

Mental Health Implications of COVID-19 Infection

Nepean Blue Mountains PHN

26 October 2021

6.30pm – 7.30pm

Acknowledgement of Country

I would like to acknowledge the traditional owners of the land in which we all meet today and to pay my respects to Aboriginal elders past, present and emerging.

I would also like to extend my respect to all Aboriginal people present today.

Learning outcomes

- Describe the short term and longer term psychological and neurological correlates and sequelae of the COVID-19 infection
- Recognise the symptoms and what to look out for in patients
- Discuss the risks for post-traumatic responses for people post-COVID infection
- Define strategies to support patients with psychological and neurological long COVID symptoms
- Discuss the treatment options and considerations for COVID-19 patients

Introductions

Facilitator

- **Jillian Harrington, Clinical Psychologist**

Our speakers

- **Dr Lucette Cysique, Clinical Neuropsychologist**
- **Dr Clare Ramsden, Clinical Neuropsychologist**
- **Professor Kay Wilhelm, Psychiatrist**



Mental health and neurocognitive complications of COVID-19

Lucette A. Cysique, Ph.D

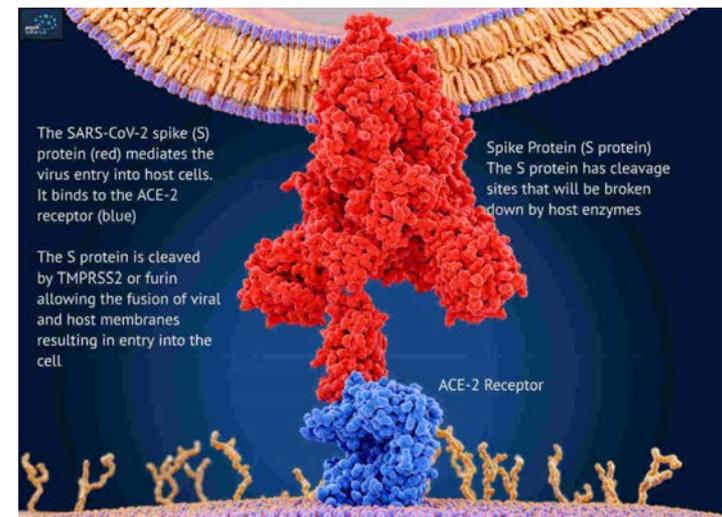
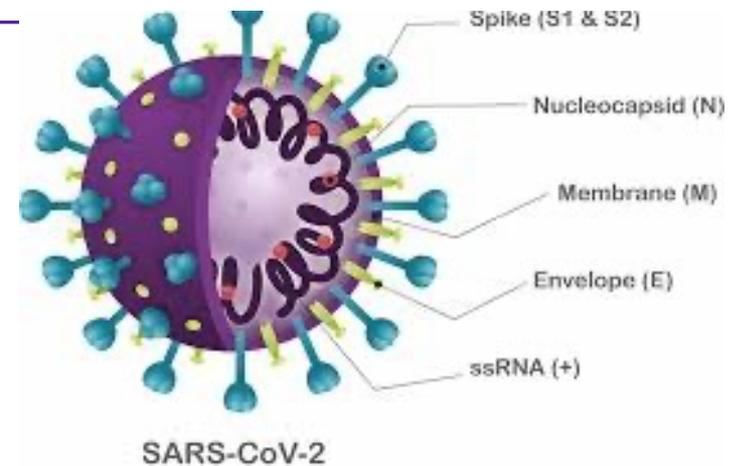
UNSW Psychology

Sydney St. Vincent's Hospital research

Co-chairs of the NeuroCOVID-19 INS SIG

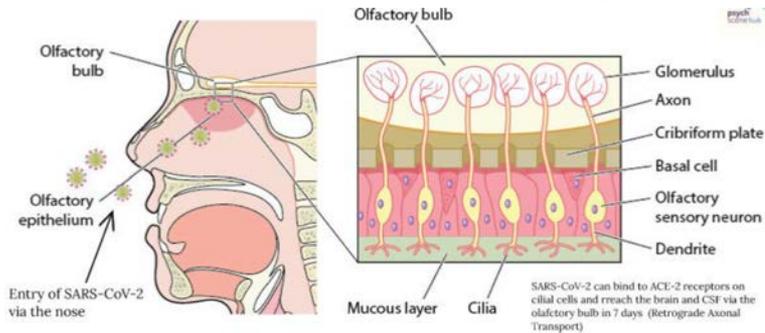
COVID-19

- COVID-19 is a respiratory disease with multi-organ disease impacts.
- Organs involved are lungs, heart and cardiovascular system, guts, liver, muscles, peripheral nerves, and central nervous system.

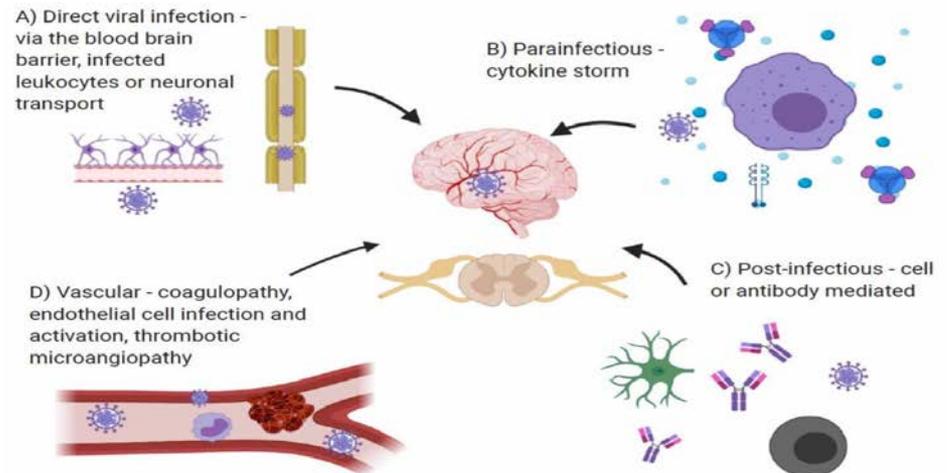


SARS CoV-2 neuroinvasive potential

2. Potential mechanisms of COVID-19 neurological disease based on knowledge of other viruses



<https://psychscenehub.com/psychinsights/covid-19-and-the-brain-pathogenesis-and-neuropsychiatric-manifestations-of-sars-cov-2-cns-involvement/>

