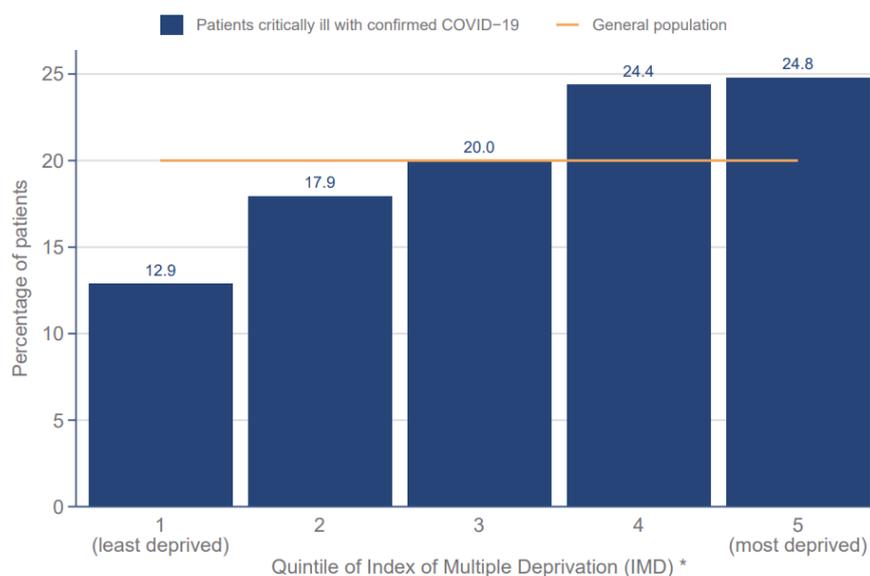


Figure 12 shows that, using Wales data between May 2021 and March 2022, of those patients with confirmed COVID-19, the percentage of those patients that are critically ill increases with deprivation. People in the most deprived quintile were shown to be almost twice as likely to be critically ill with confirmed COVID-19 compared with people in the least deprived quintile.²³

²³ <https://www.icnarc.org/DataServices/Attachments/Download/951a8790-5fb7-ec11-913d-00505601089b>

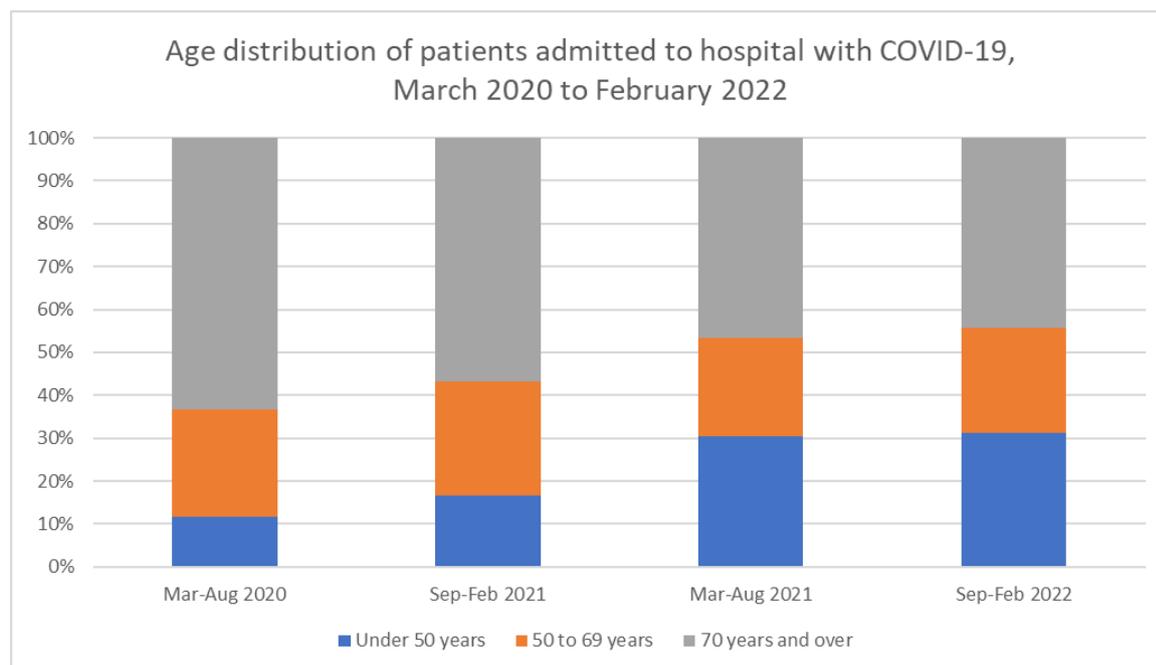
Figure 12. Percentage of hospital patients requiring critical care by WIMD quintile, May 2021-March 2022.



Hospitalisations by age

Figure 13 shows that the proportion of patients aged 70 and over who are admitted to hospital with COVID-19 has decreased from 63% of patients between March 2020 and August 2020 (the first 6 months of the COVID-19 pandemic) to 44% of patients between September 2021 and February 2022. The COVID-19 vaccination programme launched in December 2020. People in older age groups have been shown to be at higher risk of serious illness from COVID-19 than younger people. The reduction in the proportion of patients aged 70 and over being admitted to hospital throughout the pandemic provides evidence that the vaccination programme has been successful and effective at protecting this vulnerable population against hospitalisation.

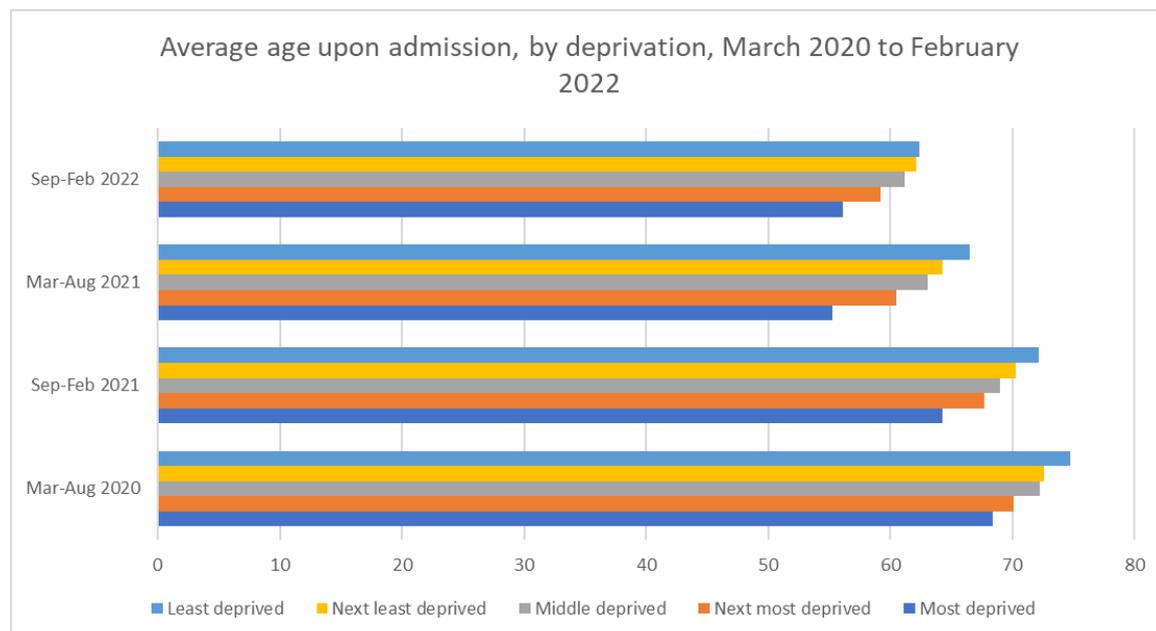
Figure 13. Proportion of COVID-19 hospital patients by age and time period.



