# Covid-19 Deaths: March 2020 – November 2021: Analysis of Equality Group, Health and Socio-demographic Characteristics

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# Background

The World Health Organisation (WHO) declared the novel coronavirus (Covid-19) a pandemic on 11 March 2020[1]. As of 11 November 2022, 4,951 Covid-19 related deaths had occurred[A] in Northern Ireland[2]. The Northern Ireland Statistics & Research Agency (NISRA) has published weekly[2] and quarterly[3] information on Covid-19 related deaths. To supplement these reports and to provide a more complete picture of mortality during the pandemic, NISRA also published a suite of reports focusing on age-standardized mortality rates[4] (ASMRs), excess mortality[5], and pre-existing conditions[6]. Mortality analyses in Northern Ireland since the start of the pandemic have been largely based on information recorded on death certificates and information gaps remain.

This is the second report addressing user identified evidence gaps[B] by linking death registrations to extensive socio-demographic, health and equality group information (e.g. disability and religion/religion of upbringing) from the 2011 Census of population. The first report[7], covering deaths occurring at the start of the pandemic from March to September 2020, showed there was a 48% higher risk for persons who had self-reported a disability[C] at the time of the 2011 Census (compared to 'non-disabled' people) for Covid-19 and 40% higher risk for non Covid-19 mortality.

In this report analyses have been extended to cover deaths occurring between March 2020 and November 2021, exploring whether differences in the risk of Covid-19 mortality between disabled and non-disabled people changed over the course of the coronavirus pandemic.

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[A] Based on the actual date of death, from those deaths registered by the General Register Office's (GRO) up to 16 November 2022.
[B] Identified by senior government officials and third sector policy leads.
[C] After adjustment for age, sex, area of residence, socio-demographic characteristics and health factors.

The overarching aim of this research is to enhance the understanding of Covid-19 and non Covid-19 mortality during the pandemic. For both Covid-19 and non Covid-19 deaths occurring from the start of the pandemic (March 2020) to November 2021 in Northern Ireland, this research:

- assesses equality group, socio-demographic and self-reported health associations;
- calculates age-standardised mortality rates by self-reported disability in 2020 and 2021; and
- undertakes statistical modelling to examine if Covid-19 mortality risk in 2020 and 2021 differ by self-reported disability.

## Key Findings

The analyses are based on the deaths of persons aged 30 years and over at the time of death, <u>who could be linked to the 2011 Census</u>, the most recent Census data available for data linkage. This research is based on deaths that occurred between **1 March 2020 and 30 November 2021**, and which were registered by 31 December 2021.

This study could not take into account any changes in circumstances between 2011 and time of death occurring between March 2020 and November 2021 as health and socio-economic data included are based on information self-reported in 2011 Census.

**For deaths of persons aged 30 years and above**
- Taking into account the age structure of the population in Northern Ireland, Covid-19 Age-standardised Mortality Rates (ASMRs) (per 100,000) were statistically significantly higher in 2020 (166.8) compared to 2021 (147.4).
- Non Covid-19 ASMRs (per 100,000) were also statistically significantly higher in 2020 (1240.8) compared to 2021 (1169.1).
- Disabled females whose activities were limited 'a lot' had statistically significantly higher Covid-19 ASMRs (per 100,000) in 2020 (288.4) compared to 2021 (224.8).
- For the period March 2020 to November 2021, after adjusting for age, sex, area of residence, socio-demographic characteristics and health, there was a 42% and 40% higher risk for Covid-19 and non Covid-19 mortality respectively for persons who had self-reported a disability at the time of the 2011 Census (compared to 'non-disabled' people).
- There was a continued higher risk of Covid-19 mortality in disabled persons compared to non-disabled persons in 2020 and 2021. No single factor explains this risk and this analysis suggests that it is down to a range of disadvantages experienced by disabled people.
- After adjusting for age, area of residence, socio-demographic characteristics and health, disabled females had a statistically significant greater risk of Covid-19 death in 2020 (74% greater likelihood compared to non-disabled females) compared to disabled males (26% greater likelihood compared to non-disabled males).
- The vast majority of Covid-19 (99.5%) and non Covid-19 deaths (99.6%) and in the general population aged 70 and over (99.5%), had a self-reported white ethnicity in the 2011 Census in Northern Ireland.
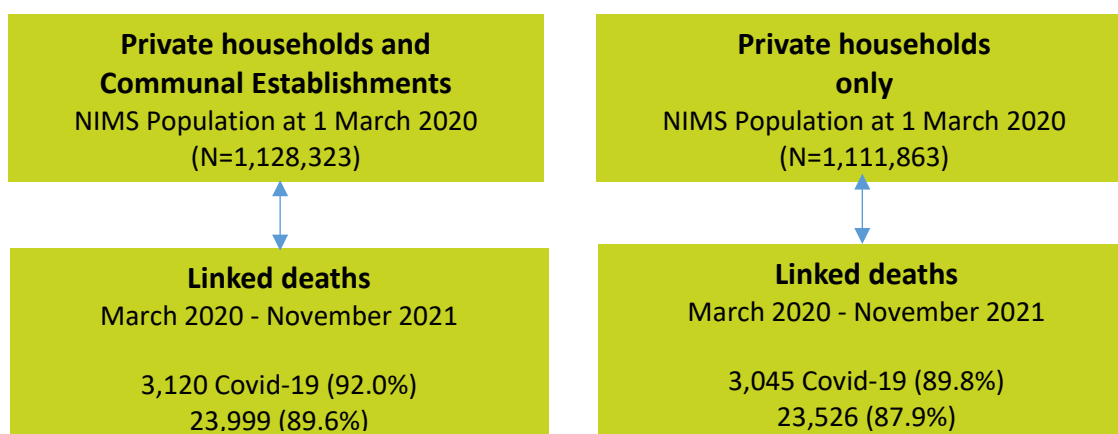
## Design and Setting

The Northern Ireland Mortality Study[8] (NIMS), a population-based research dataset linking 2011 Census data to subsequent registered deaths from April 2011 to December 2021, was used to undertake this analysis. The Office for Research Ethics Committees Northern Ireland (ORECNI[9]) has ratified the usage of NIMS for approved research. The NIMS dataset was accessed in the NISRA safe setting and records were rendered anonymous for analysis purposes. The study population for analysis comprised 1,128,323[D] individuals

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[D] Compared to the previous publication[7], the study population at 1 March 2020 was downward adjusted by 60 to reflect deaths that occurred before 1 March 2020 and were registered after 31 October 2020 (the cut-off point for death registrations in the previous report)

enumerated in the 2011 Census, **aged 30 years and over** on 1 March 2020[E]. Within this group, on the linked dataset, there were 3,120 Covid-19 deaths and 23,999 non Covid-19 deaths between 1 March 2020 and 30 November 2021. This represented 92.0% (3,120 out of 3,390[F]) of all confirmed Covid-19 deaths and 89.6% (23,999 out of 26,778) of all non Covid-19 deaths that occurred during this period.

**Figure 1: Study population (aged 30 years and over)**

| **Private households and Communal Establishments** NIMS Population at 1 March 2020 (N=1,128,323) | **Private households only** NIMS Population at 1 March 2020 (N=1,111,863) |
|---|---|
| **Linked deaths** March 2020 - November 2021 3,120 Covid-19 (92.0%) 23.999 (89.6%) | **Linked deaths** March 2020 - November 2021 3,045 Covid-19 (89.8%) 23,526 (87.9%) |

## Analyses

The report is divided into two analytical sections examining deaths from Covid-19 and other causes occurring (based on date of death) between March 2020 and November 2021. Section 1 provides a descriptive summary of socio-demographic, health, equality and household characteristics among those who died from Covid-19 and other causes compared to the general population. Section 2 presents age-standardised mortality rates by disability status and uses regression modelling to estimate the relative risk of Covid-19 and non Covid-19 deaths by activity limitation. Percentages included in the figures and charts may not add up to 100 per cent due to rounding.

## Deaths due to Covid-19

The definition **of a Covid-19 death used in this report** includes all deaths where Covid-19 was found to be the *underlying cause of death*. The ICD-10 codes, issued by the World Health Organisation (WHO), to code deaths involving Covid-19 were U07.1 (Covid-19, virus identified through laboratory testing) and U07.2 (Covid-19, virus not identified but Covid-19 is suspected through clinical or epidemiological diagnoses). The definition used in this report is based on confirmed cause of death coding and figures are therefore not directly comparable with NISRA's weekly statistics' bulletins[2] which reflect where Covid-19 or 'suspected' or 'probable' Covid-19 was mentioned anywhere on the death certificate.

