The impact of COVID-19 on mental wellbeing: implications for North Wales and how they could be addressed

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The impact of COVID-19 on mental wellbeing: implications for North Wales and how they could be addressed

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Executive summary

Background

- The COVID-19 pandemic has threatened short- and long-term physical health and wellbeing around the world. Alongside the direct physical effects from COVID-19 infection, the pandemic has threatened individuals' mental health.
- International research has demonstrated that the pandemic has had negative impacts on population mental health and wellbeing, with the associated public health control measures being key drivers for poor mental wellbeing alongside fear and worry about COVID-19 infection.
- Pre-pandemic, it was estimated that around 10% of adults in Great Britain had moderate to severe depressive symptoms[1], with around 12% of individuals in Wales experiencing severe mental health issues immediately before the pandemic[2].
- Despite the relaxation of COVID-related restrictions in Wales, it is important that the short- and long-term effects of the pandemic on population mental health and wellbeing are understood.
- This study aimed to explore the likely impact of the COVID-19 pandemic on the mental health and wellbeing of the North Wales population, and to identify evidence-based approaches to improve mental health and wellbeing that may mitigate these impacts.

Methods

The study used three main approaches:

- Analysis of data for North Wales residents participating in Public Health Wales' Public Engagement Survey on Health and Wellbeing during Coronavirus Measures (n=5,754; surveyed between April 2020 and January 2022). Analyses explored overall frequencies and trends in mental health outcomes across the pandemic period and differences between key demographic groups. Outcomes analysed included: participants' perceived level of worry about mental health and wellbeing; feelings of loneliness; isolation from others; feelings of anxiety; and perceived changes in mental health since before the pandemic (Section 3).
- A systematic literature review to explore the impact of the COVID-19 pandemic and its associated restrictions on mental health and wellbeing outcomes (e.g., depression, anxiety). Peer-reviewed studies published between 1st March 2020 and 1st February 2022 (inclusive) which contained primary data (qualitative or quantitative) relating to the prevalence of, or changes in, mental health and wellbeing outcomes during the COVID-19 pandemic among UK samples were included. Studies were grouped thematically by population studied and a narrative synthesis of the evidence was completed across population groups.
- Literature searches were conducted to identify evidence-based interventions to improve and protect mental health and wellbeing. Searches were tailored to specific population groups whose mental health and wellbeing may have been affected by COVID-19 (as identified in the systematic review). Searches focused on recent reviews, where available, to draw upon the most up-to-date evidence of potentially appropriate interventions for the North Wales population. As such, this

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[1] Average July 2019-March 2020. Data from the Office for National Statistics – Opinions and Lifestyle Survey: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandthesocialimpactsongreatbritaindata

[2] Rodriguez R. (2021) Covid-19 in Wales: the mental health and wellbeing impact: Briefing paper. Wales Fiscal Analysis: Cardiff.

section does not provide an exhaustive review of the available interventions to address poor mental health and wellbeing.

Findings

Public Engagement Survey on Health and Wellbeing during Coronavirus Measures (see Section 3)

- Levels of mental health among adults in North Wales fluctuated over the course of the pandemic, with periods of lower mental health and wellbeing coinciding with COVID-19 lockdown periods. For example, levels of anxiety, loneliness, and social isolation were highest during the second national lockdown in the winter of 2020/2021.
- Across the survey period, around one in six adults in North Wales reported worrying about their mental health 'a lot' and around a third reported worrying 'a little' (see Section 3.1).
- Over one in ten adults reported 'always' or 'often' feeling lonely (see Section 3.2) and around two fifths reported feeling isolated from others at least occasionally (see Section 3.3).
- One in five adults rated their anxiety as high (see Section 3.4).
- A third of adults reported that their mental health had worsened during the COVID-19 pandemic compared to pre-March 2020 (data from January - July 2021; see Section 3.5).
- Females, those in younger age groups, those living in more deprived areas and those with chronic health conditions generally reported poorer mental health outcomes.

Systematic literature review and interventions (see Sections 4 and 5)

The systematic literature review identified a large body of research that had examined mental health and wellbeing during the pandemic in UK populations. Key findings from this body of work include:

- The pandemic negatively affected population mental health across the UK. Most published data only covered the first stages of the pandemic, but identified trends across population groups, including the **general population** (see Section 4.1) and **older adults** (see Section 4.2), that indicated that the prevalence of mental ill health elevated during the first stages of the pandemic and then reduced as restrictions lifted. Over the pandemic period, mental health concerns and mental ill health remained consistently higher than pre-pandemic levels and increased again during subsequent lockdowns.
- The long-term implications of the pandemic to population mental health and wellbeing are underexplored; few studies identified in our searches focused on its impact beyond 2021.
- Risk factors associated with poorer mental health outcomes were similar across population groups. Studies consistently identified that individuals who were most at risk of negative outcomes were female, of younger age, of low socioeconomic status, had a history of poor mental and physical health, or were unemployed (see Table 10, Discussion).
- Impacts across population groups identified in the systematic review, alongside evidence for interventions where appropriate, are summarised in the boxes below.

General population	
Evidence of impact on mental health (Section 4.1)	**Evidence for interventions (Section 5.1)**
• The pandemic negatively affected population mental health across the UK. Most published data only covered the first stages of the pandemic and indicated that the prevalence of mental ill health was highest during the first stages of the pandemic. • Despite reductions during periods where restrictions were lifted, mental health concerns and mental ill health remained consistently higher than pre-pandemic levels and increased again during subsequent lockdowns.	• There is some evidence that workplace interventions, particularly psychological interventions, can effectively support mental wellbeing in general population samples. • Growing evidence suggests that self-guided interventions, such as cognitive behavioural therapy (CBT) and activity-based interventions, such as physical activity, can be beneficial for mental wellbeing. • Digital interventions may also be effective for improving mental health and wellbeing. • In general population samples limited evidence was found for the effectiveness of community interventions (e.g., befriending and information referral and advice services) to improve mental wellbeing.

Older adults	
Evidence of impact on mental health (Section 4.2)	**Evidence for interventions (Section 5.2)**
• Trends in mental health for older people during the pandemic largely followed those for the general population, with higher levels reported during lockdown periods.	• Group interventions that facilitate social connectedness (e.g., physical activity and befriending programmes) can reduce loneliness and increase self-confidence in older adults. • Psychological interventions, including mindfulness and reminiscence-based interventions, can improve wellbeing in community dwelling older adults, and may also be effective for those living in long-term care facilities.

Children and young people	
Evidence of impact on mental health (Section 4.3)	**Evidence for interventions (Section 5.3)**
• Children and young people suffered higher levels of mental ill health during the pandemic compared to other age groups. • However, for some young adults with pre-existing mental health conditions, lockdown periods may have provided some mental health benefits.	• There is some evidence for the effectiveness of school-based interventions in improving mental wellbeing. • Programmes that promote teacher wellbeing and support parents can also be beneficial for young people's wellbeing. • Remote interventions (e.g., delivered online by mental health professionals) can have positive wellbeing outcomes and are highly accepted amongst young people.

Ethnic minority groups

Evidence of impact on mental health (Section 4.4)	Evidence for interventions (Section 5.4)
• The pandemic increased levels of depression, suicidal thoughts, anxiety, and stress. • Increased anxiety and stress were linked to the increased risk of adverse outcomes from COVID-19 infection.	• Community-based interventions, including social groups, can effectively improve loneliness in ethnic minority populations, but evidence for other interventions is mixed and more research is required. • Research indicates that ethnically appropriate interventions and awareness of cultural and language barriers are essential for engagement and acceptability of such interventions.

LGBTQ+

Evidence of impact on mental health (Section 4.5)	Evidence for interventions (Section 5.5)
• Factors associated with poorer mental health during the pandemic include those which are unique to the experiences of this population, such as living with non-supportive families.	• There is limited empirical evidence for interventions to improve depression and anxiety in LGBTQ+ individuals, with the strongest evidence supporting CBT-based interventions. • There is a lack of evidence-based research addressing LGBTQ+ mental wellbeing in schools. • Digital psychosocial interventions have the potential to improve LGBTQ+ wellbeing and can increase engagement among the most vulnerable individuals.

Perinatal period and parents and caregivers

Evidence of impact on mental health (Section 4.6)	Evidence for interventions (Section 5.6)
• High levels of mental ill health were identified for mothers during the perinatal period. • Lockdown and school closures negatively impacted the wellbeing of parents and caregivers.	• There is good evidence for the effectiveness of psychological and psychosocial interventions in the perinatal period and growing evidence for eHealth interventions in the antenatal period, particularly those that are CBT-based. • There is a dearth of research on interventions to improve paternal perinatal depression. • There is a small evidence base that indicates mindfulness interventions can improve parental stress.

Unpaid caregivers

Evidence of impact on mental health (Section 4.7)	Evidence for interventions (Section 5.7)
• Mental health trajectories followed patterns seen in the general population. • Levels of mental ill health remained consistently higher than	• There is limited evidence for effective interventions to reduce unpaid caregiver stress, anxiety, and depression, with the strongest evidence coming from CBT- and mindfulness-based approaches.

those of individuals with no caring responsibilities.	• There is a growing evidence base of the efficacy of remote interventions (e.g., online, eHealth, tele-health) to improve carer anxiety and depression.

Individuals with COVID-19 infection

Evidence of impact on mental health (Section 4.8)

- Studies conducted with individuals with COVID-19 infection identified negative impacts for anxiety, depression, and stress symptoms, with outcomes weakly associated with the severity of COVID-19 illness.
- COVID-19 associated illness presents a long-term mental health burden which requires further exploration.

Health conditions

Evidence of impact on mental health (Section 4.9)

- A small number of studies identified that the pandemic negatively impacted mental wellbeing outcomes in individuals with pre-existing mental or physical health conditions.

Health and social care staff

Evidence of impact on mental health (Section 4.10)	Evidence for interventions (Section 5.8)
• NHS staff sickness absence for mental ill health increased in the first stages of the pandemic. • Reported changes in mental ill health largely reflect general population trends. • Factors associated with poorer mental health of healthcare staff include those which are unique to the experiences of this population, such as being a frontline worker and poorer working conditions. • Insufficient evidence on the impact of the pandemic on social care staff was identified.	• Studies exploring the effectiveness of mental health interventions have primarily been conducted with healthcare workers rather than social care professionals. • More research is needed on the efficacy of interventions to improve health and social care staff mental health in the context of COVID-19. Despite some interventions being established during the pandemic, little is known about their impact. • There is low quality evidence for the effectiveness of CBT- and mindfulness-based interventions among healthcare workers. • Whole-system healthy workplace interventions have been shown to effectively improve subjective mental health amongst healthcare workers.

Higher education

Evidence of impact on mental health (Section 4.11)	Evidence for interventions (Section 5.9)
• Longitudinal analyses show increased depression and stress among those studying and working in UK higher education institutes. • The impact of the pandemic on levels of anxiety and loneliness in these populations is less certain.	• There is evidence that digital interventions may be effective for improving mental wellbeing in the higher education student body, and such interventions could be integrated into the university curriculum. • Psychosocial interventions, such as CBT, have shown positive outcomes for student mental health and wellbeing.

Veterans	
Evidence of impact on mental health (Section 4.12)	**Evidence for interventions (Section 5.10)**
• There were mixed findings on the impact of the COVID-19 for veterans, with no significant changes measured in Post-Traumatic Stress Disorder (PTSD).	• Psychosocial interventions can be effective for PTSD, but evidence is less strong for their impact on depression and anxiety symptoms. • Due to stigma around mental health, interventions using online or tele-therapy methods may be suitable for veteran populations and the evidence base for such interventions is growing. However, its effectiveness in comparison to face-to-face treatment varies across studies.

Other population groups
Evidence of impact on mental health (Section 4.13)
• A small number of studies examined changes in mental health and wellbeing across other population groups, including those with disability, autism, and prisoners. • Evidence indicated that the pandemic exacerbated depression, anxiety and loneliness, although findings differed by population group.

Conclusions

- The COVID-19 pandemic and associated lockdown restrictions led to declines in mental wellbeing, with significant increases in depression and anxiety.
- Despite little evidence available for the North Wales population, it appears that local population trends followed those seen nationally in Wales and the wider UK. Mental health outcomes, including anxiety and loneliness, fluctuated in the UK over the course of the pandemic, but overall were negatively affected.
- Despite the current relaxation of COVID-19-related restrictions in Wales, it is important that the short- and long-term effects of the pandemic on population mental health and wellbeing are fully understood. Few studies included in our review examined trends in population health and wellbeing beyond 2021, although data from the Public Health Engagement Survey runs until January 2022. As such, further knowledge is required to understand the long-term impacts of the pandemic.
- The findings of the review highlighted that the impacts of lockdowns did not have uniform effects across populations: females, younger age groups, those living in more deprived areas, and individuals with chronic health conditions reported poorer mental health outcomes.
- Evidence supports the use of psychological and psychosocial interventions across a range of population groups, however, there is a lack of evidence for the long-term effectiveness of interventions to support mental health.

Contents

Abbreviations used in the report

ALSPAC	Avon Longitudinal Study of Parents and Children
AOR	Adjusted odds ratio
ASSIA	Applied Social Sciences Index & Abstracts
BCUHB	Betsi Cadwaladr University Health Board
CEV	Clinically extremely vulnerable
CBT	Cognitive Behavioural Therapy
CESD	Center for Epidemiological Studies - Depression
CIs	Confidence intervals
CMD	Common mental health disorder
COPD	Chronic obstructive pulmonary disease
COVID-19	Coronavirus disease caused by SARS-CoV-2 virus
DSM	Diagnostic and Statistical Manual of Mental Disorders
ELSA	The English Longitudinal Study of Ageing
EMDR	Eye movement desensitisation and reprocessing
GAD	Generalised Anxiety Disorder
GHQ	General Health Questionnaire
GP	General practitioner
HIV	Human immunodeficiency virus
IBD	Inflammatory bowel disease
LGBTQ+	Lesbian, gay, bisexual, transgender, queer or questioning and others
MBCT	Mindfulness-based cognitive therapy
MBSR	Mindfulness-based stress reduction
MCS	Millennium Cohort Study
MS	Multiple sclerosis
OCD	Obsessive compulsive disorder
ONS	Office for National Statistics
OR	Odds ratio
P&E	Proud and Empowered
PAIL	Physical Activity Intervention for Loneliness
PCOS	Polycystic ovary syndrome
PHQ	Patient Health Questionnaire
PFA	Psychological First Aid
PPE	Personal protective equipment
PPD	Postpartum depression
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
PTSD	Post-Traumatic Stress Disorder
RR	Risk ratio
SAMHSA	Substance Abuse and Mental Health Services Administration
SEL	Social and emotional learning
SPSS	Statistical Package for the Social Sciences
TRiM	Trauma risk management
UKHLS	United Kingdom Housing Longitudinal Study
WISE	Wellbeing in Secondary Education
WHO	World Health Organization

1. Background

The COVID-19 pandemic threatened short- and long-term physical health and wellbeing around the world. By the end of March 2022, 862,106 confirmed cases of COVID-19 had been recorded in Wales and 7,162 deaths. Of these, 167,104 cases (19%) and 1,295 deaths (18%) were in North Wales residents [1]. In March 2022, around one in five (n=388/1856, 30th March) hospitalisations in Betsi Cadwaladr University Health Board (BCUHB) were recorded as COVID-19 related (i.e., patients with confirmed COVID-19 infection) [2]. In Wales, as in other countries, high rates of COVID-19 infection led to a sustained public health response from the Welsh Government and health agencies. National measures implemented by the Welsh Government in response to COVID-19 included stay-at-home (lockdown) instructions, limits on social contact (through social distancing, household mixing restrictions and work-at-home advice), the closure of entertainment and hospitality venues and the use of mandatory face coverings and the COVID-pass (proof of vaccination or infection status) [3, 4].

Alongside the direct physical effects from COVID-19 infection, the pandemic threatened individuals' mental health. International research has demonstrated that the pandemic has had negative impacts on population mental health and wellbeing, with the associated public health control measures being key drivers for poor mental wellbeing alongside fear and worry about COVID-19 infection [5]. These impacts may be particularly felt within certain groups who may be more vulnerable to infection or at increased risk of COVID-associated mortality (e.g., older adults, pregnant women, and those with underlying health conditions) [6, 7]. Despite the relaxation of COVID-related restrictions in Wales, it is important that the short- and long-term effects of the pandemic on population mental health and wellbeing are understood. Improved knowledge of the effect of the pandemic on the mental health and wellbeing of the population, particularly differences in experience across the life course and population groups, will help to enable the identification of appropriate interventions that BCUHB and its partners can implement in North Wales to negate such effects.

This study has the following aims:

1. To examine the likely impact of COVID-19 on the mental health and wellbeing of the population of North Wales; and,
2. To identify appropriate interventions and best practice which may mitigate the negative impacts of COVID-19 on mental health and wellbeing.

2. Methods

To examine the likely impact of COVID-19 on the mental health and wellbeing of the population of North Wales, we explored data collected directly from North Wales residents during the pandemic (Public Engagement Survey, see 2.1) and synthesised findings from published studies that examined changes in mental health, prevalence of poor mental health and factors associated with poor mental health during the pandemic in UK populations. The methods for each component of the study are detailed below.

2.1 Public Engagement Survey on Health and Wellbeing during Coronavirus Measures

The Public Engagement Survey on Health and Wellbeing during Coronavirus Measures - a Welsh longitudinal cross-sectional telephone survey - was initiated by Public Health Wales in April 2020 to monitor the impact of the COVID-19 pandemic on population health and wellbeing. Using random samples of Welsh residents aged 18 years and over, the survey was conducted weekly during the first wave of the pandemic, then fortnightly until moving to monthly surveys from December 2021.[3] Survey data are held by Public Health Wales, with national reports published for each survey round [8]. The survey includes a set of core questions each survey round with other questions changing across surveys to address pertinent issues. All survey measures are self-reported.

Analysis of survey data for the North Wales population was undertaken by the survey's principal co-ordinator (KH; quality assessed by NJ). Data analysis used SPSS version 24 to explore overall frequencies and trends in mental health across the study period and differences between key demographic groups. Overall frequencies are weighted to North Wales population demographics by age group, gender, and residential quintile of deprivation (using the Welsh Index of Multiple Deprivation and mid-2020 population estimates). Analysis of trends and demographic variations in outcome measures use generalised linear models and estimated marginal means. Trends data are adjusted to represent North Wales population demographics (by age group, gender, and residential deprivation quintile). Demographic differences in responses adjust for sample characteristics (age group, gender, deprivation quintile, minority ethnicity [black and other minority ethnic groups, yes or no] and chronic health condition [yes or no]) but are not further adjusted to population demographics. Chronic health condition is based on participants self-reporting one of the following conditions: diabetes, heart disease, lung disease (e.g., asthma, chronic obstructive pulmonary disease) or cancer. Minority ethnicity group membership is based on individuals self-reporting a non-white ethnicity; participants choosing not to provide their ethnicity are categorised to 'no'.

2.2 Systematic review: Impact of COVID-19 on mental health and wellbeing

A systematic literature review was undertaken to explore the impact of the COVID-19 pandemic and associated restrictions (e.g., lockdown, social distancing) across mental health and wellbeing outcomes, including mental health conditions (e.g., depression, anxiety). Due to few known published studies within the North Wales region, search parameters were set to include research conducted across the UK, to identify findings that may be relevant to the North Wales population. Literature was restricted to UK studies due to the immensity of global health research published during the pandemic, with a database established to track COVID-19 related articles in PubMed (LitCovid) containing over 230,000 studies by March 2022.

The review sought to identify peer-reviewed studies containing primary data (qualitative or quantitative) related to the impact of COVID-19 and mental health or wellbeing. For inclusion, studies

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[3] During the survey period, breaks in surveying occurred in August 2020 and October to November 2021.

needed to be conducted within a UK population. However, multi-country studies that included data for a UK sample were included where information for the UK sample was available. No other limits were placed on the study population of interest.

The review followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines [9]. Six electronic literature databases: MEDLINE, APA PsycINFO, Coronavirus Research Database, Applied Social Sciences Index & Abstracts (ASSIA), Social Services Abstracts and Sociological Abstracts were searched. Searches were limited to literature published in English language from 1st March 2020 (around the time COVID-19 was identified as being widespread within the UK population) until 1st Feb 2022 inclusive. The search terms used are shown in Box 1. Two reviewers (from KF, NJ, NG) independently screened study titles and abstracts, then full texts for inclusion, with a third reviewer used to resolve disagreements. Searches retrieved 2,306 eligible records (see Figure 1), from which 393 were included. Using the same search terms, a grey literature search was also conducted using the Google Advanced Search function. This search was limited to English publications. Overall, 462 items were included for review.

Figure 1: PRISMA flow diagram
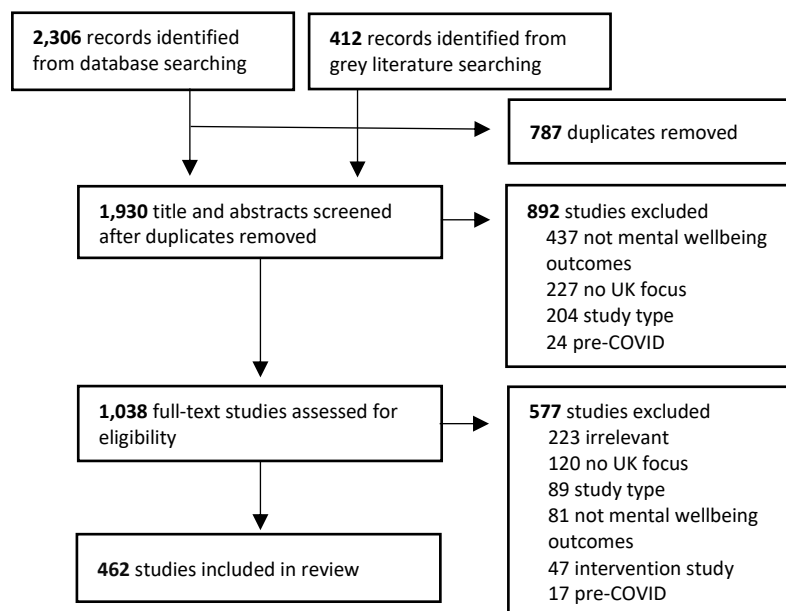
Given the extensive literature identified, data were extracted for each study on: study classification, aim, location, population, sample, and outcomes studied. Studies were grouped thematically by population studied and a narrative synthesis of the evidence was completed across population groups. Due to the tight timeframes to complete the review, included studies were unable to be independently assessed for quality or bias. However, the evidence synthesis places more focus on studies which are higher quality and use larger sample sizes.

Box 1: Systematic review search terms

(UK OR "United Kingdom" OR Britain OR England OR "Northern Ireland" OR Scotland OR Wales OR British OR English OR "Northern Irish" OR Scottish OR Welsh) AND ("Mental illness" OR "Mental health" OR "Mental well-being" OR "Mental wellbeing" OR Depress* OR Anxi* OR Loneliness OR Stress) AND ("Covid-19" OR Coronavirus)

2.3 Interventions for mental wellbeing

To provide an overview of what works to prevent and respond to individuals whose mental health and wellbeing may have been affected by COVID-19, we have drawn on previous reviews of evidence and interventions. This is not an exhaustive review of available interventions to address poor mental wellbeing and mental ill health. However, intervention studies specific to COVID-19 identified through our systematic review search (see Section 2.2) were separately reviewed, and further literature searches were conducted to identify population-level interventions to improve mental health and wellbeing for the risk factors identified from the systematic review findings.

2.4 Report outline

Section 3 examines findings for North Wales from the Public Engagement Survey on Health and Wellbeing during Coronavirus Measures. Section 4 explores the evidence for the impact of COVID-19 on mental health at a general population level before exploring evidence from studies conducted in population sub-groups (older adults, children and young people, ethnic minority groups, LGBTQ+, perinatal period and parents, unpaid caregivers, individuals with COVID-19 infection, individuals with health conditions, health and social care staff, higher education, veterans and other population groups). Section 5 provides a summary of the evidence base for interventions in response to the evidence across Sections 3-4.

3. Findings from the Public Engagement Survey for North Wales

- A third of adults in North Wales reported that their mental health had worsened during the pandemic.
- During the survey period, one in six adults reported having been worrying 'a lot' about their mental health in the week prior to survey, and a third reported worrying about their mental health 'a little'.
- Over one in ten reported 'always' or 'often' feeling lonely and around two fifths reported feeling isolated from others at least occasionally.
- One in five adults rated their anxiety as high.
- Mental health outcomes fluctuated over time, but concerns, including anxiety and loneliness, were highest between December 2020 and February 2021 (during the second national lockdown).
- In general, females, those in younger age groups and those living in more deprived areas were more likely to report poorer mental health outcomes.