Additionally, despite there being around three times as many COVID-19 cases in the second 12 months of the pandemic compared with the first 12 months of the pandemic (PHW ICNET cases data), the total number of patients with COVID-19 admitted to hospital in the first 12 months of the pandemic was greater than in the second 12 months of the pandemic. This provides evidence that the vaccination programme has not only protected older individuals from hospitalisation, but has also reduced the risk of hospitalisation for individuals of all ages.

Figure 14 shows that over time, the average age of a patient upon admission to hospital with COVID-19 has generally decreased and that the average age upon admission has consistently been lower for people living in the most deprived areas of Wales throughout the pandemic.

Figure 14. Average age at admission for COVID-19 hospital cases, by WIMD quintile and time period.

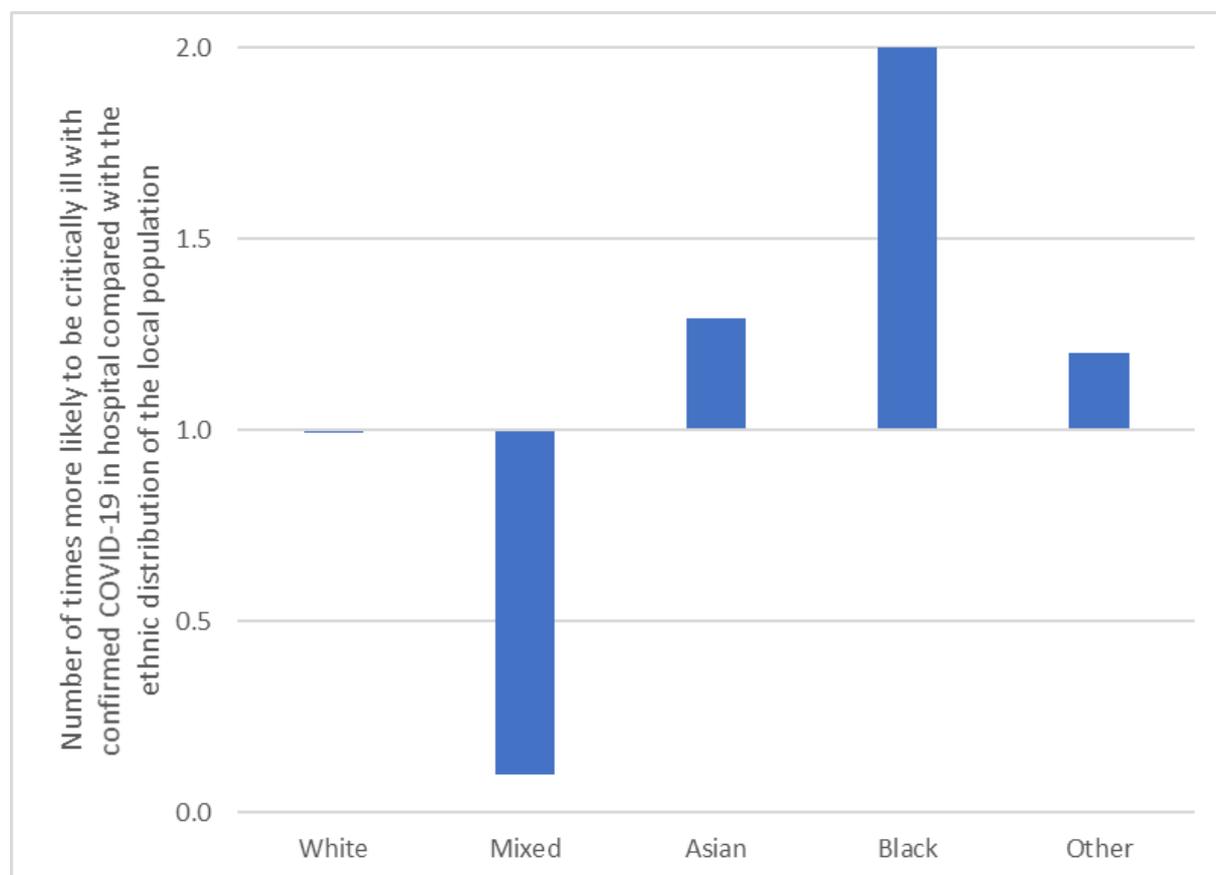


Hospitalisations by ethnicity

Figure 15 presents Wales ICNARC 2022 data and shows that between 1 May 2021 and 31 March 2022, people from Asian, Black and “Other” ethnic minority groups were disproportionately likely to be critically ill in hospital with confirmed COVID-19, compared with the local population ethnic distribution. The percentage of critically ill patients with confirmed COVID-19 who identified as Black, Asian or “Other” was 2 times, 1.3 times and 1.2 times greater than the Black, Asian and “Other” population proportion, respectively (some caution should be used when interpreting these figures as no confidence intervals are available, and the absolute number of patients is small). In contrast, people from White or Mixed ethnic groups were less likely to be critically ill with confirmed COVID-19 in hospital compared with the local population ethnic distribution.²⁴

²⁴ [ICNARC COVID-19 Report Wales 2022-04-08.pdf.pdf](#)

Figure 15. Risk of requiring critical care with COVID-19 by ethnic group, data for Wales.



An observational study of UK hospital patients between February and May 2020 reported that people identifying as an ethnic minority group in hospital with COVID-19 were more likely to be admitted to critical care than White patients. After adjusting for age, sex and location, people identifying as South Asian were 1.28 times more likely to be admitted to critical care than people identifying as White; people identifying as Black were 1.36 times more likely to be admitted to critical care; people identifying as Other Ethnic Minority were 1.29 times more likely to be admitted to critical care.²⁵

Hospitalisations by disability

The Wales COVID-19 Evidence Centre (WCEC) Rapid Review identified a piece of research that found disabled people were no more likely to report COVID-19 symptoms than non-disabled people but were more likely to be hospitalised due to COVID-19. Hospital stay was, on average 3.5 days longer for these study participants compared to controls.²⁶

²⁵ [S0452 CO-CIN Ethnicity and Outcomes from COVID-19 in UK Hospital Patients.pdf \(publishing.service.gov.uk\)](#)

²⁶ [RR00025 Wales COVID-19 Evidence Centre Rapid Review of health effects of COVID on disabled March-2022.pdf \(primecentre.wales\)](#)

Nosocomial hospitalisations

An infection is classified as “nosocomial” if it was acquired in hospital rather than the community. Using PHW admissions data for Wales, Figure 16 shows that the proportion of patients admitted to hospital with a positive COVID-19 test result who acquired COVID-19 while in hospital, as opposed to community-acquired COVID-19, has generally decreased over the duration of the COVID-19 pandemic. Figure 16 shows that throughout the pandemic, the likelihood of a confirmed COVID-19 patient having acquired COVID-19 while in hospital increases with decreasing deprivation. Between September 2021 and February 2022, individuals from the least deprived quintile were 1.5 times more likely to have acquired COVID-19 in hospital compared with an individual from the most deprived quintile.