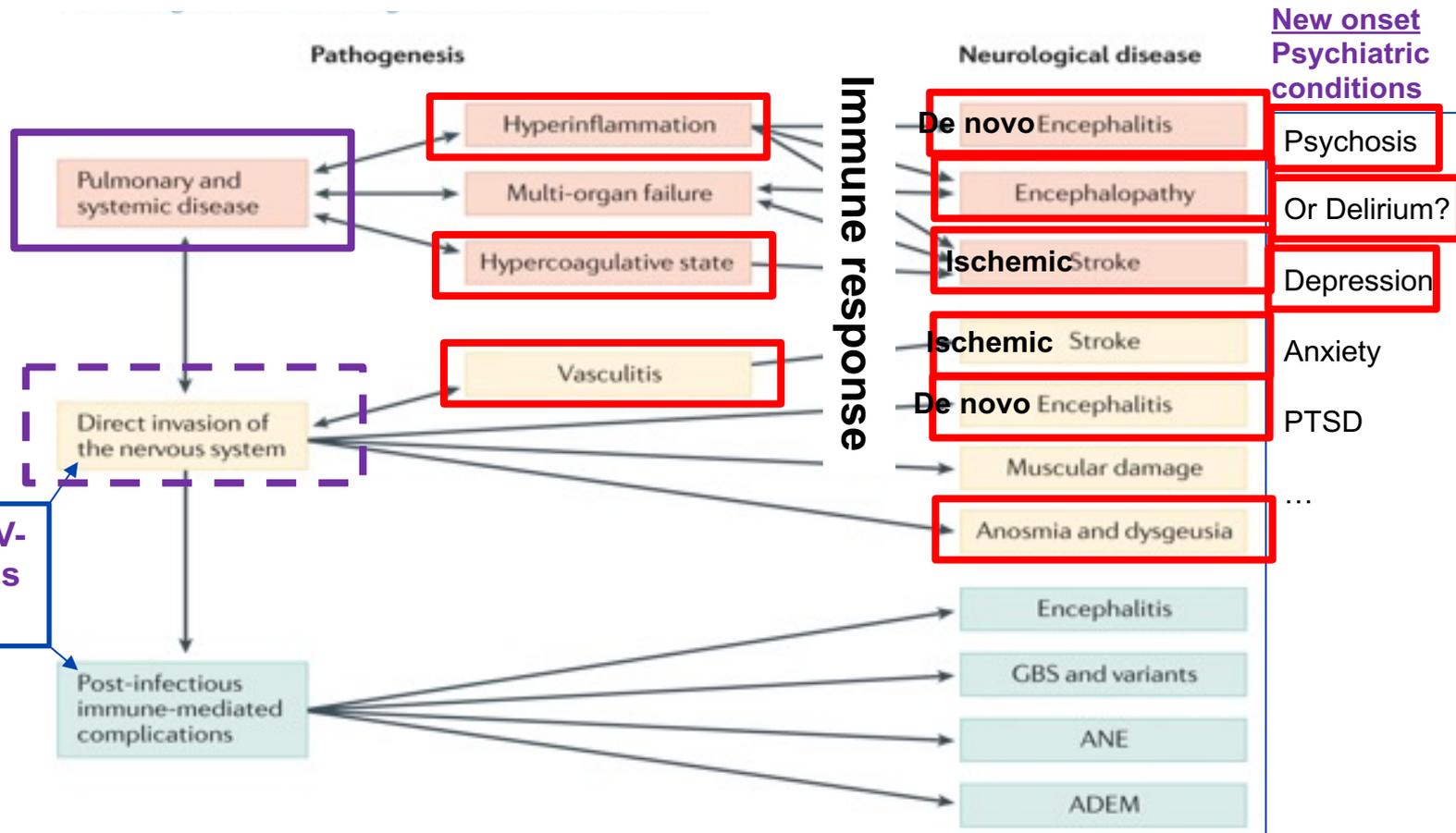


[https://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(20\)30221-0/fulltext](https://www.thelancet.com/journals/laneur/article/PIIS1474-4422(20)30221-0/fulltext)

NB: SARS-CoV and MERS-CoV have been shown to enter the brain in animal models SARS-CoV via olfactory bulb...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7267377/>

Most common neuropsychiatric conditions in COVID-19 and proposed pathogenesis



Fatigue; Cognitive impairment, Long Covid, Variants...???

COVID-19: Comorbid, incidental and health disparities considerations

- COVID-19 illness can be associated with Acute Respiratory Distress Syndrome (ARDS), a condition that is associated with hypoxic brain injury
- COVID-19 moderate to severe illness does not affect people equally
 - Age
 - Chronic respiratory disease, cardiovascular disease, diabetes mellitus, and hypertension <https://f1000research.com/articles/9-1107/v1>
 - Health disparities
 - Socio-economic and racial inequalities
- Pre-existing neurological, psychiatric, cancer, and immune conditions are likely to impact the clinical profile and prognosis of neuro/covid
- Dementia has a poor prognosis and increased mortality risk. An estimated one in five dementia patients with COVID 19 die within six months <https://pubmed.ncbi.nlm.nih.gov/33148439/> ; <https://alz-journals.onlinelibrary.wiley.com/doi/10.1002/alz.12296>
- ICU (length of stay and procedures; e.g., ventilation)

Infectious disease outbreaks are associated with mental health symptoms and disorders.

- How much is due to the pandemic vs. COVID-19 (quarantine)?
- There are large variations across countries (socio-economic effects, institutionalization, homelessness, care access...)
- Gender effects?
- Type of analyses/samples: Medical database analyses: Very Large cohort analyses have strength in numbers but have serious limitations to consider...
- Specific groups: chronic diseases; health care workers?
- How were symptoms assessed?
- **Severe COVID illness effects?**
- **Pre-existing psychiatric conditions**
- **Prognosis and pre-existing conditions**
- **Relation to cognition**

Neurology and neuropsychiatry of COVID-19: a systematic review and meta-analysis of the early literature reveals frequent CNS manifestations and key emerging narratives

Table 2 Overall meta-analytical estimates of point prevalence of neurological or neuropsychiatric symptoms

Symptom/syndrome	Studies	n	Point prevalence (%)	95% CI	I ²
Headache	84	64 613	20.7	16.1 to 26.1	99.0%
Myalgia	76	66 268	25.1	19.8 to 31.3	99.1%
Fatigue	67	21 101	37.8	31.6 to 44.4	98.7%
Anosmia	63	15 975	43.1	35.2 to 51.3	98.8%
Dysgeusia	52	13 686	37.2	29.8 to 45.3	98.6%
Dizziness/vertigo	26	47 619	6.4	4.0 to 10.0	97.1%
Altered mental status	19	49 326	8.2	4.4 to 14.8	99.0%
Anosmia at follow-up	11	3 182	11.8	5.5 to 23.5	98.5%
Depression	10	43 128	23.0	11.8 to 40.2	99.3%
Anxiety	9	42 566	15.9	5.6 to 37.7	99.5%
Sleep disorder	8	42 221	23.5	12.0 to 40.9	98.9%
Ischaemic stroke	8	5 258	1.9	1.3 to 2.8	61.7%
Other CVD	6	43 701	1.6	0.3 to 7.9	98.7%
Dysgeusia at follow-up	6	2 065	11.7	5.1 to 25.0	96.7%
Seizure	5	41 929	0.06	0.06 to 0.07	0.0%
Haemorrhagic stroke	5	3 074	0.4	0.3 to 0.7	0.0%
Visual defect	5	678	3.0		0%
Hearing impairment	4	557	2.0		0%
Tinnitus	4	455	3.5		8%
Weakness	3	221	40.0		4%

CVD, cardiovascular disease.

Studies: 119 retrospective; 91 prospective, 5 unclear]
118 hospitalized patients; 46 outpatients, mixed: 39, emergency 3, NR: 9
Acute illness: 144, recovery: 11, deceased : 1, mixed: 6, NR: 53

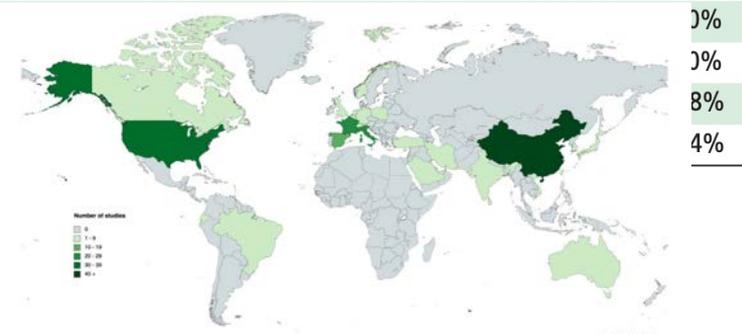


Figure 3 Geographical distribution of studies.