## Mortality risk in 2020 and 2021

Analysis in Section Two of this report examines differences in mortality rates and in the relative risk of Covid-19 and non Covid-19 mortality by disability status in 2020 and 2021. The time period for analyses was determined by availability of deaths data on the research dataset. The NIMS analysis is based on death registrations up to and including 31 December 2021.

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[E] Individuals aged 21 years and over at the time of the 2011 Census and who were alive on 1 March 2020.
[F] Total underlying Covid-19 deaths occurring during the period received from NISRA Vital Statistics Unit and include registrations up to and including 30 September 2022.

## Key Definitions

**Equality Groups**

Section 75 (S75) of the Northern Ireland Act[10] is underpinned by the promotion of equality and good relations. The nine equality of opportunity categories defined under S75 are age, men and women generally, marital status, people of different religion/religion of upbringing[G], racial group, people who are disabled and those who are not, people who have dependants and those without, political opinion and sexual orientation. Statistics on Covid-19 deaths for different S75 equality groups are keenly sought by central and local government, academics, the third sector and the general public. It was not possible to report on political opinion, sexual orientation and having dependants[H] for Covid-19 deaths as this information is not recorded on either death certificates or on the 2011 Census.

### (i) Disability

This study used self-reported health problem/**disability**, as collected in the 2011 Census in Northern Ireland[11]. A distinction was made between those reporting that their day-to-day activities were '**limited a little**' or '**limited a lot**' due to a health condition or disability which has lasted, or is expected to last at least 12 months. People who reported no limitation to their activities are categorised as having '**no activity limitation'.** This definition of disability is broadly consistent with the Government Statistical Service (GSS) harmonised standard and Disability Discrimination Act (DDA) 1995 definition (see Annex 2).

In the modelling analysis in Section 2 (pages 14-16), the activity limitation categories are combined and disability status is based on where respondents indicated that their day-to-day activities were limited 'a little' <u>or</u> limited 'a lot'.

### (ii) Religion/religion of upbringing

The NISRA religion/religion of upbringing definition combines information from two questions, as collected in the 2011 Census in Northern Ireland[11]:

(1) 'What religion, religious denomination or body do you belong to?' and <u>of those with no current religion</u> (2) 'What religion, religious denomination or body were you brought up in?'

The derived categories used in this analysis, in line with the main religious groups typically reported for the Northern Ireland population, were (a) Catholic (b) Protestant and (c) other religion/no religion or religion not stated. The Protestant category includes persons brought up in or belonging to the Presbyterian Church in Ireland, Church of Ireland, Methodist Church in Ireland and other (non-Catholic) Christian related denominations.

### (iii) Ethnicity

Due to the small number of deaths available for analysis and the distribution across ethnic groups in Northern Ireland[I], it was not possible to use a **BAME** (Black, Asian and minority ethnic) categorisation for deaths in Northern Ireland. A binary white/non-white distinction was used to categorise ethnicity in the analyses and in line with standard disclosure protocols[12].

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[G] NISRA uses the approach set out in the Fair Employment (Monitoring) Regulations (Northern Ireland) 1999[13]
[H] Only child dependants can be deduced from the Census. The study could not take into account any changes in child dependants after Census 2011.
[I] Northern Ireland is not as ethnically diverse as other countries in the UK[14]. Previous research[4] reported on Covid-19 deaths in Northern Ireland by country of birth.

**Long-term Health Conditions**

While data from the 2011 Census were nine years old at the beginning of the pandemic in March 2020, the self-reported long-term conditions question[11], *'Do you have any of the following conditions which have lasted, or are expected to last, at least twelve months'* is a rich source to measure the presence of chronic health problems at the population level.

Following the question above, respondents selected relevant condition/s from categories including:

- Communication difficulty (a difficulty with speaking or making yourself understood);
- A mobility or dexterity difficulty (a condition that substantially limits one or more basic physical activities such as walking, climbing stairs, lifting or carrying);
- A learning difficulty, an intellectual difficulty, or a social or behavioural difficulty;
- An emotional, psychological or mental health condition (such as depression or schizophrenia);
- Long-term pain or discomfort;
- Shortness of breath or difficulty breathing (such as asthma); &
- A chronic illness (such as cancer, HIV, diabetes, heart disease or epilepsy)
- Blindness or partial sight loss
- Deafness or partial hearing loss

The distribution of these self-reported long-term health conditions among those who died of Covid-19 and non Covid-19 deaths is included in Table 1.

However, long-term conditions reported in the Census vary according to individuals' own interpretations and experiences and are not aligned with clinical diagnosis definitions used by medical practitioners. For example, a **self-reported learning difficulty,** reported in Table 1, is distinct from a medically diagnosed learning difficulty or **learning disability.** In the medical sense, a **learning difficulty** constitutes a condition which creates an obstacle to a specific form of learning, but does not affect the overall IQ of an individual while a **learning disability** constitutes a condition which affects learning and intelligence across all areas of life. For example, dyslexia is classed as a learning difficulty while Down's syndrome is classed as a learning disability. The 2021 Northern Ireland Census will, for the first time, report on self-reported learning disability in the household.

**Area of Residence**

An area of residence variable based on the five former NUTS III areas was included in the analysis. The NUTS III areas, in use at the time of Census 2011 (Table 2), were aggregated into two geographical areas. One area included residence in Belfast, Outer Belfast and the East of Northern Ireland. The other area included residence in the North, West and South of Northern Ireland.

# Section 1: Socio-demographic, Health and Equality Group Characteristics

For the period March 2020 to November 2021 in Northern Ireland, Table 1 presents a descriptive summary of socio-demographic, health and equality group associations[J] for both Covid-19 and non Covid-19 causes of death, compared to general population characteristics for two age groups: (i) 30 years and over and (ii) 70 years and over. These age groups for the general population were selected for comparison as there were only a small number of Covid-19 related deaths in persons under 30 years in the study period[KL], and the 70 years and over age group accounted for 83.6% of all Covid-19 related deaths between March 2020 and November 2021 (Table 1).

In the study population, 27,119 deaths occurred[M] in Northern Ireland from 1 March 2020 to 30 November 2021, including 3,120 (11.5%) Covid-19 deaths. Using official mortality data, weighted proportions (Annex 5) were generated for Covid-19 and non Covid-19 deaths to account for under-representation of deaths for age-sex specific groups during the study period (March 2020 – November 2021)[N].

Findings highlighted below compare Covid-19 and non Covid-19 deaths with general population characteristics for all persons aged 70 years and over. The findings should be interpreted in light of Covid-19 mortality risk increasing sharply with increasing age.

## Socio-demographic factors

- Although there is a higher proportion of females in the general population aged 70 and over (m – 44.2%, f – 55.8%), males comprised a higher proportion of Covid-19 deaths (m – 52.7%, f- 47.3%) deaths
- Compared to non Covid-19 deaths (59.5%) and the general population aged 70 and over (55.4%), there was a greater proportion of Covid-19 deaths (66.7%) for persons with no educational qualifications. Similarly, a higher proportion of Covid-19 deaths was evident in persons who were economically inactive/unemployed (85.4%) compared to non Covid-19 deaths (80.6%) and the general population aged 70 and over (80.4%).

## Religion and Ethnicity

- Proportions of Covid-19 deaths among Catholics (34.7%) and Protestants or other Christians (63.2%) was in line with proportions of Catholics (35.4%) and Protestant or other Christians (62.5%) in the general population aged 70 and over.
- The majority of Covid-19 (99.5%) and non Covid-19 deaths (99.6%) and in the general population[O] aged 70 and over (99.5%), with a self-reported white ethnicity in the 2011 Census in Northern Ireland.

## Long Term Health Conditions

- Of all Covid-19 deaths occurring between March 2020 and November 2021, two-thirds (65.8%) of individuals had self-reported a limiting[P] health problem/disability compared to 45.1% of the study population aged 70 years and above. A higher proportion of Covid-19 deaths (65.8%) compared to non Covid-19 deaths (58.7%) had self-reported a limiting[p] health problem/disability, therefore suggesting that persons with a disability were disproportionately impacted by the Covid-19 pandemic.
- Compared to the general population aged 70 years and above, there was a higher prevalence of Covid-19 and non Covid-19 deaths for all those with long-term health conditions. When comparing Covid-19 and non Covid-19 deaths, the proportions of health conditions were similar apart from for those indicating

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[J] Sex, health and equality group characteristics retrieved from the 2011 Census.
[K] Covid-19 related deaths reflected where Covid-19 or 'suspected' or 'probable' Covid-19 was mentioned anywhere on the death certificate, including in combination with other health conditions.
[L] Ten Covid-19 related deaths[15] occurred in persons under 30 years over the period March 2020 to August 2022.
[M] Based on deaths that could be linked to enumerated 2011 Census records (See Figure 1).
[N] Weighted proportions are generated using age at death for the research dataset and official mortality data and are based on death registrations up to and including 30 September 2022.
[O] The general population reflected 2011 Census records, excluding those who were linked to a death registration up to February 2020.
[P] Either limited 'a little' or limited 'a lot'

a mobility or dexterity difficulty (43.7% for Covid-19 deaths; 37.1% for non Covid-19) and for those with long-term pain or discomfort (33.5% for Covid-19 deaths; 28.2% for non Covid-19).