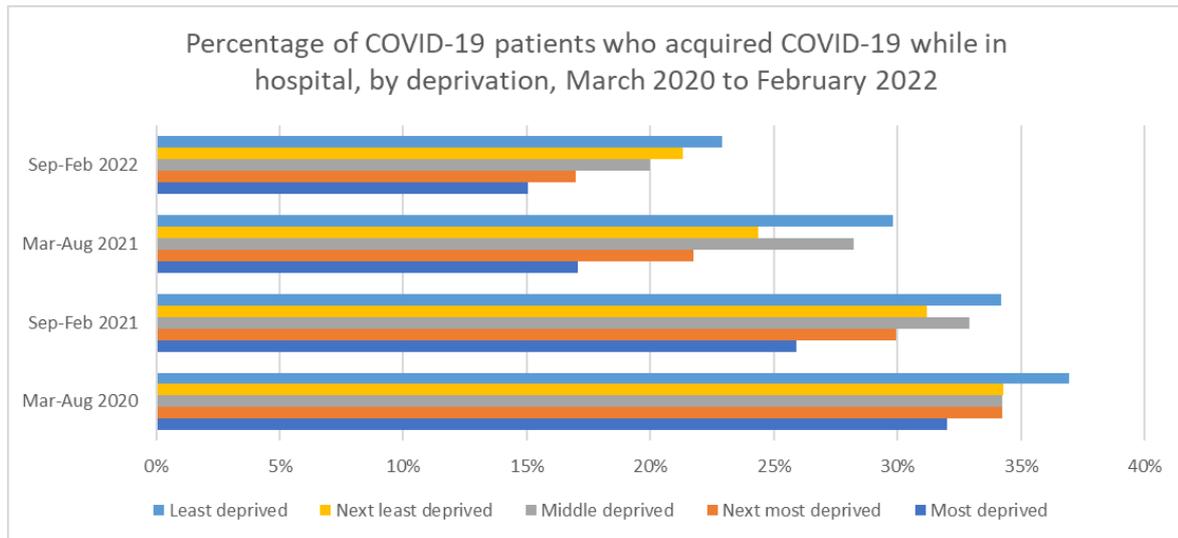
People from the least deprived areas tend to live longer than people from the most deprived areas (figure 16). It is therefore possible that people from more affluent areas are more likely to be admitted to hospital for non-COVID-19 reasons and then acquire COVID-19 while in hospital, compared with people from more deprived areas who may be more likely to wait longer before seeking treatment for COVID-19 and hence are more likely to require hospitalisation for COVID-19 treatment.

It has been shown that in England, those living in the most deprived neighbourhoods and largest households faced elevated risk of household and occupational exposure to COVID-19 than those living in more affluent areas.^{27,28} Therefore, people living in the most deprived areas may be more likely to be exposed to and acquire COVID-19 in the community. Assuming that the risk to an inpatient of acquiring COVID-19 in-hospital is constant for people from all deprivation backgrounds, since people from more deprived communities are more likely to acquire COVID-19 in the community than people from more affluent communities, then the proportion of patients with hospital-acquired COVID-19 as opposed to community-acquired COVID-19 would be expected to decrease with increasing deprivation, as Figure 16 shows.

²⁷ [COVID-19 risk by occupation and workplace \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/101422/covid-19_risk_by_occupation_and_workplace.pdf)

²⁸ [S0921 Factors contributing to risk of SARS 18122020.pdf \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/101422/covid-19_risk_by_occupation_and_workplace.pdf)

Figure 16. Percentage of COVID-19 hospital patients in Wales who were likely to be hospital-acquired by WIMD quintile and time period.



was a statistically significant reduction in life expectancy (0.7 years) for females in the most deprived quintile between 2015-2017 and 2018-2020. The most deprived areas have experienced the highest rates of death involving COVID-19, so mortality increases in 2020 associated with the coronavirus pandemic have affected life expectancy estimates.³¹

Age-standardised avoidable mortality rate

The age-standardised avoidable mortality rate per 100,000 population for Wales increased from 263 per 100,000 population in 2017-2019 to 271 per 100,000 population in 2018-2020.³² COVID-19 deaths are classed as avoidable under the OECD-agreed definition.

ONS analysis shows that the age-standardised avoidable mortality rate in Wales increased between 2019 and 2020 and was statistically significantly higher in 2020 than all years since 2010.³³ Avoidable mortality rates with coronavirus as an underlying cause of death were statistically significantly higher in the most deprived areas compared with the least deprived areas. There were 460.9 additional deaths per 100,000 males and 279.1 additional deaths per 100,000 females living in the most deprived areas compared with the least deprived areas in Wales in 2020.³⁴

SII inequality in age-standardised avoidable mortality rates in Wales increased for males and females between 2019 and 2020 (figure 18). Inequality in avoidable mortality rates increased to the highest level since 2003 for males and since 2001 for females. The SII inequality in avoidable mortality between the most and least deprived areas has statistically significantly increased for both males and females between 2013 (lowest recorded inequality) and 2020.³⁵

³¹ [Health state life expectancies by national deprivation quintiles, Wales - Office for National Statistics \(ons.gov.uk\)](#)

³² [Avoidable mortality by local authorities in England and unitary authorities in Wales - Office for National Statistics \(ons.gov.uk\)](#)

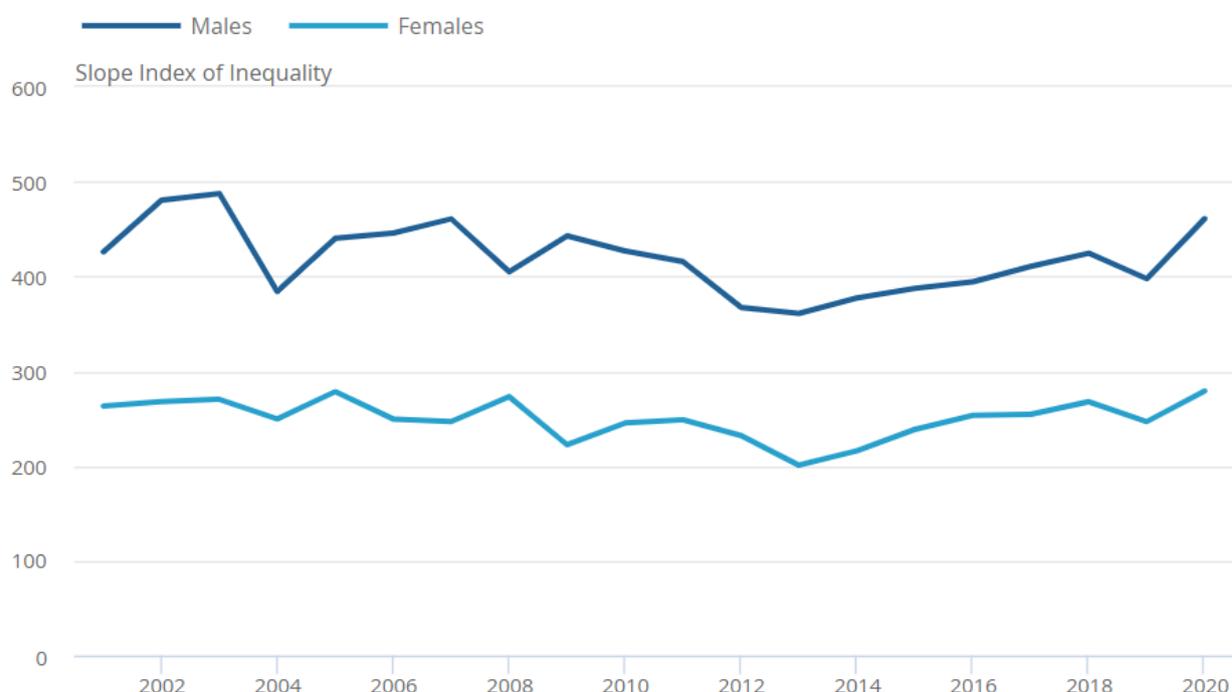
³³ [Avoidable mortality in Great Britain - Office for National Statistics \(ons.gov.uk\)](#)

³⁴ [Socioeconomic inequalities in avoidable mortality in Wales - Office for National Statistics \(ons.gov.uk\)](#)

³⁵ [Socioeconomic inequalities in avoidable mortality in Wales - Office for National Statistics \(ons.gov.uk\)](#)

Figure 18. Slope index of inequality for avoidable mortality, Wales, 2001-2020.