Data for full survey rounds between April 2020 and January 2022 were extracted for North Wales (n=5,754; see Table 1). Analysis focused on four core questions: participants' level of worry about their mental health and wellbeing in the last week; feelings of loneliness in the last week; feelings of isolation from others in the last week; and feelings of anxiety on the day of survey. A further question included in the survey from January to July 2021, was also analysed, which asked participants whether they felt their mental health was better, the same, or worse than it had been before the pandemic.

Table 1: Public Engagement Survey sample

Local Authority	Sample size	Proportion of sample (%)	Population size*	Proportion of population in county* (%)
Conwy	972	16.9	97,000	17.2
Denbighshire	825	14.3	77,165	13.7
Flintshire	1,279	22.2	124,648	22.1
Gwynedd	940	16.3	101,957	18.0
Isle of Anglesey	603	10.5	57,101	10.1
Wrexham	1,135	19.7	107,142	19.0
Total	**5,754**		**565,013**	

*Mid-2020 population estimates.

3.1 In the past week, how much have you been worrying about your mental health and wellbeing?

During the survey period, 32% of adults in North Wales reported worrying about their mental health 'a little', and 17% worried 'a lot' (Figure 2). The proportion worrying 'a lot' varied over time and was highest in December 2020 (around the start of the second national lockdown; Figure 3). Females, younger age groups, residents in more deprived areas and individuals with chronic health conditions were more likely to report worrying 'a lot' about their mental health and wellbeing (Figure 4).

Figure 2: All responses (weighted)

- Not at all
- A little
- A lot

17%
32%
51%
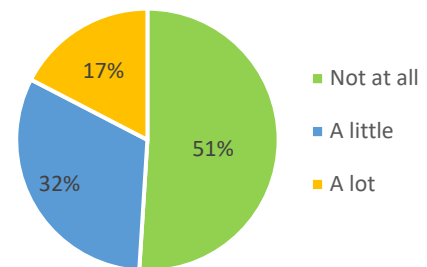
Figure 3: Weighted proportion worrying 'a lot' about their mental health and wellbeing, by survey date
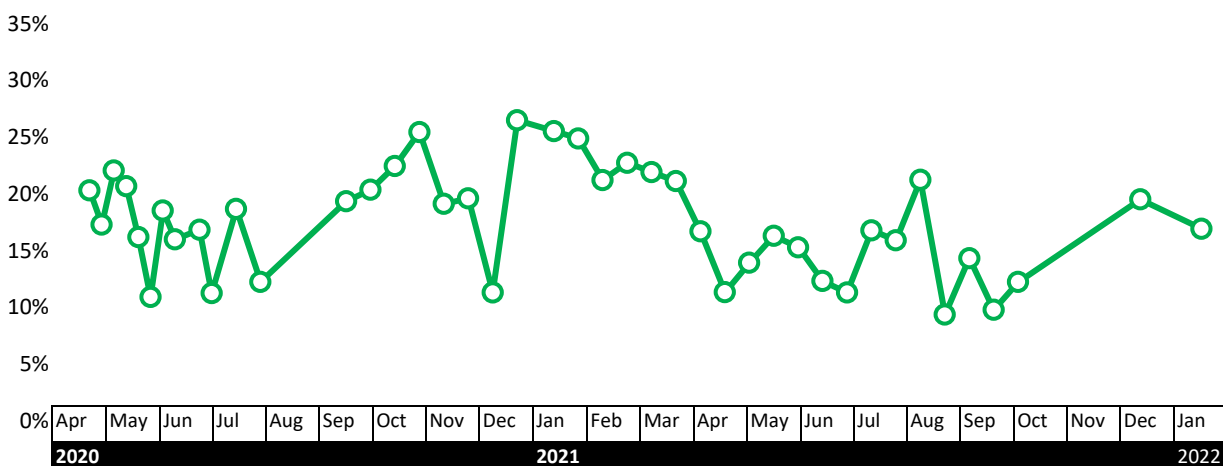
Figure 4: Sample-adjusted proportions* worrying 'a lot' about their mental health and wellbeing, by participant characteristics
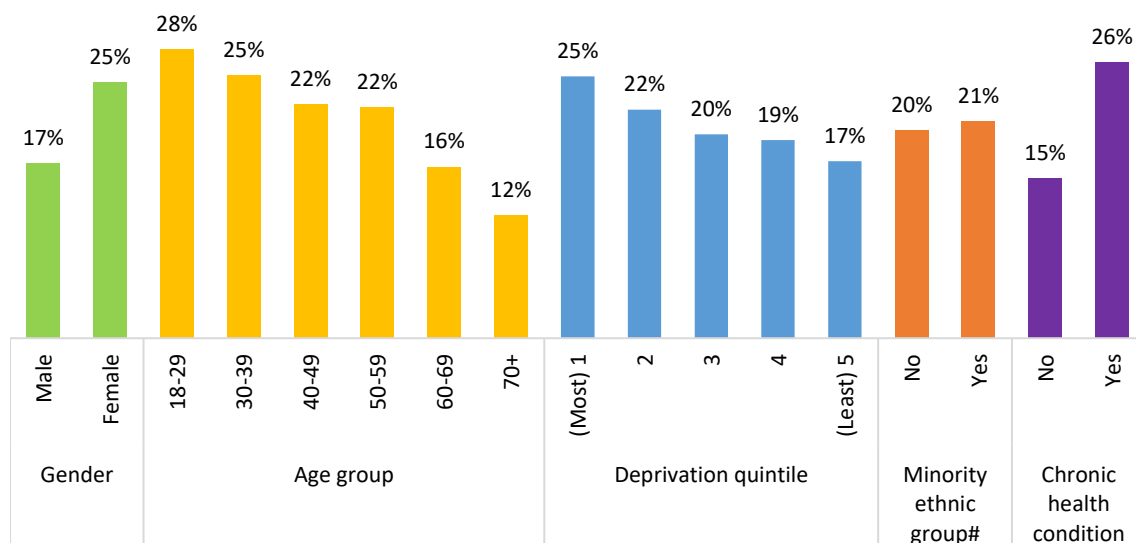
Gender		Age group						Deprivation quintile					Minority ethnic group#		Chronic health condition	
Male	Female	18-29	30-39	40-49	50-59	60-69	70+	(Most) 1	2	3	4	(Least) 5	No	Yes	No	Yes
17%	25%	28%	25%	22%	22%	16%	12%	25%	22%	20%	19%	17%	20%	21%	15%	26%

*Proportions are estimated marginal means and are not adjusted to population demographics (see Section 2.1). #Excluding white minorities.

3.2 In the last week, how often have you felt lonely?

Across the survey period, around a third of adults in North Wales reported feeling lonely at least occasionally (Figure 5). The proportion 'always' or 'often' feeling lonely varied over time, peaking in early February 2021, during the second national lockdown (Figure 6). Figure 7 shows the proportions responding 'always' or 'often' over the survey period. Females, younger age groups, residents in more deprived areas and individuals with chronic health conditions were more likely to report 'always' or 'often' feeling lonely.

Figure 5: All responses (weighted)

- Never 65%
- Occasionally 24%
- Often 8%
- Always 3%
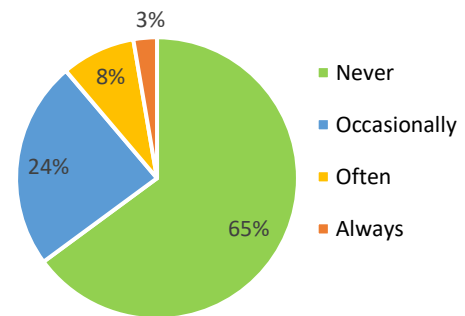
Figure 6: Weighted proportion 'always' or 'often' feeling lonely, by survey date
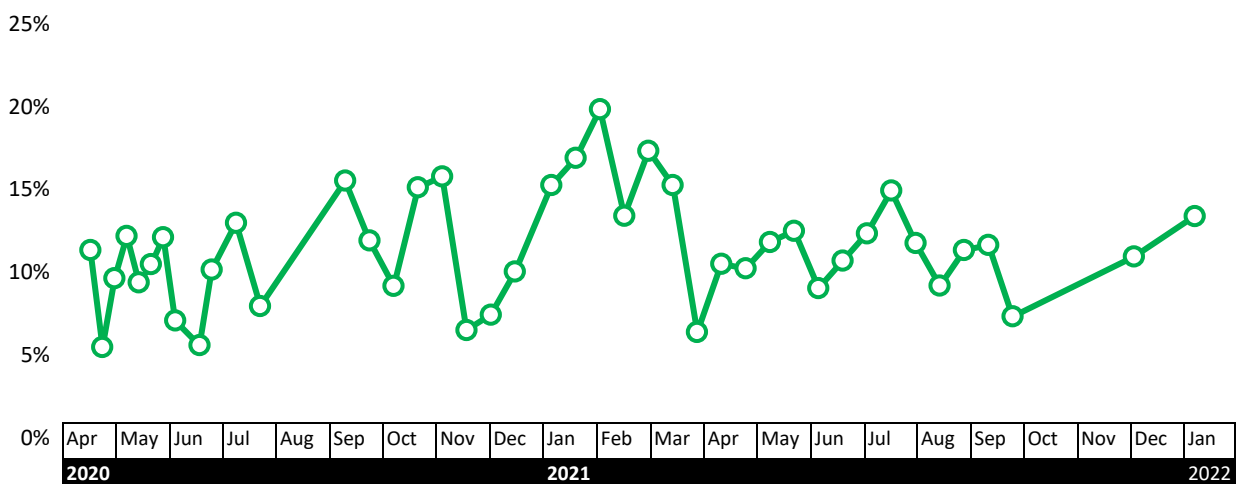
Figure 7: Sample-adjusted proportions* 'always' or 'often' feeling lonely, by participant characteristics
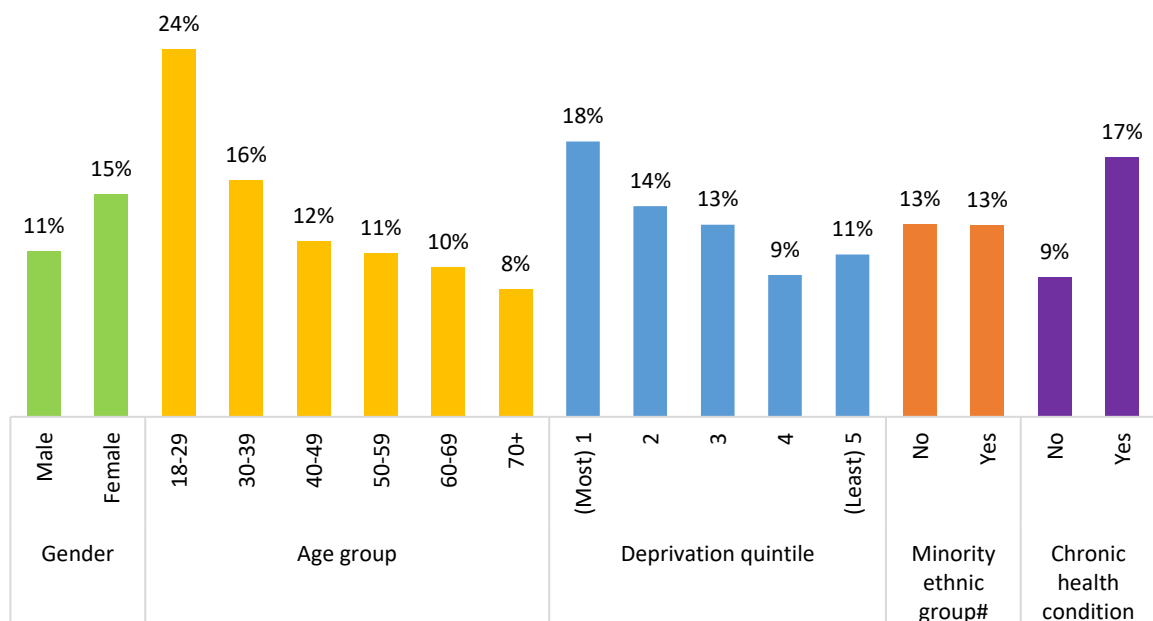
Gender: Male 11%, Female 15%
Age group: 18-29 24%, 30-39 16%, 40-49 12%, 50-59 11%, 60-69 10%, 70+ 8%
Deprivation quintile: (Most) 1 18%, 2 14%, 3 13%, 4 9%, (Least) 5 11%
Minority ethnic group#: No 13%, Yes 13%
Chronic health condition: No 9%, Yes 17%

*Proportions are estimated marginal means and are not adjusted to population demographics (see Section 2.1). #Excluding white minorities.

3.3 In the last week, how often have you felt isolated from others?

Across the survey period, around two fifths of adults in North Wales reported feeling isolated from others at least occasionally (Figure 8). The proportion 'always' or 'often' feeling isolated varied over time, peaking in early February 2021 during the second national lockdown (Figure 9). Females, younger age groups, residents in the most deprived area and individuals with chronic health conditions were more likely to report 'always' or 'often' feeling isolated (Figure 10).

Figure 8: All responses (weighted)

- Never
- Occasionally
- Often
- Always

5%
11%
27%
57%
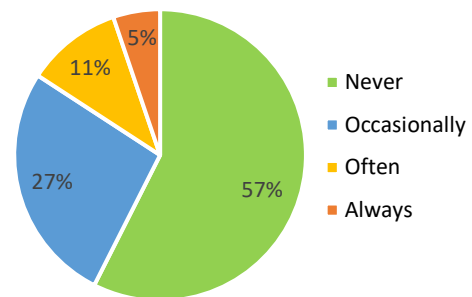
Figure 9: Weighted proportion 'always' or 'often' feeling isolated in the past week, by survey date
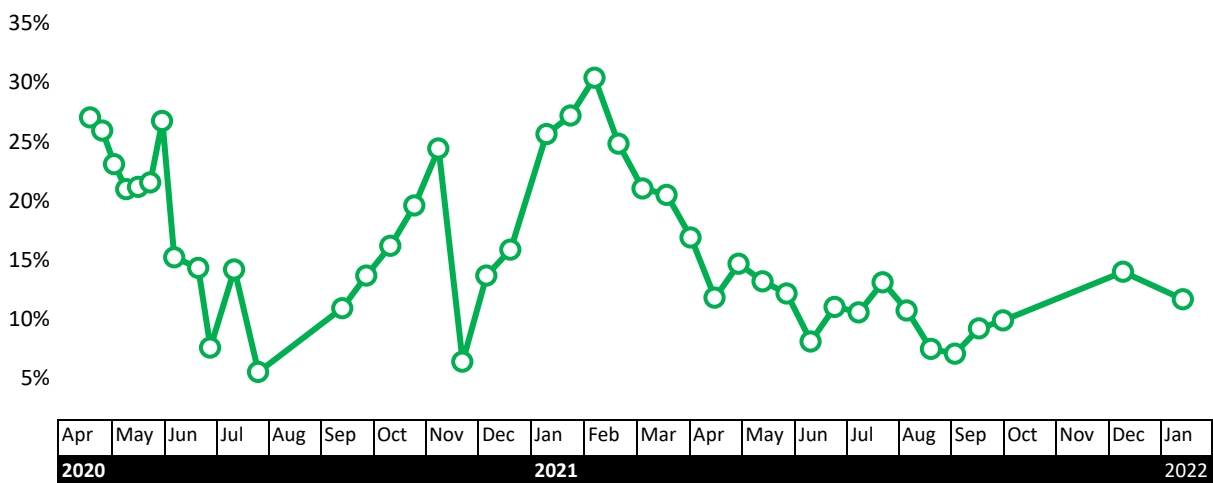
Figure 10: Sample-adjusted proportion* 'always' or 'often' feeling isolated in the past week
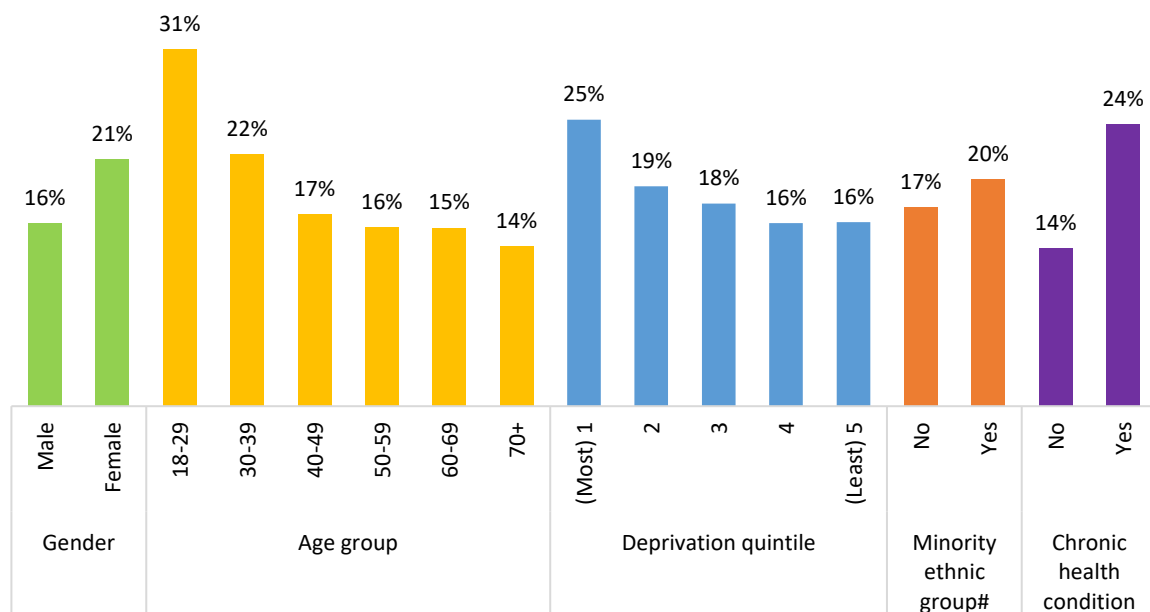
16%	21%	31%	22%	17%	16%	15%	14%	25%	19%	18%	16%	16%	17%	20%	14%	24%

| Male | Female | 18-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70+ | (Most) 1 | 2 | 3 | 4 | (Least) 5 | No | Yes | No | Yes |
| Gender | | Age group | | | | | | Deprivation quintile | | | | | Minority ethnic group# | | Chronic health condition | |

*Proportions are estimated marginal means and are not adjusted to population demographics (see Section 2.1). #Excluding white minorities.

3.4 Using a scale of 0 to 10 where 0 is not at all anxious and 10 is completely anxious, how anxious do you feel at the moment?

Across the survey period, one in five adults in North Wales rated their anxiety as high (scores of 7-10; Figure 11). The proportion reporting high anxiety varied across the survey period but was highest in January and February 2021 (Figure 12). Females, residents in the most deprived area and individuals with chronic health conditions were more likely to report feeling highly anxious (Figure 13).

Figure 11: All responses (weighted)

- 0-3 (low) — 53%
- 4-6 — 28%
- 7-10 (high) — 20%
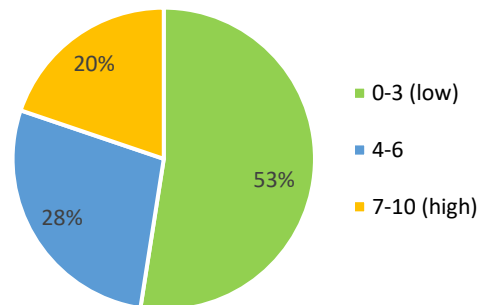
Figure 12: Weighted proportion feeling highly anxious, by survey date
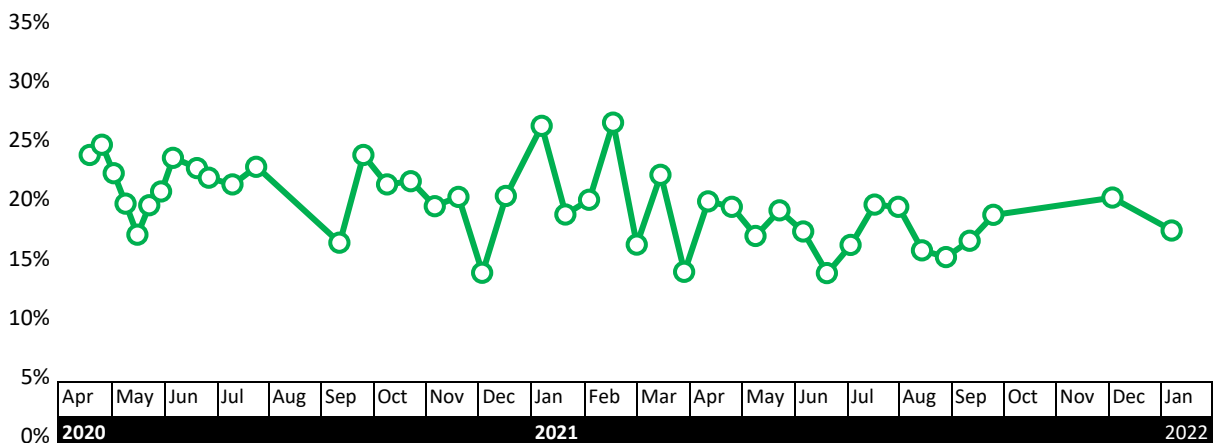
Figure 13: Sample adjusted proportion* feeling highly anxious, by participant characteristics
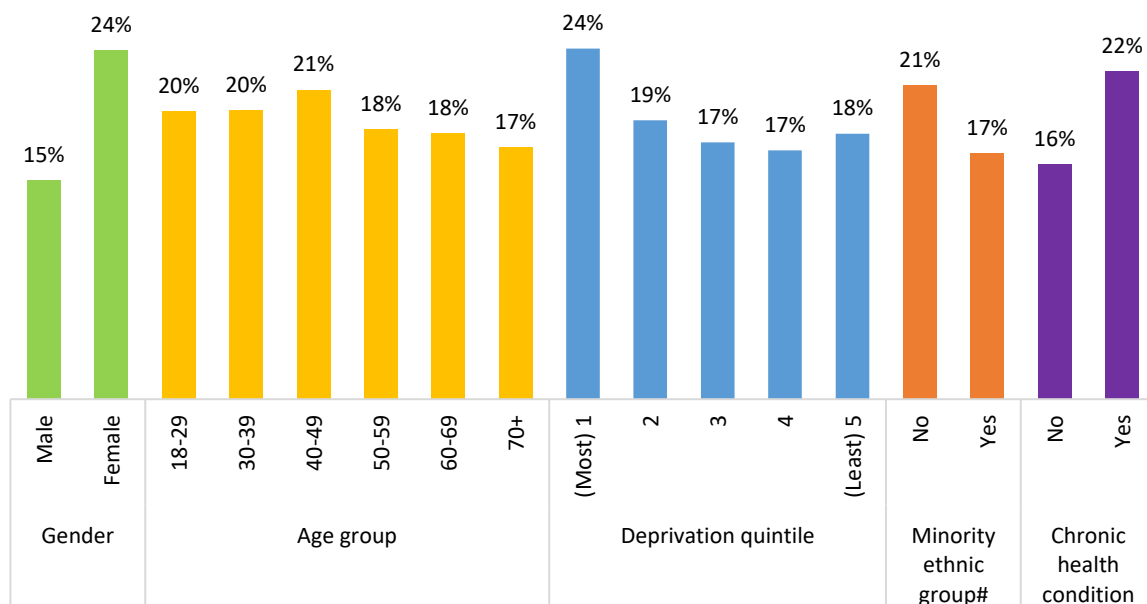
Gender		Age group						Deprivation quintile					Minority ethnic group#		Chronic health condition	
Male	Female	18-29	30-39	40-49	50-59	60-69	70+	(Most) 1	2	3	4	(Least) 5	No	Yes	No	Yes
15%	24%	20%	20%	21%	18%	18%	17%	24%	19%	17%	17%	18%	21%	17%	16%	22%

*Proportions are estimated marginal means and are not adjusted to population demographics (see Section 2.1). #Excluding white minorities.

3.5 Compared to early last year, before the coronavirus situation, would you say your mental health was much better, a bit better, the same, a bit worse or much worse?

A third of adults (surveyed January to July 2021, n=2,005) reported that their mental health had worsened ('a bit' or 'much') during the pandemic (Figure 14). The proportion of adults reporting worsening mental health reduced between January and July 2021 (Figure 15). Females, younger adults, and individuals with chronic health conditions were more likely to report worsening mental health (Figure 16).