Table 2 presents a descriptive summary of the household and area level factors among those who died from Covid-19 or a non Covid-19 cause from March 2020 to November 2021 in Northern Ireland compared to general population characteristics for age groups (i) 30 years and over and (ii) 70 years and over. The distribution of mortality by population density, a known risk factor for Covid-19 mortality[16], is reported in Table 2. The distribution of Covid-19 deaths for different geographical areas including Local Government Districts, area deprivation and urban/rural residence has been previously published[4]. Only individuals identified as living in households in Census 2011 were considered in this section to allow assessment of household-level variables, such as tenure, household composition and access to a car. Individuals in communal establishments in Census 2011 such as care homes, prisons, homeless hostels and prisons, were therefore excluded.

- Compared to the general population aged 70 years and over (18.8%), there were greater proportions of Covid-19 deaths (24.9%) and non Covid-19 deaths (22.7%) for people who were widowed. For those living alone, higher proportions of Covid-19 deaths (30.9%) and non Covid-19 deaths (30.7%) were evident compared to the general population aged 70 years and over (24.4%).
- There was a higher prevalence of Covid-19 deaths (23.9%) and non Covid-19 deaths (21.8%) compared to the general population aged 70 years and over (14.3%) for those in social rented accommodation. Covid-19 (28.7%) and non Covid-19 (27.6%) deaths were more likely to be living in a household and without access to a car in 2011 compared to the general population aged 70 years and over (17.6%).
- Higher proportions of Covid-19 deaths (18.6%) and non Covid-19 deaths (19.5%) were evident for individuals living in the top 20% most densely populated areas compared to the general population aged 70 years and over (15.9%).

**Table 1** **Distribution$^Q$ of socio-economic, equality group and health characteristics among (i) Covid-19 deaths, (ii) non Covid-19 deaths and persons in the study population (iii) 30 years and over and (iv) 70 years and over:** March 2020 to November 2021

| Characteristics | Value | Covid-19 (%) (n=3,120) | Non Covid-19 (%) (n=23,999) | Population>=30 (%) (n=1,128, 323) | Population >=70 (%) (n=230,603) |
|---|---|---|---|---|---|
| **Sex** | Male | 52.7 | 49.5 | 47.5 | 44.2 |
| **Sex** | Female | 47.3 | 50.5 | 52.5 | 55.8 |
| **Age** | 30-59 | 6.2 | 11.7 | 62.3 | - |
| **Age** | 60-69 | 10.2 | 12.8 | 17.2 | - |
| **Age** | 70-79 | 24.3 | 23.8 | 12.8 | 62.6 |
| **Age** | 80-89 | 38.7 | 33.6 | 6.2 | 30.3 |
| **Age** | 90+ | 20.6 | 18.1 | 1.5 | 7.1 |
| **Educational$^R$ attainment** | Degree level | 10.5 | 13.2 | 27.3 | 17.4 |
| **Educational attainment** | School level or other$^S$ | 22.8 | 27.3 | 46.2 | 27.2 |
| **Educational attainment** | No qualifications | 66.7 | 59.5 | 26.5 | 55.4 |
| **Economic$^K$ inactivity** | Employed incl. student | 14.6 | 19.4 | 64.1 | 19.6 |
| **Economic inactivity** | Inactive/unemployed | 85.4 | 80.6 | 35.9 | 80.4 |
| **Religion (of upbringing)** | Protestant & other Christian | 63.2 | 60.1 | 51.0 | 62.5 |
| **Religion (of upbringing)** | Catholic | 34.7 | 37.6 | 43.9 | 35.4 |
| **Religion (of upbringing)** | Other/none/missing | 2.1 | 2.3 | 5.1 | 2.2 |
| **Ethnicity** | White | 99.5 | 99.6 | 98.4 | 99.5 |
| **Ethnicity** | Non-white | 0.5 | 0.4 | 1.6 | 0.5 |
| **Disability** | No activity limitation | 34.2 | 41.4 | 78.1 | 54.9 |
| **Disability** | Activities 'limited a little' | 24.6 | 23.6 | 9.9 | 21.1 |
| **Disability** | Activities 'limited a lot' | 41.2 | 35.1 | 11.9 | 24.0 |
| **Self-rated health** | Very good | 9.8 | 13.3 | 39.9 | 18.9 |
| **Self-rated health** | Good | 28.0 | 32.2 | 37.1 | 38.4 |
| **Self-rated health** | Fair | 43.6 | 38.6 | 17.0 | 32.9 |
| **Self-rated health** | Bad | 14.8 | 12.7 | 4.8 | 8.1 |
| **Self-rated health** | Very bad | 3.8 | 3.2 | 1.1 | 1.7 |

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$^Q$ Weighted by age and sex to take account of any under representation in the study period of (i) Covid-19 deaths, (ii) non Covid-19 deaths and the general population.
$^R$ Based on responses provided at 2011 Census.
$^S$ School level qualification, other vocational qualification or apprenticeship.

**Table 1** **Distribution$^T$ of socio-economic, equality group and health characteristics among (i) Covid-19 deaths, (ii) non Covid-19 deaths and persons in the study population (iii) 30 years and over and (iv) 70 years and over:** 1 March 2020 to 30 November 2021 (continued)

| Characteristics | Value | Covid-19 (%) (n=3,120) | Non Covid-19 (%) (n=23,999) | Population>=30 (%) (n=1,128, 323) | Population >=70 (%) (n=230,603) |
|---|---|---|---|---|---|
| **Condition** | Communication difficulty | 3.3 | 2.7 | 1.1 | 1.3 |
| **Condition** | A mobility or dexterity difficulty | 43.7 | 37.1 | 11.9 | 27.6 |
| **Condition** | A learning, intellectual, social or behavioural difficulty | 2.3 | 2.2 | 1.4 | 0.8 |
| **Condition** | An emotional, psychological or mental health condition | 9.4 | 9.4 | 7.6 | 5.8 |
| **Condition** | Long-term pain or discomfort | 33.5 | 28.2 | 12.1 | 24.2 |
| **Condition** | Shortness of breath or difficulty breathing | 21.9 | 19.0 | 8.3 | 14.3 |
| **Condition** | Frequent periods of confusion or memory loss | 7.1 | 5.3 | 1.6 | 3.0 |
| **Condition** | A chronic illness | 25.8 | 21.9 | 6.9 | 17.1 |
| **Condition** | Deafness or partial hearing loss | 9.2 | 7.6 | 2.7 | 6.8 |
| **Condition** | Blindness or partial sight loss | 3.0 | 2.4 | 0.7 | 1.6 |

**Interpretation**

Table 1 shows, for example, that 38.7% of all Covid-19 deaths and 33.6% of all non Covid-19 deaths occurred in persons aged 80-89 years.

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$^T$ Weighted by age and sex to take account of any under representation in the study period of (i) Covid-19 deaths, (ii) non Covid-19 deaths and the general population.