Association Between Mood Disorders and Risk of COVID-19 Infection, Hospitalization, and Death: A Systematic Review and Meta-analysis

- The search timeline was from database inception to February 1, 2021.
- 21 studies that involved more than 91 million individuals
- Significantly higher odds of COVID-19 hospitalization (OR, 1.31; 95% CI, 1.12-1.53; P = .001; n = 26 554 397) and death (OR, 1.51; 95% CI, 1.34-1.69; P < .001; n = 25 808 660) were found in persons with preexisting mood disorders compared with those without mood disorders.
- There was no association between mood disorders and COVID-19 susceptibility (OR, 1.27; 95% CI, 0.73-2.19; n = 65 514 469) or severe events (OR, 0.94; 95% CI, 0.87-1.03; n = 83 240).

Long Covid...

- “More than 50 Long-term effects of COVID-19: a systematic review and meta-analysis”
- A total of 18,251 publications were identified, 15 met inclusion criteria.
- The prevalence of 55 long-term effects was estimated, 21 meta-analyses
- were performed, and 47,910 patients were included
- The follow-up time ranged from 14 to 110 days post-viral infection.
- The age of the study participants ranged between 17 and 87 years.
- 80% (95% CI 65-92) of the patients that were infected with SARS-CoV-2 developed
- one or more long-term symptoms.
- 5 most common symptoms were fatigue (58%), headache (44%), attention disorder (27%), hair loss (25%), and dyspnea (24%).
- High heterogeneity of studies

Online Resources

References used have been linked in the presentation



The screenshot shows the top navigation bar of the Brain Infections Global website. The main header is "Brain Infections Global" with a search bar. Below it is a secondary navigation bar with links: Home, What We Do, News & Events, Scientific Background, Consortium Partners, Brain Infections Global Training, Brasil (PT), and Contact Us. A third navigation bar highlights "COVID-Neuro Network" and "COVID Neuro Webinars". The main content area features the "COVID-Neuro Network" title, a welcome message, and a logo for the COVID-Neuro Network.

COVID-Neuro Network

Welcome to the COVID-19 Neuro Network, an international collaboration part of **Brain Infections Global**, led by the **Liverpool Brain Infections Group** from the **University of Liverpool**. The overall aim of Brain Infections Global is to improve the diagnosis of acute brain infections in adults and children in low and middle income countries (LMIC), to guide treatment and improve outcomes. We also work to develop and support research capacity among partners.



<https://braininfectionsglobal.tghn.org/covid-neuro-network/>

<https://blogs.bmj.com/jnnp/2020/05/01/the-neurology-and-neuropsychiatry-of-covid-19/#epid>

<https://www.aan.com/tools-and-resources/covid-19-neurology-resource-center/>

<https://icite.od.nih.gov/covid19/search/>

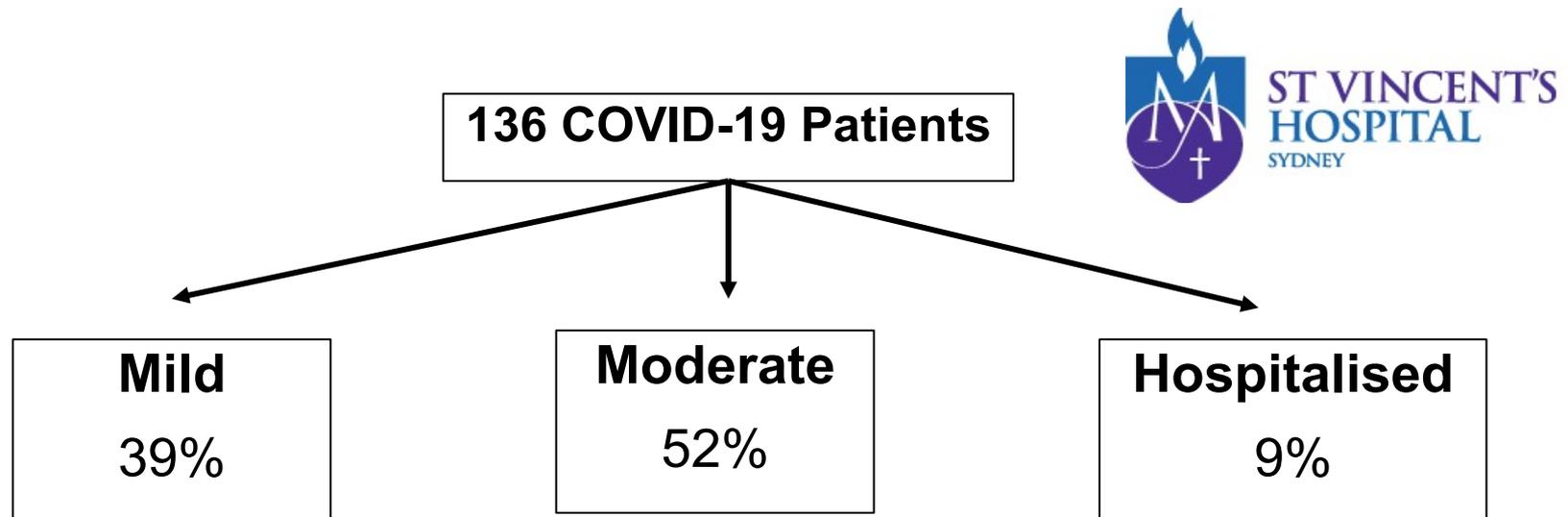
<https://covidreference.com/top10>

The Sydney St. Vincent's Hospital ADAPT Study



Prevalence and development of cognitive and smell impairment at
2 months, 4 months and 12 months post-diagnosis

Impact of initial disease severity



<https://pubmed.ncbi.nlm.nih.gov/33657671/>

- Primary Co-PIs: A/Prof. Gail Matthews (ID head) & Dr. David Darley (Thoracic med)
- Primary Co-Investigators: Prof. Greg Dore (ID) & Dr. Anthony Byrne (Thoracic med)
- Neurology Co-Investigator: Prof. Bruce Brew (Neurology)
- Lucette Cysique: associate investigator: research neuropsychologist

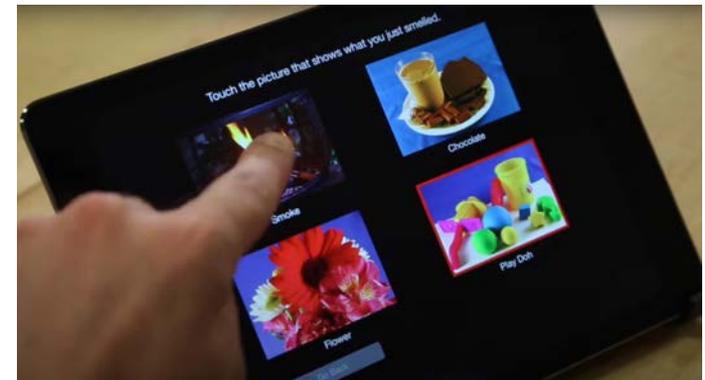
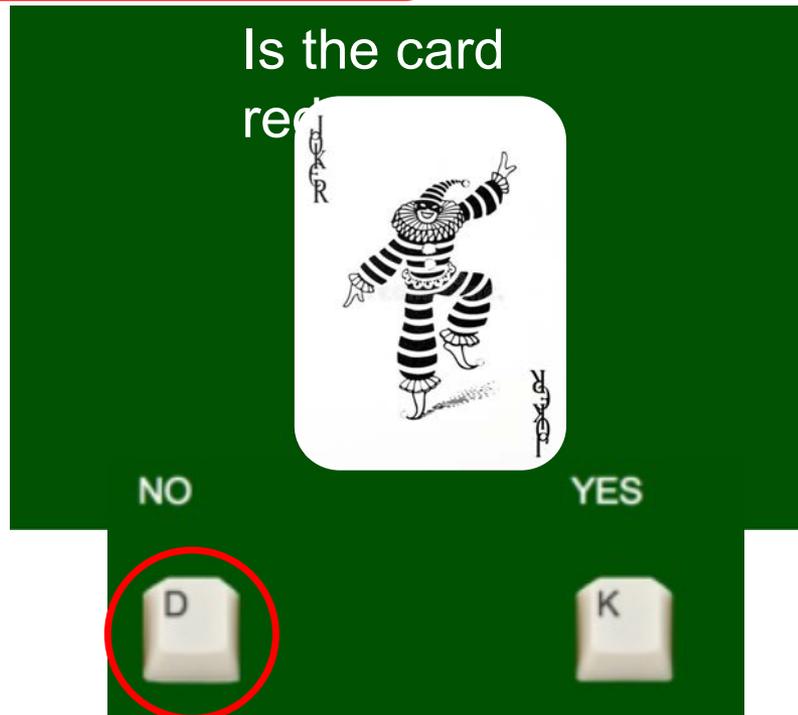
Cognitive and Olfaction Assessments

