The evidence on COVID-19 risk for people experiencing mental health and addiction issues

Overview

An expert advisory group convened by the Equally Well backbone team published a position statement in January 2021. It states there is strong evidence to support adults with mental health and addiction issues being prioritised for COVID-19 vaccination within the population group 'people with relevant underlying health conditions'.

Te Pou undertook a literature scan to inform the position statement. This evidence update summarises key findings from the scan. It concludes there is an independent association between the experience of mental health and addiction issues and a higher likelihood of infection with, and poor outcomes from, COVID-19. It is clear from this evidence that if vaccination prioritisation is based simply on the physical health conditions that this group typically experience, this would exacerbate existing health inequities. This evidence update therefore helps inform the Equally Well collaborative and others to take action, increase awareness, and advocate for the need to include people with experience of mental health and addiction issues as a priority group for vaccination rollout.

Background

The Equally Well Aotearoa collaborative exists to achieve physical health equity for people with lived experience of addiction and mental health issues. Due to many factors at the systems and service level, the physical health needs of people experiencing mental health and addiction issues, which are elevated compared to the general population, are often invisible in policy and practice (Liu et al., 2017).

Overseas researchers are highlighting the importance of including people with experience of mental health and addiction issues as a priority group for COVID-19 vaccination. Countries like the UK, Germany, Ireland, Denmark, and the Netherlands have moved to include this group in their COVID-19 vaccination prioritisation advice (De Picker et al., 2021). See for example, the UK's Joint Committee on Vaccination and Immunisation advice published in December 2020 at https://assets.publishing.service.gov.uk and the Government of Ireland vaccine allocation groups at gov.ie - Provisional Vaccine Allocation Groups (www.gov.ie)

New Zealand began its COVID-19 vaccination rollout in February 2021. The Vaccine Sequencing Framework[1] sets out who will be vaccinated first, and when, in relation to different scenarios.[2] The framework prioritises 'people with relevant underlying conditions' as many health conditions are considered risk factors for contracting COVID-19 and experiencing poorer health outcomes.

In December 2020, Te Pou did an evidence review to better understand whether people experiencing mental health and addiction issues should also be prioritised for COVID-19 vaccine rollout within the priority group 'people with relevant underlying health conditions'. The review focused on the risk of contracting COVID-19 and the physical health outcomes for people in this group once infected with COVID-19.

We report the odds ratio (OR), hazard ratio (HR) and relative risk (RR) where available for studies reviewed. Where the ratio is greater than 1, this indicates a higher risk compared to the comparison group. For example, OR=1.5 reflects a 50 percent higher risk. Various sociodemographic factors (like age, ethnicity, and gender) were taken into account (or controlled for) in different studies. Unless otherwise stated, we use ratios reported in individual studies that account for sociodemographic factors, coexisting physical health issues, and other variables. Some lower quality studies that do not control for other variables are not included.

Interpreting the information for you or your whānau

Please note, the information we present may be alarming if you or your whānau are directly affected by mental health and addiction issues. Any risks or outcomes described are not inevitable - the data is based on average results from groups of people with experience of mental health and addiction issues. We look at this information to help identify and minimise risks and take a proactive approach to achieving better outcomes for people, which in this case is to inform vaccine prioritisation.

[1] https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-vaccines/covid-19-getting-vaccine

[2] Such as low or no community transmission, if there are clusters and controlled outbreaks, or widespread community transmission.

Key findings

From the significant volume of research and evaluation from a range of countries, two key messages emerge. People with experience of mental health and addiction issues are at higher risk on average of 1) contracting COVID-19 and 2) poorer health outcomes once infected with COVID-19. These findings are discussed below.

People with experience of mental health and addiction issues are at higher risk, on average, of contracting COVID-19

Some studies examining the risk of COVID-19 infection among people with experience of mental health and addiction issues report mixed results.

- Several large US, UK and Korean studies (Ji et al., 2020; Wang et al., 2020; Yang et al., 2020) report a higher risk of COVID-19 infection for people meeting diagnostic criteria for a mental health or substance use issue, compared with those without (OR 1.4-1.7).
- Other studies indicate the risk is no higher compared to others (Fan et al., 2020; Lee et al., 2020; Rozenfeld et al., 2020; van der Meer et al., 2020). For example, Lee and colleagues' (2020) South Korean study shows no differences in the risk of COVID-19 infection among people experiencing any mental health issue and those without.
- The mixed results may reflect a range of factors including measures of mental health and substance use used, study design and quality, and the variables controlled for.

What is clear from several large UK and US studies is that people meeting diagnostic criteria for a mental health or addiction issue in the past year (including first diagnosis), experiencing multiple mental health or addiction issues, or accessing inpatient services, have a higher risk of COVID-19 infection.