**Table 2**          **Distribution[U] of Area and Household Characteristics among (i) Covid-19 deaths, (ii) non Covid-19 deaths and persons in the study population (iii) 30 years and over and (iv) 70 years and over:** 1 March 2020 – 30 November 2021

| Characteristic | Value | Covid-19 (%) (n=3,045) | Non Covid-19 (%) (n=23,526) | Population (%) (n=1,111, 863) | Population >=70(%) (n=227,309) |
|---|---|---|---|---|---|
| **Living arrangements** | Living in a couple | 54.7 | 53.7 | 59.9 | 64.9 |
| **Living arrangements** | Living alone | 30.9 | 30.7 | 13.6 | 24.4 |
| **Living arrangements** | Living 'other[V]' | 14.4 | 15.6 | 26.5 | 10.7 |
| **Marital status** | Single | 11.0 | 13.7 | 30.5 | 7.7 |
| **Marital status** | Married | 54.5 | 52.8 | 54.1 | 64.9 |
| **Marital status** | Divorced | 9.5 | 10.8 | 10.6 | 8.6 |
| **Marital status** | Widowed | 24.9 | 22.7 | 4.8 | 18.8 |
| **Housing tenure** | Owner occupied | 69.6 | 71.2 | 74.6 | 80.7 |
| **Housing tenure** | Private rental | 6.5 | 7.0 | 12.8 | 4.9 |
| **Housing tenure** | Social rental | 23.9 | 21.8 | 12.6 | 14.3 |
| **Number of cars[W]** | None | 28.7 | 27.6 | 14.1 | 17.6 |
| **Number of cars** | 1 | 47.9 | 47.0 | 36.4 | 48.3 |
| **Number of cars** | 2 or more | 23.4 | 25.3 | 49.5 | 34.1 |
| **Population density** | Quintile 1 (most densely populated) | 18.6 | 19.5 | 18.0 | 15.9 |
| **Population density** | Quintile 2 | 21.8 | 19.9 | 18.4 | 19.3 |
| **Population density** | Quintile 3 | 20.2 | 20.3 | 20.0 | 20.4 |
| **Population density** | Quintile 4 | 20.5 | 19.8 | 21.4 | 21.6 |
| **Population density** | Quintile 5 (least densely populated) | 18.8 | 20.4 | 22.2 | 22.8 |
| **Local Government District** | Belfast/Outer Belfast/East of NI | 64.8 | 64.4 | 62.4 | 63.5 |
| **Local Government District** | North, West & South of NI | 35.2 | 35.6 | 37.6 | 36.5 |

This section has shown that people with an activity limitation and long-term health conditions are disproportionately negatively impacted by Covid-19 and non Covid-19 mortality. Comparing associations of Covid-19 and non Covid-19 deaths with corresponding characteristics of the general population aged 70 years and over needs to be interpreted in light of the increasing risks of Covid-19 and non Covid-19 mortality with older ages[4.]. Section 2 further examines Covid-19 and non Covid-19 mortality by disability status within Northern Ireland.

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[U] Weighted by age and sex to take account of any under representation in the study period of (i) Covid-19 deaths, (ii) non Covid-19 deaths and the general population.

[V] The living 'other' category includes cohabiting individuals not part of a couple, for example, living with friends or with other family members (e.g. as part of a multi-generational household).

[W] A proxy for income.

## Section 2: Risk of Covid-19 mortality by self-reported disability status

### Age-standardised Mortality Rates (ASMRs)

Mortality rates generally increase with age, and disability is also more common in older populations. A population with a greater proportion of older people is expected to have more deaths per population. Therefore, to adjust for different age profiles in certain populations, age-standardised mortality rates (ASMRs) were derived to 'standardise' mortality rates among different groups. ASMRs are presented per 100,000 people and are standardised to the 2013 European Standard Population. ASMRs have been adjusted for time to enable periods of different lengths to be compared for 2020 (10 months) and 2021 (11 months).

There was a statistically significant decrease for Covid-19 ASMRs (Figure 2) between 2020 (166.8) and 2021 (147.4). Non Covid-19 ASMRs also decreased between 2020 (1240.8) and 2021 (1169.1), again statistically significant. The relative decrease of Covid-19 ASMR (-11.6%) is greater than that of non-Covid-19 ASMR (-5.8%).

**Figure 2    Covid-19 ASMRs, aged 30 and over: 2020 and 2021**
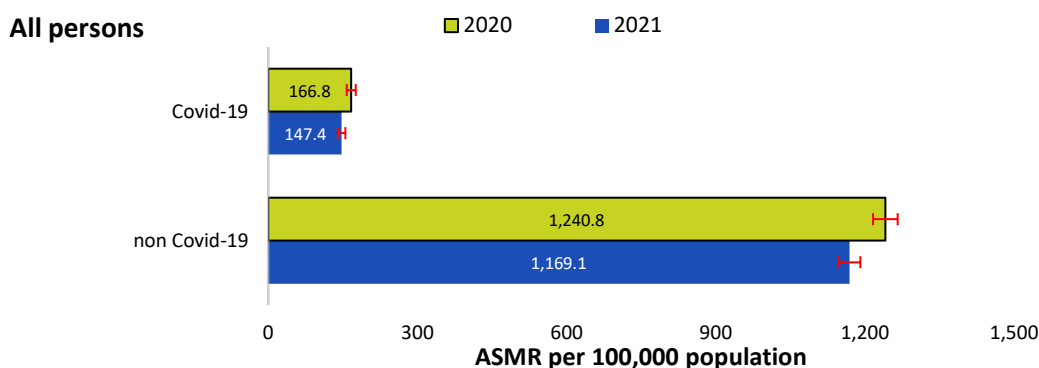


#### Interpretation

Figure 2 shows, for example, that in 2020, the Covid-19 ASMR was 166.8 (per 100,000 population) and the non Covid-19 ASMR was 147.4 (per 100, 000 population).

Covid-19 (Figure 3) and non Covid-19 (Figure 4) ASMRs by disability status are reported for both sexes.

#### ASMRs by activity limitation

Covid-19 ASMRs were significantly higher for persons whose activities were 'limited a lot' compared to persons whose activities were 'limited a little'. Similarly, Covid-19 ASMRs for both 2020 and 2021 were significantly higher for people, whose activities were limited 'a lot' or limited 'a little' compared to those whose activity was not limited. These findings are evident for both males and females in each year. While Covid-19 ASMRs were higher for males, relative mortality rates for females whose activities were 'limited a lot' were over three times as high as Covid-19 ASMRs for females whose activity was not limited (3.5 times and 3.2 times, for 2020 and 2021 respectively). Smaller relative rates were evident in males whose activities were 'limited a lot', whereby their Covid-19 ASMRs were 2.1 and 2.6 times higher in 2020 and 2021 respectively than males whose activity was not limited.

## ASMRs: Comparing 2020 and 2021

Covid-19 ASMRs for females (per 100,000 population) were significantly lower in 2021 (112.6) compared to 2020 (142.8). The overall decrease in females was driven by a statistically significant decrease in Covid-19 ASMRs whose activities were 'limited a lot' (2020: 288.4 compared to 2021:224.8). For males overall, there was a (non-significant) decrease in Covid-19 ASMRs between 2020 (200.8) and 2021 (193.6). This overall small decrease in Covid-19 ASMRs for males is the net result of (non-significant) increases in males whose daily activities were limited 'a lot' (329.6 to 349.9) and limited 'a little' (218.4 to 229.8) combined with decreases in Covid-19 ASMRs for males with no activity limitation (155.8 to 136.7)

**Figure 3    Covid-19 ASMRs by disability and sex, aged 30 and over: 2020 and 2021**
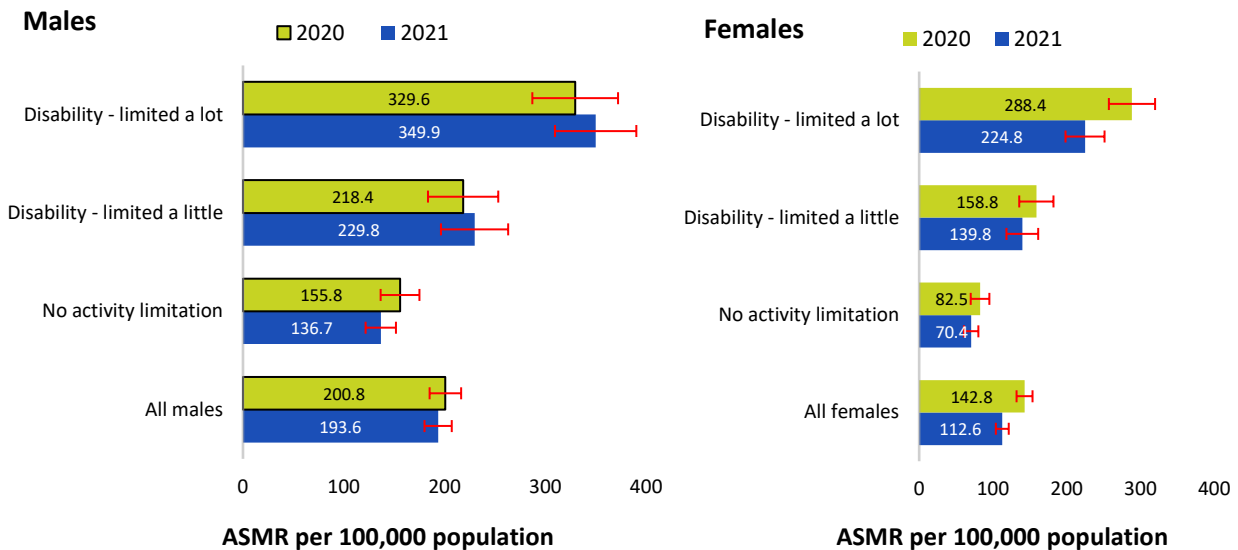


Non Covid-19 ASMRs were significantly lower in 2021 compared to 2020 across all activity limitation categories for both males (2021: 1335.3 compared to 2020: 1438.7) and females (2021: 1041.1 compared to 2020: 1088.8).