Psychomot
or Speed

Attention

Visual
Learning

Working
Memory

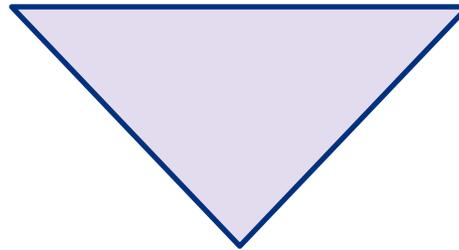


CBB data is corrected for age, education category, and sex (z-scores)

NIH OIT is corrected for age, sex, education years and ethnicity/race (T-scores)

Mental health assessments

- **Depression in the Medical ill scale-10 (DMI-10)**
- **Somatic and Psychological HEalth Report-34 (SHPERE) Psych subscale**
- **Impact of Events Scale-Revised (IESR)**



**1 Principal Component by PCA
explaining 80% of the variance**

Cohorts' characteristics

Prevalence of anxio-depression & cognitive deficits

DEMOGRAPHICS

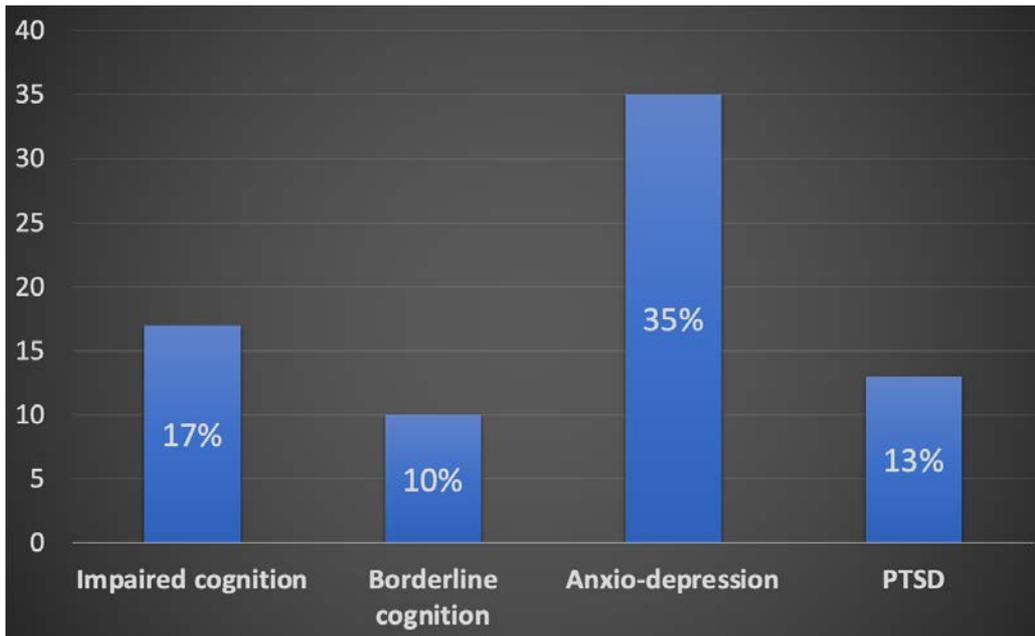
136 Participants

mean age=46±15

40% women

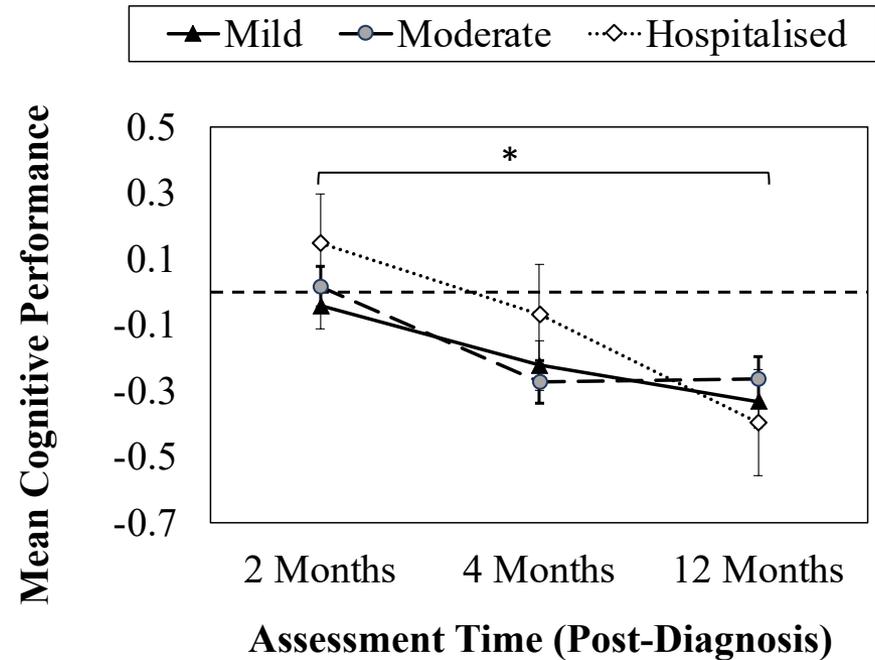
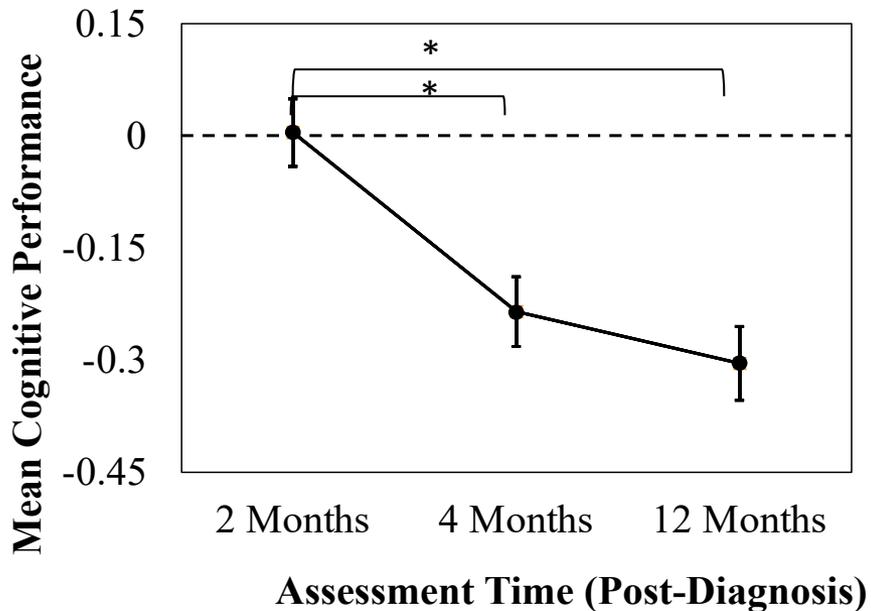
Median education=16 years