Figure 14: All responses (weighted)

- Much better
- A bit better
- The same
- A bit worse
- Much worse

Figure 15: weighted proportion reporting worsening mental health, by survey date

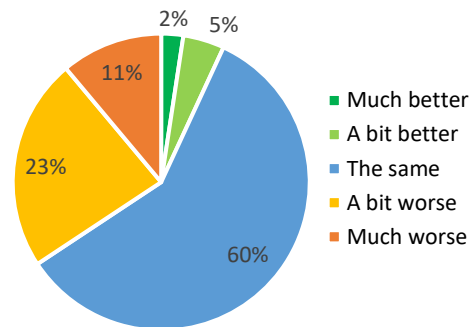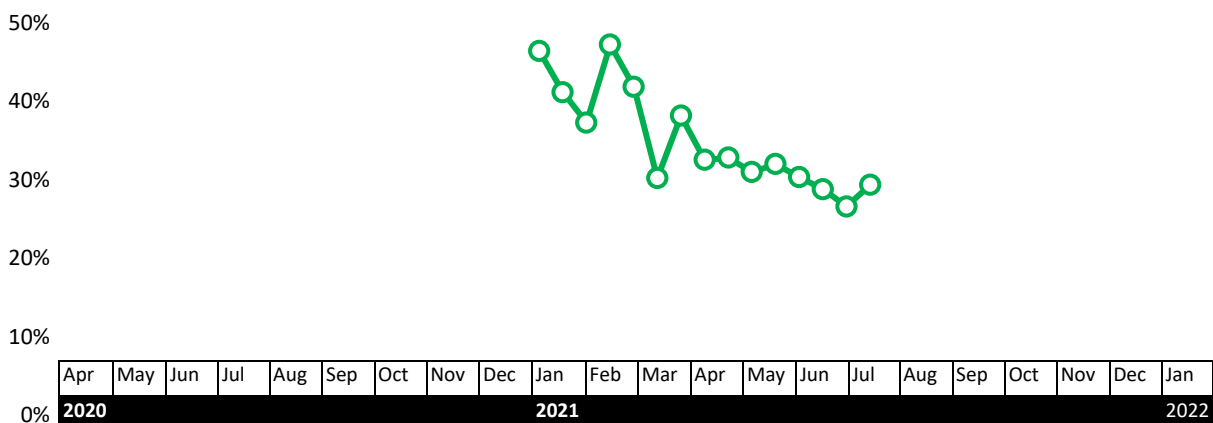**Figure 16: Sample-adjusted proportion* reporting worsening mental health**
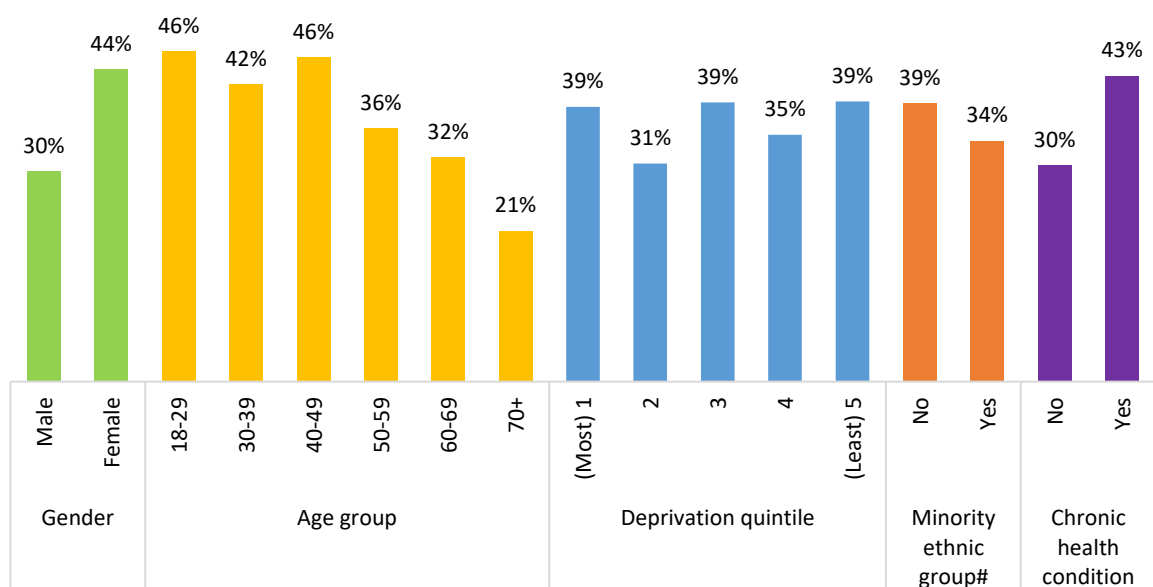
*Proportions are estimated marginal means and are not adjusted to population demographics (see Section 2.1). #Excluding white minorities.

4. Systematic Review Findings

4.1 General population

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- The pandemic negatively affected population mental health.
- Few studies demonstrated the longer impact of COVID-19 from 2021 onwards.
- The prevalence of mental ill health increased in the first stages of the pandemic and then declined as restrictions were lifted. However, it remained higher than pre-pandemic levels before again increasing around the time of the second national lockdown.
- A range of factors have been associated with poorer mental health outcomes, including being female, younger age, being resident in a more deprived area, having a history of mental illness and having a pre-existing health condition.

</div>

Ninety-nine quantitative studies identified in this review explored the impact of COVID-19 on mental health and wellbeing within a general adult population. Of these, 54 used longitudinal data, most commonly from the Understanding Society - UK Household Longitudinal Study (UKHLS), which included the Understanding Society COVID-19 Study waves from April 2020 onwards. Forty-four studies were cross-sectional, focusing on the prevalence of mental health at a specific time point. Most studies were conducted at a UK level, with only two studies conducted in Wales [10, 11]. Twenty-two publications were also identified through grey literature searches, four of which focused on the impacts in Wales [12–15].

> 1 in 5 adults in Great Britain experienced depression in June 2020, compared to around 1 in 10 pre-pandemic
>
> [593]

Changes in general population mental health during the pandemic

A strong body of evidence indicates that for the UK population, **mental health** (as predominantly measured through the General Health Questionnaire-12 [GHQ-12]; categorisation varied across studies) declined during the initial stages of the pandemic, particularly in March-April 2020 around the time of the first national lockdown restrictions [16–18]. Analysis of the UKHLS (n=17,452 aged 16+ years) identified a significant increase in the population prevalence of clinically significant **mental distress** from 18.9% in 2018-19 to 27.3% in April 2020 (mean GHQ-12 scores also significantly increased from 11.5 to 12.6) [17]. Other study cohorts evidenced increases for **anxiety** [19] and **depression** [20] and declines in levels of **wellbeing** [21–25]. For example, one study found that clinical **depression** increased from 14% pre-pandemic to 26% during the pandemic [20] and another found that prevalence of **psychological distress** increased from 19.4% in 2017-19 to 30.6% in April 2020 [26]. Data from the Office for National Statistics (ONS) identified an increase in the proportion of British adults experiencing some form of depression from 9.7% pre-pandemic (July 2019-March 2020) to 19.2% in June 2020, with 12.9% of adults developing moderate to severe depressive symptoms during the pandemic [27]. Rates of **suicidal ideation** and **self-harm** also increased for this period [28]. There were mixed findings across studies for **loneliness**, with some studies indicating that levels increased and others that levels remained stable [26, 29, 30].

Longitudinal studies show that general population levels of mental ill health then declined over the summer period, linked to the easing of lockdown restrictions [31, 32]. However, they remained elevated compared to pre-pandemic levels [33]. For example, the prevalence of **mental health problems** (GHQ-12, scores ≥3) identified in one longitudinal cohort study increased from 24.7% pre-pandemic (2017-2019) to 37.4% in April 2020, declining to 34.6% in May and 31.9% in June 2020 [33].

Other studies show that levels of **anxiety** and **depression** declined during the first lockdown, rates of depression plateaued in the summer months [34], when **anxiety** reduced [35] and positive **wellbeing** increased [28]. One study found that population **mental health** deteriorated with the onset of the pandemic and did not begin improving until July 2020, but that approximately one in nine individuals had deteriorating or consistently poor mental health [36]. Further, the impact of COVID-19 on anxiety and depression varied across studies [28, 37]. For example, depression during the pandemic was similar to pre-pandemic levels in the Avon Longitudinal Study of Parents and Children (ALSPAC) study cohort, but the number of individuals experiencing anxiety almost doubled from 13% to 24% [38]. A longitudinal cross-sectional study of 379,875 adults found only small differences in **mental health** pre- to peak-lockdown (May-June 2020) and instead found that **anxiety** rates during this period increased

In Wales, levels of wellbeing were lower in June-July 2020 compared to 2018/19. 56% reported significant psychological distress

[11]

[19]. Furthermore, a longitudinal cross-sectional survey conducted in Wales in June-July 2020, identified that, in comparison to data from April 2018 to March 2019, wellbeing had decreased, with around half (56.4%) of the population reporting clinically significant psychological distress, further 20.2% were categorised as severe mental distress [11].

During the first lockdown, there were mixed findings across studies for the prevalence of **loneliness**. However, loneliness generally increased. In a repeat cross-sectional UK population survey, the proportion reporting loneliness significantly increased from 9.8% (prior to UK lockdown announcement) to 25.7% in May 2020 [39]. Despite the fluctuations over the period, it is evident that the COVID-19 pandemic negatively impacted the mental health of the general population overall, with one study estimating that from February-September 2020 there was a 9.6% reduction in the average mental health of the UK population [40].

The second national lockdown also negatively affected population mental health. A study measuring **psychological distress** found it was most prevalent in May 2020 at 27.4%, before reducing to 20.8% in July, and then increasing back to 26.5% in November 2020 during the UK winter lockdown [41]. Other studies identified significant increases in **loneliness** for this period [42]. Few studies examined the impact beyond the second lockdown, except one which identified that from November 2020 to April 2021, levels of probable **depression** and **anxiety** declined from 30.2% to 29.5% and 30.1% to 27.1% respectively [43]. Data from the ONS estimated that 19% of adults in Great Britain experienced depression in November 2020, increasing to 21% during 27th January-7th March, 2021 [27]. In Wales, a survey conducted by MIND (March-May 2021) found 63% of adults (aged 25+ years) and 68% of young people (aged 13-24 years) reported that their mental health was worse since the first national lockdown, with around half of these reporting that it was much worse [12]. Although the overall

prevalence was similar to a previous survey conducted a year prior, the reported severity of mental health had worsened (31% of adults reporting that their mental health was much worse in 2021 vs 14% of adults in 2020; 35% of young people in 2021 vs 12% the year before) [12, 13]. This is in line with ONS data which highlighted that anxiety scores in January 2021 were the highest they had been since April 2020 [44]. Research in Scotland identified that levels of anxiety were slightly lower in March 2021 than in May 2020 [45].

63% of adults and 68% of young people in Wales reported that their mental health was worse since the first national lockdown

[12]

Change in mental health presentations

> In 2020, there were 10.3 deaths by suicide per 100,000 population in Wales, a reduction from 13.2 per 100,000 in 2017
>
> [599]

Eleven studies explored mental health-related presentations to medical services during COVID-19. Changes in mental health-related presentations during the first lockdown were mixed, with some studies highlighting increases in presentations for certain conditions (e.g., psychotic symptoms [46]; self-harm [47]), and some observing decreases (psychiatric presentations [46]; self-harm [46, 48]; personality disorders, adjustment disorders, depression, and anxiety disorder [49]). The proportion of self-harm incidents and their severity attended by UK air ambulance services increased [50]. However, there was no change in suicide rates in England during the months after the first national lockdown [51].

Overall, during the first lockdown, there were reduced referrals and inpatient admissions, and increased daily deaths in UK mental healthcare services [52]. However, more patients were admitted to UK hospitals during the pandemic with bipolar disorders [49] and delirium [46]. A higher proportion of admissions were compulsory [49], with more individuals detained under the Mental Health Act [46, 53]. More patients presenting with affective disorders were admitted to mental health hospitals during the first lockdown compared to previous years [54] and more patients received a diagnosis of nonaffective psychotic disorders [49]. After lockdown was lifted, there were increased referrals and inpatient admissions, and reduced inpatient discharges and daily deaths [52].

Studies using electronic healthcare records also evidenced an increase in **depression** and **anxiety**. However, referrals to primary care and psychological services declined during the first UK national lockdown (March-May 2020) due to the impact of the pandemic on service provision [55]. This was also evidenced through considerable reductions in primary care contacts for depression (odds ratio [OR] 0.53) and self-harm (OR 0.56) [26]. In April 2020, the incidence of primary care-

> Carmarthenshire experienced increases in referrals to welfare services for mental health issues
>
> [14]

recorded depression was 43.0% lower than expected, and for anxiety disorders and self-harm this was 47.8% and 37.6% respectively [56]. However, at a local level in Carmarthenshire, Wales, there were reported increases in referrals to welfare services, with families struggling with emotional and mental health issues [14].

Prevalence of mental ill health during the pandemic

Evidence demonstrates that public concern for the impact of COVID-restrictions on mental health was high (75% reporting concern) in May-June 2020 [57]. Cross-sectional studies conducted within the first lockdown also indicated declines in self-reported mental health measures within the general population. In one study (conducted August 2020-January 2021), four in ten (39%) respondents reported that the pandemic had a negative impact on their mental health (in the past 2 weeks) [58], with a similar proportion reporting it had negatively affected their wellbeing (39%) [59]. In a survey with 2,250 UK residents (aged 18-75 years), half reported that they felt more anxious or depressed than normal as a result of coronavirus [60]. Another study found that, compared to before lockdown, 21% of adults reported feeling more depressed, 31% more anxious, and 27% more lonely [61]. Similar findings were reported for those reporting they felt like harming themselves and had suicidal thoughts [61].

Studies identified a high prevalence of psychological distress [62], emotional distress [63], low mental wellbeing [64, 65] and loneliness [15, 64, 66–68] during the pandemic. Psychological distress was reported by 16.6% of participants in a cross-sectional survey conducted during the first lockdown [69]. However, in one study, 74% reported emotional distress [70] and nearly two-fifths in another study reported experiencing severely elevated risks of distress during the pandemic [71]. In one survey, 56.9% reported feeling down, depressed, or hopeless about the future [72]. Across studies 14.6% reported loneliness often/always [64] and 35.86% feeling lonely sometimes/often [73]. One study identified strong links between loneliness and psychological distress, concluding that severely lonely individuals may be prone to psychological distress and individuals with poor mental health may be especially vulnerable to loneliness [74].

Studies also identified a high prevalence of population mental health problems and **psychiatric disorders**. The prevalence of **anxiety** and **depression** across studies were high, although varied across studies (see Table 2) [75–77]. In one study, 52% screened positive for a **common mental disorder** (Patient Health Questionnaire-9 [PHQ-9], scores 10+ and or Generalised Anxiety Disorder Assessment [GAD], scores 8+) [78] and in another, 29.2% had a general **psychiatric disorder** (GHQ-12, scores 4+) [66]. One cross-sectional study identified a prevalence of **traumatic stress** of 16.79% [79] and another highlighted that 14.9% were experiencing **severe stress** [80].

Table 2: Examples of anxiety, depression, and loneliness prevalence during the early stages of the pandemic

Reference	Sample size (location)	Date	Anxiety[a]	Depression[b]	Loneliness[c]
[81]	3,097 (UK)	April 2020	26.0%	31.6%	
[82]	1,006 (UK)	April 2020	18.9%*	12.1%*	
[83]	1,958 (UK)	March - June 2020		33.8%	26.8%
[84]	1,989 (UK)	March - April 2020	30.3%	34.0%	
[79]	2,025 (UK)	March 2020	21.6%	22.1%	
[85]	1,140 (UK)	May - August 2020	31.3%	28.3%	
[78]	1,006 (UK)	April - May 2020	39.0%	41.2%	
[86]	2,144 (Bradford, England)	April - June 2020	16%	19%	41%

*Severe. [a]GAD-7 score ≥10 except [85] which used GAD-2 score ≥3 and [82] measured severe anxiety, score ≥15. [b]PHQ-9 score ≥10 except [85] which used PHQ-2 score ≥3 and [86] which used PHQ-8 score ≥10. [82] measured severe depression, score ≥20. [c][83] used the UCLA Three-item Loneliness Scale, scores >6. [86] used the % reporting feeling lonely some, most or all of the time.

Factors associated with poor mental health

Despite studies identifying a whole population decline in mental health in the first lockdown period [15, 33, 87], some studies highlight heterogeneity in mental health as some more resilient individuals may not have been as negatively mentally impacted by the pandemic [32]. Numerous studies explored risk factors for poor mental health during the pandemic, and the identified risk factors are shown in Box 2. These factors predominantly relate to individual socio-demographics, with women, younger age groups and those resident in more deprived areas at increased risk of negative mental health outcomes. Longitudinal analyses of data from the UKHLS between 2015 to 2020 found women to be

one and a half times (risk ratio [RR] 1.51, 95% CIs [confidence intervals] 1.43-1.60, p<0.001) more likely to experience psychological distress during the pandemic compared to males [26]. Another study identified increased rates of loneliness amongst younger age groups, with those aged 18-24 years five times (OR 5.31 95% CIs 1.13-24.96) more likely to experience loneliness than those aged 65 years and over [68]. Higher residential deprivation has been associated with increased **depression** and **anxiety**, but results differed across studies. There was mixed evidence on ethnicity as a risk factor, with some studies identifying individuals of ethnic minority groups to be more at risk [36, 81, 88–91] and some studies showing no association by ethnic group [28, 92].

Box 2: Risk factors associated with poorer mental health during the pandemic

- Being female[11, 15, 17, 20, 26–28, 33, 34, 38, 64, 66, 69, 71, 78, 81, 83, 84, 89, 93–104]
- Younger adults[11, 12, 17, 19, 20, 26–28, 33, 34, 38, 39, 64, 66, 68, 71, 78, 79, 81, 93, 96, 98, 99, 105–107]
- Being single or living alone[20, 34, 71, 89, 95, 97, 103, 108–110]
- Having a history of mental ill health[28, 32, 34, 36, 38, 39, 64, 92, 97, 98, 104, 105, 109]; Young adults with pre-pandemic disordered eating, self-harm, and comorbid disordered eating and self-harm:[38, 111] - mixed across cohorts
- Having poorer physical health[20, 36, 38, 69, 71, 79, 81, 92, 93, 95, 99, 101, 105, 109, 110, 112, 113]
- Reporting COVID-19 symptoms/infection[10, 36, 38, 41, 66, 71, 88, 93, 97, 109, 114]
- Educational attainment: low[34, 38, 89, 95]; high[33]
- People living with young children[17, 34, 79]
- Childcare or home schooling[115–117]
- Living in the most deprived residential areas[11, 21, 27, 36, 38, 93, 96, 105] or a neighbourhood with high social stressors[118]
- Low socioeconomic status[28, 92, 119]
- Unemployed[13, 17, 64, 78, 86, 104, 108, 120, 121]; those employed before the pandemic but no longer had work or lost income[10, 71, 79, 122]; low income[12, 15, 34, 78, 79, 89, 95, 99, 104, 107, 113]; people with economic worries/financial difficulties[10, 36, 72, 86, 101, 108, 122]; high-income[33]
- Caring for a disabled dependent[123]
- Suffering physical, emotional, or psychological abuse[10, 38, 92]
- Low perceived support[92, 124, 125]
- No access to or shared residential outside space/fewer visits to green space[38, 93]
- Poor quality housing[86, 112]
- Media usage[84]; increased time spent following COVID-19 news[104]
- Adverse health behaviours (e.g., poor sleep, physical inactivity and poor diet)[62, 99, 104, 126–128]
- Home-working and having to work regular overtime strongly exacerbate issues of stress and depression[98, 129]
- People identifying their sex as other[19]
- Change in living arrangements due to COVID-19[130]

Those with pre-existing physical or mental health conditions have also been found to be at increased risk of negative outcomes, including **anxiety** and **depressive symptoms**, **social isolation,** and poorer quality of life [105]. For example, one study found those with pre-existing mental health conditions were nearly seven times more likely to report higher levels of depressive symptoms (54.2%; OR = 6.50, p<0.0001) compared with those without (15.3%) [28]. A body of evidence also indicated that COVID-19 symptoms/infection increased risk of mental ill health (see Section 4.8), although results across studies were mixed. One study using multiple cohort data found that a self-reported COVID-19 diagnosis (suspected or confirmed) was associated with higher depression and anxiety in a parent

cohort (ALSPAC), but only with higher depression in two other cohorts (Generation Scotland, ALSPAC-young) [38]. Specific worries about COVID-19 [131] and COVID-19 related stressors were also found to increase risks for mental illness [112]. A study in Wales found that the COVID-19 related stressors most strongly associated with suicidal thoughts and behaviours were experiencing food insecurity, domestic abuse, relationship problems, redundancy, social isolation, and financial problems [10].

Economic vulnerability or financial difficulty was highlighted as a risk factor in a number of studies, estimated to predict 41.8% of mental health problems [72]. Data from a longitudinal study indicated that 19.7% of those unemployed had suicidal thoughts (in the last 2 weeks) compared to 8.6% of those in employment [121]. A longitudinal study indicated that the easing of lockdown measures rapidly improved mental health, particularly for those with lower education or financial vulnerability [119].

Resilience factors were also identified across studies including having confidence in the government, which was found to alleviate negative effects of the COVID-19 lockdown [132]. Despite previous research highlighting that group identification can improve mental health, there was no positive effect found for participating in mutual aid groups to support vulnerable community members [133]. However, having low social support was a risk factor for poor mental health (see Box 2).

Factors associated with presentations to mental healthcare services

Studies examining presentations to mental healthcare services during the pandemic reported mixed findings for gender as a risk factor for changes in mental health-related presentations to services; one study highlighted a greater reduction in self-harm presentations to hospitals in females compared to males [134], and in another more females were admitted to mental health wards during the pandemic compared to the same period in 2018 and 2019 [54]. Conversely, another study shows that mental health emergencies were more likely to be associated with male gender [135]. Other risk factors included: older age (mental health emergencies and admission to mental health hospitals and self-harm presentations) [48, 54, 135]; south Asian and black ethnicity [135]; and COVID-19 associated factors, including social isolation and disruption to routine [49, 54, 136]. In an examination of mental health referrals, a higher proportion of referrals during the lockdown period had loneliness present compared to those in the pre-COVID period [137].

4.2 Older adults

- The pandemic negatively affected the mental health of older adults, following trends observed in the general population.
- A range of factors have been associated with poorer mental health outcomes for older adults, including being female, having less social support and having a pre-existing health condition.

Searches identified 13 quantitative studies that had explored the impact of COVID-19 on mental health in older adults. In addition, four studies explored impacts in populations deemed clinically vulnerable or shielding, the majority of whom were aged 55 years and over [138–141].

North Wales has 164,699 residents aged 65 and over
(Mid-2020 estimates from Stats Wales, [600])

Changes in older adults' mental health during the pandemic

Longitudinal cohort studies identified a decline in **mental wellbeing** [142, 143] associated with the pandemic among older adults, and increases in **anxiety** [144], **depression** [143–147], perceived **stress** [143] and **loneliness** [144, 148]. For example, one study found the proportion of older adults in the UK rated as having the best possible mental wellbeing decreased from 62.6% pre-pandemic to 46.3% in 2020, with 37.6% experiencing a decline in their mental wellbeing and 11.1% reporting they felt lonelier [142].

Evidence suggests that **mental health** in older adults deteriorated during the first wave of the pandemic and, following patterns seen in the general population (see Section 4.1), this deterioration continued into the second national lockdown period [145]. For example, the English Longitudinal Study of Ageing cohort (ELSA, n=5,146) showed an increase in **depression**, **anxiety** and **loneliness** and decreased quality of life, with the probability of clinically significant depression (symptoms; Center for Epidemiological Studies - Depression [CESD-8], scores 4+) increasing from 12.5% pre-pandemic (2018-19) to 22.6% in June-July 2020 and 28.5% in November-December 2020. Levels of anxiety (GAD-7, scores 10+) increased from 9.4% in June-July 2020 to 10.9% November-December 2020 [145]. Findings for depression and anxiety were mixed across retrospective studies with respondents indicating in one study that 35% had increased anxiety and depression [149], and in another where 68.6% rated their emotional and mental health as being either excellent or very good, compared to 85.1% before lockdown [150].

In North Wales, the prevalence of populations defined as clinically extremely vulnerable (CEV) varied, from a high of 46.3 per 1,000 population in Denbighshire to 37.6 per 1,000 population in Gwynedd (see Table 3) [151]. Included studies evidenced a deterioration in mental health for those who were classed as shielding/clinically vulnerable [138, 140, 141]. In one study, almost half (44.5%) of those vulnerable people reported that their mental health had declined during the lockdown [138].