**Figure 4    Non Covid-19 ASMRs by disability and sex, aged 30 and over: 2020 and 2021**
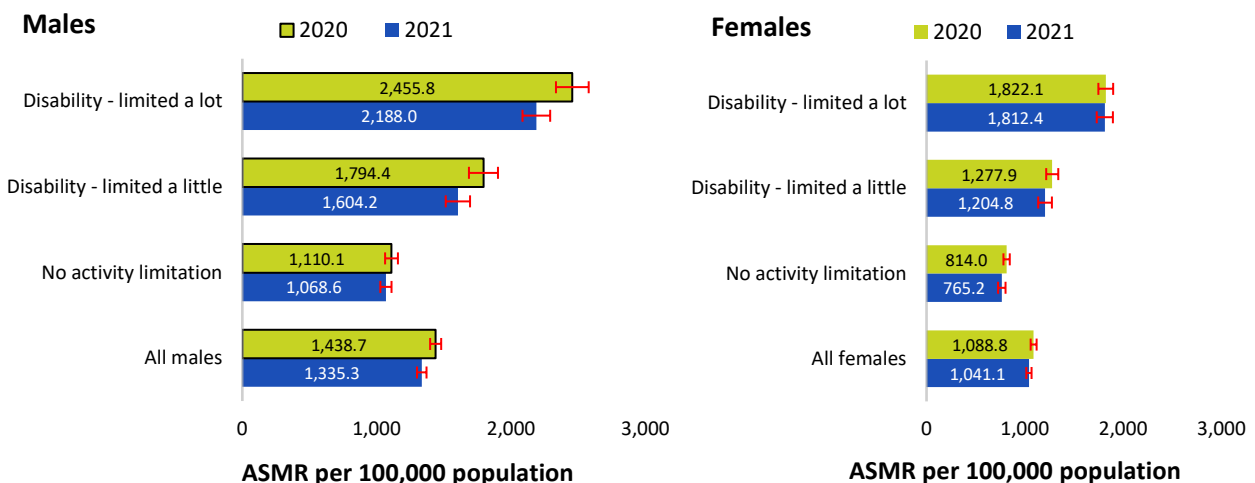


Age-standardised mortality rates (ASMRs) by religion/religion of upbringing for the period March 2020 to November 2021 are shown in Annex 3.

## Modelling Risk of Covid-19 and Non Covid-19 Death by disability status

To further explore variation in Covid-19 and non Covid-19 mortality by activity limitation, statistical models (Cox proportional hazards regression[17]) were used to assess if the risk of Covid-19 and non Covid-19 mortality differed after adjusting for a range of factors affecting the risk of death. These factors included age, sex, area of residence, number of long-term health conditions and socio-economic status. The results do not imply causality[X].

> **Cox regressions and hazard ratios**
>
> Cox regression (proportional hazards regression) methodology[17], a standard approach for analysing NIMS data, was used to estimate the risk of Covid-19 mortality for disability, while adjusting for other factors also expected to be associated with the outcome. For further details on methods used, see Annex 2 and an equivalent study undertaken by the Office for National Statistics[18].
>
> Hazard ratios (HRs) from the Cox proportional hazards models are presented in Figures 5, 6 and 9. The Hazard Ratio (HR) is a measure of how much greater or less the rate of Covid-19 mortality was, for example, for persons with an activity limitation compared to persons without an activity limitation. A HR greater than 1 indicates that the comparison group (e.g. persons with an activity limitation) is more likely to experience Covid-19 death compared to the reference group (e.g. persons without an activity limitation)[Y].

## Statistical Analyses

Modelling was undertaken to aid understanding of the factors driving the differences in Covid-19 mortality by persons with and without an activity limitation. Statistical modelling was based on people aged 30 years and over in March 2020, who were enumerated in the 2011 Census (excluding those records that were linked to death registrations up to February 2021). The exposure time periods for risk of death for each wave was:

2020: 1 March 2020 to 31 December 2020 (10 months); and
2021: 1 January 2021 to 30 November 2021 (11 months)[Z].

Only individuals living in households <u>at the time of the Census 2011</u> were considered in order to assess the role of household-level variables, such as household tenure, access to a car, and location. Individuals in communal establishments such as homeless hostels, care homes and prisons were therefore excluded.

In our baseline models, we present unadjusted HRs for disability without adjustment for any other factor. We then incrementally adjust for[AA]:
1. age
2. sex
3. area (Belfast, Outer Belfast/East of NI versus North/West and South of NI[Z])
4. socio-demographic factors (educational attainment, number of household cars and religion)
5. number of chronic health conditions

For the period March 2020 to November 2021, the **unadjusted** model (that is, no other factors are taken into account when looking at the relationship between disability and Covid-19 mortality risk indicated a nearly

---

[X] Regression analysis can identify statistical relationships between factors; however, it cannot imply causation.
[Y] A HR of less than 1 would indicate that the comparison group (e.g. disabled persons) is less likely to experience Covid-19 death compared to the reference group (e.g. non-disabled persons).
[Z] All 2020 deaths were removed from the dataset to determine the 2021 starting population.
[AA] See Annex 2 for further details on regression methods used.

seven-fold (HR 6.97) greater likelihood of Covid-19 death for disabled people[BB] compared to non-disabled people (Figure 5). Adjusting for age and sex reduced the likelihood of Covid-19 mortality to over two-fold (HR 2.32) excess risk for disabled people. After adjusting for area of residence, socio-demographic factors and health, a 42% greater likelihood of a Covid-19 death for disabled people was evident (HR 1.42).

For non Covid-19 deaths between March 2020 and November 2021, the disability effect was similar, with the unadjusted model indicating over a five-fold (HR 5.28) greater likelihood of non Covid-19 death for disabled people compared to non-disabled people. Adjusting for age and sex reduced the likelihood of non Covid-19 mortality to an almost two-fold (HR 1.92) excess risk. After further adjusting for area of residence, socio-demographic factors and health, a 40% greater likelihood of a non Covid-19 death for disabled people was evident (HR 1.40), again statistically significant.

**Figure 5**   **Mortality hazard ratios (95% CI's*) for disability, incrementally adjusted for socio-demographic, area and health factors, 30+ years:  March 2020 to November 2021**
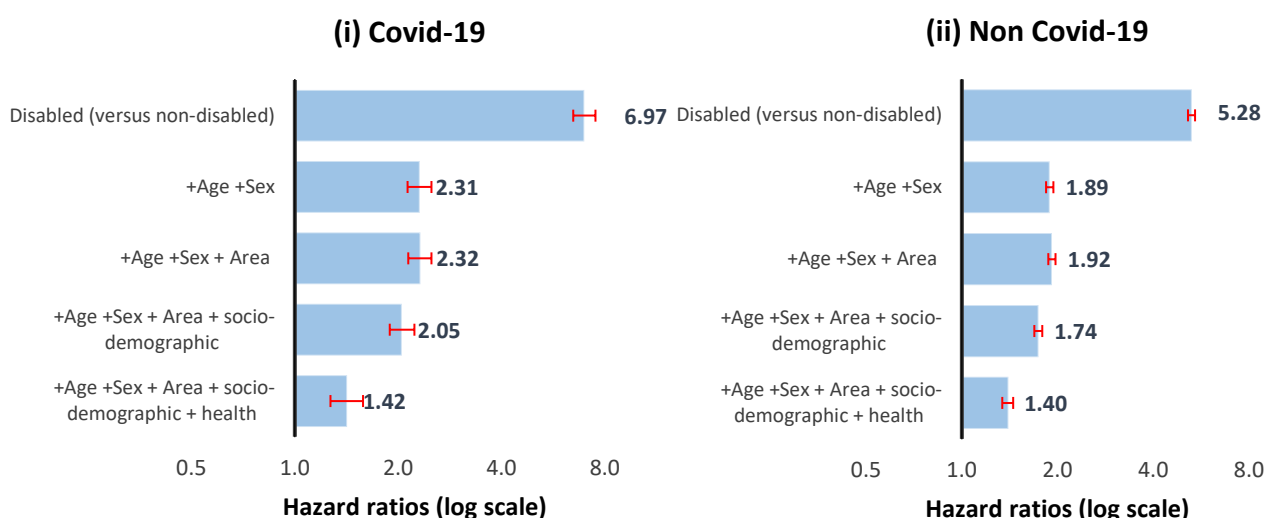


HR > 1 – Persons with a disability higher mortality risk compared to persons without a disability, HR < 1 Persons with a disability lower mortality risk compared to persons without a disability. If the confidence intervals cross 1, the hazard ratios are not significant

**Interpretation**

Figure 5 shows, that for the period 1 March 2020 to 30 November 2021, that disabled persons had a higher risk for both Covid-19 (+42%) and non Covid-19 (+40%) mortality compared to 'non-disabled' persons after accounting for age, sex, area of residence, socio-demographic characteristics and health.