10% Non-English-Speaking Background-NESB



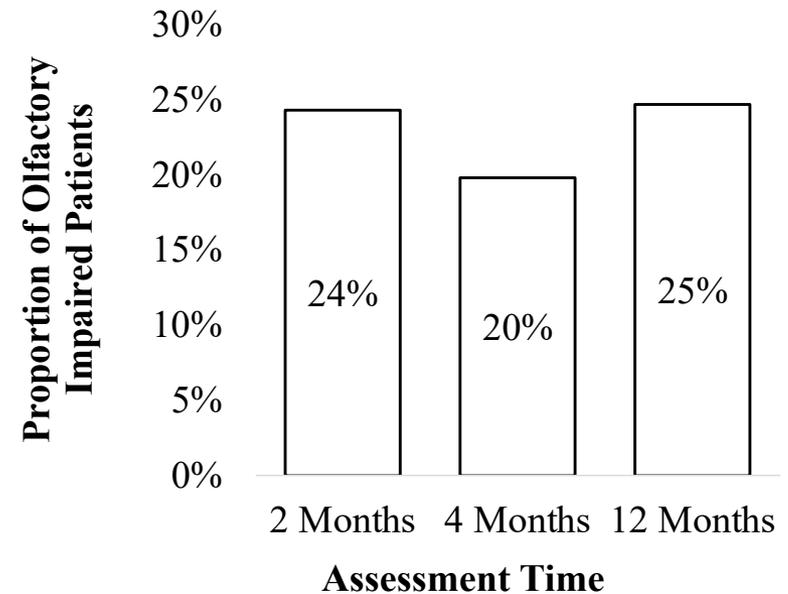
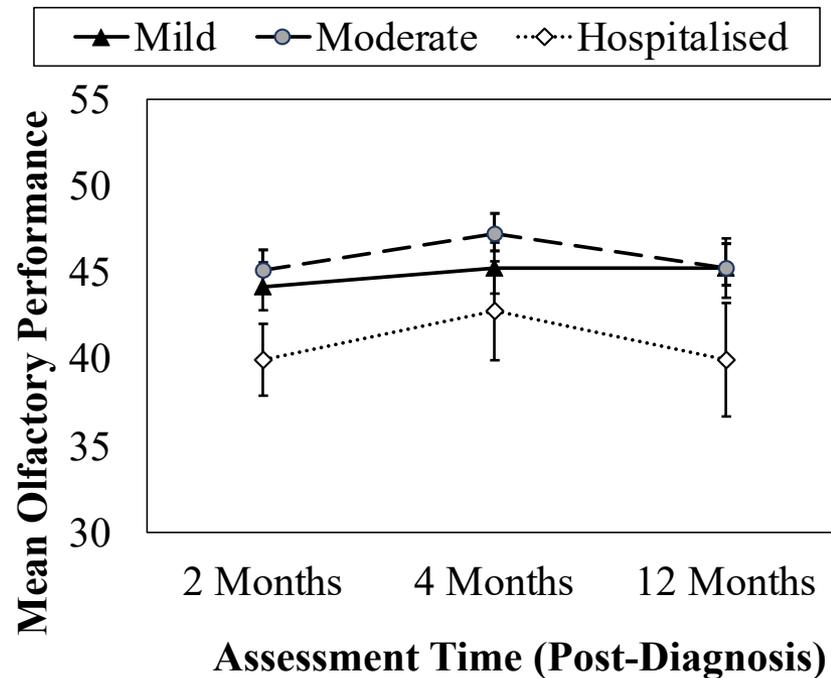
8.3% report a pre-existing mental health condition and this was associated with the anxio-depressive component (p=.0005)

Cognitive performance



Mental health was not associated with these results

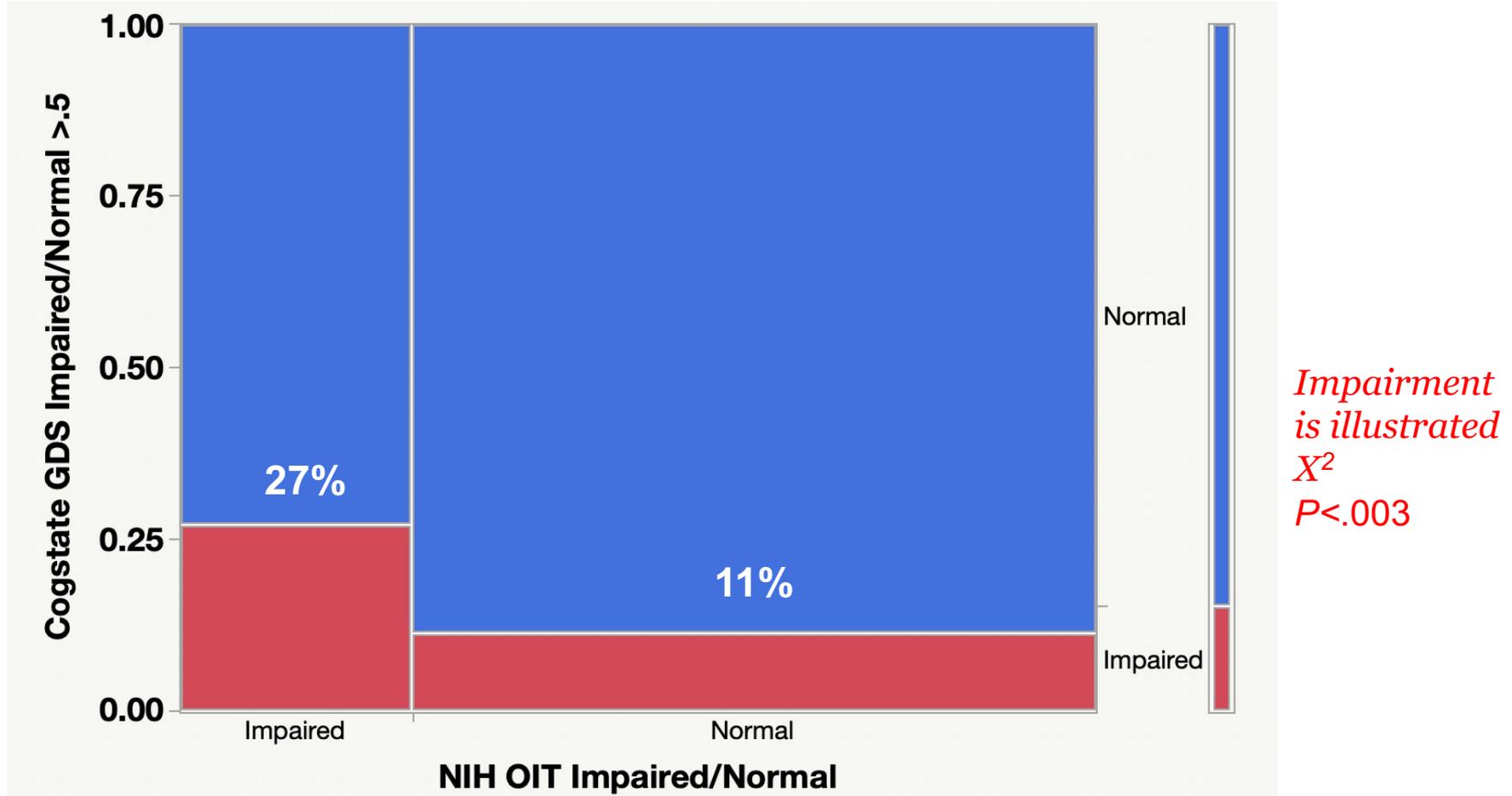
Olfaction performance



Healthy population: **7.5%**
(Desiato et al., 2021)