- Yang and colleagues' (2020) UK cohort study of people aged 40 to 69[3] indicates the risk of COVID-19 is twice as high for people meeting diagnostic criteria for a mental health or substance use issue in the past year, or three or more diagnoses (OR 2.0-2.3). These risks appear even higher for people accessing inpatient services.
- Several US studies using retrospective data report an increased risk of COVID-19 for people meeting diagnostic criteria for a mental health or addiction issue in the past year (RR 1.65) (Taquet et al., 2020),[4] and about a nine times higher risk for people recently diagnosed with a substance use issue (OR=8.7) (Wang et al., 2020).[5]

[3] Study using biobank data for 421,014 people; 50,809 met criteria for a psychiatric diagnosis.

[4] A retrospective cohort study using electronic health record data from 62,354 people with COVID-19.

[5] Retrospective case control study using electronic health records from 360 US hospitals and 317,000 providers, for 12,030 people with COVID-19. Analyses did not control for physical health issues.

There may be interactions between COVID-19 risk with more complex mental health and addiction issues and certain medications.

- Govind and colleagues' (2020) UK study using retrospective data from a cohort of 6,309 people meeting diagnostic criteria for schizophrenia suggests there is a higher risk of COVID-19 for people receiving clozapine treatment compared to those receiving other antipsychotic medications (HR=1.7).[6]

Systematic reviews and meta-analyses examining community acquired pneumonia and upper respiratory tract infections caused by other viruses similarly report a higher risk for people experiencing psychological stress (Pedersen et al., 2010) and higher levels of alcohol consumption (Simou et al., 2018).[7]

A range of factors may increase the risk of contracting COVID-19 for people with experience of mental health and addiction issues. This may include, but is not limited to:

- reduced awareness of prevention measures, knowledge about COVID-19, and ability to identify misinformation (Matei et al., 2020)
- lower likelihood of following public health instructions and protective measures (Pollak et al., 2020)
- close contact with others in a limited space like inpatient or similar settings (Mazereel et al., 2021; Rovers et al., 2020; Yang et al., 2020)
- reduced resistance to infection due to psychological stress and the impact on immune functioning (Pedersen et al., 2010)
- behavioural changes induced by stress like increased alcohol consumption, smoking, lack of access to a nutritious diet, and reduced physical activity (Pedersen et al., 2020).

People with experience of mental health and addiction issues are at higher risk of poorer outcomes from COVID-19 independent of factors such as underlying coexisting physical conditions

Overseas research in a range of countries demonstrates an increased risk of poorer COVID-19 outcomes for people with experience of mental health and addiction issues (Baillargeon et al., 2020; Fan et al., 2020; Fond et al., 2020a; Fond et al., 2020b; Lee et al., 2020; Li et al., 2020; Maripuu et al., 2020; Nemani et al., 2021; Reilev et al., 2020; Wang et al., 2020; Yang et al., 2020). This includes hospitalisation and death from COVID-19 infection. While

[6] Retrospective cohort study using NHS data. The only physical health measure examined was BMI.

[7] Pederson's review of 27 studies in 2010 found psychological stress increased the risk of developing an upper respiratory tract infection. Simou and colleagues in a more recent review in 2018 of 17 studies found the risk of community acquired pneumonia was twice as high for people reporting higher levels of alcohol consumption. Higher levels of alcohol consumption further increased the risk.

many people also have coexisting physical health issues, studies that take these factors into account indicate an independent risk associated with mental health and addiction issues. That is, even without existing physical health issues, people with experience of mental health and addiction issues are more likely to be hospitalised and die from COVID-19.

Hospitalisation

Studies examining hospitalisation with COVID-19 indicate the risk for people with experience of mental health and addiction issues is higher (OR 1.3-2.1), compared to others (Baillargeon et al., 2020; Fond et al., 2020b; Reilev et al., 2020; Yang et al., 2020). The risk appears to be even higher for people who meet criteria for multiple diagnoses (Yang et al., 2020).

Author	Country	Measure	Adjusted ratio
Yang et al., (2020)	UK	Mental health or substance use	OR=1.6 hospitalisation
Fond et al., (2020b)≠	France	Schizophrenia	OR=1.6 ICU admission+
Baillargeon et al., (2020)	US	Substance use	OR=1.5 hospitalisation OR=1.3 ventilator use
Reilev et al., (2020)	Denmark	Alcohol or substance use Benzodiazepines & derivatives & antipsychotics	OR=1.7-1.8* OR=1.5-1.7*
Reilev et al., (2020)	Denmark	High mental health or addiction needs#	OR=2.1*
Yang et al., (2020)	UK	Three or more diagnoses	OR=2.5 hospitalisation±
Maripuu et al., (2020)	Sweden	Bipolar or psychosis diagnosis	OR=2.0*

[+] Younger people aged under 55. * Did not control for physical health issues. # Based on hospital discharge diagnosis and medication use. ≠ Includes smallest sample size of 1,092 people. Other studies include 11,000+ people. ± Compared with one diagnosis.