In 2020, there was a statistically significant higher risk of Covid-19 death (Figure 6) in females with a disability (HR 1.74, 74% greater likelihood) than males with a disability (HR 1.26, 26% greater likelihood) after accounting for area of residence, socio-demographic factors and health. In 2021 the risk of Covid-19 death in disabled females (HR 1.47, 47% greater likelihood) was again higher (although not statistically significant) than for males (HR 1.36, 36% greater likelihood). For non Covid-19 deaths, in both 2020 and 2021 mortality risks were similar for both males and females.

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[BB] In the statistical modelling, disability status is based on a self-reported assessment that that day-to-day activities were limited 'a little' or 'a lot' due to a health problem or disability which has lasted, or is expected to last, at least 12 months

**Figure 6    Mortality hazard ratios (95% CI's*) for disability by sex, 2020 and 2021, 30 years and over:**

**(i)    Covid-19 Deaths**



**(ii)    Non Covid-19 Deaths**
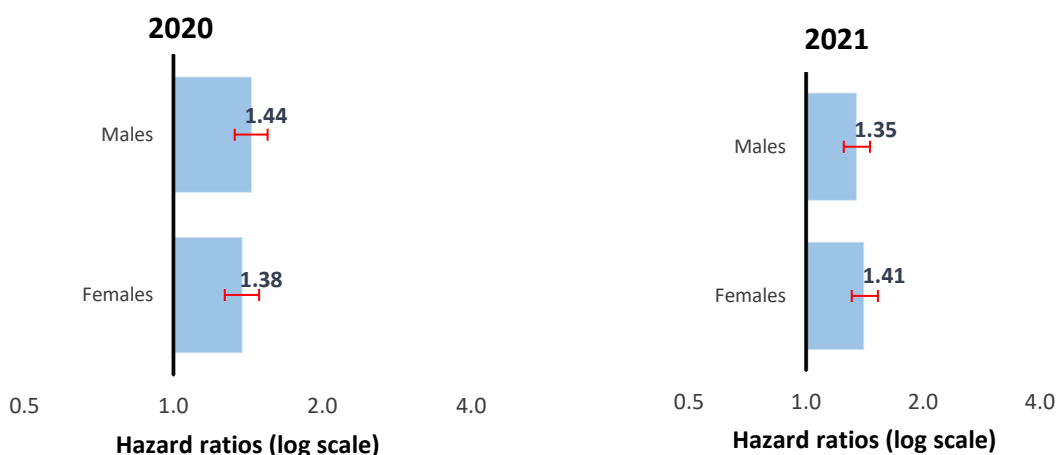


These results align with findings from England[CC] showing a raised risk of death for disabled people compared to non-disabled persons for Covid-19 deaths[18]. There may be a number of factors, not included in our analyses, that are important to all-cause mortality risk including place of residence (i.e. living in a care home or other communal establishment) and severity of health-related factors. The higher risk of Covid-19 death in disabled females compared to disabled males in 2020 may be linked to a larger proportion of females residing in care homes[19] and the higher proportion of Covid-19 deaths occurring in care homes at the start of the pandemic in 2020[DD].

Other studies indicated that an important part of the raised risk could be that disabled people are disproportionately exposed to a range of generally disadvantageous circumstances compared with non-disabled people[18].

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[CC] English report based on a different time period so findings not comparable.
[DD] In 2020, 42.4% and 25.1% of female and male Covid-19 deaths respectively occurred in care homes. (information query received from NISRA Vital Statistics Unit)

## Strengths and limitations

A key strength of our study is that it used a high-quality population-based research dataset, which had comprehensive linkage to deaths including Covid-19 mortality (93% coverage) during the study period. As such, there is no selection bias for our study population. We were able to adjust for a wide range of factors that might confound or mediate the effect of disability to identify the overall association while also considering possible explanatory factors without over-adjusting the models. The study uses rich socio-demographic data (e.g. qualifications and religion/religion of upbringing) sourced from the Census where no equivalent administrative data with sufficient population coverage exists.

This study has a few **limitations**. Firstly, the study could not take into account any changes in health, disability, and socio-economic factors after Census 2011. The starting population includes people who migrated out of Northern Ireland after Census 2011, although older people tend to migrate less than younger people[20]. An overestimate of the population at risk would lead to an underestimate of mortality rates. Health and disability measures were self-reported and were not based on clinical records. However, Northern Ireland 2011 Census remains the most suitable comprehensive source of health and disability data for a large-scale linkage-based analysis like this one. Despite the disability definition relying on individuals' own perceptions and experiences, it is aligned with the current Government Statistical Service (GSS) harmonised "core" disability definition. Hence, our analysis identifies disabled people in a similar way to how disability is identified within public health strategies and in the promotion of equal opportunity among Section 75 groups. In our analyses, it was not possible to adjust for place of residence in 2020 (i.e. private households, care homes and other communal establishments). It is plausible that the higher proportion of deaths in care homes during the pandemic could be a key contributory factor in examining observed differences in mortality risk by disability. There may be other unmeasured factors not included in our analyses that are important for Covid-19 mortality risk including, for example, healthcare quality and access for disability groups.

### Research Team

### Acknowledgements

### Feedback

Your comments and suggestions are welcome and will assist ADR NI in continuously developing research outputs. Please send your comments to: John.Hughes@nisra.gov.uk or Jos.IJpelaar@nisra.gov.uk.

# Annexes

## Annex 1      References

1. Listings of WHO's response to COVID-19
2. Weekly Death Statistics in Northern Ireland 2022
3. Registrar General Quarterly Tables
4. Covid-19 related deaths in Northern Ireland
5. Excess Mortality & Covid-19 Related Deaths in Northern Ireland
6. Covid-19 related deaths and pre-existing conditions in Northern Ireland
7. Covid-19 Deaths and Equality - Wave One
8. The Northern Ireland Mortality Study (NIMS)
9. Office for Research Ethics Committees Northern Ireland
10. Northern Ireland Act 1998. Schedule 9, Paragraph 4 (3) (a)
11. 2011 Census - Questionnaires
12. RSU disclosure protocols
13. Fair Employment (Monitoring) Regulations (Northern Ireland) 1999
14. House of Commons Library – Research Briefing - Ethnic diversity in politics and public life
15. Excess mortality & Covid-19 related deaths - August 2022 - Table 3: Excess deaths and Covid-19 related deaths, by Sex and 5-year ageband, March 2020 to August 2022.
16. Deaths involving COVID-19 by local area and socioeconomic deprivation: deaths occurring between 1 March and 31 July 2020 in England and Wales
17. Appendix 'Cox Proportional-Hazards Regression for Survival Data in R', from Fox, J. and Weisberg, S. (2019). An R Companion to Applied Regression, Third Edition. Sage Publications.
18. Updated estimates of coronavirus (COVID-19) related deaths by disability status, England: 24 January 2020 to 9 March 2022
19. Census 2011: type of communal establishment by resident type by age by sex: CT0418NI
20. Census 2011: Knowledge of Irish: KS209N
21. Long-Term International Migration Statistics for Northern Ireland (2020)
22. Administrative Data Research UK
23. Economic and Social Research Council
24. UK Research and Innovation
25. Peng, J., Lida Lee, K. and Ingersoll, G.M. (2002). An Introduction to Logistic Regression Analysis and Reporting. The Journal of Educational Research 96(1):3-14. DOI: 10.1080/00220670209598786
26. Northern Ireland Super Output Areas
27. District Electoral Areas 2014 Guidance
28. Settlement 2015 Guidance Document
29. Religion in Northern Ireland: 1861-2011

## Annex 2    Data and Definitions

The study population consisted of people enumerated in the 2011 Census, who were alive on 1 March 2020 and aged 30 years and over. Persons younger than 30 years were excluded as there have been few Covid-19 deaths occurring in persons aged younger than 30 years[15].