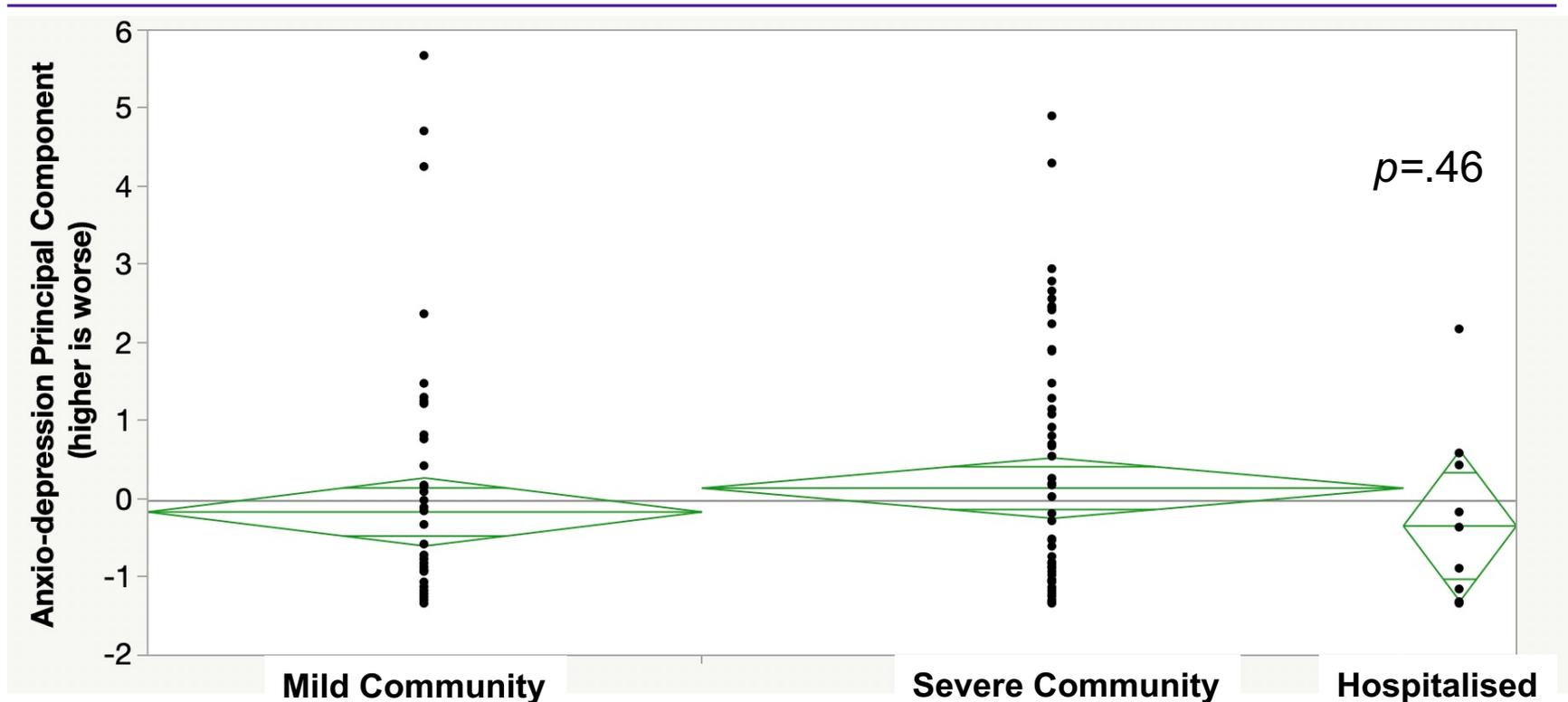
Mental health was not associated with these results

Neurocognitive impairment and olfaction impairment & performance



NB: Pre-existing mental health condition was not associated with olfaction performance/impairment

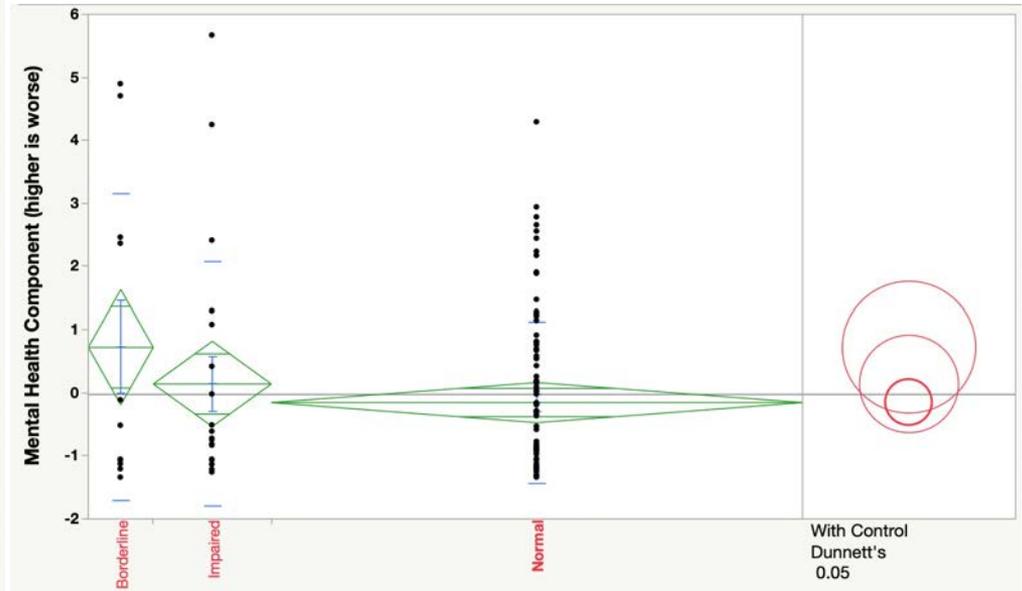
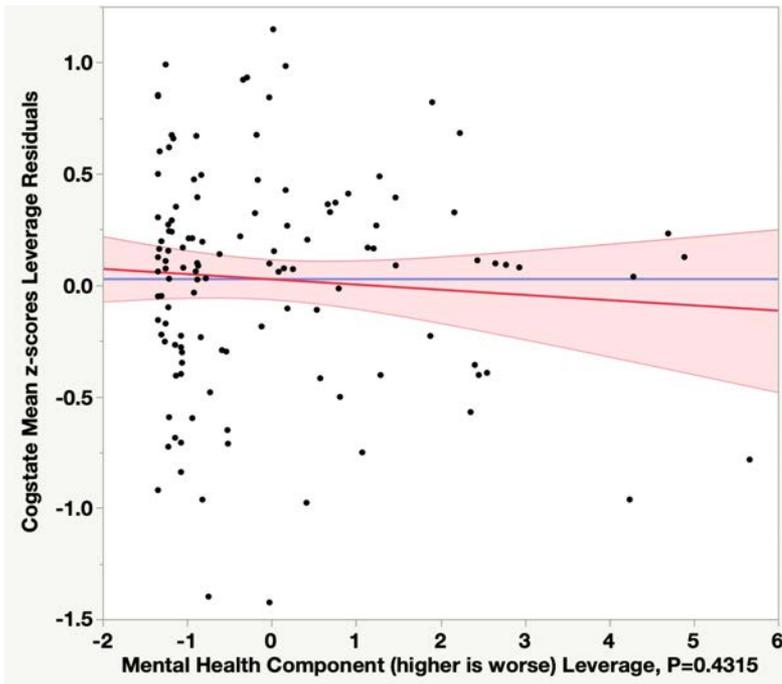
Anxio-depression by disease severity