Slope Index of Inequality for avoidable mortality by sex, Wales, 2001 to 2020



Indirect harms

The COVID-19 pandemic has caused exacerbated existing, or introduced new inequalities in society through directly and indirectly harming the population.³⁶ This section of the paper aims to outline indirect health harms caused by the pandemic, including harms from population-based health protection measures on wellbeing and access to healthcare.

Access to healthcare

The COVID-19 pandemic has led to unequal healthcare disruptions which could contribute to maintenance or widening of existing health inequalities if unaddressed. Evidence from 12 UK population-based longitudinal studies reported disruptions to healthcare services from March 2020 to January 2021.³⁷ Females (Odd Ratio (OR): 1.27), older people (OR: 1.39, 65-75 years vs 45-54 years), ethnic minorities excluding White minorities (OR: 1.19, vs White) and those in a more disadvantaged social class (OR: 1.17, manual/routine vs managerial/professional) were more likely to report healthcare disruptions.

The PHW ‘Cost of Health Inequality to the NHS in Wales’ report, using Digital Health and Care Wales data from April 2018 to March 2019, found there are wider differences in

³⁶ [technical-advisory-group-5-harms-arising-from-covid-19_0.pdf \(gov.wales\)](#)

³⁷ [Inequalities in healthcare disruptions during the Covid-19 pandemic: Evidence from 12 UK population-based longitudinal studies | medRxiv](#)

hospital service use between people living in the most deprived areas and those living in the least deprived areas for A&E attendances, followed by emergency and maternity inpatient admissions. There is a clear social gradient for emergency and maternity inpatient admissions, and for A&E attendances, with higher service use in the more deprived quintiles.³⁸ For the week ending 28 February 2020, people in the most deprived quintile were 1.5 times more likely to attend emergency departments than people in the least deprived quintile. This inequality increased to 1.6 for the week ending 10 April 2020, suggesting that inequality increased during the first wave. However, for the week ending 31 December 2021 the gap had returned to 1.5.³⁹

PHW weekly hospital admissions data showed the age-standardised rate per 100,000 for emergency admissions reduced by around 50% from 238 (week ending 28 February 2020) to 118 (week ending 10 April 2020). Although the emergency admissions rate increased to around 200 per 100,000 by August 2020, emergency admissions have remained below pre-pandemic levels with the rate at 207 for the week ending 26 November 2021. People in the most deprived quintile have higher age-standardised emergency and elective admission rates per 100,000 compared with those in the least deprived quintile. For the week ending 28 February 2020, people in the most deprived quintile were 1.6 times more likely to have an emergency admission than people in the least deprived quintile. This inequality increased to 1.7 for the week ending 10 April 2020, suggesting that inequality increased during the first wave. However, although emergency admission rates remain below pre-pandemic levels, for the week ending 26 November 2021 the gap had reduced to 1.5.⁴⁰

In March 2020, cervical screening was paused due to the COVID-19 pandemic. Screening invitations resumed from June 2020. Testing figures returned to pre-lockdown levels in January 2021 (tested in October 2020). A high number of invites were sent in June 2021 with the aim of addressing the backlog of eligible females not previously invited during 2020 due to the pandemic.⁴¹

A rapid review by the Wales COVID-19 Evidence Centre (WCEC) found that access to healthcare was disrupted more for disabled people than non-disabled people. Disabled people were over twice as likely to report waiting for a health intervention during the first wave of the COVID-19 pandemic compared to non-disabled people and were substantially more likely to report needing to access various services than non-disabled people. The use of face masks also impacted on the abilities of people with hearing loss to hear and communicate, adding another barrier to accessing healthcare.⁴²

Wellbeing

Data from the Public Engagement Survey on Health and Wellbeing during Coronavirus Measures for Wales show that a greater proportion of respondents reported worrying ‘a lot’ about their own mental health and wellbeing during periods of high restrictions (peaking at

³⁸ [PowerPoint Presentation \(nhs.wales\)](#)

³⁹ [COVID19 Recovery Profile v1s.knit \(shinyapps.io\)](#)

⁴⁰ [COVID19 Recovery Profile v1s.knit \(shinyapps.io\)](#)

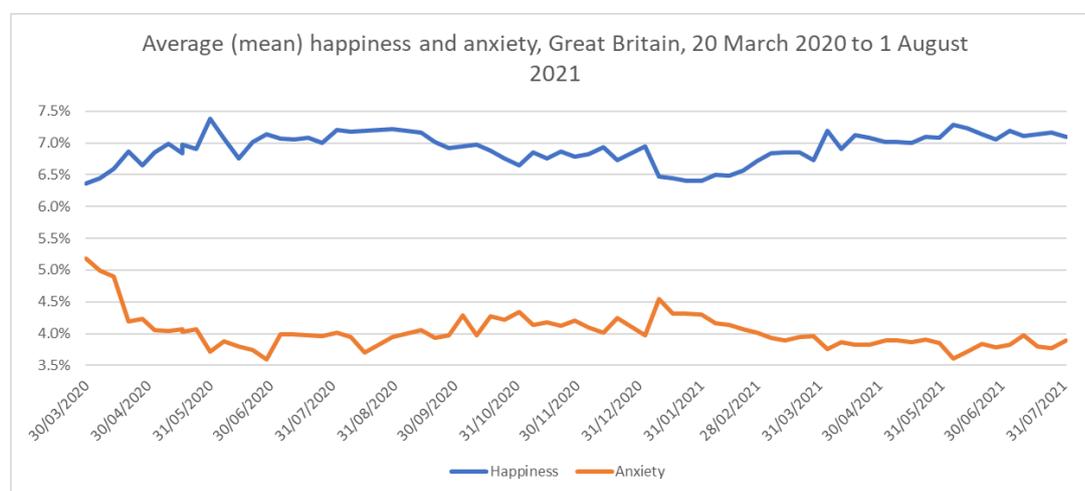
⁴¹ [COVID19 Recovery Profile v1s.knit \(shinyapps.io\)](#)

⁴² [RR00025 Wales COVID-19 Evidence Centre Rapid Review of health effects of COVID on disabled March-2022.pdf \(primecentre.wales\)](#)

26% in May 2020; 30% in January 2021). The percentage of respondents reporting ‘never’ feeling lonely decreased from 70% in the week ending 20 December 2020 to 58% in the week ending 10 January 2021, which coincided with the level 4 restrictions imposed from midnight on 19 December 2020. This evidences a negative impact on wellbeing and loneliness from coronavirus restriction measures.⁴³

ONS analysis shows that happiness generally increased and anxiety generally decreased from the week ending 30 March 2020 to summer 2020, when coronavirus restrictions were eased. Happiness fell and anxiety increased in January 2021, which coincides with increased restrictions during the winter 2020/2021 wave, before improving throughout 2021. This provides some evidence for the negative wellbeing impact of coronavirus restrictions.⁴⁴

Figure 17. Average happiness and anxiety in Great Britain, 20 March 2020 to 1 August 2021.