Table 3: Rates of CEV per 1,000 population

Local Authority	CEV rate per 1,000 population
Conwy	40.7
Denbighshire	46.3
Flintshire	41.3
Gwynedd	37.6
Isle of Anglesey	44.0
Wrexham	43.1

Prevalence of mental ill health during the pandemic amongst older adults

Cross-sectional surveys found varying levels of mental ill health in older adult samples. A study of adults aged >75 years found low levels of **anxiety** (7.0%), **depression** (9.1%) and **loneliness** (<5%) [152] in May-Jun 2020. Conversely, a study of adults aged 50+ years over a similar time period found that 32.4% reported **depression** symptoms and 22.5% **loneliness** [153]. Another study of adults aged 60+ years found that 36.5% reported **traumatic stress** symptoms (clinically significant levels) and estimated that 27.4% could develop **post-traumatic stress disorder (PTSD)** [73]. In retrospective cross-sectional studies, loneliness was higher during lockdown [149, 150], with 23.8% reporting they felt lonely during lockdown [150].

In a Welsh study of CEV individuals (n=127,787; ~4.1% of the Welsh population), 1 in 50 (2.2%) had a new clinical record for depression and/or anxiety in primary care (between March-September 2020), of whom nearly 1 in 5 (19.5%) had no prior history of mental illness [154]. Using a comparison group, the study concluded that the clinically vulnerable population were at slightly higher risk of poor mental health compared to the general population during the pandemic [154]. Another study found that being categorised as high risk was linked to anxiety over feeling vulnerable and stigmatisation [139].

> In Wales, a higher proportion of those clinically vulnerable presented in primary care with anxiety and/or depression (vs. a comparison group)
>
> [154]

Factors associated with poor mental health in older adults

A number of risk factors for poor mental health during the pandemic were identified for older adults (Box 3). In general, these were similar to those reported across general population samples (Section 4.1). Being female was a risk factor, with one study seeing increases in risk of loneliness and anxiety for women [145]. Depression and loneliness were also higher for those with comorbidities [153]. Having a large social network, more social contact, and better perceived social support were protective against loneliness and poor wellbeing [142, 149, 155]. Qualitative studies amongst older adults also indicated threats to their wellbeing and increased anxiety during the pandemic linked to fear, uncertainty, access to medicine, food insecurity and too much media information [156–158].

Box 3: Risk factors associated with poorer mental health during the pandemic for older adults

- Being female[73, 138, 142, 145, 149, 154]
- Being single or living alone[142, 145, 150]
- Having a younger age[73, 138, 154]
- Having poorer physical health[142, 150, 153]
- Low income/lower socioeconomic status[142, 145]; deprived[149]
- Low levels of physical activity[144, 149, 153]
- Less social support[142, 149, 159]
- Reporting COVID-19 infection[142]
- Prior history of mental illness[154]

4.3 Children and young people

- Children and young people suffered higher levels of mental ill health during the pandemic compared with all older age groups.
- In line with general population trends, studies indicate that mental ill health was highest at the start of the first national lockdown, reduced in summer and then increased again into winter and the second lockdown.
- Key risk factors, such as being female and low socioeconomic status, have persisted through the pandemic and been associated with worsening mental health, suggesting widening inequalities.
- For some young adults with pre-existing mental ill health, lockdown may have had some mental health benefits.
- Data on longer-term mental health impacts of the pandemic are not yet available.

Younger age has been identified as a risk factor for poorer mental health during the pandemic in numerous general population samples (see Section 4.1). Literature searches identified 48 studies that had focused specifically on examining mental health in children, adolescents, or young adults. Most of these collected data in the early stages of the pandemic, with longer-term data not yet available.

Changes in mental health during the pandemic

North Wales has 192,231 residents aged 24 years and under

(Mid-2020 estimates from Stats Wales, [600])

Longitudinal studies suggest that **child and adolescent mental health** declined during the early stages of the pandemic. A birth cohort study in Wirral, Merseyside, found that symptoms of **depression**, **PTSD** and **disruptive behaviour problems** increased in 11–12-year-olds (n=202) between December 2019-March 2020 and June-August 2020 [160]. A study of 7–11-year-olds (n=168) in the East of England also found increased **depression** symptoms in the first lockdown (compared with 2018/9), yet no changes in **anxiety** or **emotional problems** [161]. A study using the youth panel of the UKHLS (n=886, aged 10-16 years, surveyed before March 2020 and in July 2020) found an increase in **emotional problems** and **peer relationship problems**, and a decrease in **prosocial tendency** and conduct problems, yet no change in **hyperactivity** [148]. Here, changes differed based on pre-pandemic mental health. Adolescents with better mental health before the pandemic had worsening mental health in the pandemic across all measures, whereas those with **poorer mental health pre-pandemic saw improvements in mental health**. Thus, lockdown may have benefited mental health for some vulnerable populations, potentially providing respite from social and other pressures of everyday life. An analysis of child mortality data found no evidence that **child suicide rates** were higher overall in 2020 than they were in 2019, yet some evidence that they may have been elevated during the first national lockdown [162].

In 2020, 3,295 children in North Wales received care and support for mental health issues

[601]

Longitudinal studies (the majority using data from the UKHLS) also suggest that **young adults' mental health** worsened during the start of the pandemic, potentially exacerbating existing trends for worsening mental health in this age group. One study found **psychological distress** in 16–24-year-olds increased between 2009/10 and 2018/19, then further increased during the first months of the pandemic. Gender and socioeconomic inequalities in mental health were found to have persisted and worsened during the pandemic (see Box 4) [163]. However, a study of 16–34-year-olds found the sharp increase seen in mental distress at the start of the pandemic rapidly diminished; by June-September

2020, levels had returned to pre-pandemic levels for all, except males aged 25-34 years old [164]. A study of 18–25-year-olds (n=419) found loneliness reduced from June to July 2020, but then rose sharply from September to November 2020 [165]. A different study (n=880, 18–25-year-olds) found that females had poorer and more variable mental health than males during the first six months of the pandemic. Females' mental health improved from April to August 2020, then declined again to November 2020, whereas males' mental health remained relatively stable [166]. Thus, studies suggest that trends in young adults' mental health largely followed those in the general population (see Section 4.1), with mental health worsening at the start of the first lockdown, improving through the summer months then worsening again into winter and the second national lockdown. Limited evidence suggests a similar trend for children, with a 2020 study finding **conduct problems** in 4–16-year-olds (reported by parents or carers, n=2,988) increased between March and July; hyperactivity increased from April to June 2020 then reduced again; and emotional symptoms remained relatively stable, with a small reduction in July 2020 [167].

A range of other studies have reported perceived changes in children and young people's mental health during the pandemic [168, 169]. For example, a study of school students in South England (n=11,765, aged 12-25 years old) found 38% self-reported that their **mental wellbeing** had deteriorated during lockdown [170], while data from the Millennium Cohort Study (MCS; n=904, aged ~19 years) found that 44.1% reported increased **stress** during the pandemic (May 2020) [169]. A study in an ethnically diverse sample of older adolescents in London found that, while 29% reported worsening levels of **anxiety** and **low mood** during lockdown, 32% reported **improved mental health** [171]. Studies have also focused on the challenges faced by families of children with developmental delays or disabilities [172–174]. For example, one study found that over 90% of parents (n=125) of children with disabilities reported a decline in their child's mental health during the first national lockdown, with none reporting improvements in mental health [173].

Prevalence of mental ill health among young people during the pandemic

Several studies reported on the prevalence of mental ill health in young people during the pandemic, although the outcome measurements used varied. Findings from a selection of studies that used clinical thresholds for depression and/or anxiety are shown in Table 4. For other outcomes, a birth cohort study found that 9.7% of 27–29-year-olds had Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) frequency **disordered eating** during the pandemic and 8.7% reported **self-harm** [111]. A UK convenience study of 16–24-year-olds found similar levels of self-harm (10.8%) and reported that one in three participants had **poor mental health** during the pandemic (depression, self-harm, or severe

> In a Welsh study of 8-11 year old primary school children, 12% had clinical emotional difficulty scores during the pandemic, and 21% of older students (11-25 years old) had severe anxiety scores. Both measures were elevated in girls compared with boys
>
> [180]

stress); most (60.3%) of whom did not have a previous mental health diagnosis [175]. Qualitative research conducted with 18–24-year-olds in Wales (January-March 2021) highlighted that the pandemic had affected mental health, with those unemployed or furloughed more likely to mention experiencing mental health challenges [176]. Many young care leavers reported high levels of **anxiety**, increased low mood, and **depression**. Isolating at home, ongoing stresses, fear for their health, and uncertainty about their future all contributed to a deterioration in **mental health** [177].

Comparison between young people and other groups

General population studies have commonly identified younger people aged 25 years and under as being at increased risk of poor mental health during the pandemic compared with older adults, including the middle age, and elderly (see Sections 3 and 4.1). An analysis of data from four UK birth cohort studies found that the youngest cohort (aged 19-20 years; MCS) had substantially higher levels of **current anxiety/depression** during the May 2020 lockdown than the older cohorts, with over a quarter (26.7%) being above the clinical threshold compared with 17.5% in the cohort aged 30-31 years, 9.2% in the cohort aged 50 and 7.8% in the cohort aged 62 years [126]. Among studies specifically focusing on younger populations, a UK study in the first six weeks of lockdown found young adults (n=364, aged 18-24 years) reported significantly higher levels of **stress**, **anxiety,** and **depression** than older adults (n=2733, aged 25+ years) as well as greater **loneliness** and reduced **positive mood** [178]. An online panel study comparing the mental health of younger (n=391, 18-25 years) and older (n=104, 60-80 years) adults in March 2020 found that younger participants had significantly higher **anxiety**, **psychological distress** and **loneliness** scores and lower **happiness**, **life satisfaction** and **worthwhile life** scores than older people. Scores for younger people were also significantly worse than general population levels for 2019-2020 with, for example, 53.2% reporting high **anxiety** compared with 20.4% in the general population (pre-pandemic; [179]).

Table 4: Examples of prevalence for mental health outcomes for children and young people

Reference	Date	Sample size (location)	Age	Outcome[a]
[170]	June-July 2020	11,765 (S England)	12-21	14% depression[b] 10% anxiety[b]
[160]	June-August 2020	202 (Wirral)	10-12	Girls, 24% depression[c] Boys, 10% depression[c]
[180]	September 2020- February 2021	5,513 701 (Wales)	8-11 11-25	12.0% emotional difficulty[d] 21.2% severe anxiety[e]
[126]	May 2020	~1,610 (UK)	19-20	18.7% psychological distress[f] 26.7% anxiety/depression[g]
[179]	March 2020	495 (391)	18-25	70.3% (18-25) psychological distress[h] 53.2% high anxiety[i]

[a]Above clinical thresholds using various scales. [b]Revised Children's Anxiety and Depression Scales, t-score ≥ 70. [c]Short Mood and Feelings Questionnaire, score ≥12 for child report, score ≥11 for parent report. [d]Me and My Feelings, score ≥12. [e]GAD7, score ≥15. [f]Kessler (K6), score ≥13. [g]PHQ-2 and GAD-2, scores ≥3. [h]Clinical outcomes in routine evaluation (CORE-10), score ≥11. [i](ONS4) wellbeing questions, scores 6-10.

Factors associated with poor mental health in young people during the pandemic

Numerous studies have measured factors associated with poorer or worsening mental health in young people and children during the pandemic. Known risk factors for poor mental health in young people, such as female gender and lower socioeconomic status, have been found to have persisted during the pandemic but have also been associated with worsening mental health; suggesting growing inequalities during the pandemic. For example, a study of children and young people across Wales between September 2020 and February 2021 found that girls aged 8-11 years old were two times more likely to report lower wellbeing (OR 1.93, 95% CIs 1.59-2.34) compared to males of the same age [180]. Another study of 16–24-year-olds (UKHLS) found higher levels of psychological distress in females and those who were unemployed both pre- and during the pandemic, with new relationships with deprivation emerging during the pandemic, whereby increases in psychological distress were

over three times larger in those living in the most deprived areas than those living in the least deprived areas [163]. Conversely, however, in Wirral, increases in depression in 11–12-year-olds were found to be greater among those from less deprived families [160]. Equally, while females have experienced higher levels of mental ill health, gender differences in the types of mental health difficulties have been identified. For example, one study found a smaller increase in emotional problems for boys during the pandemic but a larger decrease in prosocial tendencies [148]. Young adults' ethnicity also contributed to mental health outcomes, with young people identifying as black or black-British three and a half times (OR 3.7, 95% CIs 0.5-25.4) more likely to experience poor mental health during the pandemic [181]. Box 4 presents a range of risk factors associated with poorer mental health in children and young people during the pandemic.

Box 4: Risk factors by age

Children and young adults

- Female[166, 169, 170, 180]
- Lower socioeconomic status[148, 163, 165–167, 170]
- History of mental ill health[111, 160, 166, 169, 170, 180, 182]
- Higher levels of conflict (e.g., in the home)[167, 169]
- Lower family warmth/closeness to parents[167, 182]
- Sleep problems[175]; less sleep[180]

Children

- Special education needs or neurodevelopment disorder[167]
- Single parent household[148, 183]
- Only child[148, 167]
- Approaching national examinations[170]
- Having parents who are essential workers[183]
- Perceived difficulties with online learning[184]
- Had COVID-19 in the family[148]
- Spending more time texting others[182]

Young adults

- Unemployment[163, 165]
- Parents with higher psychological distress[167, 168]
- Smoking, alcohol, and substance use[166, 169, 175]
- Dysfunctional coping strategies[175]
- Worry about COVID-19[178, 185]
- Loneliness[169, 178, 179, 182]
- Ethnicity: Mixed[186]; black/black-British ethnicity[175]
- Pre-existing physical health condition[165]
- Lower social support[169]
- Higher levels of stress[169]

4.4 Ethnic minority groups

> - The pandemic has negatively affected the mental health of ethnic minority groups, increasing levels of depression, suicidal thoughts, anxiety and stress.
> - Anxiety and stress were linked to risk of COVID-19-associated ill health.

Searches identified 11 studies examining the impact of the COVID-19 pandemic on the mental health of ethnic minority groups. Two were quantitative studies, four used semi-structured interviews and the remainder were reports identified through grey literature searching.

Changes in mental health during the pandemic in ethnic minorities

Few studies examined changes in mental health during the pandemic amongst ethnic minority groups. However, some studies suggest a decline in **mental health** and an increase in **loneliness** and **anxiety** among ethnic minority adult populations since the start of the pandemic [90, 187–189]. Studies with ethnic minority healthcare workers found negative impacts of the pandemic on mental health and

> Approximately 2.3% of the North Wales population belong to an ethnic minority group
> (2021 population estimates by Stats Wales [602])

wellbeing, with 72% reporting a change to their mental health and wellbeing during the pandemic, requiring 2% to take time off work [190]. Increased levels of **anxiety**, self-reported **stress** and decreased **mental wellbeing** were also identified in samples of foreign-born populations [191, 192].

Comparison to other population groups

A study in Scotland (May-June 2020) found lower mean **mental wellbeing** scores and higher levels of self-reported **suicidal thoughts** and **depressive** symptoms among ethnic minority groups (17.9% and 37.4% respectively), compared to all white populations (10% and 24.9%) [90]. In Wales, ethnic minority groups were found to be at increased risk of experiencing mental health difficulties during and after self-isolation, including a 2.1 times greater risk of experiencing **loneliness** compared to white populations [189].

> In Wales, individuals from ethnic minority groups were found to be two times more likely to experience loneliness compared to those of white ethnicity
> [189]

Studies found an increased risk of adverse mental health outcomes among ethnic minorities compared to those who identify as white [193]. A report by Barnardo's found that the pandemic was disproportionately impacting ethnic minority groups; **anxiety** and **stress** symptoms during the pandemic were almost four times higher in ethnic minority children compared to white children (11% vs 3%), and a higher proportion of ethnic minority children were seeking help for **suicidal thoughts** (27% vs 18%) [194].

Factors associated with poor mental health in ethnic minority groups

Increases in anxiety have been linked to new-onset **stress** associated with the disruption to usual activities during the pandemic [187]. Correspondingly, risks for poor mental health have been found to be increased for those unemployed or working reduced hours with no income protection [191]. Mental health challenges have been significantly associated with the risk of adverse outcomes for COVID-19 infection among ethnic minority populations [187, 188]. However, one study indicated that levels of reported mental health might be underestimated for such populations due to stigma [195].

4.5 LGBTQ+

> - The pandemic has negatively affected the mental health of those who identify as LGBTQ+.
> - Those who identified their gender as other had higher anxiety scores compared to those identifying as male or female.

Changes in mental health of those identifying as LGBTQ+ during the pandemic

Six studies were identified that explored the impact of COVID-19 on mental health and wellbeing outcomes within LGBTQ+ populations. These consistently reported a worsening of **mental health** and **wellbeing** for those identifying as LGBTQ+ during the pandemic [19, 193, 196, 197]. A UK study of trans and gender diverse people reported a worsening of **depression** and **anxiety** symptoms among people aged 16-25 years, where most participants fell into the most severe categories [196]. In a study of gay women/lesbians, 54% of cis women and 58% of trans women reported a worsening of their **mental health** during the first national lockdown [197]. However, LGBTQ+ individuals also expressed some positive impacts for their mental health from lockdown, including having more time to work on mental health recovery, and a reduction in social anxiety as a result of social distancing [196].

Comparison to other population groups

A large cross-sectional study of the general population found that those identifying their gender as other had a greater worsening of **anxiety** from pre-pandemic to mid-pandemic compared to those identifying their gender as male or female [19].

Factors associated with mental ill health in those identifying as LGBTQ+

A range of risk factors have been associated with poor mental wellbeing in the LGBTQ+ population during the lockdown periods (Box 5). For example, black LGBTQ+ young people have been more likely to experience depression, anxiety, and panic attacks, and contemplate **suicide** compared to white LGBTQ+ young people [193].

Box 5: Factors associated with poor mental wellbeing in LGBTQ+ populations during lockdown

- Fear of involuntary disclosure of LGBTQ+ identity when staying with family during lockdown[198]
- Living with non-supportive families[199]
- Bullying and discrimination[199]
- Anxiety for declining quality of romantic relationships as a result of concealing sexual identities from families[198]
- Loss of structure and routine or reduced activities during lockdown[196, 197]
- Increased social isolation/living alone[196, 197]
- Financial uncertainty[196]
- Perceiving the threat of the pandemic as great[196]

4.6 Perinatal period and parents and caregivers

- Lockdown and school closures negatively impacted parent and caregiver wellbeing.
- High levels of mental ill health were identified for mothers in the perinatal period.
- Having a previous history of mental illness, having less social support and lower levels of physical activity were risk factors for negative outcomes.

Searches identified 28 studies that had focused on the mental health of parents during the pandemic. Fifteen of these had been conducted with mothers in the perinatal period and five had focused on parents of children with health conditions or special educational needs and disabilities.

In 2020 there were 6,177 live births in North Wales [603]

Changes in mental health during the pandemic

Only two studies measured changes in parental mental health longitudinally, both in samples of parents of school-aged children. One reported an increase in the numbers of mothers reporting **depression** and **anxiety** compared to pre-pandemic levels from 11% to 20% and 10% to 16%, respectively [200]. Another identified that mothers' **depression** symptoms had increased by 42%, however, found no change in **anxiety** [160].

Cross-sectional studies highlighted heightened worries about **mental health** [201], decreased **mood** [202] and **loneliness** (71.6%) [172] among expectant parents and those with children. In one study, 43.9% of parents reported that they felt more **depressed** [203].

Prevalence of mental ill health during the pandemic amongst those in the perinatal period and parents

In a study of parents, 58.9% experienced **loneliness** (often/most of the time) as a result of the lockdown and school closures and that they felt their children were also experiencing high levels of stress (82.3%), loneliness (46.9%) and depression (33.0%; see Section 4.3). In samples of pregnant women, the COVID-19 pandemic was shown to have detrimental mental health effects [204]. In one study with expectant mothers, 47% reported **depression**, 60% **anxiety** and 40% symptoms associated with **PTSD** related to the psychological impact of COVID-19 [205]. Similar prevalence of depression and anxiety were identified across other samples [206].

For those in the perinatal period, over four in ten (42.8%) participants in one study reported that the pandemic had made them a lot more **anxious**. Furthermore, 58.0% were concerned about their emotional and **mental health** [207]. Mothers also reported high levels of **loneliness** (71.9% [208]; 59%, [209]) and in one study, 11% reported their **mental health** was affected by the pandemic [210]. These findings were echoed across a study with perinatal mental health care staff, of whom 79.3% perceived the **mental health** of perinatal women to be particularly vulnerable to the impact of pandemic-associated stressors (e.g., social isolation) and 50.1% reported a relapse/deterioration in mental health of mothers triggered by COVID-19 stressors [211].

A high prevalence of anxiety and depression were identified across studies for women in the perinatal period. In one study, 47.5% of new mothers (child aged ≤6 months) had **postnatal depression** [212]. The levels of depression identified across studies was consistently high with around half of participants reporting **depression** (42.1% major depressive symptoms [213]; 43% clinically relevant depression [214]; 56% feeling down [215]). Levels of **anxiety** (28.2% [213];61% [214]) differed across studies. However, in one study 62% of women indicated their feelings of **depression** and 87% their feelings of **anxiety** had changed as a direct result of social distancing measures [214]. Qualitative studies with

women in the postpartum period also demonstrated increased **loneliness** and **anxiety** due to restricted access to support systems [216, 217].

Parents of children with special educational needs and disabilities reported increased **stress and anxiety** and that their lockdown experience had negatively affected their **mental health and wellbeing** [218, 219]. Other studies of parents of children with additional health needs (oesophageal atresia [220]; cleft lip/palate [221]; juvenile dermato myositis [222]; neurodevelopmental disability [223]) highlighted high caregiver **psychological distress** [223] and **anxiety** [220–222] during the pandemic. Anxiety was particularly linked to isolation from support systems, uncertainty, concerns for child health and fear for the risks associated with COVID-infection.

Factors associated with poor mental health in those in the perinatal period and parents

Several factors were associated with poor mental health in parents and those expecting. Commonly identified risks included having previous mental health issues, low levels of social support and low levels of physical activity (see Box 6). Pregnant and breastfeeding women with a chronic mental illness were four times more likely to have major depressive symptoms, compared to those with no history of mental illness (Adjusted Odds Ratio [AOR] 4.4, 95% CIs 2.6-7.4; [213]). Mental health outcomes were also closely connected to each other; mothers who reported loneliness were eight times more likely to report anxiety and depression compared to those reporting no loneliness (OR 8.4, 95% CIs 5.7-12.3; [224]).

Box 6: Risk factors associated with poorer mental health during the pandemic for those in the perinatal period and parents and caregivers

- Previous mental health issues/prenatal depression[160, 207, 214]
- Low levels of physical activity[200, 203]
- Lack of social support[200, 205, 206]
- Being female[203]
- Being a single parent[203]
- Parenting a child with special needs[203]
- Unemployment[203]
- Lack of dedicated space for learning[203]
- Sleep disruption[203]
- Financial insecurity/low income[200, 209]
- Food insecurity[200, 209]
- Housing insecurity[200]
- Poor partner relationship[200]
- Having >1 child[225]
- Lower gestational age of the child[209]
- Travelling for work[209]

4.7 Unpaid caregivers

- Mental health trajectories in unpaid caregivers followed patterns seen in the general population. However, levels of mental ill health remained consistently higher than those of individuals with no caring responsibilities.

Nine studies were identified that explored the impact of COVID-19 on the mental health of unpaid caregivers. Five studies provided quantitative data (2 longitudinal, 3 cross-sectional) and four provided qualitative data.

Changes in caregiver mental health during the pandemic

Longitudinal analysis of the UKHLS/Understanding Society Survey identified that the **mental health** (GHQ-12) of home carers worsened from 2019 to April 2020, and although returned to pre-pandemic levels in July 2020, these remained consistently higher than those of non-carers [123]. Rates of **depression** amongst carers also increased and were higher than non-carers both during and pre-pandemic [226].

Prevalence of caregiver mental ill health during the pandemic

In a study of young people with epilepsy and their carers (n=201) conducted in June 2020, 55% reported that the pandemic had increased **stress**, 52% reported increased **anxiety**, and 28% reported that they were more **depressed** [227]. Increases in **depression** were also found in a qualitative study with caregivers of people with dementia [228], and caregivers of

> Unpaid carers in Wales reported increased loneliness and stress
>
> [229]

children with neurodevelopmental disabilities reported increased **psychological distress** [223]. A higher prevalence of **depression** and **anxiety** was found for those providing five or more hours of care weekly (compared to those not providing care/providing <5hrs care), while carers were also two and a half times more likely to have **suicidal thoughts** [90]. Qualitative research with unpaid carers in Wales (n=47) identified that the COVID-19 pandemic exacerbated mental health difficulties, including a rise in **loneliness** and **stress** associated with a fear of the cared-for person contracting COVID-19 [229]. Similarly, young carers in the UK reported increased **anxiety** for the health of family members and increased **loneliness** associated with the absence of opportunities, including respite from their caring duties [230].