Also true for DMI-10 total and depression cut off ($\Rightarrow 9$), IESR, SPHERE Psych scale total. However, SPHERE Psych cut off was more elevated in severe community cohort (46%) than hospitalized (8%) and mild community cohort (25%)

NB: Pre-existing mental health conditions not associated with disease severity

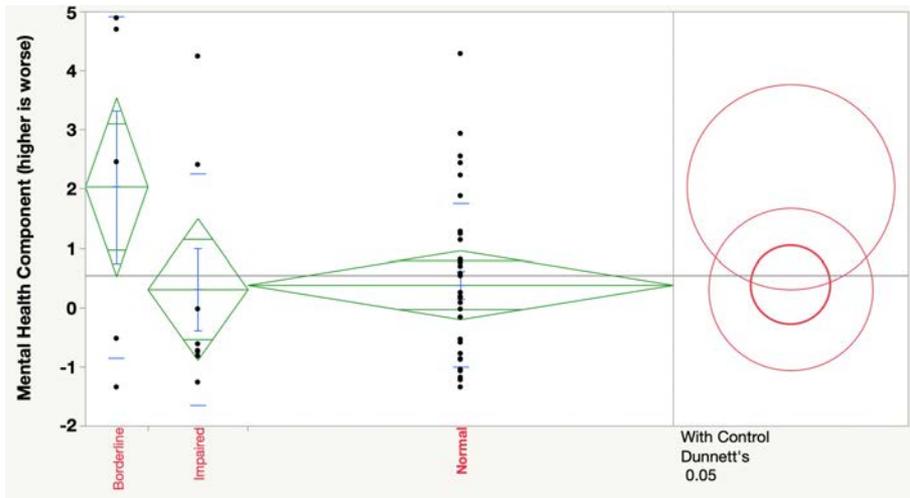
Anxio-depression was neither predictive of cognitive performance or cognitive impairment



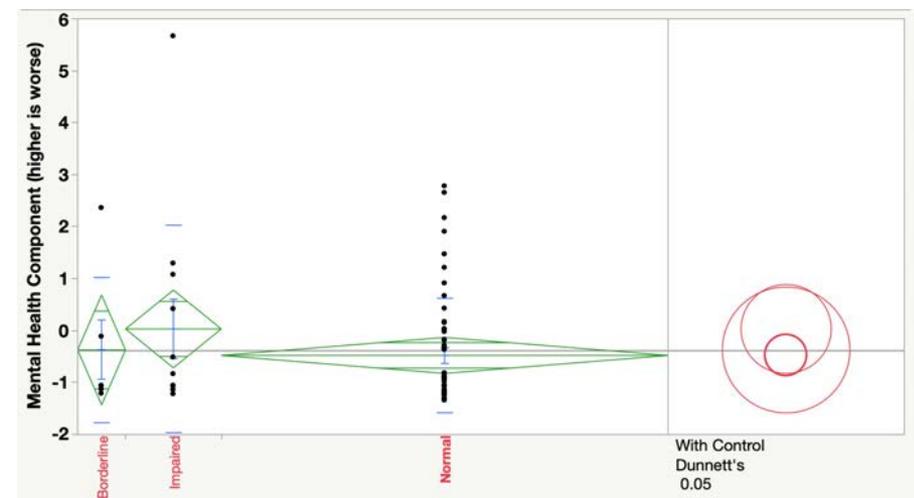
Anxio-depression was is NOT predictive of cognition (unadjusted $p=.43$; adjusted $p=.98$) and of impaired/unimpaired status (unadjusted $p=.50$; adjusted* $p=.78$).

*Female sex ($p<.01$) and Non-English-Speaking Background-NESB ($p=.02$) were associated with greater anxio-depressive symptoms but not age, education.

WOMEN AND MEN ARE *partly* DIFFERENT



WOMEN

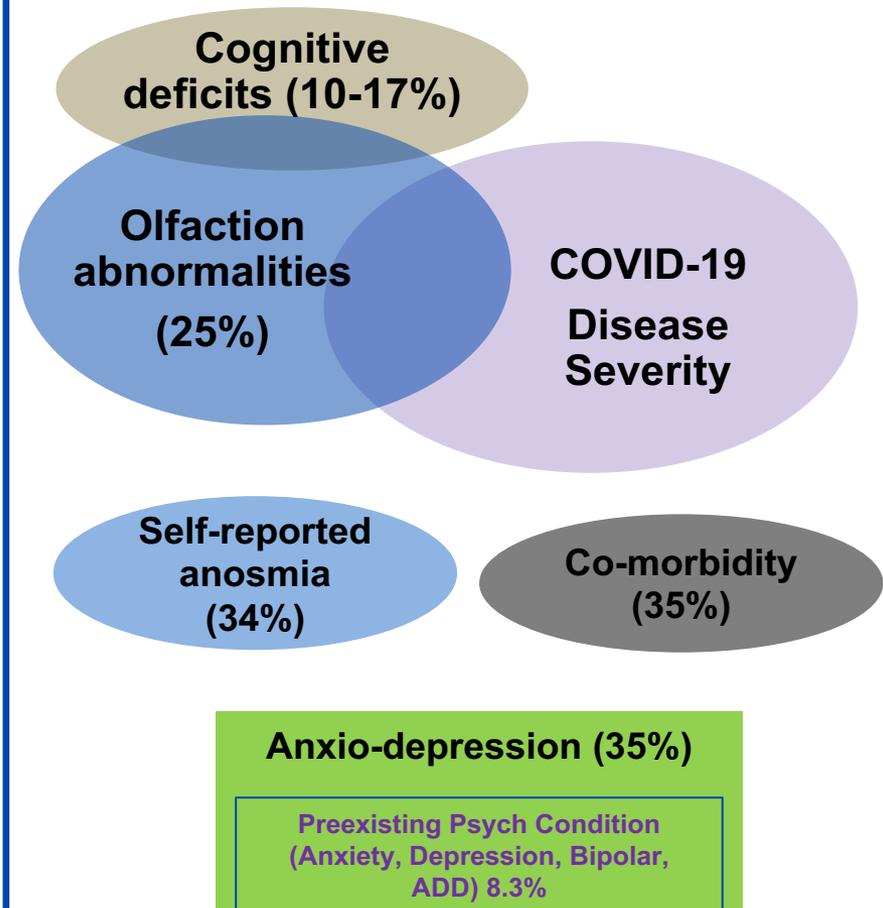


MEN

Women who had borderline performance tended to report higher anxio-depressive symptoms compared to their peers who were unimpaired ($p < .06$); further impaired women (vs. unimpaired) tended to report the least anxio-depressive complaints ($p = .09$). Men did not show this profile.

Conclusions

- In an Australian COVID-19 cohort of recovered patients mostly composed of *high functioning* community cases
- Cognitive deficits are detected with prevalence at 10-17%
- Cognitive deficits and anxio-depression are not associated with disease severity
- Objective olfaction impairment, but not self-reported anosmia at COVID-19 diagnosis is associated with hospitalisation
- Objective olfaction impairment/performance and cognitive impairment are associated
- Cognitive deficits are not a by-product of anxio-depressive symptoms in recovering COVID-19 patients.
- These results suggest that cognitive and olfaction changes may be a direct consequence of COVID-19.
- Anxio-depression is associated with pre-morbid mental health condition. Existing and de-novo symptoms may be partly due to pandemic effects, but immune causes cannot be excluded at this stage.
- Gender effects on mental health are partial



Thank you for your attention

We thanks the participants for their time on the study



The ADAPT team



Funding: St. Vincent's Hospital, St. Vincent's Clinical Foundations, Peter Duncan Neuroscience Unit, A/Prof Edwina Wright The Alfred (Dr. Cysique's support)



Mental Health and COVID-19: an update on psychological impacts

Dr Clare Ramsden, D. Psych (Clin Neuro)

Psychological Impact of the Pandemic

Psychological impact on:

- People who have recovered from severe COVID-19
- Healthcare workers
- General population

Psychological symptoms/disorders:

Anxiety, depression & post-traumatic stress

And also:

- Functional disorders
- Sentinel event in collective memory

Who is at risk?