PHW analysis, using data from November 2020 to January 2021, found that the top two challenges contacts thought they would face during self-isolation were suffering from anxiety or mental health problems (11.7%) and looking after children (11.2%). For women and young people aged 18-29, the top concern was anxiety or mental health problems. For ethnic minority groups, and those aged 30-49, the top concern was looking after children. Using data between September and October 2020, the five most commonly reported challenges experienced by contacts during self-isolation were: wanting to see family (66.7%), wanting to see friends (60.6%), a lack of exercise (58.6%), loneliness (31.2%) and mental health difficulties (24.6%). Contacts who lived alone were more likely to report that loneliness was a challenge during self-isolation.⁴⁵ Concerns about the impact on mental health and experienced loneliness were evident, so it is recommended that Welsh Government should promote awareness of and signpost sources of mental wellbeing support, including online and telephone support to prevent discrimination against those

⁴³ [COVID19 Recovery Profile v1s.knit \(shinyapps.io\)](https://www.shinyapps.io/COVID19-Recovery-Profile-v1s/)

⁴⁴ [Total population estimates on personal and economic well-being across time - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/data/articles/total-population-estimates-on-personal-and-economic-well-being-across-time)

⁴⁵ <https://phw.nhs.wales/publications/publications1/self-isolation-confidence-adherence-and-challenges-behavioural-insights-from-contacts-of-cases-of-covid-19-starting-and-completing-self-isolation-in-wales/>

without internet access, e.g. local resources and voluntary or community organisations offering peer support. Women, young people, ethnic minority communities and contacts living alone were shown to be more likely to experience challenges during self-isolation, so these groups should be targeted for support.

A rapid evidence map published by the Wales COVID-19 evidence Centre (WCEC) identified some research that included the impact of the pandemic on the LGBTQ+ communities in the UK. Despite this, they found there was a lack of robust evidence in this field and more research is needed to understand more about how to address poor outcomes for LGBTQ+ communities, both in the current context and in preparedness for future crises, and to evaluate the effectiveness of interventions to support LGBTQ+ communities.

Action to improve the wellbeing of the people of Wales is included within the Welsh Government's Connected Communities strategy on tackling loneliness and social isolation, and its mental health strategy, Together for Mental Health. Current and specific examples of work which are underway within the Welsh Government to support people's mental wellbeing include:

- The delivery of a Programme for Government commitment to introduce an all-Wales framework to roll out social prescribing to tackle isolation. Social prescribing links people to a wide range of support within the community, improving emotional and physical well-being and reducing loneliness and social isolation. The Welsh Government has committed to developing a national framework that enables delivery of social prescribing in Wales that is of a consistent, effective, high-quality standard. A draft national framework for social prescribing has been developed in collaboration with stakeholders and is currently out to consultation which closes on 20 October.
- Current on-going work between the Welsh Government and Public Health Wales to develop 'Hapus', a social movement model to hold a national conversation about mental wellbeing, to better understand what it means to be well;
- The £5.9m Healthy and Active Fund (HAF) is a partnership between the Welsh Government, Public Health Wales and Sport Wales. Over the last four years the HAF has supported 16 projects to increase the physical activity of those who are currently sedentary or have very low levels of activity and improve mental wellbeing and reduce loneliness and isolation.

For those people working from home (WFH), this may lead to an improved work/life balance but may be less efficient, disentangle teams, reduce ability to lead and reduce short purposeful conversations particularly affecting new or junior staff. People in higher paid jobs are more likely to be able to work from home so job retention is likely to be higher for remote workers. Institute for fiscal studies analysis found those in bottom income quintile got into more debt, while higher income saved more widening wealth inequalities.

Those in occupations most at risk of infection could be most impacted by indirect harms associated with self-isolation. This includes lower productivity and educational losses and reduced health capacity when staff isolate. NHS and key workers in public transport and

education would fall under this umbrella. Key workers are most often women and more than half employees of Bangladeshi ethnicity and half of Black, African, Caribbean and Black British employees are critical workers.

PHW Public Engagement Survey on Health and Wellbeing during Coronavirus published in May 2020 – found that people living in most deprived areas of Wales are more likely to be self-isolating, feeling anxious and isolated during restrictions, and report greater worries about their mental health. People in deprivation are more likely to have increased how much they are watching TV or gaming, whereas those in affluent areas are more likely to have increased spending time outdoors and doing exercise. This may be related to having exercise equipment or having access to safe, well-kept green space. ⁴⁶

The latest Households Below Average Income (HBAI) analysis reports that, after housing costs, median UK household income reduced by 1.4% in real terms between the financial year ending (FYE) 2020 and FYE 2021.⁴⁷ The HBAI analysis reported there was a 1% reduction in income inequality (Gini coefficient) and a fall in material deprivation for pensioners and for combined low income and material deprivation for children in FYE 2021. However, the introduction of coronavirus pandemic restrictions impacted on the measurement of material deprivation such that this measure is not directly comparable with previous years.

Long COVID

ONS reported that as of 1 May 2022, 3.16% of the Welsh population were experiencing self-reported long COVID and 0.82% of the Welsh population reported that their ability to undertake day-to-day activities was 'limited a lot'. Of those with self-reported long COVID in the UK, 20% reported that their ability to go about their day-to-day activities had been 'limited a lot'. Prevalence of self-reported long COVID in the UK was greatest in individuals aged 35 to 69 years, females, people living in more deprived areas, those working in health and social care or teaching and education, and those with another activity-limiting health condition or disability. Hence, the COVID-19 pandemic has exacerbated existing health inequalities, with long COVID disproportionately affecting the above groups. The percentage of people experiencing symptoms of long COVID by Index of Multiple Deprivation quintile decreased between the most and least deprived quintiles. In quintile 1 (most deprived) 3.84% of people reported they had long COVID compared to 2.67% in quintile 5 (least deprived). ⁴⁸

Income

Survey data from ONS suggests people on low incomes have been negatively impacted by COVID-19 more than people on high incomes. As of May 2021, those in the lowest income bracket (up to £10,000 per annum) were more likely to report negative impacts to personal

⁴⁶ [technical-advisory-cell-coronavirus-covid-19-and-health-inequalities.pdf \(gov.wales\)](#)

⁴⁷ [Households below average income: an analysis of the income distribution FYE 1995 to FYE 2021 - GOV.UK \(www.gov.uk\)](#)

⁴⁸ [Prevalence of ongoing symptoms following coronavirus \(COVID-19\) infection in the UK - Office for National Statistics \(ons.gov.uk\)](#)

wellbeing in comparison with higher brackets; such as the coronavirus pandemic making their mental health worse (18%) and feeling stressed or anxious (32%).⁴⁹

The UK unemployment rate increased from 4% in January to March 2020 to a peak of 5.2% in October to December 2020, before returning to pre-pandemic levels in late 2021. Young people (16-24 years) have been disproportionately affected by the coronavirus pandemic, with the unemployment rate increasing throughout 2020 by more than that observed for those aged 25 and over.⁵⁰ Since high unemployment rates are associated with increased risk of developing chronic health conditions, the percentage of adults with chronic health conditions or long-standing illness would be expected to increase gradually following a period of high unemployment caused by COVID-19. A PHW report in October 2020 estimated that an increase in the unemployment rate in Wales from 3.8% in 2019 to 7% in 2020 would lead to an increase in the percentage of the population suffering from longstanding illness from 46.4% to 50.3% in 2022/23.⁵¹

ONS analysis shows that the proportion of people who have ever been furloughed was higher (30%) for workers aged under 24 years and over 65 years, compared with 23% of workers aged 35 to 44 years. Single working parents were particularly affected, with 31% furloughed, compared with 24% of workers living as a couple with dependent children. Asian workers were 3.8% less likely to be furloughed compared with White workers. More disabled workers were furloughed than non-disabled worked (28% versus 26%), but this difference was not significant once personal and job characteristics were accounted for. A greater proportion of furloughed disabled workers were furloughed for more than three months when compared with furloughed non-disabled workers (51% versus 42%).⁵²

The Resolution Foundation reported that furloughed workers were six times more likely to be out of work in October 2021 following the end of the Coronavirus Job Retention Scheme than those employed normally.⁵³ It is hence possible that disabled workers may have been disproportionately impacted by the end of the furlough scheme compared with non-disabled workers.