Factors associated with mental ill health in caregivers

> Around a quarter of the Welsh population identify as a carer, with an estimated 1,752 young carers in North Wales
>
> [604, 605]

Factors associated with worsening **mental health** and **wellbeing** among carers include being female, being educated to degree level and above, being from an ethnic minority background, caring for an individual under the age of 18 years, caring for more than one person, providing over 20 hours of care per week [123], fear of contracting COVID-19 and transmitting it to loved ones [229–231], and the loss of usual outlets and opportunities outside of being a carer [90, 231]. Reduced social interaction was reported as a precipitating factor for poor **wellbeing** and **depression** [228, 229, 231], and **loneliness** was a predictor for depression [226]. The **mental health** of those caring for someone with a learning disability, mental health condition or physical disability was poorer than those caring for someone with a problem related to old age [123].

4.8 Individuals with COVID-19 infection

- Studies with populations with COVID-19 infection identified negative impacts for anxiety, depression, and stress symptoms.
- Mental health and wellbeing outcomes are weakly associated with the severity of COVID-19 illness. However, COVID-19 associated illness presents a long-term mental health burden.
- A range of factors have been associated with poorer mental health among those with COVID-19 infection, including being female, younger age and having physical comorbidity.

Searches identified 14 studies examining the mental health of populations impacted by COVID-19 infection. Study designs varied, with four studies measuring longitudinal changes in mental health following COVID-19-associated illness and hospitalisation.

Changes in mental health due to COVID-19 infection

Research evidences a substantial **mental health** burden associated with COVID-19 infection and the requirement to self-isolate [232]. Studies identified a significant increase in levels of **anxiety** and **depression** for populations recovering from COVID-19 who had been admitted to hospital [232–234]. In one longitudinal cohort study, the prevalence of clinically significant symptoms of **anxiety** and **depression** was 24.5% and 27.4%, respectively [232]. Longitudinal follow-up of COVID-19 cases (~3 months) indicated that negative outcomes were particularly persistent for populations experiencing long COVID symptoms, with mild severity of **anxiety** and **depression** remaining consistent over time [234]. Similar trends were identified in primary care datasets of patients in England recovering from COVID-19 who had been discharged from hospital settings (n=456,002), which revealed **new-onset mental health** concerns four weeks after COVID-19 infection; 1.2% of patients were diagnosed with anxiety and 0.9% were diagnosed with **depression** [233]. One study of patients with multiple sclerosis identified an increasing prevalence of **anxiety and/or depression** in those with long COVID symptoms (31.7%, <4 weeks of symptoms; 54.3%, ≥12 weeks; [235]). COVID-19 infection was also associated with symptoms of stress, with one in eight (12.2%) in the UK-wide Post-hospitalisation COVID-19 Study reporting clinically significant symptoms of **PTSD** [232].

Prevalence of mental ill health among individuals affected by COVID-19 infection

Self-isolation and social distancing due to COVID-19 during the first UK lockdown (March 2020) were associated with decreased mental health and wellbeing. A UK cross-sectional analysis found a 36.8% prevalence of **poor mental health** (based on anxiety, depression, and mental wellbeing scores) in March 2020 [7]. Similarly, among self-isolating Welsh populations (n=32,099), 31.2% experienced **loneliness**, and 11.7% reported having **mental health and anxiety** difficulties

> Among individuals self-isolating in Wales, 31% experienced loneliness and 12% had mental health concerns
>
> [189]

during their self-isolation period [189]. Women were almost two times more likely to have mental health and anxiety concerns compared to men [189]. Trends for **worse mental health** were also seen in those self-isolating in Scotland [236], with self-isolation described as an emotionally challenging and stressful experience, particularly for young people and those having to self-isolate more than once [237].

Long COVID was also associated with a high prevalence of mental health issues among UK adults (n=3290), with 43.1% reporting changes to **mood, anxiety, and depression**, and 45.9% reporting problems with **mental abilities** associated with long COVID [238]. The proportion reporting poor

mental health outcomes increased with duration of long COVID, for example, **anxiety** and **depression** increased from 29.3% at four weeks after onset of COVID-19 symptoms to 50.9% among those who had experienced symptoms for 12 weeks [238].

Comparison between populations based on COVID-19 illness severity

In a case-control study comparing mental health outcomes between those hospitalised for COVID-19 (n=57) and asymptomatic controls (n=30), mean **anxiety** scores were higher in hospitalised patients, with 14% reporting moderate to severe anxiety symptoms compared to 3.3% of the control group [239]. Findings from another case-control study using parental reports of mental health outcomes for

> 167,104 cases of COVID-19 and 1,295 deaths were recorded in North Wales until 30th March 2021
>
> [1]

symptomatic children with confirmed COVID-19 infection indicated that **mental health symptoms** were more frequently reported amongst symptomatic cases than symptomatic controls who had a negative PCR result (depression 4.1% vs 0.7%; anxiety 7.81% vs 2.6%; [240]). Despite these associations, overall, studies found that the severity of mental health outcomes was only weakly associated with the severity of COVID-19 illness and long COVID symptoms [238, 239, 241].

Factors associated with poor mental health among populations affected by COVID-19 infection

Box 7 lists the risk factors for poor mental health among populations affected by COVID-19. In line with general population studies (Section 4.1), being female and younger age were the most identified risk factors for poor mental health. For example, within one study in Wales, women were almost two times more likely to experience mental health difficulties during self-isolation compared to men (AOR 1.8, 95% CIs 1.3-2.5), and individuals aged 18-29 years were two and a half times more likely to have experienced loneliness during a period of isolation compared to adults aged 70 years or above (AOR 2.6, 95% CIs 1.1-6.1; [189]).

Box 7: Factors that have been found to be associated with poorer mental health among populations effected by COVID-19 infection

- Being female[7, 189, 237]
- Having a younger age[7, 189, 237]
- Ethnic minority groups[189]
- Living alone[189]
- Having physical multimorbidity[7]
- Being unemployed[7]
- Having a lower income[7]
- Health harming behaviours (e.g., smoking, and increased alcohol consumption)[7, 242]

4.9 Health conditions

People with pre-existing mental health conditions

Six studies explored the impact of COVID-19 on mental health and wellbeing outcomes among people with pre-existing mental health conditions. One longitudinal study of patients in psychological treatment in London (n=9,538) identified a significant increase in **anxiety** symptom scores (GAD-7) during the weeks corresponding with the first confirmed cases of COVID-19 in England and the announcement of the first national lockdown, compared to the same weeks in 2017-19 [106]. In contrast to the general population (Section 4.1), **depression** (PHQ-9) declined during the lockdown period. However, these changes were short-term and significant increases in both **anxiety** and **depression** were observed as lockdown restrictions were eased [106].

Other studies identified challenges to mental health in individuals with existing diagnoses [243–245]. In a study of UK adults with severe mental illness, around one in three reported being **lonely** and 40.3% reported a deterioration in **mental health** during the pandemic [243]. From the perspective of mental health care staff, 46.3% reported service user relapse and deterioration in **mental health** triggered by COVID-19 stressors [246].

Factors associated with poor mental health in people with pre-existing mental health conditions

Risk factors for **loneliness** included younger age, living alone, high levels of social and economic deprivation, and lower perceived social support [243]. Social distancing, self-isolating and shielding are also reported as contributing factors to loneliness [246]. Risk factors for **depression** included older age and being of ethnic minority grouping [106].

Other health conditions

Limited studies explored the impact of the COVID-19 pandemic on mental health for individuals with other diagnosed health conditions. Seven studies explored the impact amongst individuals with cancer and six in people with dementia. For all other health conditions, less than five studies were identified. This evidence has been summarised by health condition in Table 5. Overall, findings were mixed across health conditions. Few studies allowed an examination of trends in mental health and wellbeing, instead focusing on the prevalence of mental health outcomes, which were high but consistent with those identified in general population studies.

Table 5: The impact of COVID-19 on different health conditions

Condition (Number of studies)	References	Mental health outcomes associated with the COVID-19 pandemic	Risk factors for poor mental health
Inflammatory arthritis (1)	[247]	Patients with inflammatory arthritis were found to have experienced worsening **mental health** during the first lockdown, linked to worse disease activity; 58.6% reported that their **emotional distress** worsened. Levels improved over time yet remained higher than pre-lockdown levels before slightly increasing again in November 2020.	-
Cancer (7)	[248–254]	Studies report mixed findings on the impact of the pandemic on individuals with cancer, with most indicating increased **anxiety**. Following the onset of the pandemic, people with cancer participating in support networks reported elevated **anxiety, stress,** and **depression** (from 2019-2020), but not at significant levels [248]. However, one study identified an increased risk of **depression** for people	Females reporting higher anxiety [249] Loneliness reported as a risk for depression [254]

		with breast, prostate, or blood cancer, but not other cancer types (e.g., lung; [254]). Prevalence of **severe anxiety** across studies was 21.6% amongst females [249], 5.5% in a study with colorectal cancer patients [251] and 40.6% in parents of children with cancer [255]. A study with adolescents and young adults identified high levels of **psychological distress**: 79% reported increased **anxiety** since COVID-19, with 37.1% and 43.4% having moderate-severe scores for **anxiety and depression** respectively [250]. Qualitative studies also highlighted **anxiety** due to isolation and lack of support [252]. In a study of cancer survivors, COVID-19 restrictions increased levels of **loneliness** and **anxiety** [253].	History of mental health difficulties [250] Concern for catching COVID-19 [251] Lack of support (263)
Chronic pain including fibromyalgia (4)	[256–259]	There were mixed findings from studies of individuals with chronic pain. In one study, 50% of patients reported that their **mental health** had deteriorated [258]. In another, compared to healthy controls, individuals with chronic pain were found to have greater self-perceived increases in **anxiety, depressed mood,** and **loneliness** [257]. However, another identified improvements in depression since the start of lockdown, but no change in anxiety (April-May 2020; [256]). In a case control study of individuals with fibromyalgia, lower levels of **wellbeing** were evidenced in April 2020 and levels increased by May (compared to no change for healthy controls; [259]).	Increased dependence on others [256] Difficulty managing pain [256] Changes in/cancelled medical appointments [256]
Dementia (6)	[159, 228, 231, 260, 261]	There was mixed evidence for individuals with dementia. One study identified a 33% prevalence of **anxiety** and 48% for **depression** [159]. Another identified that, following easing of initial lockdown restrictions, cases of anxiety reduced while cases of depression increased, with quality of life significantly increasing for people living with dementia [262]. There was no change in **wellbeing** in a study of people with moderate to severe dementia in acute mental health hospitals [260]. Findings across qualitative studies highlighted increased **anxiety** [231, 261], **depression** [228] and **loneliness** [228] amongst people living with dementia due to the pandemic.	Unable to access support services [159]
Diabetes (2)	[263, 264]	A qualitative study highlighted negative impacts on mental health for individuals with diabetes including increased **anxiety** [263]. 78.3% of staff in primary care diabetes services in the UK reported encountering more **mental health** concerns in people with diabetes [264].	-
Eating disorders (2)	[265, 266]	Qualitative studies with individuals with eating disorders highlighted negative mental health outcomes including increased **loneliness** [266] and **anxiety** [265].	-
Epilepsy (2)	[227, 267]	In June 2020, individuals with epilepsy reported a decline in **wellbeing** [227]. In one study, 34% reported increased **mental health** difficulties (mental strain, stress, worry, anxiety, or depression) and caregivers also reported that pandemic-related	-

		changes to lifestyle and schooling had contributed to declining mental and physical health in the person they cared for [267]. Of those clinically vulnerable, 43% reported an increase in **mental strain** [267].	
Fertility (2)	[268, 269]	Studies indicate that closures of fertility clinics led to increased **stress** and a deterioration in **mental health** in those awaiting treatment.	-
Heart disease/ failure (1)	[270–272]	The pandemic caused significant **anxiety** [270–272]. In one study, anxiety over COVID-19 was higher than anxiety related to heart failure [270]. Increased anxiety was also linked to delay in treatments and poor **mental health** for those with congenital heart disease [271].	Younger patients [270]
HIV (1)	[273]	People with HIV reported worsening **mental health**: 77.6% reported feeling more **anxious**, 71.8% more **depressed** than normal and 19.8% reported having **suicidal thoughts** since the start of the pandemic.	-
Heightened inflammation (1)	[147]	Systemic inflammation pre-pandemic (1–3 years) was associated with greater **depressive** symptoms (AOR 1.4, 95% CIs 1.1-1.7) during the early months of the pandemic.	-
Inflammatory bowel disease (IBD) (2)	[274, 275]	Studies with those suffering from IBD showed significant **anxiety** caused by the COVID-19 pandemic. In one study, 22.5% reported moderate/severe **depression** and 18% moderate/severe **anxiety** [274]. In another, **stress** significantly increased, with no reduction associated with the easing of lockdown restrictions [275].	Difficulty accessing risk information [274] Fatigue [274] History of depression or anxiety [275]
Immunocompromised (1)	[276]	In a study of immunocompromised children, 62% reported high levels of **anxiety** in March 2020, which remained high into June 2020.	-
Kidney disease (2)	[277, 278]	Studies highlighted reduced **mental wellbeing** (compared to a pre-COVID dialysis population) and heightened **mental health distress**.	Less access to and trust in official government press releases [277]
Long-term physical health conditions (1)	[279]	There were negative impacts on the **mental health** and **wellbeing** of individuals with long-term health conditions related to high levels of anxiety over perceived consequences of COVID-19 infection, impact of shielding and isolation.	
Musculoskeletal disease (1)	[280]	A study highlighted increased levels of **anxiety** and **depression**, with the proportion reporting not anxious or depressed declining from 50.4% to 42.6% across assessments (OR 1.8).	-
Neurological conditions including multiple sclerosis (MS) and neurodisability (3)	[281–283]	The prevalence of **anxiety** and **depression** found in studies was not higher than general population samples (Section 4.1). In one study 23.1% reported abnormal symptoms of **depression**, 27.6% **anxiety** symptoms [282]. In a case-control study of individuals with MS (vs healthy controls), anxiety and depression did not change from the previous year. However, compared to healthy controls, people with MS were more likely to have **anxiety and/or depression** and feel **lonelier**, but there was no difference across groups in **PTSD** [281]. Those with anxiety and depression were also more likely to report worsening of their MS symptoms [281]. The	Being younger (anxiety; [282]) Being older (loneliness; [282])

		perceptions of clinicians working with children and young people with severe physical neurodisability were that the pandemic/lockdown had caused families significant **anxiety**, particularly in relation to risks of COVID-19 infection and the impact on service provision.	
Obesity (1)	[284]	During the first COVID-19 lockdown, a study found the majority of obese individuals (55.1%) reported a deterioration of their **mental health**; with 65.2% reporting low **wellbeing** and 36.7% reporting moderate/severe **depression**.	Lower levels of physical activity
Respiratory disease (2)	[285, 286]	Those with respiratory illness had high levels of **anxiety** [285, 286] and **loneliness** [285]. 58% of participants reported increased anxiety compared to normal and 28% had more anxiety about their chronic obstructive pulmonary disease (COPD) than normal [286].	-
Rheumatic disease (4)	[287–290]	People with rheumatic diseases frequently reported increased **loneliness** [290], high levels of **anxiety** regarding their mortality risk from COVID-19 [288] and fear of COVID-19 [289]. Disruptions to their medical care had also adversely impacted their **mental health** [289]. In one study, levels of **anxiety** and **depression** were 43.6% and 33.6% respectively, with 52.5% reporting poor overall **wellbeing** [287].	Younger age [290] Isolation [288]
Scleroderma (1)	[291]	64% reported worse **anxiety** and 25.6% reported worse **depression**.	-
Stroke (1)	[292]	Admission during the COVID-19 pandemic with acute stroke was associated with increased **anxiety** and **depression**.	-
Polycystic ovary syndrome (PCOS) (1)	[293]	Women with PCOS reported a range of emotional impacts, including increased **anxiety**, **depression,** and **loneliness**.	-
Patients (2)	[294, 295]	In a study of patients on cancelled orthopaedic operating lists, 15.1% had **generalised anxiety disorder** [294]. Patients on waiting lists reported an **emotional burden** of delayed surgery [294, 295]. Patients who had been waiting longer reported more **anxiety** and poorer **mood**, and two patients reported **suicidal intent** [295]. White patents were more likely to be pleased about resuming elective surgery during the pandemic and ethnic minority patients were twice as likely to want to delay their operation until after the pandemic [294].	White patients had higher anxiety scores than those in ethnic minority groups [294]

4.10 Health and social care staff

- The pandemic placed immense stress on healthcare systems and staff.
- NHS staff sickness absence for mental ill health increased in the first stages of the pandemic.
- Mental wellbeing may have further deteriorated as the pandemic progressed, although reported changes largely reflect general population trends.
- A range of factors have been associated with poorer mental health in healthcare staff, including being female, younger, having a history of mental illness, being a frontline worker, being in a non-doctor role and poorer working conditions.
- There is currently insufficient information available to assess any longer-term mental health impact of the pandemic on healthcare staff.
- In comparison to the body of evidence for healthcare staff, at present, evidence on the impact of the pandemic on social care staff is insufficient.

Searches identified 72 studies examining the mental health of UK healthcare workers during the pandemic, including four studies with social care staff. Most studies were cross-sectional and based on data collected at a single point during the initial wave of the pandemic. A number of studies measured changes in mental health during the pandemic, although data on any sustained impacts are not yet available.

Changes in mental health in health and social care staff during the pandemic

A study analysing sickness absence in NHS employees (n=959,356) found that **staff absence due to mental illness** increased by 43% during the early stages of the pandemic, with 25,259 new sickness episodes in the 10 weeks from 11th March to 19th May 2020, compared with 17,749 during the same period in 2019. The following 10-week period (20th May to 21st July) saw a 15.7% increase compared with 2019. Sickness absence for most other causes decreased over these periods [296].

> Approximately 19,000 NHS staff were employed by BCUHB in September 2021
>
> [606]

Other studies have relied on retrospective reports of pre-pandemic mental health to examine changes associated with the pandemic, all of which found healthcare workers self-perceived their **mental health** to have declined since the start of the pandemic [297–300]. For example, a survey of 2,773 healthcare workers from across the UK in April-May 2020 found **anxiety**, **depression** and **stress** were rated as significantly worse during COVID compared with perceived pre-COVID levels, with frontline staff reporting a higher decline than non-frontline staff [297]. Other studies reported self-perceived increases in self-reported **poor/fair mental health** [298], **anxiety** [299] and **stress** [300].

Several studies measured changes in mental health during the pandemic. For example, surveys of health and social care staff from across the UK found **mental wellbeing** deteriorated between May-July 2020 (n=2555) and November 2020-February 2021 (n=2768). Coping strategies were important in explaining this decrease, with authors suggesting that decreased wellbeing may reflect staff not coping as well later in the pandemic [301]. Other studies reported: reductions in **PTSD** and **anxiety** in UK nursing and midwifery staff between April and August 2020, with no change in **depression** [302]; increased **anxiety** among NHS staff in a remote area in Scotland between July and September 2020, with no change in other mental health markers [303]; a non-significant increase in the prevalence of **depression and anxiety symptoms** in medical doctors between June 2020 and November-December 2020 [304]; and relatively stable **psychological wellbeing** in healthcare staff in Northern Ireland between November 2020 and February 2021 [305]. These trends largely reflect findings from general

population surveys which show mental wellbeing to have improved between the start of the pandemic and the summer months of 2020 but then declined to be at its lowest over the winter 2020/2021 period (see Section 4.1).

Prevalence of mental ill health among health and social care workers during the pandemic

Numerous studies examined the prevalence of mental ill health among healthcare staff during the early stages of the pandemic. Studies identified high levels of **burnout** [298, 306–309] and exposure to working conditions that placed **mental wellbeing** at risk (e.g., moral injury, high risk of infection, insufficient personal protective equipment (PPE), sleep deprivation, redeployment) [297, 298, 310]. A Welsh study found that 33.6% of NHS staff surveyed in June-July 2020 reported moderate or severe levels of **mental disorder/distress** [311]. Findings from a selection of other studies measuring **anxiety**, **depression,** and **PTSD** across large cohorts of healthcare staff are shown in Table 6. Identified levels of anxiety and depression were relatively consistent across these studies, affecting between a quarter and a third of staff. Levels of PTSD symptoms varied but so did the methods of measuring these symptoms.

> In Wales 34% of NHS staff reported moderate or severe levels of mental disorder/distress [311]

For other outcomes, Lamb et al. [310] reported that 58.9% of healthcare staff had increased probability of any **mental disorder**; 10.5% had probable alcohol misuse; and (in the last two months) 8.5% had had **suicidal thoughts**, 3% had **self-harmed** and 2% had **attempted suicide**. Gilleen et al. [297] found that 27.5% had high levels of **stress**, and Debski et al. [312] that 14% had severe **stress**. Individuals in some roles such as those working in intensive care units may have been more affected by the pandemic [313]. Individual studies have focused on different healthcare groups, for example intensive care staff [215], nurses in respiratory clinical areas [314], community pharmacy teams [315], dental practices [316–322], ophthalmologists [323, 324], mental health workers [308], general practitioners (GP) [300], junior doctors [325], and health staff that contracted COVID-19 [326].

Table 6: Examples of anxiety, depression, and PTSD symptom prevalence in healthcare workers during the early stages of the pandemic

Reference	Sample size (location)	Date	Anxiety[a]	Depression[b]	PTSD symptoms[c]
[297]	2,773 (UK)	Apr-May 2020	33.1%	28.1%	14.6%
[327]	2,638 (West Midlands)	Jun-Jul 2020	34.3%	31.2%	24.5%
[310]	4,378 (London)	Apr-Jun 2020	23.2%	27.3%	30.2%
[312]	1,113 (Lancashire)	Apr-Jun 2020	29.8%	33.2%	NR

[a]General Anxiety Disorder-7 (GAD-7) score ≥10; except for [327] which used PHQ-4 subscale score ≥3. [b]PHQ-9 score ≥10; except for [327] which used PHQ-4 subscale score ≥3. [c]Impact of Event Scale-Revised score ≥26 [297] or ≥33 [327]; PTSD checklist (PCL-6) score ≥14 [310].

Comparison between healthcare staff and other groups

While healthcare staff faced particular pressures during the pandemic, few studies have compared their mental health to that of other population groups. However, a large Welsh study (n=12,989) conducted in June and July 2020 compared psychological distress and resilience across various key

worker groups and a general population group [311]. This found that NHS staff reported more **psychological distress** than fire and rescue staff; similar levels to police and ambulance staff; but less than the general population group and 'other' key workers [311]. NHS staff also showed more stress-resilience than the general population group and 'other' keyworkers, but less than police and fire and rescue service staff. A rapid analysis of data for employed residents of North Wales participating in the PHW public engagement survey found no significant differences in **mental wellbeing** outcomes (see Section 3) between health staff (n~600), other key workers (n~900) and employed non-key workers (n~1220).

> Welsh NHS staff reported similar levels of distress to police but less than the general population
>
> [311]

Factors associated with poor mental health in health and social care staff

Numerous studies explored risk factors for poor mental health among healthcare staff during the pandemic, with common risk factors identified across many studies. Risk factors are shown in Box 8. These factors relate both to individuals such as being female, younger, and having a history of mental illness, and to the working conditions that healthcare staff had to operate in. Understanding which individuals were at increased risk of mental illness during the pandemic and the working conditions associated with poor mental wellbeing can help inform developments in practice and support. Future studies should identify whether any specific groups have suffered sustained harm to their mental wellbeing as a result of the pandemic.

Box 8: Selected factors that have been found to be associated with poorer mental health among health and social care workers during the pandemic

- Being female[297, 304, 310, 327]
- Younger age[298, 304, 310, 312, 328]; stress[297]; anxiety[327]
- Being single or living alone[297, 312]
- Having a disabled dependent[312]
- Having a history of mental ill health[297, 312, 327]
- Having poorer physical health[304, 327]
- Poorer working conditions (e.g., insufficient PPE access, training, poorer communication) and feeling vulnerable at work[297, 302, 304, 305, 329]
- Being in a non-doctor role[297, 310, 312, 327]
- Front line staff or patient facing role[297, 312]
- Less experienced staff[314]
- COVID-related traumatic events[297, 327]
- Ethnicity: PTSD - minority ethnicity[297]; stress - minority ethnicity[312]; depression - non-black; alcohol misuse - white[310]
- Smoker: depression[327]
- Redeployment: PTSD[302, 327, 329]
- Exposure to morally injurious events[298, 310]

4.11 Higher education

- The pandemic has negatively affected the mental health of those studying and working in UK higher education institutes.
- Longitudinal analyses show increased depression and stress. However, the impact of the pandemic on levels of anxiety and loneliness is less certain.
- A range of factors are associated with poorer mental health amongst this population group, including being female, having a history of mental ill health and lifestyle factors (e.g., levels of physical activity and smoking).