**Mortality rates** in this report have been calculated based on the number of deaths occurring over a 21-month period from 1 March 2020 to 30 November 2021. Mortality rates generally increase with age. A population with a greater proportion of older people is expected to have more deaths per population. To adjust for different age profiles in different populations (e.g. disability is more common in older populations), age-standardised mortality rates (ASMRs) are calculated to adjust or 'standardise' mortality rates among populations to be compared. In this report ASMRs for disability status are reported in light of user need. ASMRs are presented per 100,000 people and are standardised to the 2013 European Standard Population. ASMRs have been adjusted for time to enable periods of different lengths to be compared for 2020 (10 months) and 2021 (11 months).

Lower and upper 95% confidence limits have been provided in all Figures. These form a **confidence interval**, which is a measure of the statistical precision of an estimate and shows the range of uncertainty around the estimated figure. As a general rule, non-overlapping confidence intervals are considered to be statistically significant.

**Cox proportional hazards regression** is a time-to-event analysis (or survival analysis) assessing the time from the start of a study to an event (e.g. Covid-19 death). The Cox proportional hazards model is a multiple regression analysis method employed in time-to event or survival analysis to estimate the effect of a number of covariates or predictor variables on the time until death[17]. The Cox proportional hazards model is more appropriate than a logistic regression[24] to model the risk of death from a given cause as it accounts not only for whether the individual dies from this disease but also the timing of the death, and death from other causes. Given the short study periods (ten and eleven months for 2020 and 2021 respectively), very similar results (odds ratios) were obtained when running the analyses using logistic regression models.

**Censoring** involves a Covid-19 death coded as 0 if the respondent did not die or died from other causes. Time to death or to 'censoring' was defined as the number of months from baseline (1 March 2020) to death or to the end of the study period (e.g. 31 December for 2020)

A **Hazard Ratio** is a likelihood ratio from the Cox proportional hazards modelling. The other categories of the variable are compared against the reference category to derive the hazard ratio(s). The reference category will always have a HR of 1.

- A HR of 1 for the comparison group indicates no difference between the reference category and the comparison group.
- A HR of greater than 1 indicates that the comparison group is more likely to experience a Covid-19 death compared to the reference group. For example, a HR of 1.42 for people with a disability (compared to not having a disability) indicates that there is a 42% greater likelihood of a Covid-19 death for disabled people compared to non-disabled people.

**95% Confidence Intervals (CI's)** are a range of likely values around the hazard ratio. CI's that do not cross 1 are statistically significant while CI's that do cross 1 are not statistically significant.

**Proportionality assumption**: Proportional hazard assumptions were graphically checked for each explanatory variable included in the models. When deriving a hazard ratio, it is assumed that the ratio of the rates of death between the two categories is constant, that is, that they are proportional during follow-up.

### Disability

To define disability in this publication, we refer to the self-reported answers to the 2011 Census question, "Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months? - Include problems related to old age" ("Yes, limited a lot" or "yes, limited a little" or "no"). This is slightly different to the current Government Statistical Service (GSS)

harmonised "core" definition: this identifies as "disabled" a person who self-reports having a physical or mental health condition or illness that has lasted or is expected to last 12 months or more that reduces their ability to carry-out day-to-day activities. The GSS definition differs from the DDA definition of disability, excluding the following groups which are "non-core" under DDA: People with a progressive condition (specified in the Equality Act and HIV/AIDS, cancer or multiple sclerosis) that does not currently reduce their ability to carry out day-to-day activities.

## Population density

Population density, the number of persons per square kilometre, was assigned based on the geographical area (Super Output Area or SOA[25]) of the usual address of residence based on the 2011 Census. SOA's were ranked from the most densely populated (rank 1) to the least densely populated (rank 890). These rankings were used to assign individuals into one of five equal groups or quintiles (ranging from 1- most densely populated to 5 - least densely populated).

## District Councils

A geography variable based on the former 26 Local Government Districts in Northern Ireland was included in the modelling analysis. The former 26 Districts were aggregated into two larger geographical areas based on the former NUTS III areas, in use at the time of Census 2011. (Table 3). In 2008, the Northern Ireland Assembly approved the reform of Local Government. The change moved Local Government from 26 former Local Government Districts (LGD1992) to 11 existing Local Government Districts (LGD2014). The 11 new Districts became operational in April 2015[26]. The current NUTS III areas are synonymous with the 11 Local Government Districts.

**Table 3 Former NUTS III areas and former Districts in Northern Ireland**

| NUTS III Area | Districts Included | Study area |
| --- | --- | --- |
| Belfast | Belfast | Area 1 |
| Outer Belfast | Carrickfergus, Castlereagh, Lisburn, Newtownabbey & North Down | Area 1 |
| East | Antrim, Ards, Ballymena, Banbridge, Craigavon, Down & Larne | Area 1 |
| North | Ballymoney, Coleraine, Derry, Limavady, Moyle & Strabane | Area 2 |
| South & West | Armagh, Cookstown, Dungannon, Fermanagh, Magherafelt, Newry and Mourne & Omagh | Area 2 |

## Urban/rural residence:

Eight settlement bands (A-H) based on the 2011 Census population were used to classify settlements[27]. Settlements with a population of greater than or equal to 5,000 people were classified as 'urban' while settlements with a population of less than 5,000 people were classified as 'rural'.

**Economic activity** comprised 3 groups: employed (including students), unemployed and the economically inactive. The economically inactive included those who are long term sick, people looking after their family and home, people who are retired before 65 and people who are inactive for other reasons such as temporarily sick, injured and discouraged workers. There were an insufficient number of deaths to provide analyses in the report for each of the economic activity classifications.

## Annex 3    Covid-19 and Non Covid-19 ASMRs by religion/religion of upbringing

Previous research[7] reported on Covid-19 ASMRs by religion/religion of upbringing based on deaths occurring between March and September 2020. Updated analyses for the extended period up to November 2021 are presented in this annex.

In Northern Ireland, Catholics, as well as those belonging to the 'Other religion' grouping and those with no religion[EE], have younger age distributions than those who are Protestants and other Christians[26]. Figure 7 shows that after taking account of the age structure of the Northern Ireland population, Covid-19 male ASMRs (per 100,000) in 2020 were higher for Protestants (207.1) compared to Catholics (189.6) and Covid-19 female ASMRs (per 100,000) were significantly higher for protestants (148.8) compared to Catholics (127.9). In 2021, Covid-19 male ASMRs were higher for Catholics (206.8) compared to Protestants (187.8) while ASMRS were similar for Protestant (112.8) and Catholic females (112.1).

**Figure 7 Covid-19 ASMRs by religion and sex, aged 30 and over: 2020 and 2021**
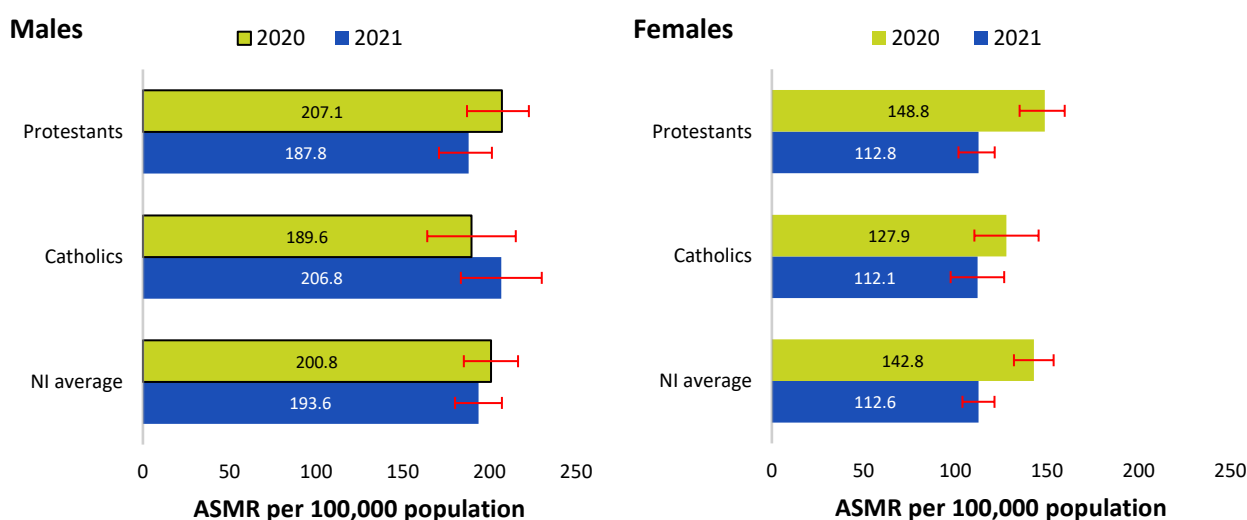


For both male and female non Covid-19 deaths in 2020 and 2021 (Figure 8), Catholics and Protestants had similar ASMRs.