The Wales COVID-19 Evidence Centre (WCEC) identified research that found ‘women have been disproportionately impacted by the pandemic due to increased carer responsibilities and loss of income (Kyle, Isherwood, Bailey, & Davies, 2021; WEN Wales, 2020). Women in Wales were more likely to have lost their job due to a business closing down, with 18% of women experiencing job loss compared to 11% of men (Mohmed, 2021; WEN Wales, 2021)’.⁵⁴

⁴⁹ [Personal and economic well-being in Great Britain - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/people-in-work/employment-and-unemployment/articles/personal-and-economic-well-being-in-great-britain-2021)

⁵⁰ [Employment in the UK - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/people-in-work/employment-and-unemployment/articles/employment-in-the-uk-2021)

⁵¹ [PowerPoint Presentation \(nhs.wales\)](https://www.nhs.uk/powerpoint/presentation)

⁵² [An overview of workers who were furloughed in the UK - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/people-in-work/employment-and-unemployment/articles/an-overview-of-workers-who-were-furloughed-in-the-uk-2021)

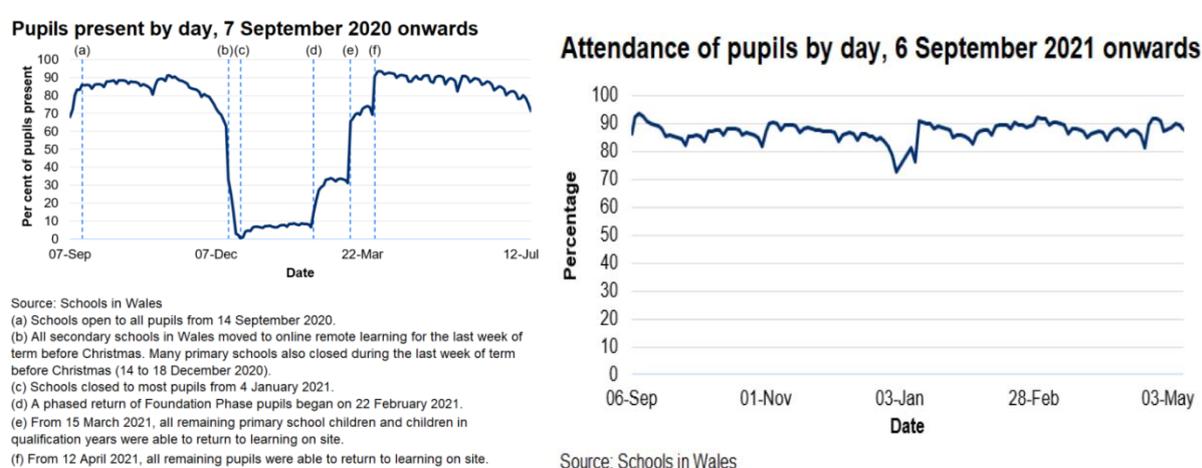
⁵³ [Post-furlough blues • Resolution Foundation](https://www.resolution-foundation.org.uk/post-furlough-blues)

⁵⁴ [RR00027 Wales COVID-19 Evidence Centre- Rapid review of innovations addressing inequalities experienced by women and girls due to COVID-19-January 2022.pdf \(primecentre.wales\)](https://www.primecentre.wales/wp-content/uploads/2022/01/RR00027-Wales-COVID-19-Evidence-Centre-Rapid-review-of-innovations-addressing-inequalities-experienced-by-women-and-girls-due-to-COVID-19-January-2022.pdf)

Education

During most of the COVID-19 pandemic, pupils have been required to self-isolate upon infection or close contact with a confirmed COVID-19 case, reducing the number of face-to-face teaching days experienced by pupils. In the week to 16 July 2021, 8.6% of pupils were absent due to a known COVID-19 related reason.⁵⁵ By the week of 3 to 6 May 2022, this had reduced to 0.6%. Pupils entitled to free school meals (FSM) have been less likely to attend school, with the absence gap between pupils entitled to FSM and not entitled to FSM being an average of 6.9% for the week of 3 to 6 May 2022, down from a peak around Christmas 2021 holidays of 8.7% (week ending 17 December 2021) and 8.8% (6 to 7 January 2022).⁵⁶ Children are less likely to become seriously ill with COVID-19 than older adults, so direct COVID-19 harms are lower in this age group.

Figure 18. Pupil attendance in Wales for 2020/21 and 2021/22 school years



Although self-isolation may dampen transmission in the wider population, there will be significant impacts on children's learning and development, with impacts being greater for children with additional learning needs, from disadvantaged backgrounds, or younger learners who are less able to cope with learning from home. Hence, repeated isolation periods would exacerbate both these impacts and inherent inequalities.

Qualifications Wales analysis reported that in Summer 2021, learners eligible for FSM achieved grades 0.29 of a grade lower than learners who were not eligible for FSM. This difference was larger in 2021 compared with previous years. In 2019, the gap was 0.21 of a grade.⁵⁷ Since learners eligible for FSM are more likely to come from low income households or more deprived communities, this indicates that learners from more deprived communities may have experienced greater impact on education during the COVID-19 pandemic than less deprived communities. Education has been identified as a determinant of health. ONS analysis in 2017 showed a graded relationship between the level of qualifications and health, with adults with no qualifications being the least likely to report

⁵⁵ [Pupils present in maintained schools: 7 September 2020 to 23 July 2021 | GOV.WALES](#)

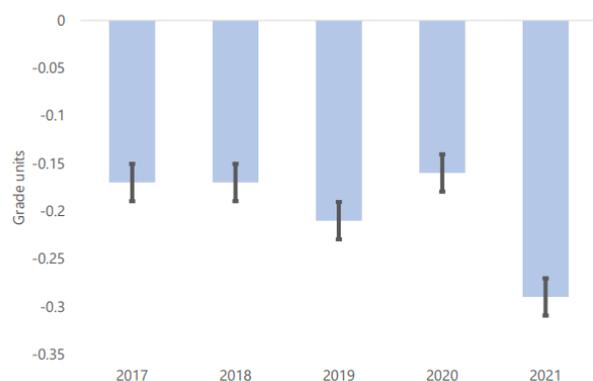
⁵⁶ [Attendance of pupils in maintained schools: 6 September 2021 to 6 May 2022 | GOV.WALES](#)

⁵⁷ [equalities-analysis-of-general-qualifications-in-summer-2021.pdf \(qualificationswales.org\)](#)

their general health as either “very good” or “good”.⁵⁸ Hence a disproportionate impact on learners from more deprived communities could exacerbate existing health inequalities in the long-term.