Searches identified 20 studies examining the impact of the COVID-19 pandemic on the mental health of UK higher education university students and staff. Most studies were of cross-sectional design and the majority comprised student only samples (three studies included students and staff). All studies examined mental health during the first year of the pandemic, thus the impact of the pandemic on this group beyond 2020 is unknown.

Changes in mental health during the pandemic

Several longitudinal studies measured changes in mental health, identifying a decline in **mental health** since the pandemic [330–333]. For example, analyses of the mental health of undergraduate students in a UK university (n=254) between October 2019 and May 2020 showed a significant rise in **depressive symptoms** and a reduction in **mental wellbeing** under lockdown conditions, with 34.3% classed as clinically depressed during lockdown (vs. 13.8% pre-pandemic) [330]. Levels of **depression** rose from 13.1% in September 2019 to 23.3% in October 2020 among a sample of university students in Northern Ireland (n=745; [333]) and another study (n=214) found decreased wellbeing and increased **stress** for a similar period (October 2019-April 2020; [91]). Further longitudinal analysis of this sample evidenced that the trend for increased **stress** and decreased **mental wellbeing** persisted until October 2020 [332], with perceived stress accounting for 64.9% of the variance in mental wellbeing.

A non-significant increase in **suicide risk** was also identified in one study (6.1% to 8.4%), reflecting a high suicide risk among 58 participants [333]. Trends in **anxiety** levels among undergraduate students were varied across studies, decreasing in McLafferty et al. [333], and remaining consistent in Evans et al. [330], despite participants reporting high levels of COVID-related worries.

Prevalence of mental ill health among the higher education population during the pandemic

The two universities in North Wales had a combined number of 15,990 new student enrolments in the academic year 2019/20

[607]

Numerous studies identified high levels of poor mental health outcomes during the early stages of the pandemic. For example, among students in the North of England (n=1173; undergraduate and postgraduate), half the sample reported clinically significant **depression** (53.4%) and **anxiety** (51.5%; [334]). A smaller proportion of postgraduate students (n=484) at a London university had probable **depression** (31%) and **anxiety** (32%) in April-May 2020, compared to approximately one-fifth of staff (19% and 20% respectively; n=2106; [331]). Negative impacts on **psychological health** [335], including **wellbeing** [336–338], **loneliness** [335, 339, 340], and **anxiety** [335, 340, 341], were commonly reported across studies.

Based on retrospective self-reports of mental health, a third (34%) of students (n=36) from a UK university indicated that they felt **lonely** most of the time during lockdown in March-June 2020 compared to before lockdown [340]. However, a longitudinal analysis of **loneliness** [330] found no

significant change in loneliness during the pandemic compared to pre-pandemic. Students who had been deployed into the NHS also identified increased **anxiety** working in clinical areas [342].

Factors associated with poor mental health among the higher education population

Common risk factors for poor mental health were identified across studies and are shown in Box 9. Risk factors include being female, younger**,** having a history of mental ill health, and belonging to an ethnic minority group.

> **Box 9: Selected factors that have been found to be associated with poorer mental health among the higher education population during the pandemic**
> - Being female[331, 334]
> - Having a history of mental ill health[331, 334]
> - Younger age[331]
> - Asian ethnicity: depression[331]
> - Living alone or in rental accommodation: depression[331]
> - Living with someone in a high or increased risk group[334]
> - Worry about loved ones getting infected with COVID-19[333]
> - Poor sleep quality[330]
> - Caregiving responsibilities of three or more children (anxiety) and responsibilities besides childcare (depression)[331]
> - Having difficulties accessing healthcare: depression[331]
> - Shielding or self-isolating: higher education staff[331]
> - Having a short-term work contract: anxiety[331]
> - Health behaviours (e.g., low physical activity, smoking)[334]

4.12 Veterans

- There were mixed findings on the impact of COVID-19 for veterans, with no significant changes measured in PTSD.
- A range of factors have been associated with poorer mental health in veterans, including increased exposure to COVID-19 stressors, lower levels of social support, having a history of mental illness and unemployment.

Searches identified four studies examining the mental health of UK veterans during the pandemic, three of which used samples in veterans with pre-existing mental health difficulties [343–345]. A longitudinal study investigating the effects of COVID-19 on veteran mental health and wellbeing (n=1,562) found that the percentage of participants reporting **common mental health disorders** **(CMD)** remained stable relative to pre-pandemic data (2014/16), at around a quarter [345].

Studies with samples of treatment seeking veterans found consistently high levels of CMD (74.5% - 78.9% in June- July 2020; [343, 344, 346]), declining to 65.3% in November 2020 [343], and remaining at 66.1% in June 2021 [344]. There were no significant changes in the severity and prevalence of **PTSD** symptoms over this period [344, 345]. The only study measuring **loneliness** identified that around three in 10 (27.4%) veterans reported this [345].

Factors associated with poor mental health in veterans

All studies explored the risk factors for poor mental health among veterans during the pandemic; having more COVID-19 stressors was a common risk factor (Box 10). Those who had difficulty with their health were almost seven times more likely to report CMD, with those with financial difficulties being three times more likely to report CMD, and those with difficulties with family/social relationships being five times more likely [345].

Box 10: Factors that have been found to be associated with poorer mental health among veterans during the pandemic

- COVID-19 related stressors (i.e., financial problems, difficulties with family/social relationships)[343–346]
- Having poorer physical health[345]
- COVID-19 infection[345]
- Knowing someone who died from COVID-19[345]
- Not being a key worker[345]
- Living alone[345]
- A change in childcare arrangements because of the pandemic[345]
- Having caring responsibilities or extra/new caring responsibilities[345]
- Lower levels of social support[344]
- Unemployed or change for worse in employment[344, 345]

4.13 Other population groups

Disability

Three studies were conducted with individuals classed as having a physical disability or intellectual impairment. Individuals with disability may be at increased risk for poor mental health and wellbeing compared to general populations. Findings from a longitudinal cohort in June/July 2020 identified that individuals with a disability (defined as impairment in basic and instrumental activities of daily living) were more likely than those with no disability to have clinical symptoms of **depression**, **anxiety,** and **loneliness** [347]. Similarly, in a cross-sectional study, compared to non-disabled people, people with disability were more likely to report symptoms of **psychological distress** (54% vs 37%) and **loneliness** (26% vs 11%; [348]). However, levels of mental health problems in May 2020 were similar for those with and without an intellectual disability [349].

Autism

Two studies were conducted with autistic individuals; a longitudinal mixed-methods study with autistic adults [350] and a comparative study with autistic and non-autistic students during the COVID-19 pandemic [351]. In the longitudinal study, more than half reported retrospective increases in **anxiety** and **stress**. However, clinically significant anxiety and stress scores reduced, with only around a third reporting an increase in **depression** across the study period [350].

Other populations

Searches identified studies undertaken with a range of other population groups, including emergency service workers, prisoners and people who gamble or inject drugs. However, a limited number of studies contributed evidence for these populations. The available evidence for these is summarised in Table 7.

Table 7: The impact of COVID-19 on other population groups identified

Population (Number of studies)	References	Mental health outcomes associated with the COVID-19 pandemic	Risk factors for poor mental health
Gamblers (1)	[352]	Levels of **depression**, **stress** and **anxiety** remained higher in gamblers than in non-gamblers. However, the increases across these outcomes were similar to those identified for individuals who did not gamble.	-
Prisoners (2)	[353, 354]	Completing a period of 14-day self-isolation in prison exacerbated **depression**, **anxiety**, and feelings of **self-harm**. This was amplified by the uncertainty of the pandemic and lack of information about accessing services in the altered prison regime [353].	Prisoners 60+ years [354] Less social contact (telephone calls and virtual visits; [353])
People who inject drugs (1)	[355]	Lockdown restrictions led to increased isolation for people who inject drugs, impacting negatively on **mental health**, particularly for those with pre-existing poor mental health. Disrupted patterns of daily life resulting in boredom was the most common reason cited for increased drug use. Queueing publicly outside busier than usual pharmacies to collect opioid substitution therapy caused increased **anxiety**.	Having pre-existing poor mental health
Socially vulnerable groups (1)	[356]	Socially vulnerable groups (e.g., homeless, sex workers, Gypsy, Roma, and Traveller communities) reported deteriorating **mental health** and increased **anxiety**, linked to pre-existing trauma and mental health, and lack of service support.	Pre-existing mental health issues Lack of service support

Bereaved (2)	[357, 358]	In a study of family members who had lost a loved one during the pandemic, 94.6% of the sample scored above the **PTSD** diagnosis thresholds [357]. Another study of bereaved people identified that between 50% and 60% of participants reported high or fairly high needs for help with: processing feelings surrounding the death and loss of a loved one, **anxiety** and **depression**, and communicating and connecting with friends and family [358].	-
Hearing difficulties/ deafness (3)	[183, 359, 360]	Approximately 55% of participants in a study of deaf healthcare professionals agreed that communication difficulties at work during the pandemic were affecting their **wellbeing** [359]. Studies of participants with hearing loss show that this population experience increased **anxiety** concerning verbal communication, especially when communicating with someone wearing a face covering [183, 359, 360]. People with hearing difficulties also experienced feelings of **stress**, isolation, stupidity, vulnerability, **distress**, embarrassment, and loss of confidence and frustration associated with difficulties communicating with people wearing face coverings [360].	-
Sports-persons (including professional and amateur; 4)	[361–364]	Boxers [364] and horse owners [361, 363] experienced negative impacts on their **mental health** and **wellbeing**. Horse owners also reported increased **stress** and worry during the pandemic [361] and boxers reported increased anger, confusion, and **depression** [364]. However, **wellbeing** scores for English premier league soccer players increased during lockdown [362].	Participants that exercised <250 minutes per week [362] Concerns about horse wellbeing led to increased anxiety in owners [363] Reduced contact with horses/peers [361, 363]
Musicians (1)	[365]	In a study of musicians, participants expressed **anxiety** about the future of the music profession, their careers and finance. Participants reported experiencing emotional and behavioural signs of **anxiety** and **distress**, including poor sleep and mood disturbances.	-
Emergency service workers (5)	[311, 366–369]	Almost seven in ten emergency responders said their **mental health** had got worse since the start of the pandemic (69%) [367]. In Wales, 23% of emergency responders reported their **mental health** had got much worse vs. 19% in England [367]. 77% of ambulance personnel, 65% of fire and 66% of police stated their mental health had worsened since the start of the pandemic [368], and 53% expressed concerns about feeling **lonely** [367]. Emergency responders have experienced increased rates of **anxiety** around contracting coronavirus [367, 369]. In a sample of police staff, 67% felt more **stressed** during lockdown, 67% felt more tired, and 60% were worried about their families' safety [366].	Shielding [368] Having pre-existing mental health difficulties [367, 368] Younger age (<24 years) [367] Not working from home (Police [366])

5. Interventions

5.1 General population

Key messages

- There is some evidence that workplace interventions, particularly psychological interventions can effectively support mental wellbeing. However, further evidence is required to understand the long-term impacts and how to optimise intervention effectiveness.
- Growing evidence suggests that self-guided interventions, such as CBT and activity-based interventions such as physical activity, can be beneficial for mental wellbeing. These interventions are best used as a first line of psychological support, and/or in conjunction with conventional face-to-face mental health services.
- Growing evidence is reporting the efficacy of remote and digital interventions to improve mental health and wellbeing.
- There is very limited evidence for the effectiveness of community interventions to improve mental wellbeing, such as befriending and information referral and advice services.

Workplace interventions

There is some evidence that workplace interventions can improve mental wellbeing, although the size of the effect is often small [370]. Strategies to promote mental wellbeing in the workplace are designed to reduce the impact of stress, depression, and burnout, and to increase job satisfaction and productivity [371]. There is good evidence that individual-level **psychological interventions** can be effective in reducing stress and promoting employee wellbeing, especially **Cognitive Behavioural Therapy (CBT)**, **relaxation techniques** and **mindfulness** training [371]. For example, a meta-analysis reported significant medium to large effect sizes for CBT, and small to large effect sizes for relaxation techniques [372]. Additionally, studies show that mindfulness interventions (including self-guided and group sessions) can be associated with significant improvements in psychological distress and anxiety [370].

There is some evidence that workplace **physical activity interventions** can improve wellbeing (see Box 11; [370, 371, 373]). For example, studies exploring the impact of yoga, walking and aerobic and strength training interventions have demonstrated positive wellbeing outcomes, including a reduction in self-reported depression and anxiety [370].

Box 11: Time to Move

The Time to Move pilot initiative provided employees at Public Health Wales with the opportunity to take one hour (pro rata) of paid work time each week to engage in physical activity of their choice. A 12-month evaluation of the initiative found that 43% of intervention participants reported increased mental wellbeing and 33% reported increased job satisfaction (see [373]).

There is growing evidence for the effectiveness of **organisational-level** interventions for improving employee wellbeing, particularly job redesign, whereby job characteristics are changed to improve job quality, such as increasing support, task variety or skill use [370, 372]. Improving job quality by changing job characteristics can, in turn, lead to improvements in employee wellbeing [372]. Additionally, targeting attitudes towards mental health in the workplace, for example through **mental health first aid training**, **role play** and **psychoeducation**, can increase mental health knowledge and supportive behaviours [370]. Developing and implementing mental health support programmes for employees returning to work following periods of quarantine or lockdown is important. Creating a

supportive environment in the workplace by maintaining communication with employees, for example through regular virtual team meetings, can enhance resilience during pandemics and mitigate the negative impact of social isolation [374].

Few studies have explored the effects of **workplace interventions** in the longer term, but existing studies indicate that positive mental wellbeing effects generally diminish over time. There is a lack of evidence relating to the optimum duration, intensity and delivery mode of such interventions, and little research exploring how interventions may be combined to increase effectiveness [370].

Home-based or self-guided interventions

There is a growing evidence base supporting the use of **self-guided interventions** to effectively support mental health; however, such interventions may not be as effective as face-to-face or group-based support. Therefore, while self-guided interventions can be best used as a first line of psychological support and during periods of lockdown, they should be used in conjunction with, but not replace, conventional mental health services [375–377]. A meta-analysis of self-guided interventions identified that self-guided **therapy-derived interventions**, including **CBT** and **mindfulness-based interventions**, have a small to medium effect for reducing anxiety, depression, and stress [375]. Another meta-analysis of unguided mindfulness-based self-help interventions found that these interventions may enable people to improve psychological outcomes, including depression, with no therapeutic input [378].

Activity-based interventions, such as music and physical activity, have been shown to have small to moderate effects on improving mental health [375]. Being active is one of the Five Ways to Wellbeing, a set of evidence-based messages aimed to improve population mental health and wellbeing (see Box 12). Correspondingly, research had identified that during the COVID-19 pandemic, undertaking physical activity improved mental wellbeing [379]. Emerging evidence is supporting the positive mental wellbeing impacts of being outdoors, with interventions such as **forest therapy** shown to be an effective short-term intervention for the prevention and treatment of depression [380]. Other activities, such as gaming, have also been shown to mitigate some mental health issues [381].

> **Box 12: NHS Five Ways to Wellbeing**
>
> Developed by the New Economics Foundation, the Five Ways to Wellbeing are a set of evidence-based practical actions that people can follow to help improve their mental health and wellbeing. The five ways are: take notice, connect, be active, keep learning and give. Individuals are encouraged to reflect on how frequently they complete these actions to encourage further involvement in activities that may improve wellbeing (see https://bcuhb.nhs.wales/health-advice/five-ways-to-wellbeing/).

During the pandemic, there was a rise in digital, mobile, and internet-based interventions including **telehealth,** providing a cost-effective and useful alternative for delivering mental health services when face-to-face delivery were not possible (See Box 13; [382–384]). There is good evidence to support the effectiveness of these interventions for alleviating symptoms of depression, anxiety, and PTSD [382, 385, 386]. For example, **internet-delivered CBT** has a growing evidence base, with effect sizes comparable to face-to-face CBT (although better quality evidence is needed; [387, 388]). Internet-delivered cognitive behavioural interventions that include mindfulness-based self-guided components appear to be just as effective as traditional face-to-face programmes [388]. Despite evidence showing the effectiveness of internet-based interventions, there are many barriers to their use (e.g., financial and accessibility [385]). Further research is required to understand how and for whom digital interventions work and to establish their efficacy [386].

Box 13: Online cognitive behavioural intervention for dysfunctional worry related to COVID-19

A randomised controlled trial of a brief online intervention for people worried about COVID-19 found that the intervention significantly reduced dysfunctional worry related to COVID-19. The three-week self-guided programme consisted of established cognitive behavioural interventions for worry-related problems and was found to significantly reduce COVID-19-related worry, as well as improve mood and daily functioning (see [608]).

Other technological interventions

A 2022 systematic review of meta-analyses examining **psychological mobile phone-based interventions** (including smartphone applications [apps], meditation apps, text message-based interventions, and ecological momentary assessment interventions) found support for their potential to improve mental health. However, results differed across outcome by intervention type, with authors concluding that effect sizes were small and that interventions did not outperform other therapeutic interventions. Furthermore, the authors highlight that further work needs to be completed to determine the safety of such interventions [389]. Other studies have concluded that **mindfulness apps** seem promising in improving mental health and wellbeing [383].

Other interventions for improving and protecting mental health in the general population

- Common community interventions for social isolation and loneliness include **social activities** and/or **befriending**, **information referral and advice services**, **peer support** and **mentoring**, and **education and training** to expand skillsets. However, these interventions are not consistently evaluated, so evidence relating to their effectiveness is very limited [390].
- Community resilience can be fostered through shared learning and enhanced opportunities for **active engagement in local arts, sport, leisure, and civic activities**; these activities encourage the formation of positive relationships as well as social capital or connectedness [391].
- Populations need to be equipped with knowledge and skills on how to obtain and maintain good mental health, including a better understanding of mental ill health and its treatment, and how to effectively seek help [391]. Increased **mental health literacy** has been associated with decreased depression and increased quality of life [391, 392].

Interventions for Women

Findings from the systematic review identified that women were at an increased risk of poor mental health and wellbeing during the pandemic. However, evidence for interventions to support the mental wellbeing of women specifically is limited, and women may continue to face many barriers to accessing mental health support [393]. **Psychological interventions** may be beneficial for improving mental wellbeing in women. For example, a feasibility study of an eight-week **mindfulness-based group intervention** for African American women delivered in a community health centre resulted in positive wellbeing outcomes, including reduced stress and improved coping and functioning [394]. **Physical activity** interventions may also be beneficial; a randomised control trial of exercise interventions found that in sedentary women, both high- and low-intensity aerobic exercise and yoga-based stretching exercise were associated with reductions in depressive symptoms after 10 weeks of training [395].

5.2 Older adults

Interventions for community dwelling older adults

There is evidence to suggest that **physical activity** can help improve the mental wellbeing of older adults [396–398]; reducing anxiety and enhancing mood, even where there is no evidence of improvement in fitness (see Box 14; [397]). Programmes that aim to increase self-efficacy for exercise, for example, through a cognitive behavioural approach, are particularly effective [397].

Box 14: Physical Activity Intervention for Loneliness (PAIL)

Led by a certified exercise instructor, Physical Activity Intervention for Loneliness (PAIL) is a 12-week group walking intervention, consisting of an education workshop on healthy ageing topics and a weekly walking session. A feasibility study in UK adults aged 62-76 years concluded that PAIL has the potential to benefit the mental wellbeing of older adults, with participants reporting enjoyment and making new friends (see[609]).

Interventions offering **social facilitation** such as **befriending interventions** have been identified as beneficial for reducing loneliness and increasing self-confidence in older adults [399–402]. There is also emerging evidence that other interventions that facilitate social connectedness, including **creative group activities** [400], **volunteering** [399, 402] and **leisure and recreation activities** [398, 399], have also shown positive outcomes related to mental wellbeing for older adults. Group interventions increase perceived social support and social activation, ultimately reducing social isolation [403]. Solitary leisure and recreation activities, such as gardening, can also be beneficial for older adults' mental wellbeing [401]. **Remote or online interventions** can also benefit older adults' mental wellbeing, however some of the evidence is weak [399, 401, 404, 405]. Furthermore, a recent systematic review examining the efficacy of digital technological interventions found no evidence that such interventions can reduce loneliness [406]. A number of **digital interventions** will have been implemented in response to COVID-19 restrictions, and research is now beginning to explore their effectiveness. A group teleconference intervention delivered to older adults in Israel during COVID-19 (twice-weekly online guided sessions via Zoom) was found to significantly improve depressive symptoms and loneliness [407].

Psychological interventions can provide mental health benefits for older adults. A meta-analysis of **mindfulness meditation interventions** concluded that they could improve depressive symptoms in older adults [408]. **Reminiscence-based interventions** (e.g., those that promote recall of past experiences) are one of the most commonly used interventions among older adults and have been found to be effective for enhancing self-esteem and promoting psychological wellbeing and happiness, however, the existing evidence base remains limited [409–411]. Findings from a systematic review of **low-intensity psychological interventions** demonstrates tentative evidence supporting the use of interventions of this kind; in particular, the use of **guided internet CBT** and **bibliotherapy** are well evidenced and appear to be beneficial for adults aged 60-79 experiencing mild-to-moderate levels

of depression [412]. Additionally, there is good evidence to suggest that **psychosocial interventions** are beneficial for older adults with serious mental illness; the Substance Abuse and Mental Health Services Administration (SAMHSA) provide a detailed guide of evidence-based psychosocial interventions for older adults (aged ≥50 years), alongside guidance for intervention selection and implementation [413]. A recent scoping review concluded that more robust evidence is required on the active components of interventions which work to promote mental health among older adults [400].

Interventions for older adults living in long-term care facilities

A systematic review of interventions for loneliness among older adults living in long-term care facilities identified that **psychological interventions** can be effective for reducing loneliness, particularly **laughter therapy** and **reminiscence therapy** [414]. Additionally, the use of technology (computers or tablets) to allow family communication/connection can increase social engagement and decrease loneliness and psychological distress [402]. Other effective interventions for this population include weekly visits from **socially assisted robots** (robots that aid humans through social interaction) [415] and **gardening** [416].

When creating and implementing successful interventions to promote older adults' mental health, several factors should be considered that are relevant across many settings. Active client engagement is key in creating change and is more effective than passive consumption of information [402]. Additionally, it is important that interventions are flexible and adaptable to the individual needs of older adults [401, 402] and, as such, an assessment of individual needs should be carried out at the start of an intervention so that it can be effectively tailored to meet the individual's needs [417, 418].

5.3 Children and young people

Key messages

- School-based interventions can reach a large proportion of children and young people and there is some evidence of their effectiveness in successfully improving mental wellbeing.
- Teachers require support to improve student mental health. Programmes that promote teacher wellbeing can have an indirect beneficial effect on student wellbeing.
- Programmes that support parents and improve parenting skills may be key for supporting the mental health of children and young people.
- Remote interventions (i.e., delivered online or via text message by mental health professionals) can lead to positive wellbeing outcomes and are highly accepted amongst young people.

School-based interventions

Schools can be effective settings to help promote and protect the mental health of children and young people [419, 420]. School-level interventions can be targeted towards students, teachers, or school management. The school setting enables interventions to have a wide reach and low drop-out rates. Teachers and wider staff can play a vital role in providing early intervention for individuals experiencing poor mental health as they are well placed to identify and respond to emerging mental health conditions in children, as well as risk factors for such outcomes [419]. School-based interventions can enhance emotional resilience and prevent the development of anxiety, for example, the FRIENDS programme (see Box 15). Clarke et al. (2021) recommend that schools are supported to adopt **whole-school approaches for intervention**, placing a consistent focus on mental health or behavioural intervention as opposed to one-off implementation [420].

> **Box 15: FRIENDS Resilience Programs**
>
> Developed in Australia, the FRIENDS programs are CBT-based and designed to promote social and emotional skills. **Friends for Life** is a curriculum developed to prevent anxiety in children aged 7 to 16 years and designed to build emotional resilience, problem-solving and self-confidence. The programme is endorsed by the WHO [610] and has been implemented in a number of countries globally. Evaluations of the program delivered in schools have found it to improve emotional wellbeing and reduce anxiety and depressive symptoms (see [611–614]).

Psychosocial interventions (e.g., social and emotional learning [SEL], mindfulness; see Table 8) in schools may address a wide range of risk factors for poor mental health and wellbeing, while providing children and young people with basic skills to promote mental health and prevent health risk behaviours (e.g., substance use and aggression; [371, 421]). A good body of evidence demonstrates that psychosocial interventions promote children and young people's mental health and wellbeing, particularly those utilising **social and emotional learning** (see Table 8). However, there is limited evidence available on the long-term impact of such interventions. As most interventions are universal, there is also a scarcity of research exploring the impact of interventions which are targeted to the needs of groups at increased risk of developing mental health difficulties [420].