Death

Overseas research suggests the risk of dying from COVID-19 may be up to twice as high for people with experience of mental health and addiction issues, and even higher for certain diagnoses and people with more complex needs.

Author	Country	Measure	Adjusted ratio
Lee et al., (2020)	South Korea	Any mental health diagnosis	OR=1.3
Li et al., (2020)≠	US	Psychiatric diagnosis including substance use	OR=1.5
Yang et al., (2020)	UK	Psychiatric diagnosis including substance use	OR=2.0
Fan et al., (2020)	UK	Frequent drinking, especially heavy drinking who were obese	HR=1.5-2.0
Lee et al., (2020)	South Korea	Higher mental health needs	OR=2.3
Yang et al., (2020)	UK	Three or more diagnoses	OR=2.6±
Yang et al., (2020)	UK	Experiencing psychosis	OR=3.5
Nemani et al. (2021)	US	Schizophrenia	OR=2.7
Fond et al., (2020a)	France	Schizophrenia	OR=4.4

* Did not control for physical health issues. ≠ Includes the smallest sample size of 1,685 people. Most other studies include 12,000+ people. ± Compared to one diagnosis.

One review (Ostuzzi et al., 2020) looked at the use of psychotropic medications for people with COVID-19. They conclude that COVID-19 can negatively impact on how many psychotropic medications work in the body. Medications can also negatively affect people's respiratory and immune function. For example, antipsychotics may have immunosuppressive functions, which may influence how the body reacts to COVID-19.

Impact of tobacco smoking

Several reviews have examined the risk and outcomes for people who have, or currently smoke, tobacco. While the risk of poor outcomes for people who currently smoke is unclear and may be lower, there appears to be an increased risk for former smokers.

Outcome	Review author	Measure	Ratio (vs never smokers)
Risk of COVID-19	(Simons et al., 2020)	Current smokers Former smokers	RR=0.74 Inconclusive
Severe outcomes*	(Reddy et al., 2020)	Current smokers	RR=1.8
Severe outcomes	(Gülsen et al., 2020)	Current smokers Former smokers	OR=1.5 OR=2.2
Hospitalisation	(González-Rubio et al., 2020)	Current smokers	OR=0.2
Hospitalisation	(Simons et al., 2020)	Current smokers Former smokers	Inconclusive RR=1.2
Death	(Simons et al., 2020)	Current smokers Former smokers	Inconclusive RR=1.4

* Severe outcomes include hospitalisation, disease progression, and death.

COVID-19 and ethnicity

In New Zealand, Māori people experience higher rates of mental health and addiction issues compared to non-Māori, as well as other compounding COVID-19 risk factors such as socioeconomic deprivation and physical health comorbidities.

New Zealand's death rates from COVID-19 have been comparatively low compared to other countries. However, Steyn and colleagues (2020a) show an increased risk of hospitalisation and death from COVID-19 infection for Māori people in New Zealand. The risk of hospitalisation from COVID-19 is two to three times higher for Māori and Pacific peoples, compared to other ethnic groups. Death from COVID-19 is also estimated to be at least 50 percent higher for Māori than non-Māori (Steyn et al., 2020b).[8]

Overseas reviews report different outcomes by ethnicity. For example, US data indicates people with a black or Asian ethnicity have a higher risk of COVID-19 infection compared to white ethnicity (RR 1.5-2.0), and Asian people have a higher risk of hospitalisation from COVID-19 (Sze et al., 2020).

[8] The study takes into account physical health conditions, unmet health care needs, and age.

Summary

The evidence suggests an independent association between the experience of mental health and addiction issues and a higher likelihood of infection with, and poor outcomes from, COVID-19. This is because the higher risk of infection and poor outcomes remains even once physical health problems have been taken into account. The risk of poor outcomes from COVID-19 appears greatest for people whose mental health and addiction needs are relatively more complex. In New Zealand this would likely include people in contact with secondary and forensic mental health and addiction services, as well as people in continuing primary care who have experienced issues over a number of years.

It is clear from this evidence that if vaccination prioritisation is based on physical health conditions alone in this group, this would exacerbate existing health inequities. People with experience of mental health and addiction issues should be prioritised for vaccine access based on their mental health and addiction experiences.

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