Figure 19: Core model free school meals effect (eligible FSM learners relative to ineligible FSM learners)

Bars represent model-based estimates, vertical lines represent likely statistical uncertainty (95% confidence interval)



Conclusion

As evidenced throughout this paper health inequalities became very evident during the COVID-19 pandemic with the increased amount of research carried out over the period. Mortality, wellbeing and access to healthcare all contributed to this gap between the most and least deprived populations in Wales. Age, ethnicity and occupation are also indicators for how the pandemic has impacted different people within the population.

As we move towards the winter months, there is the understanding that some people may struggle to heat their homes due to the cost of energy bills. With evidence that colder temperatures can increase mortality⁵⁹, it is important we continue to research the impact of the cost-of-living crisis on population health. Furthermore, it is vital that we also consider the well-being impacts of the cost of living crisis on those people who are already living in deprivation. If the deprived population grows, it is possible that health inequalities also increase.

Policy Implications

As stated in the most recent [Annual Report of the Chief Medical Officer for Wales](#) and as evidenced by the data throughout this report, COVID-19 has brought the costs of tolerating societal health inequalities into sharp focus and compels us to redouble our efforts to tackle inequities. Work is currently underway to consider possible options to maximise the contribution of health and care to tackling health inequalities and to develop regulations under Part 6 of the Public Health (Wales) Act 2017 which will set out circumstances in which

⁵⁸ [An overview of lifestyles and wider characteristics linked to Healthy Life Expectancy in England - Office for National Statistics \(ons.gov.uk\)](#)

⁵⁹ [Excess winter mortality in England and Wales - Office for National Statistics \(ons.gov.uk\)](#)

certain public bodies will be required to carry out health impact assessments. Ministers also [recently consulted on draft National Milestones](#) to track progress in attaining the Well-being Goals of the Well-being of Future Generations (Wales) Act 2015. This included consulting on the following draft National Milestones which were formulated with a focus on tackling health inequalities:

National Indicator of the Well-being of Future Generations (Wales) Act 2015	Draft Milestones which were the subject of public consultation until 12 September
Indicator No.2 - Healthy Life Expectancy at birth including the gap between the least and most deprived.	To increase the healthy life expectancy of adults and narrow the gap in healthy life expectancy between the least and the most deprived by at least 15% by 2050.
Indicator No.3 - Percentage of adults who have fewer than two healthy lifestyle behaviours.	To increase the percentage of adults with two or more healthy lifestyle behaviours to more than 97% by 2050.
Indicator No.29 - Mean mental well-being score.	To improve adult and children’s mean mental wellbeing and eliminate the gap in adult and children’s mean mental wellbeing between the most deprived and least deprived areas in Wales by 2050.

Furthermore, over the course of the pandemic, the Welsh Government concluded a Memorandum of Understanding with the World Health Organization’s Regional Office for Europe on health equity. This Memorandum of Understanding led to the establishment of the Welsh Health Equity Status Reports initiative (‘WHESRi’) and Wales thereby become the first country to apply a milestone World Health Organization Health Equity Status Report initiative framework.

As part of delivering against the Memorandum of Understanding, through the WHESRi, Public Health Wales has developed tools and resources to assist policymakers to maximise the contribution of interventions to tackling health inequalities. These tools include:

- [mapping the wider social, economic, and environmental impacts of COVID-19](#) in Wales and where inequities have been exacerbated as a result of the pandemic;
- the publication of the [Influencing the Gap in Wales: Decomposition Analysis Discussion Paper](#) which applies a methodology to breakdown the health gap in Wales according to the World Health Organization’s 5 Essential Conditions
- the ongoing development of a Welsh Health Equity Solutions Platform which will bring together data, policies, health economics and modelling, international learning and evidence on vulnerable groups in one place.

Appendix

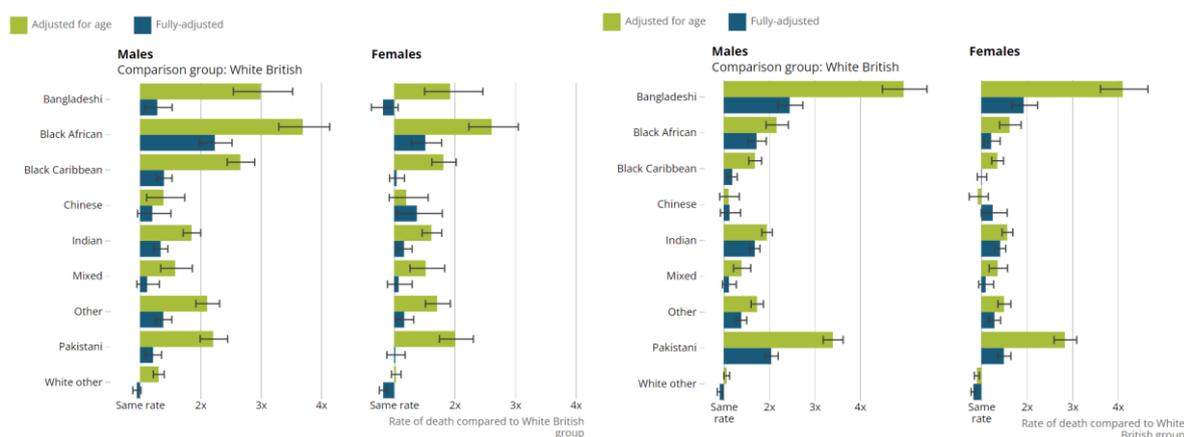
Mortality by ethnicity – England data

Data for COVID-19 mortality by ethnicity is not available for Wales due to the small numbers of deaths. The data below looks at England only and therefore could differ to the trends we may see in Wales but are provided to give an overview of the impact of COVID-19 on different ethnicities.

Comparing COVID-19 mortality by ethnicity in the first wave with the second wave

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 24 January 2020 to 11 September 2020

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 12 September 2020 to 31 March 2021



During January 2020 to September 2020 (first wave of the coronavirus pandemic), examining registered deaths in England showed that, after adjusting for age, males from all ethnic minority groups were at elevated risk of COVID-19 mortality compared with males identifying as White British; females from all ethnic minority groups other than Chinese and White Other were also at greater risk. After adjusting for other factors such as location, measures of disadvantage, occupation, living arrangements and pre-existing health conditions, excess COVID-19 mortality risk for most ethnic groups were substantially reduced. People in the Black African ethnic group were at the greatest risk of death involving COVID-19 compared with White British. Black African males were 2.2 times more likely to die from COVID-19 than White British; 1.5 times more likely for females.⁶⁰

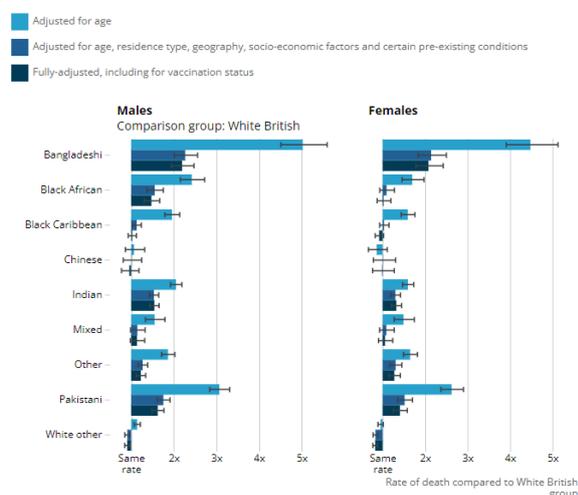
In England during September 2020 to March 2021 (second wave), people from Black African and Black Caribbean ethnic groups remained at higher risk of COVID-19 mortality than White, however the magnitude of excess risk was reduced compared with the first wave. In the second wave, Black African males were 1.7 times more likely to die from COVID-19 than White British; 1.2 times more likely for females. The excess risk of death involving COVID-19 for people from the Bangladeshi and Pakistani ethnic groups was higher in the second wave (September 2020 to March 2021) than in the first wave. After adjusting for other factors, people in the Bangladeshi, Pakistani, Indian and Black African ethnic groups and Black Caribbean males remained at higher risk of death involving COVID-19 than White British.