School-level interventions can also reduce or prevent mental health difficulties and can be delivered universally or to individuals with risk factors for developing or a diagnosis of a mental health condition. Preventative interventions predominantly use **CBT** and can include **SEL** elements (see Table 8). However, there is limited evidence for their long-term effect. There is also limited evidence on the effectiveness of school-level interventions designed to prevent self-harm and suicide [420].

Although schools may play an important part in promoting child and youth mental health, teachers will require high quality training to develop skills and confidence to support young people, alongside support from a range of specialised services [420, 422]. Teacher knowledge and understanding of child mental health and wellbeing also needs to be improved and sustained to help ensure effective implementation of interventions to improve mental health [420]. An example of a **teacher training intervention** implemented in the UK is the Wellbeing in Secondary Education (WISE) programme (Box 16). Programmes that promote teacher wellbeing have been found to improve the mental health of teachers and are also associated with higher student wellbeing [423].

Box 16: Wellbeing in Secondary Education (WISE)

Using a peer support model, the WISE programme provided teachers with training on adolescent mental health. Randomised control trials of the programme in England and Wales found it improved teacher knowledge and confidence in supporting student mental health. The programme also successfully improved attitudes towards mental health (see [615]).

Table 8: A summary of psychosocial interventions designed to enhance the mental health and wellbeing of children and young people, developed from a systematic review of school-based interventions (see [420])

Intervention type	Focus of intervention	Overall evidence level*	Impact
Social and emotional learning (SEL)	The development of social and emotional skills (e.g., emotional knowledge and expression, emotional regulation, communication skills, relationship skills, conflict resolution skills, and responsible decision-making). Such interventions are generally curriculum-based or use a whole school approach	Good and consistent	Significant impact on social and emotional skills and, in the short-term, reduced symptoms of depression and anxiety and aggression. Limited evidence of long-term effectiveness
Meditation and mindfulness-based	Participants focus their awareness on the present. Practice can be integrated with physical movement (e.g., yoga) and mindful attention, awareness of body sensation, thoughts and feelings and breathing	Limited and inconsistent	Appear to be effective in enhancing cognitive capacity (e.g., attention). However, limited evidence exploring the impact of these interventions on mental health and wellbeing outcomes
Positive psychology	Strengthening positive emotions, relationships, character strengths and skills for happiness and wellbeing	Limited but promising	Modest impacts in enhancing psychological wellbeing in the short-term and reducing depression and anxiety symptoms in the long-term
Positive youth development	Similar to SEL, but often youth led. Programmes aim to develop self-esteem, sense of purpose, decision-making and positive interactions. They can include personal mentoring or leadership programmes or participation in sports/recreational activities	Very limited	Very limited evidence of impact on mental health and wellbeing
Mental health literacy	Aimed at increasing understanding of how to develop and sustain positive mental health. They also aim to enhance help-seeking efficacy and behaviours, and decrease stigma	Insufficient	Good evidence indicates a positive impact on young people's mental health knowledge. However, limited evidence for any impact on help-seeking behaviour attitudes towards mental health, and stigma

*Overall evidence level for children and young people taken from Clarke et al. [420].

Family and parenting interventions

Caregivers play a key role in child development. A strong evidence base shows that interventions that support caregivers have positive outcomes for child and youth mental health (see Box 17) [424]. Enhancing the availability of and access to **parental skills and support programmes** is therefore important for supporting the mental health of children and young people and preventing aggressive or anti-social behaviour [371, 425]. Family-oriented mental health interventions that take an educational approach have been shown to be successful in improving child outcomes. Such interventions can be universal or targeted to at-risk caregivers or parents of children at risk or currently experiencing mental health conditions. Programmes can be directed at caregivers, their children, or both, and aim to address behavioural or emotional problems in children, whilst teaching parents strategies to help manage or prevent stress and anger and manage child hyperactivity [371]. Studies have shown that parental reassurance behaviours and social support can mitigate the negative impacts of epidemic events such as COVID-19 on child stress responses [426]. Interventions which focus on improving child-parent communication and promote long-lasting shared time together may be key to recovering children and adolescents' emotional stability after stressful experiences, such as those encountered in epidemic events and their associated stay at home measures [426].

Box 17: The Strengthening Families Programme

The Strengthening Families Programme is a family skills training programme that involves parents and youths attending weekly sessions together, where parenting skills and youth life skills are taught. Caregiver classes focus on caring relationships, boundary setting, and monitoring child well-being. The programme has been linked with increased relationship quality, increased family functioning, reduced harsh discipline, and decreased mental health problems including youth depression and anxiety (see [419, 616]).

Remote interventions

The COVID-19 pandemic prevented the operation of most face-to-face interventions or mental health support. A small and limited evidence base suggests that mental health interventions delivered by practitioners remotely, for example via video call or online chat, can lead to positive outcomes for young people, including increased wellbeing and reductions in the severity of clinical symptoms and suicidality (Table 9; [427]). Young people have reported acceptability and satisfaction with **remote interventions**, with some individuals indicating a preference for receiving remote support, particularly for groups of young people who find it difficult to access face-to-face counselling, for example young carers, disabled people, those living rurally and those experiencing life problems associated with stigma or shame (e.g., challenges relating to gender identity or sexuality; [427]).

Remote interventions can provide greater flexibility and accessibility compared to face-to-face services [427]. However, studies have reported high levels of resistance amongst practitioners, and concerns have been raised for confidentiality, increased possibility of miscommunication and technological difficulties [428–431]. Therefore, researchers have recommended that it may be useful for services to consider how their approach could be adapted to provide the most impact [427].

Table 9: A summary of practitioner delivered remote interventions to enhance children and young people's wellbeing, developed from a rapid review of the evidence [427]**.**

Intervention type	Focus of intervention	Overall evidence level* (number of studies)	Impact
Video call	Replacing face-to-face therapy (e.g., CBT) from trained counsellors and utilising a secure video platform. Can be used across a range of settings, predominantly at home, for individuals or families. Support can be long-term or a one-off/single session format	(n=15)	A reduction in symptoms of mental health conditions and discontinuation of medicine
Online chat	Providing support from mental health professionals (e.g., CBT) or information and/or advice and signposting. Often short term and on a one-off/single session format	(n=11)	Positive wellbeing outcomes, reduced depression symptoms and stigma and more likely to seek support
Telephone (helpline)	Providing anonymous support from trained counsellors. Often on a one-off/single session format	(n=5)	Improved wellbeing
Telephone (counselling)	Replacing face-to-face therapy (e.g., CBT) from trained counsellors	(n=4)	Positive wellbeing outcomes and reduced suicidality and symptomology of obsessive compulsive disorder (OCD)
E-mail	Providing support to parents and young people, including crisis support between face-to-face sessions	(n=3)	No impact reported
Text message	Providing support between face-to-face sessions	(n=1)	No impact reported

*No overall level of evidence was provided by [427]. Despite some individual studies reporting positive outcomes, the majority of evidence was taken from qualitative studies.

Other technological interventions

A 2021 systematic review of randomised control trials found that **smartphone apps** improved depression amongst adolescents and young adults, but no significant effect was found for anxiety. There was mixed evidence for the effectiveness of two apps incorporating **mindfulness** strategies/techniques on depression, with authors concluding that future research is needed to explore their effectiveness [432].

Other evidence-based interventions for improving and protecting mental wellbeing in children and young people

- **Community-level interventions**, such as providing adolescents with a safe and supervised environment where they can engage in a range of activities, can promote adolescents' physical and mental health and educational performance [419].
- **Recreation programmes** (e.g., art, exercise, peer support) and engaging in creative activities can improve wellbeing in children and young people [371, 433].
- For adolescents with high levels of trauma exposure, **trauma-focused CBT** has shown positive effects on reducing symptoms of depression, anxiety, and stress [421]. Trauma-focussed CBT has also been shown to be a probably efficacious intervention for pre-school children with symptoms of post-traumatic stress [434].

5.4 Ethnic minority groups

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Key messages

- Evidence is mixed for the effectiveness of mental health interventions for ethnic minority groups, with further high-quality research needed to establish the impact of interventions, particularly in the context of COVID-19.
- Community-based non-clinical interventions, including social groups, are effective in improving loneliness, but their effectiveness for depressive symptoms is less clear.
- Ethnically appropriate interventions and awareness of cultural and language barriers are essential for interventions' acceptability and engagement.

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High-quality evidence focused on interventions for improving mental health among ethnic minority groups is limited [435]. Additional research is needed to demonstrate the effectiveness of interventions and prevention strategies among non-white populations.

Community-based social groups are the most commonly used mental health intervention type with ethnic minority groups [436] and show some positive effects for mental health outcomes [437, 438]. A small study of **psychoeducation** and **informal social sessions** for British Pakistani women in Manchester, which included opportunities for group recreational and leisure activities (e.g., yoga, visiting museums), were found to have a beneficial effect on depressive and suicidal symptoms [439]. Likewise, a gym-for-free pilot project for ethnic minority groups in Birmingham was found to increase mental wellbeing and reduce anxiety [440]. However, among British Pakistani women, **social group participation** combined with **pharmacological treatment** was found to have no additional benefit on depressive symptoms compared to pharmacological treatment alone [441].

Therapy, advice, and mentoring has also shown some benefits for individuals with poor mental health, with **health education** and **CBT** found to improve depression among black African and black Caribbean adults (n=20) after three months, although no impact was found on general functioning [442]. The intervention was also found to be accepted amongst the group [442]. A culturally sensitive **group intervention** focusing on health and wellbeing and education opportunities for ethnic minority groups and older adults in the North West of England was also found to be acceptable and appreciated, albeit having only small, non-statistically significant effects on depressive symptoms [443].

A systematic review identified preliminary evidence of **mindfulness-based interventions** delivered to individuals of ethnic minority groups improving mental wellbeing, although effect sizes were small, and smaller than those identified in comparable general population studies [444].

Educational interventions focusing on increasing mental health awareness are associated with improved mental health outcomes in ethnic minority populations [445]. There is also promising evidence that **technology-based interventions** are an effective method to provide mental health care. **Community text-, app-, phone- and web-based CBT interventions** have been associated with a significant reduction in depressive symptoms, as has CBT delivered by videoconferencing [446]. However, further research and evaluation for the efficacy of technology-based interventions in ethnic minority groups is required.

Overcoming barriers to interventions

Access to appropriate transport is a common barrier to participation in mental health interventions for ethnic minority groups [438]. Further, individual and family resistance to accessing support has also been identified as a barrier [438]. To increase intervention accessibility and reduce cultural and language barriers faced by minority ethnic group populations, researchers have recommended that interventions are delivered by lay health workers from the same community. Practical considerations,

including the availability of culturally appropriate and translated material, is essential to increase usability and efficacy [445] and for broader outreach [447]. Likewise, the Mental Health Foundation recommend that governments and organisations directly engage with ethnic minority group communities and community leaders to improve mental health and wellbeing across ethnic minority groups [448]. In a systematic review of **mindfulness-based interventions**, most interventions identified used adaptations (e.g., content-related, or therapist-related) suitable to their target population [444]. Further, systematic reviews of culturally adapted psychological interventions for people from ethnic minority groups identified a significant effect on reduction of anxiety and depression symptoms in comparison to non-adaptive interventions [444, 449]. It is also important to consider that effect sizes for interventions may also differ across different ethnic groups within those classed as non-white.

5.5 LGBTQ+

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Key messages

- There is limited evidence for interventions to improve depression and anxiety in LGBTQ+ individuals, with the strongest evidence supporting CBT-based interventions.
- There is a lack of evidence-based research addressing the mental wellbeing of those identifying as LGBTQ+ in schools.
- Digital psychosocial interventions have the potential to improve the wellbeing of LGBTQ+ individuals and can increase engagement, particularly among the most vulnerable.

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Psychological and psychosocial interventions

In adults, there is limited empirical evidence for interventions to improve anxiety and depression in LGBTQ+ individuals, with the strongest evidence supporting **CBT-based interventions** [450–452] and emerging evidence for **mindfulness-based interventions** [453, 454]. Emerging evidence supports the use of technology for providing mental health support (see below), although further evaluations are required [452].

In youth, limited research examines the efficacy of **psychotherapeutic interventions** in LGBTQ+ individuals to decrease depressive symptoms [455, 456]. The majority of studies have adapted standard interventions to make their content more accessible to LGBTQ+ youth [456]. Both CBT and non-CBT-based interventions appear promising for the treatment of mental health concerns among LGBTQ+ youth, but more rigorous research is required [456]. A systematic review of **psychosocial interventions** for LGBTQ+ youth found that impacts on depression varied considerably across studies, with individual studies reporting improvements in anxiety and suicidal ideation [457]. Other research has identified a lack of evidence on **mindfulness-based interventions** [458], despite some evidence for its benefits in adults.

School-based interventions

There is a paucity of research on **school-based interventions** to prevent or reduce mental health problems in LGBTQ+ youth [459], with evidence predominantly from the USA (see Box 18). To improve the mental health of LGBTQ+ pupils, researchers recommend that interventions should take a whole-school approach to address the marginalisation, victimisation, and misrecognition that LGBTQ+ youth experience [459].

A 2020 systematic review identified that LGBTQ+ students in schools whose culture promoted the healthy growth and development of students reported fewer depressive symptoms and were at lower risk of suicidality compared with students without such environments [460]. To develop an LGBTQ+ inclusive school environment, **school policies** can focus on the inclusion and protection of LGBTQ+ students, promote gender equality and sexual diversity, and tackle bullying and discrimination [461, 462]. **Training and support** interventions can also be delivered to staff to promote a supportive and inclusive school environment [461, 463–465]. Ensuring **staff availability for LGBTQ+ individuals to talk to** and build relationships with can help improve staff and students' relations and may help improve student mental health [459]. Further, encouraging students to create **LGBTQ+ inclusive settings**, such as gay-straight alliances (GSA; youth-led organisations where young people come together to promote acceptance of and support for LGBTQ+ young people (see [466]), may also have mental health benefits [452, 461].

Box 18: Proud and Empowered (P&E)

Proud and Empowered (P&E) is a 10-session small group facilitator-led intervention for sexual and gender minority adolescents delivered in school or community-based settings. The intervention provides education on how to cope with minority stress and includes content on school related stress and resilience; safety in relationships; LGBTQ+ community and history; and intersections of health, substance use, HIV and the medical system. A randomised controlled trial of P&E in US public high schools demonstrated a reduction in anxiety, stress, and depression symptoms among participants; however, further research is needed on replicability and transferability to a UK setting (see [617]).

Digital interventions

Online services can enable anonymity and a sense of safety and have the potential to increase engagement. The internet is an important resource for LGBTQ+ individuals to connect with others and can be the first place LGBTQ+ individuals go to seek help for issues relating to identity and mental health [452]. Preliminary evidence suggests that **digital interventions** are acceptable to LGBTQ+ young people and have the potential to improve mental health [463, 467, 468]. A 2020 systematic review (published as a preprint) [467] of digital interventions for mental health among sexual and gender minorities identified a number of interventions that improved depression, anxiety, and stress. However, none were conducted in the UK. Examples included: a computerised CBT intervention that reduced depression (see Box 19); an internet-delivered social competency skill-building intervention that reduced stress; an online intervention for promoting health, wellness, addressing risky sexual behaviours, positive norms and supportive relationships that reduced depressive symptomology; and a mobile text message counselling intervention that led to reductions in anxiety and depression [467].

Box 19: Rainbow SPARX

Rainbow SPARX is a seven-session computerised CBT programme for sexual minority youth with depressive symptoms developed in New Zealand. The programme uses the medium of a fantasy world, utilising graphics and interactive exercises to engage users. A pre-post pilot evaluation study observed a significant reduction in depression, which was maintained at 3-month follow up (see [618]).

Other interventions for improving LGBTQ+ mental health and wellbeing

- There is evidence for the effectiveness of **interest sharing interventions** (e.g., social activities to promote LGBTQ+ wellbeing and connection), and **creative interventions** (e.g., LGBTQ+ media campaigns for suicide prevention; [463]).
- **Professionally run peer support interventions** can be effective in preventing mental ill health and promoting confidence among the LGBTQ+ community [457, 469].
- There is growing recognition of the need to include more information about LGBTQ+ people in education and training programmes for mental health professionals (e.g., in relation to healthcare disparities); **targeted interventions** for this population may increase treatment acceptability, retention and effectiveness [461, 463].

5.6 Perinatal period and parents and caregivers

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Key messages

- The perinatal period is a crucial time for the delivery of interventions to improve maternal mental health.
- There is a dearth of research on interventions to improve paternal perinatal depression.
- Moderate evidence demonstrates the importance of screening for mental health problems both during pregnancy and after birth, and screening has been shown to be cost-effective.
- There is good evidence for psychological and psychosocial interventions in the perinatal period and growing evidence for eHealth interventions in the antenatal period, particularly those that are CBT-based.
- A number of protective factors are important in improving maternal mental health, including partner involvement.
- There is a small evidence base indicating that mindfulness interventions can improve parental stress.

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There is a dearth of research on interventions to improve paternal perinatal depression, with the majority of evidence focussing on maternal mental health in the perinatal period [470].

Interventions in the antenatal period

A moderate evidence base demonstrates the positive impact of **screening** for depression, anxiety, and other mental health problems during the antenatal and perinatal period, with an associated reduction in perinatal depression and anxiety [471, 472]. Screening tools commonly used for depression include the Edinburgh Postnatal Depression Scale, PHQ-9, Beck Depression Inventory and risk index questionnaire, which can be completed clinically, in-person, online or by post. A systematic review found that screening in trials for mental health problems predominantly occurred between 23 and 32 weeks gestation [472].

There is good evidence for **psychological and psychosocial interventions** during the antenatal period. **CBT** is the most evidence-based intervention for perinatal depression or anxiety and has been shown to be effective and cost-effective [473–476]. **In-person individual or group psychotherapy** has also shown to be beneficial [477, 478]. There also exists good evidence that **mindfulness-based interventions** can reduce perinatal depression and anxiety [479–482]. However, for stress, the evidence for mindfulness-based interventions is more limited [482].

More limited evidence also exists for the impact of participating in **physical activity/exercise** and **massage therapy** [483]. Howard et al. (2020) conclude that there is no reason to presume that interventions which are effective at other times in a woman's life would not be effective during the perinatal period [484]. Limited but promising evidence has also shown that **probiotics** during pregnancy may be effective in reducing anxiety symptoms [485]. Currently, there is no evidence of the effectiveness of interventions for mental health in the preconception period [484].

Remote interventions in the antenatal period

eHealth interventions (i.e., delivered remotely online, such as teleconsultation) can be used to provide health services or health information. Current evidence shows small effect sizes in preventing and treating symptoms of depression and anxiety [486]. However, **online CBT-based interventions** have been found to improve clinical depression, anxiety and stress in the perinatal period [487]. However, not all available eHealth interventions have been subject to evaluation or are evidence-based [486], and there is a lack of research into the impact across different delivery types [487].

Postpartum interventions

In line with evidence from the antenatal period, **psychological interventions such** as **CBT** have been shown to effectively reduce postpartum depression (PPD; [488–490]). Other effective psychological interventions include peer support and group therapy. **Telephone support** has also been shown to reduce PPD [491–493], however, methods of administration have varied across clinical trials [494]. **Mindfulness** [495] and **self-care** (e.g., support, exercise, meditation) are also thought to be effective in reducing mental health problems during the postpartum period. However, there have been mixed findings on the impact of **physical activity** on reducing PPD, despite some studies showing positive outcomes [496, 497], including for activities such as yoga [498]. Other interventions such as **aromatherapy** [499, 500] and **acupuncture** [501] also demonstrate positive effects.

A systematic review and meta-analysis found that **home visiting interventions** were not effective in reducing depression or maternal stress [502]. Furthermore, there is limited evidence that **parenting interventions** improve maternal depression, anxiety, or stress symptoms, but this may depend on delivery method [503].

There is reasonable evidence that **pharmacological treatments** (e.g., antidepressants) are effective in reducing PPD [484, 504–508]. However, evidence on cost-effectiveness of **screening** and **pharmacological** interventions delivered in the pre- and postnatal period is limited [509]. In general, more evidence is needed on the cost-effectiveness of interventions in the perinatal period.

Protective factors for perinatal mental health

Research has also begun to identify a range of protective factors for perinatal mental health. One study found that partner involvement in the postpartum period significantly decreased the likelihood of PPD [510]. Furthermore, a study of postpartum women in the USA found that partnered relationships, full-time employment and income were associated with lower stress and that resilience was a protective factor for stress, anxiety, and depression [511].

Other interventions to improve parental mental health

Social support has been shown to improve maternal mental health and reduce antenatal anxiety [512]. A 2021 systematic review of **parenting interventions** designed to improve maternal-child interaction identified inconsistent evidence that such interventions led to improvements in maternal mental health symptoms [513]. Evidence from a single randomised control trial of a **family-based intervention** for adolescent depression identified that, along with reducing youth depressive symptoms, parents had significant reductions in depressive symptoms and stress [514]. **Mindfulness-based parallel-group interventions** involving parents and children have shown promising minor-to-small positive effects in improving parental health [515]. Furthermore, a 2019 systematic review found that **mindfulness interventions** resulted in small reductions in parenting stress [516].

A 2022 systematic review of **eHealth interventions** for parents of young children found that such interventions were associated with better self-reported mental health, including anxiety, depression and stress, with small to medium effect sizes [517].

5.7 Unpaid caregivers

> **Key messages**
>
> - There is limited evidence for effective interventions to reduce carer stress, anxiety, and depression, with the strongest evidence coming from CBT and mindfulness-based approaches. Furthermore, many interventions do not show long-term effects.
> - There is a growing evidence base of the efficacy of remote interventions (e.g., online, eHealth, tele-health) to improve carer anxiety and depression.

Psychosocial interventions

There is a strong evidence base for **CBT interventions** in promoting caregiver mental health [518]. In a review of **psychosocial interventions**, **CBT-approaches** were found to have beneficial results in reducing depressive symptoms in caregivers [518]. **Mindfulness-based cognitive therapy (MBCT)** has also been identified as a potentially effective intervention, with studies showing significant reductions in stress, depression, and anxiety [519]. A systematic review and meta-analysis of **mindfulness-based interventions** for family caregivers of persons living with dementia also identified medium to large effects on depression, anxiety, stress, and quality of life; however, effects were smaller at follow-up [520]. Further, a review of interventions to support carers for older people identified limited evidence for a **mindfulness-based stress reduction (MBSR) intervention** improving carer depression and anxiety [521]. Another systematic review highlighted issues over the long-term effects of interventions, with many reductions in anxiety and depression from non-pharmacological interventions identified as only short-term [522]. A systematic review and meta-analyses of **multi-component interventions** on the wellbeing of informal caregivers of people with dementia identified small to moderate effects on wellbeing and depression, and a moderate to high effect on caregiver anxiety; again, however, effects were short-term [523, 524]. Mixed evidence has also been identified for the impact of **counselling** interventions on depression, with no positive effects for anxiety outcomes [518].

In a systematic review and meta-analysis of interventions to support caregivers of patients with heart disease, **psychoeducation therapeutic interventions** resulted in moderate reductions in caregiver depression and small reductions in anxiety [525]. However, the quality of included studies varied, and only a small number of studies explored depression and anxiety [525]. Other reviews have found mixed findings for the impact of **psychoeducation** on caregiver depression, but positive effects for anxiety and wellbeing [518].

Remote or other technological interventions

Digital psychological interventions, **internet-based** or **eHealth interventions** can make it easier for informal caregivers to access mental health support and there is growing evidence to suggest that such interventions can be effective in improving caregiver wellbeing [526–528]. A systematic review and meta-analysis of randomized controlled trials identified that an **e-Health interventions** (e.g., remote psychotherapy) for informal caregivers can alleviate depression and enhance quality of life [529]. Furthermore, **digital psychological interventions** (n=3) were shown to reduce anxiety and depression in a further systematic review [530]. A meta-analysis of **web-based interventions** to improve mental health in caregivers of people with dementia identified that such interventions were generally effective at reducing anxiety and depression, but that further research was required for other outcomes, including stress [531]. However, a scoping review identified that **mobile apps** for caregivers helped decrease stress [526]. There is also growing evidence that tele-health interventions significantly lower depression, however no significant decrease was identified for anxiety [532].