**Figure 8 Non Covid-19 ASMRs by religion and sex, aged 30 and over:  2020 and 2021**



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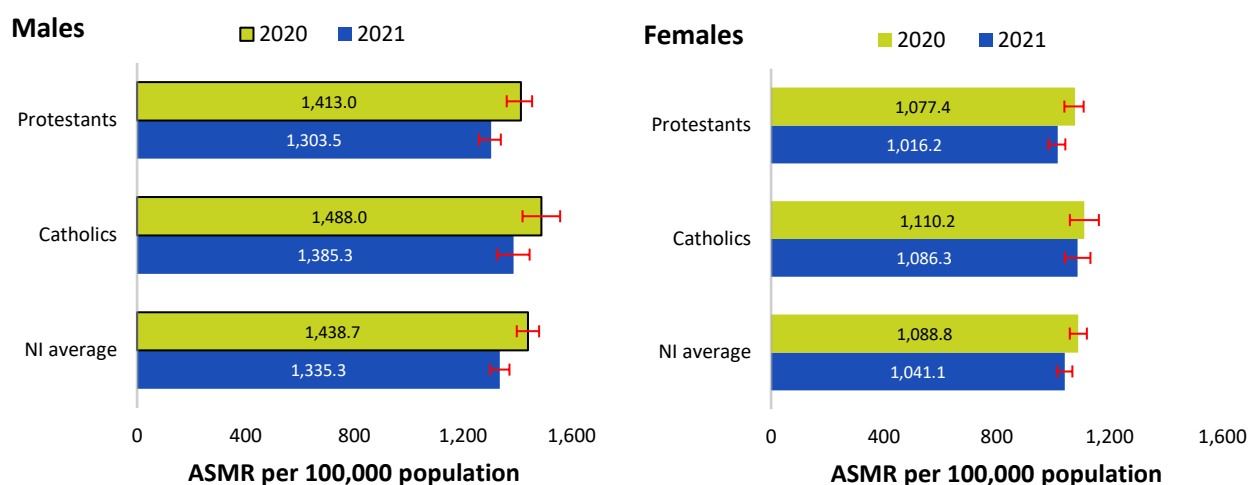
[EE] Including those who have not stated a religion

For Protestants, the **unadjusted** model (that is, no other factors are taken into account when looking at the relationship between persons identifying as Protestant and Covid-19 mortality risk) indicated a 59% (HR 1.59) greater likelihood of Covid-19 death for Protestants compared to Catholics (Figure 9). However, after adjusting for age, there was <u>no significant</u> difference between Protestants and Catholics (HR 1.04[FF]). For non Covid-19 deaths, the unadjusted model indicated a 40% greater likelihood (HR 1.40) of non Covid-19 death for Protestants compared to Catholics. However, after adjusting for age, area and socio-demographic factors, there was <u>no significant</u> difference between Protestants and Catholics (HR 0.97[CC]).

**Figure 9     Mortality hazard ratios (95% CI's\*) for Protestants, incrementally adjusted for socio-demographic and area factors, 30 years and over: <u>March 2020 to November 2021</u>**



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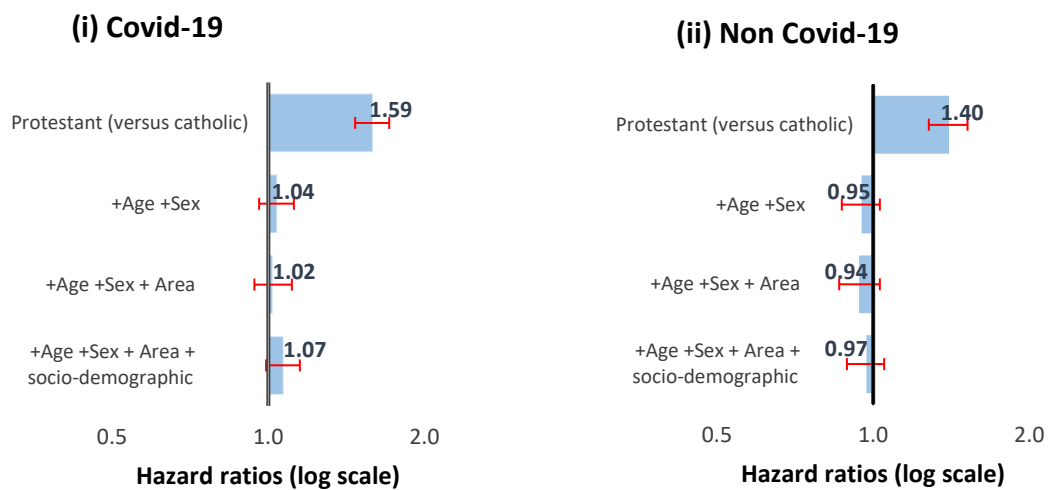
[FF] Not statistically significant as confidence intervals cross 1.

## Annex 5     Weighting

The study population for analyses comprised 1,128,323 individuals enumerated in the 2011 Census, **aged 30 years and over** on 1 March 2020[GG].  On the research dataset, between 1 March and 30 November 2021, there were 3,120 Covid-19 deaths and 23,999 non Covid-19 deaths. This represented 92.0% (~3,120 out of 3,390[HH]) of all confirmed Covid-19 deaths and 89.6% (23,999 out of 26,778) of all non Covid-19 deaths that occurred during this period. The difference (3,049 deaths) between the registered number of deaths and deaths identified on the research dataset is due to a number of reasons including migration and differences in personal attributes (e.g. name, date of birth and address) as well as non-enumeration of Census 2011 records.

For the household and area analyses in Table 2 and for modelling analyses, individuals living in communal establishments were excluded due to non-response at the household level. Other individuals were excluded due to non-response (either missing or edited) in the variables limiting long term illness, urban residency or highest level of education. These exclusions resulted in 75 further Covid-19 deaths and 473 non Covid-19 deaths being omitted from the analytical dataset.

Weighting adjustments were applied in Tables 1 and 2 to allow for the extent of underrepresentation of deaths in each sex-specific age group. Weights were obtained by dividing the number of official Covid-19 and non Covid-19 deaths in each sex-specific age group by the corresponding number of deaths in the research dataset (Tables 4 and 5).

**Table 4: Sex and age specific weights applied to Covid-19 and non Covid-19 deaths: residents of households and communal establishments**

| Cause of death | Sex | Aged 30-59 | Aged 60-69 | Aged 70-79 | Aged 80-89 | Aged 90+ |
|---|---|---|---|---|---|---|
| Covid-19 | Males | 1.26 | 1.23 | 1.10 | 1.06 | 1.06 |
| Covid-19 | Females | 1.05 | 1.07 | 1.09 | 1.06 | 1.06 |
| Non Covid-19 | Males | 1.49 | 1.20 | 1.10 | 1.07 | 1.06 |
| Non Covid-19 | Females | 1.23 | 1.12 | 1.09 | 1.07 | 1.07 |

**Table 5: Sex and age specific weights applied to Covid-19 and non Covid-19 deaths: residents of households only**

| Cause of death | Sex | Aged 30-59 | Aged 60-69 | Aged 70-79 | Aged 80-89 | Aged 90+ |
|---|---|---|---|---|---|---|
| Covid-19 | Males | 1.33 | 1.28 | 1.13 | 1.08 | 1.07 |
| Covid-19 | Females | 1.06 | 1.12 | 1.12 | 1.09 | 1.08 |
| Non Covid-19 | Males | 1.53 | 1.22 | 1.12 | 1.08 | 1.08 |
| Non Covid-19 | Females | 1.26 | 1.14 | 1.11 | 1.09 | 1.11 |

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[GG] Individual aged 21 years and over at the time of the 2011 Census and who were alive on 1 March 2020.
[HH] Total underlying and contributory Covid-19 deaths occurring during the period received from NISRA Vital Statistics Unit.