⁶⁰ [Updating ethnic contrasts in deaths involving the coronavirus \(COVID-19\), England - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/news-releases/2021/03/2021-03-01-updating-ethnic-contrasts-in-deaths-involving-the-coronavirus-covid-19-england)

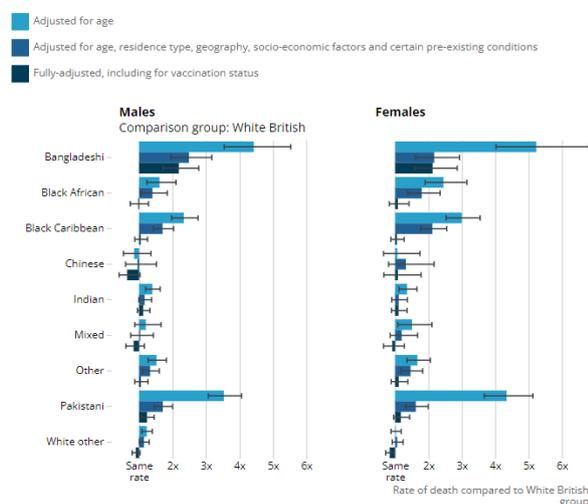
We do not have comparable data on mortality by ethnic group for Wales but if we did, the numbers may be too small to identify significant differences in mortality rates.

Hazard ratios of death involving COVID-19 by ethnic group and sex

Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 8 December 2020 to 12 June 2021



Hazard ratios of death involving COVID-19 by ethnic group and sex, England: 13 June 2021 to 1 December 2021



During December 2020 to June 2021 (end of second wave), after adjusting for age, location, measures of disadvantage, occupation, living arrangements, pre-existing health conditions and vaccination status, people from Bangladeshi, Pakistani and Indian ethnic groups were at elevated risk of COVID-19 mortality compared with people identifying as White British. Black African males were also shown to have a greater risk of death involving COVID-19 compared with the White British male ethnic group.⁶¹

During June 2021 to December 2021 (third wave), after adjusting for age, location, measures of disadvantage, occupation, living arrangements, pre-existing health conditions and vaccination status, most ethnic groups had a similar risk of COVID-19 mortality compared with the White British ethnic group. Only people identifying as Bangladeshi males, Bangladeshi females and Pakistani males were shown to remain at higher risk of COVID-19 mortality.

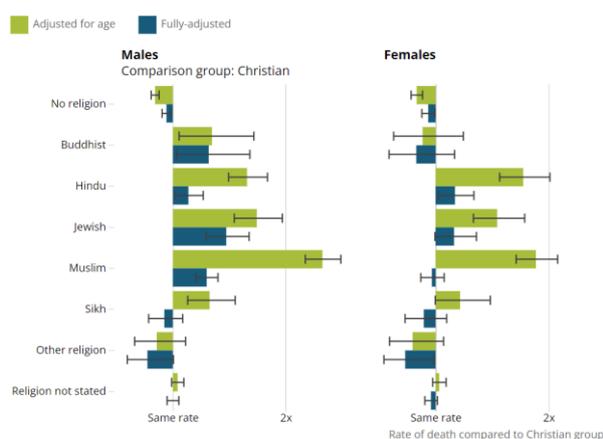
People from the Bangladeshi ethnic group remained 2.2 (male) and 2.1 (female) times more likely to die from COVID-19 compared with White British in both the end of the second wave and during the third wave. However, the excess risk of death involving COVID-19 for people from the Pakistani ethnic group was reduced from 1.6 (male) and 1.4 (female) at the end of the second wave to 1.2 (male) and not at higher risk (female) in the third wave. Additionally, the excess risk of death involving COVID-19 for people from the Indian ethnic group was reduced from 1.5 (male) and 1.3 (female) at the end of the second wave to not at higher risk (male and female) in the third wave. Black African males were shown to have greater risk of death involving COVID-19 at the end of the second wave, but were not at higher risk in the third wave.

⁶¹ [Updating ethnic contrasts in deaths involving the coronavirus \(COVID-19\), England - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/news-releases/2022/06/2022-06-20-updating-ethnic-contrasts-in-deaths-involving-the-coronavirus-covid-19-england)

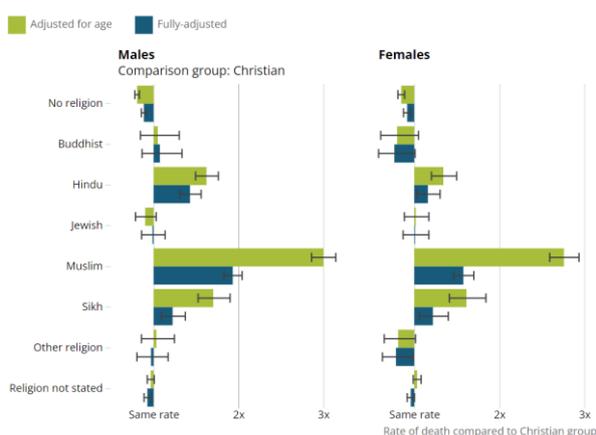
In the third wave, when adjusted for age, location, measures of disadvantage, occupation, living arrangements and pre-existing health conditions, Black Caribbean and Black African ethnic groups were at higher risk of COVID-19 mortality than White British. However, after also adjusting for vaccination status, there was no evidence of greater risk of death involving COVID-19 compared with White British. This suggests that differences in vaccination coverage between these ethnic groups explain a significant part of the excess risk, but there could also be some residual confounding where characteristics of the population that are associated with risk of covid outcomes are also negatively associated with vaccination uptake.

Mortality by religious group

Hazard ratios of death involving COVID-19 by religious group and sex, England, 24 January 2020 to 11 September 2020



Hazard ratios of death involving COVID-19 by religious group and sex, England, 12 September 2020 to 28 February 2021



During January 2020 to September 2020 (first wave), examining registered deaths in England showed that after adjusting for age, location, measures of disadvantage, occupation, living arrangements and pre-existing health conditions, Hindu males and females, and males identifying as Jewish, Muslim or Buddhist had statistically significant increased risk of death involving COVID-19 compared with Christians.⁶²

During September to February 2021 (most of second wave), a higher risk of death involving COVID-19 was observed among people identifying as Muslim, Hindu or Sikh compared with those in the Christian group after adjusting for the same factors as above.

These findings show that the patterns of excess COVID-19 mortality risk by religious group have changed over the course of the pandemic. After adjustments, the Hindu population and Muslim men were disproportionately affected in both the first and second waves. However, Jewish and Buddhist males were only observed to be at increased risk relative to the Christian group in the first wave and were not at increased risk in the second wave. Conversely, Sikh males and females and Muslim women were observed to be at increased risk relative to the Christian group only in the second wave and were not at increased risk in the first wave.

⁶² [Deaths involving COVID-19 by religious group, England - Office for National Statistics \(ons.gov.uk\)](https://www.ons.gov.uk/deaths/articles-and-commentaries/deaths-involving-covid-19-by-religious-group-england)