Other interventions

- A review of **brief interventions** to support caregivers of adult mental health inpatients identified an absence of interventions to meet the social and emotional support needs of carers, with no difference in carer wellbeing in those which explored carer outcomes [533].
- To our knowledge, there is no evidence that **leisure or physical activity** support interventions have significant improvements on depressive symptoms or anxiety for informal caregivers [518]. However, limited evidence is starting to suggest that **natural environment interventions** for caregivers of cancer patients may improve stress, but further research should explore the impact of such interventions on other mental health and wellbeing outcomes and in other samples of unpaid caregivers [534].
- A systematic review identified no studies that explored the outcome of **befriending and peer-support** interventions on depression, anxiety, or stress [518].

5.8 Health and social care staff

Key messages

- Studies exploring the effectiveness of mental health interventions have primarily been conducted with healthcare workers rather than social care professionals.
- More research is needed on the efficacy of interventions to improve health and social care workers' mental health in the context of COVID-19. Despite some interventions being established, little is known about their impact.
- There is low quality evidence for CBT and mindfulness-based interventions among healthcare workers.
- Whole-system healthy workplace interventions are effective in improving subjective mental health amongst healthcare workers.

To date, most research evidence focuses on the impact of mental health interventions for healthcare workers rather than social care professionals. Some reviews of interventions for healthcare professionals include studies conducted within social care professionals. However, few studies specifically explore the effectiveness of interventions within this population [535]. A 2019 systematic review of workforce interventions for child and family social care workers identified no studies examining the effect of interventions for anxiety and depression and poor quality evidence for the effect of such interventions on stress and wellbeing [536].

In response to COVID-19 there has been rapid development and implementation of interventions to improve the mental health and wellbeing of health and social care workers, however, such interventions may not be evidence-based or have been evaluated for efficacy [537–542]. Systematic reviews within the context of the COVID-19 pandemic have found no evidence for the impact on mental health outcomes of **e-mental health interventions** for healthcare workers during COVID-19 [543] and very limited evidence for the effectiveness of interventions related to burnout [544]. Further, in a systematic review of **stress reduction techniques** for healthcare providers working with severe COVID-19 infections, none of the included studies included any measure of impact on healthcare provider mental health or wellbeing [545]. A Cochrane review of workplace interventions to support the mental health of frontline health and social care professionals during and after disease outbreaks only identified one study which explored the impact of interventions on mental health. The review concluded that this study provided low-certainty evidence for the effectiveness of a psychological first aid intervention for burnout [546]. More research on the efficacy of interventions to improve healthcare workers mental health, particularly in the context of COVID-19, is therefore required [539].

Person-directed psychological support interventions

A rapid review of the evidence for interventions to improve the health and wellbeing of the healthcare workforce conducted prior to the COVID-19 pandemic, concluded that **psychological-based interventions** could improve mental wellbeing [547]. However, it highlighted there was limited evidence of a 'best-practice' intervention and raised concerns over study methodologies and the quality of the evidence [547]. A 2021 systematic review identified a number of **psychological support interventions** that reduced distress and burnout and promoted self-efficacy and wellbeing [530]. Such interventions included **cognitive modules** and **music therapy** for healthcare professionals (all of which included digitally delivered elements [530]). Systematic reviews of **early psychological interventions** designed to prevent/reduce psychological harm have concluded that the empirical evidence base for such interventions among healthcare workers is limited [548, 549]. Programmes with limited evidence included: **psychological first aid** (PFA; universal and widely used in the community; Box 20); **eye**

movement desensitisation and reprocessing (EMDR; selective or early treatment programme); and **trauma risk management** (TRiM; universal or selective; [548]).

A 2015 Cochrane Library review concluded that there is low-quality evidence that **CBT interventions** (with or without relaxation techniques) are effective in reducing occupational stress in the healthcare workforce [550]. Further, the review identified low-quality evidence that similar reductions in stress can be achieved through relaxation techniques such as **mindfulness or massage** and that **changing work schedules** reduced stress levels [550]. Most **psychoeducational** and **coping skills training interventions** for health and social care professionals identified in a 2022 scoping review were found to have positive effects on anxiety and stress [535]. Furthermore, a 2020 systematic review identified weak to moderate evidence that **MBSR** interventions were effective in reducing psychological distress (anxiety, depression) and stress for healthcare professionals, but not in reducing burnout [551]. The review also identified that abbreviated or briefer programmes were as effective as traditional eight-week programmes [551]. Overall, the evidence for mindfulness interventions within this population is mixed [535]. In a sample of Swedish social workers, a randomised control trial of a **brief stress management intervention** based on behavioural therapy - **acceptance and commitment therapy -** significantly decreased levels of stress and burnout [552].

A meta-analysis of **social support interventions** for young healthcare professionals found high effectiveness in improving anxiety and depression symptoms, with 'moderate' and 'very low' certainty of evidence for the outcomes respectively [553]. No significant improvements were found for perceived stress [553].

> **Box 20: Psychological First Aid**
>
> Psychological First Aid (PFA) is an evidence-based crisis intervention for frontline workers recommended by the WHO [619]. Although intended as an acute disaster intervention for survivors of mass trauma, it may be used to respond to pandemics, which place pressure and stress on healthcare workers. The intervention includes basic needs and practical care support, empathic listening, increasing mental health and social support and protection from further harm (see [620]). Studies in frontline responders have identified increased general psychopathology (GHQ-28), self-efficacy, adaptive coping, and life satisfaction as well as declines in self-stigma [548].

Workplace/organisational interventions

A systematic review identified limited and mixed evidence for **leadership interventions** that aimed to foster and maintain healthcare employees' mental health [554]. Such interventions were delivered via group (workshop) or individual basis and were designed to improve skills that may support participants' mental health, prevent stress, and improve leadership skills and conflict management.

A systematic review of **whole-system healthy workplace interventions** found that such interventions were effective in improving subjective mental health amongst healthcare workers [555]. However, overall, the included studies were rated mid to low quality. The review included a study using a **MBSR intervention**, which found significant declines in self-reported anxiety and psychological distress [556]. The authors developed a set of recommendations for **whole-system improvements** to healthcare workers health and wellbeing, including: understanding staff needs; strong visible leadership; staff engagement at all levels; support for health and wellbeing at senior management and board level; and a focus on management capacity and capability to improve staff health and wellbeing [555]. The WHO recommends additional measures to help protect and support workplace mental health. These include promoting a culture to foster the prevention of poor mental health and the

provision and access to confidential psychosocial support services [557]. Similar recommendations for supporting the mental wellbeing of healthcare staff during times of crisis were developed in a rapid evidence summary conducted by Public Health Wales [558]:

1. Regular staff communication and updates
2. Encourage supportive peer/team relationships
3. Normalise psychological responses
4. Education and training (e.g., PFA, see Box 20)
5. Ensure staff awareness and uptake of available psychological and wellbeing services

Technology-based interventions, such as workplace **digital mental health interventions,** were found in a systematic review and meta-analysis to improve psychological wellbeing. However, the review identified no impact for **CBT**-based approaches compared to other psychological approaches [559]. Examples of technology-based interventions include the *BREATHE: Stress Management for Nurses programme* and *"Be Mindful"* (see [547] for more detail); however, these programmes have been subject to minimal evaluation and long-term follow-up.

A 2020 systematic review found that **preventative interventions** delivered in the workplace by occupational health services (including **CBT** and **problem-solving skill interventions**) did not consistently improve common mental disorders for those with prior diagnosis or those at risk [560].

There is also scarce evidence of cost-effectiveness of workplace interventions for this population [561]. Further, evidence within some healthcare professions is also limited; a 2016 systematic review found little evidence of interventions designed to improve GP wellbeing, with studies to date primarily focussing on prevention rather than promotion [562].

Other interventions:

- **Animal-assisted interventions** (e.g., the use of trained or certified therapy dogs) in healthcare settings showed promising results across studies in reducing stress, depression and anxiety and improving emotional wellbeing [563].
- **Arts-based interventions** (including cultural activities) may support the mental health and wellbeing of healthcare workers [564].
- **Physical health interventions** may also improve mental wellbeing (see [547]).
- A very small amount of evidence suggests that **management interventions,** such as **work breaks** and **inpatient rotations,** may have a positive effect on stress [535].

5.9 Higher education

Key messages

- There is evidence that digital interventions may be effective for improving mental wellbeing in the higher education student body and such interventions could be integrated into the university curriculum.
- Psychosocial interventions, including CBT, have shown positive outcomes to student mental health and wellbeing.

Psychosocial interventions

Psychosocial interventions, including **CBT**, **psychoeducation** and **mindfulness,** have shown benefits in reducing mental health difficulties and loneliness and increasing wellbeing in higher education student and staff populations [565–567]. However, some studies are of poor-quality [565]. Interventions based on **social support** and **increasing social interaction** have also shown positive outcomes [566]. Combining multiple types of interventions may also be an effective way to promote mental wellbeing in higher education students (for an example see [568]), however, research should explore how more vulnerable student groups can be targeted.

Digital interventions

A growing body of evidence indicates that **digital interventions** may be effective for promoting positive mental wellbeing among higher education students [569–571]. An umbrella review evaluating the effectiveness of **digital interventions** for university students concluded that their effectiveness could depend on delivery method and type of intervention [572]. The review indicated that **CBT** and **skills training** interventions delivered through **online** and **mobile applications** can reduce depression and anxiety symptoms [572]. A pilot study indicated that an online programme to target stress management led to reductions in anxiety symptoms [573]. It is possible that online interventions that support student wellbeing may be integrated into the university curriculum, which would provide a universal intervention and may help maximise their benefit [569].

Future research should also explore the wider determinants of student health, such as financial management, quality and cost of student accommodation, and sense of belonging to the institution - important factors for student wellbeing. The transition from school to university is a period of significant change for young people and greater communication between schools, colleges and universities may help to further increase support for students [567].

Other interventions

- **Animal-assisted interventions** on university campuses, e.g., dog therapy, have been shown to have positive outcomes on stress, anxiety, and mood [574].
- **Physical activity interventions** have been shown to reduce depression and stress in samples of university students [575, 576].

5.10 Veterans

Key messages

- The evidence for the effectiveness of psychosocial interventions for veterans is stronger for PTSD than for symptoms of depression and anxiety, with systematic reviews indicating the need for further, high-quality research.
- Due to stigma around mental health, interventions using online or tele-therapy methods may be suitable for veteran populations and the evidence base for such interventions is growing. However, its effectiveness in comparison to face-to-face treatment varies across studies.

There is some limited and mixed evidence for effective **psychosocial interventions** specific to veterans. The limited evidence base may be due to traditional psychosocial interventions not being applicable to veteran populations or a lack of interventions evaluated for efficacy in this population [577]. **Trauma-focused psychological therapies** are likely to be effective for combat-related PTSD and there is some evidence that such interventions can improve chronic PTSD in veteran populations [578, 579]. A 2012 systematic review of **psychosocial interventions** for veterans identified no evidence for psychosocial interventions for depression or anxiety [577], however, a 2014 review of **CBT** for depression in veterans concluded that there was mixed evidence for effectiveness in veteran samples and that it may be less effective in this population than in non-veterans [580]. However, a US study published in 2015 identified significant improvements in veterans' depression and quality of life following the implementation of **CBT** for depression [581]. There is growing evidence across individual studies that **psychological interventions** can improve generalised anxiety disorder in older veterans [582].

Findings from a systematic review indicated that **mindfulness-based interventions** are appropriate as complementary interventions to reduce PTSD symptoms (reducing PTSD symptoms in n=13/15 studies explored). However, with a smaller evidence base for reducing psychiatric disorders (e.g., depression, n=8), with small to large effect sizes, researchers indicate that further evidence is needed to explore the impacts of **mindfulness-based interventions** in veteran samples [583].

Due to stigma, veteran populations underutilise psychological services [584]. Growing attention has been paid to interventions delivered by **telepsychiatry/tele-therapy**, which is thought to increase the number of individuals accessing support [585]. A trial that explored telephone disease management for depression found positive outcomes for those participating [586] and a systematic review concluded that **tele-therapy** was as effective in reducing PTSD as face-to-face methods [585]. In addition, further studies have found this method effective for depression and anxiety [587, 588], including in older veterans [589, 590].

Remote interventions

A 2022 systematic review identified that **computerised psychological interventions** had benefits for PTSD symptoms, with a smaller evidence base (two studies) identifying this as an appropriate intervention for depression, PTSD, and anxiety [579]. However, the effectiveness of computerised psychological interventions compared to equivalent face-to-face treatment was mixed, despite high participant satisfaction rates. Overall, the authors recommended that such interventions are promising for the treatment of psychological difficulties in veterans and military populations, but that further high-quality evidence is needed. Another systematic review found **internet-based interventions**, including the delivery of **CBT** with **peer support**, to be effective for PTSD and, in smaller samples, for those with depression and anxiety as comorbidities [591]. Research is now beginning to explore the feasibility and acceptability of **mobile health interventions** [592], however, evidence on their impact in reducing mental disorders is currently limited.

6. Discussion

This study aimed to explore the likely impact of the COVID-19 pandemic on the mental health and wellbeing of the North Wales population. A large body of evidence was identified which highlighted the changes in mental health, prevalence of poor mental health and factors associated with poor mental health during the pandemic across UK populations. Evidence overwhelmingly identified that the COVID-19 pandemic and associated lockdown restrictions led to declines in mental wellbeing, with significant increases in depression and anxiety. Data from the ONS identified that 1 in 5 adults in Great Britain experienced depression in June 2020, compared to around 1 in 10 pre-pandemic [593]. The prevalence of depression and anxiety identified for the general population in this review was consistent with a 2022 systematic review and meta-analysis, which identified around a third of adults reporting anxiety and depression during the first national COVID-19 lockdown in the UK general population, compared to 4.7% and 4.1% respectively for these outcomes pre-pandemic [594]. Data from the Public Engagement Survey on Health and Wellbeing during Coronavirus Measures indicated that over two fifths of adults in North Wales reported worrying about their mental health (April 2020 to January 2022) and that a third reported that their mental health had worsened during the COVID-19 pandemic compared to pre-March 2020 (January to July 2021). A rapid review and meta-analysis assessing the psychological impact of COVID-19 lockdowns in the UK found that lockdowns had small but significant effects on anxiety and depression but no significant effect on wellbeing [595]. Data for the North Wales population explored here (from the Public Engagement Survey) evidenced an increase in worries for mental health and wellbeing during the winter of 2021, although wellbeing was not measured as an individual outcome. Another study in Wales identified that wellbeing increased during summer 2020 [11]. Further research should explore the impact of COVID-19 on wellbeing outcomes for the North Wales population over longer periods and post-pandemic.

Despite little evidence available for the North Wales population specifically, findings suggest that local population trends followed those seen nationally in Wales and the wider UK. Mental health, including anxiety and loneliness, fluctuated over the course of the pandemic, but overall was negatively affected. Periods of worse mental health coincided with COVID-19 lockdowns. Evidence from the Public Engagement Survey for the North Wales population is in line with the small number of available studies published for the UK in the period; demonstrating that levels of anxiety, loneliness, and social isolation were highest during the second national lockdown (the winter of 2020 through to February 2021). Despite decreases in mental ill health during periods when restrictions were lifted, mental health concerns remained consistently higher than pre-pandemic levels. Despite the ending of COVID-19-related restrictions in Wales, it is important that the short- and long-term effects of the pandemic on population mental health and wellbeing are fully understood. Few studies identified in our review examined trends in population health and wellbeing beyond 2021, although data from the Public Health Engagement Survey runs until January 2022. As such, further knowledge is required to understand the long-term impacts of the pandemic and how certain population groups may be differently affected by the current relaxation of restrictions in Wales; for example, those with long-term health conditions who were previously given shielding advice. This knowledge is particularly important as the world adapts to live with COVID-19 and is vital for the planning of a future public health response to other epidemics and pandemics in Wales.

The findings of the review highlighted that the impacts of lockdowns did not have uniform effects across populations. Evidence from the Public Engagement Survey indicated that females, younger age groups, those living in more deprived areas, and individuals with chronic health conditions reported poorer mental health. These findings were consistent with evidence from published literature. Risk factors across population groups are summarised in Table 10. Gender differences may be accounted

for by the increased burden placed on women as caregivers (including home-schooling and unpaid housework), and the potential for increased economic disruption from the higher rates of furlough females experienced [596]. It was not possible to undertake analysis on ethnicity due to the small sample size; future research should aim to understand the impact of COVID-19 on minority ethnic groups in North Wales, as research on UK populations indicates worse mental wellbeing. Further work needs to examine the reasons why certain population groups were at risk of increased harms to mental health and wellbeing to ensure that these groups can be targeted with interventions to counteract these harms.

Evidence from the UK, including Wales, indicates that referrals to primary care and psychological services declined during the first UK national lockdown. Despite this, in Wales (Carmarthenshire), increases in referrals to welfare services were reported for families struggling with emotional and mental health issues [597]. It is therefore important that differences at the local level are understood, as referrals and uptake will be impacted by service provision and opportunities for informal services which may not always be measured. Future research should be conducted in Wales to further understand the response implemented at a local level to improve population mental health and wellbeing and to enable evidence of its effectiveness to be measured.

While evidence examining the effectiveness of measures to improve mental health and wellbeing during the pandemic has yet to emerge, broader evidence supports the use of psychological and psychosocial interventions across a range of population groups, although there is a lack of evidence for long-term effectiveness. The strongest evidence across population groups was identified for CBT and interventions taking a CBT-approach. In youth populations there was also strong evidence for school-based interventions, which can reach a large proportion of children and young people. School interventions can also be targeted to specific groups such as LGBTQ+ individuals, yet there is currently a scarcity of research evaluating interventions addressing LGBTQ+ mental wellbeing in schools. A growing evidence base indicates that remove and digital interventions may also be effective for improving mental health and wellbeing. Digital support and service provision was integral during the COVID-19 lockdown when face-to-face services were halted, yet evidence of its effectiveness, specifically within population sub-groups, is still developing. Additionally, evidence suggests that digital interventions should not be a replacement for more conventional, face-to-face mental health services, but are best used as a first line of support or in conjunction with other interventions.

It should be noted that, although a number of evidence-based interventions do exist, there is a paucity of evidence on the effectiveness of mental health interventions, with variance in methodological quality across studies which makes comparisons of intervention effectiveness difficult, particularly across different population groups. Further research is also needed to determine the cost-effectiveness of such interventions. Research in Wales has highlighted that several coping strategies (such as keeping physically active and spending time outdoors) helped to reduce the negative mental health impacts of the pandemic for young people [598]. Although we did not focus on protective factors of mental health, it is important that these are acknowledged. Despite COVID-19 increasing the prevalence of mental health issues in the population, it has contributed to an increase in awareness of mental health, which may help to reduce the stigma surrounding mental health. This study has identified how populations were affected and which groups were most at risk, and these data can be used to gauge the likely numbers and characteristics of those affected in North Wales. The evidence presented here could be used to map against existing service provision and inform the development and enhancement of services to both support mental health now and prepare for any future pandemic impact. With a general scarcity of evidence in many areas, and particularly for North Wales populations, consideration should be given to evaluation to strengthen the evidence base both locally and internationally.

Table 10: Summary of risk factors for poor mental health and wellbeing by population group

Risk factor	General population	Older adults	Children and young people	Minority ethnic groups	LGBTQ+	Parents and perinatal period	Unpaid caregivers	People with COVID-19 infection	Pre-existing mental ill health	Other pre-existing health conditions	Healthcare workers	Higher education staff and students	Veterans
Female gender	✓	✓	✓			✓	✓	✓		✓	✓	✓	
Younger age	✓	✓						✓	✓	✓	✓	✓	
Living alone	✓	✓			✓			✓	✓		✓	✓	✓
History of mental ill health	✓	✓	✓			✓				✓	✓	✓	
Poorer physical health/adverse health behaviours[a]	✓	✓	✓					✓			✓	✓	✓
COVID-19 related events[b]	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
Low socioeconomic status/financial difficulties[c]	✓	✓	✓	✓	✓	✓		✓	✓				✓
Unemployed/short term work contract	✓		✓	✓		✓		✓				✓	✓
Low perceived social support/lack of access to support	✓	✓	✓			✓	✓			✓	✓		✓	✓
Low levels of physical activity		✓				✓				✓		✓	
Conflict in the home/suffering abuse	✓		✓										
Disruption to usual activities[d]			✓	✓	✓		✓			✓	✓		
Single parent			✓			✓							
Living with children/providing care[e]	✓					✓	✓				✓	✓	✓
Black or minority ethnicity			✓		✓		✓	✓	✓		✓	✓	
Reduced social interaction/quality of relationships					✓	✓	✓		✓				✓
Sleep problems			✓			✓						✓	

[a]Adverse health behaviours include smoking, alcohol consumption, poor diet; [b]Including fear of COVID-19, infection with COVID-19, infection of a family member with COVID-19, knowing someone who died from COVID-19, self-isolating, shielding; [c]Including low income; [d]Including cancelled medical appointments, online learning, redeployment; [e]Including caring for more than one child/person, caring for a disabled dependent, parenting a child with special needs, having new or extra caring responsibilities.

Limitations

There are several limitations that should be considered in the interpretation of the report findings. Data collected for the Public Engagement Survey on Health and Wellbeing during Coronavirus Measures was collected cross-sectionally rather than using a longitudinal cohort, and thus is unable to capture changes in reported outcomes over time at an individual level. Surveys were conducted by telephone and relied on self-reported data and personal assessments of mental health and wellbeing. Further, although, where possible, results have been weighted to reflect the North Wales population, the sample may have been affected by selection bias and may not be generalisable to all North Wales residents.

Our systematic review identified a large body of evidence for the impact of COVID-19 on mental health and wellbeing for the UK population. The evidence synthesis places more focus on studies which are higher quality and use larger sample sizes. Limited evidence was identified for the impact of COVID-19 on the mental health and wellbeing of the Welsh population, with no published studies specifically examining impact among the general population in North Wales. However, findings from the Public Engagement Survey for North Wales residents were consistent with those for published UK studies (e.g., for trends and at-risk groups). The evidence identified in the review was also limited by the period that it covered, with little evidence for the impact of COVID-19 beyond 2021. As such, there is limited longitudinal data for the impact of COVID-19 on mental health and wellbeing in Wales beyond the data collected by the Public Engagement Survey - something that future research should explore. Searches were limited to studies in English language, however, given the focus on the UK this should not have affected the results retrieved.

Studies identified in the systematic review showed wide variety in study methodologies, samples, and outcomes measured. Some studies did not utilise validated tools to measure outcomes, and many relied on self-reported measures that may be affected by reporting biases. This variation in outcomes and measurements prevented the use of meta-analysis, thus findings were narratively summarised. Further, few studies presented data for the risk of experiencing mental ill health, and many did not adjust for confounding factors, such as sociodemographics, in their analysis. Certain population groups will have been at an increased risk of other broader pandemic-related impacts, for example, loss of wage due to furlough - and many studies did not include adjustment for this. Limited quantitative evidence was also found for some vulnerable groups who may have been at particular risk of mental ill health as a result of the COVID-19 pandemic. Therefore, our understanding of the impact of COVID-19 across some population groups was limited to qualitative research with small sample sizes. Research should focus on those who are underrepresented here, for example, prisoners, homeless people, and populations with pre-existing high rates of mental ill health and who may have been directly impacted by lockdown restrictions further restricting their freedoms.

This report presents a high-level overview of evidence-based interventions to improve and protect mental health, thus other evidence, and guidance (referenced) should be consulted before implementing any strategies suggested. Searches conducted to identify evidence-based interventions to improve and protect mental health and wellbeing among population groups were predominantly limited to review methodologies, but other primary studies were included where there were limited or older reviews. This enabled an indication of the most up-to-date evidence of potentially appropriate interventions for the North Wales population. However, this does not provide an exhaustive review of available interventions to address poor mental health and wellbeing and there may have been empirical evidence published prior to or after the included reviews which has not been included here. It should be noted that definitions of intervention effectiveness can vary across studies. As such, we have drawn upon pre-existing measurements of the strength of the evidence for interventions, as we

did not have capacity to assess the strength of the evidence base independently. Such interventions may be applicable to the North Wales population, however, further assessment of their appropriateness for implementation should be considered. Furthermore, a lack of evidence was identified for interventions related specifically to addressing poor mental wellbeing associated with COVID-19, specifically for key groups who were at high risk of poor outcomes. Moreover, a range of interventions are delivered to address key modifiable risk factors and protective factors for poor mental health and well-being (e.g., adverse childhood experiences, health behaviours), however, we did not have capacity to include these in this report. Unfortunately, due to the rapid nature of the review and tight timescales for report production, we were unable to provide a review of the quality of the current evidence. Despite these limitations, this review identified a substantive body of research investigating this topic, the findings of which are in line with international studies demonstrating the negative impact of COVID-19 to populations on a global scale. Future research should explore these issues within the Welsh population, particularly at local levels, to enable a further understanding of how local agencies can best mitigate the negative impacts of the pandemic and support individuals who have been most at risk of such impacts.

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