Sekowski et al.,
2021

- Individuals who have had severe COVID-19
- Family members of individuals who have had severe COVID-19 or who have died
- Frontline healthcare workers (HCW) witnessing COVID-19 patients' sudden deaths or numerous life-threatening situations; infected HCW more at risk of PTSD than non-infected
- A reminder: high levels of fear of death during the event are the hallmark of a traumatic stressor, not the type of medical treatment or the severity of medical symptoms

Risk of Developing Posttraumatic Stress Disorder in Severe COVID-19 Survivors, their Families and Frontline Healthcare Workers: What Should Mental Health Specialists Prepare For?

AUTHORS

Marcin Sekowski, Małgorzata Gambin, Karolina Hansen, Paweł Hołas, Sylwia Hyniewska, Julia Wyszomirska, Agnieszka Pluta, Marta Sobańska, Emilia Łojek

Critical illness and psychological outcomes

- Post Intensive Care Syndrome (PICS) – psychological, physical and cognitive impairments: psychological sequelae can persist up to 5 years (Bienvenu et al., 2018)
- 59% of ICU survivors experience psychological PICS, persists several years, associated with reduced HRQoL (Vlake et al., 2020)
- Fear, hallucinations, inability to communicate –central contributors to psychological stress (Dziadzko, Dziadzko, Johnson, Gajic, & Karnatovskaia, 2017)

Severe COVID-19 – same or different?

People who have severe COVID-19 and are hospitalised (particularly with ventilation) likely to have similar issues as PICS

Additional concerns related to COVID-19:

- Can be exacerbated by coverage in media (re-exposure, focus on deaths & infection figures)
- Can be affected by response from family, friends and colleagues
- COVID denial in community
- Physical environment (PPE, unable to have visitors, stretched resources, etc)



the british
psychological society
promoting excellence in psychology

GUIDANCE

Meeting the psychological needs of people recovering from severe coronavirus (Covid-19)

[Meeting the psychological needs of people recovering from severe coronavirus.pdf \(bps.org.uk\)](#)

Common psychological features after severe COVID-19

- Anxiety
- Low mood
- Fear of further illness
- Hyper-vigilance to bodily symptoms
- Nightmares, flashbacks
- Poor sleep, fatigue
- Impaired memory function, attention, mental processing speed & executive function
- Fear of stigma, infecting others, etc.

Risk factors associated with hospitalisation

- Anxiety, stress and low mood whilst in hospital
- Confusion & delirium
- Prolonged ventilation
- Prolonged use of sedatives and psychoactive drugs
- Inability to communicate due to being intubated
- Perceived lack of control & autonomy

Additional issues that can exacerbate psychological factors in hospital

- Social isolation
- Physical barriers to engaging with others (e.g., through use of PPE)
- Environmental stressors (ward environment, lack of daylight, etc)
- Witnessing the experiences of others in the wards (including treatment and death)

Risk factors

People with these pre-illness risk factors may be more at risk of psychological symptoms:

- Pre-existing health anxiety, psychological distress, mental health diagnosis
- Recent bereavement or illness of family or friends
- Previous traumatic experience
- Previous experience of critical illness & ICU treatment
- Previous experience of serious infectious diseases
- Pre-existing cognitive impairment/dementia
- Low socio-economic status/unemployment/education

British Psychological Society Guidelines



Figure 1: Stepped psychological response

It's bizarre to see a Covid patient deny Covid exists while gasping for breath *ICU nurse*

It's bizarre to watch an individual chastise the nurses and doctors about Covid being fake as they sit on the floor gasping for air while a cytokine storm roars in their lungs. The time between each word is drawn out while they are trying to draw in as many breaths as they can. "Would you like the oxygen back on, sir?" a nurse will inquire after another failed escape. They accept our help back to their room. Regain their breath with help from the oxygen. And then the escape plotting starts all over again. Another patient who was on a ventilator kept telling us Covid wasn't real after they regained consciousness.

[It's bizarre to see a Covid patient deny Covid exists while gasping for breath | ICU nurse | The Guardian](#)

Post-Acute COVID-19 Symptoms (PACs/ 'long COVID')

- Post-acute COVID-19: after 3 weeks
- Chronic COVID-19: beyond 12 weeks
- Often associated with low mood, anxiety, sleep disorders, post-traumatic stress
- Also physical and neurocognitive symptoms
- Reduced QoL (compared with no infection)

Greenhalgh, Knight, Buxton, and Husain (2020); Orrù et al. (2021)

Health Care Workers

Australian COVID-19 Frontline Healthcare Workers Study (Smallwood et al., 2021):

- COVID-19 pandemic associated with significant mental health symptoms in frontline healthcare workers in Australia
- Prevalence estimates: 33% – 59% anxiety, 30 – 62% depression, 41 – 51% burnout, 57% acute distress or PTSD
- Predictors: female gender, less experienced, pre-existing psychological illnesses, nursing role, family member of friend infected with COVID-19, concerns about household income

General population

- Impact of quarantine
- Psychological reactions: aspecific & uncontrolled fears related to infection; pervasive anxiety; frustration & boredom; isolation
- Primary concerns: health & wellbeing of loved ones; death, infection
- Risk factors: alexithymic; inadequate supplies/financial stresses; inadequate information; female, younger age (?financial strain)
- Protective factors: resilience; social support; preventative strategies (health education, psychological services)
- Anxiety & depression not associated with cognitive impairment

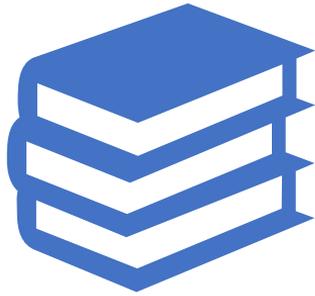
Rossell et al., 2021; Serafini et al., 2020; Cysique et al., 2021

Functional Neurological Disorders (FND)

- FND & Vaccines
- FND & COVID-19 infection
- FND during COVID-19 pandemic

Pringsheim and Martino (2021); Kim, Kung, and Perez (2021); Ercoli, Lutzoni, Orofino, Muroi, and Defazio (2021)

Sentinel event in collective memory



Reference point



Neuropsychological, neurodegenerative,
psychological symptoms

Assessment of core non-cognitive factors

Psychological Health:

Mood: SF-36, Depression, anxiety and stress short form (DASS-21), PHQ-9, BDI-II, CESD, HADS-D

Anxiety: GAD-7, BAI, HAM-A, HADS-A

Trauma: CAPS-5, PCL-5, PC-PTSD-5

Fatigue

Brief Fatigue Questionnaire

Mental Fatigue Inventory

Cysique et al. (2021)

[Home](#) > [Journals](#) > [Journal of the International Neuropsychological Society](#) > [FirstView](#) > [Assessment of Neurocognitive Functions, Olfaction,...](#)



[Journal of the
International](#)

Assessment of Neurocognitive Functions, Olfaction, Taste, Mental, and Psychosocial Health in COVID-19 in Adults: Recommendations for Harmonization of Research and Implications for Clinical Practice

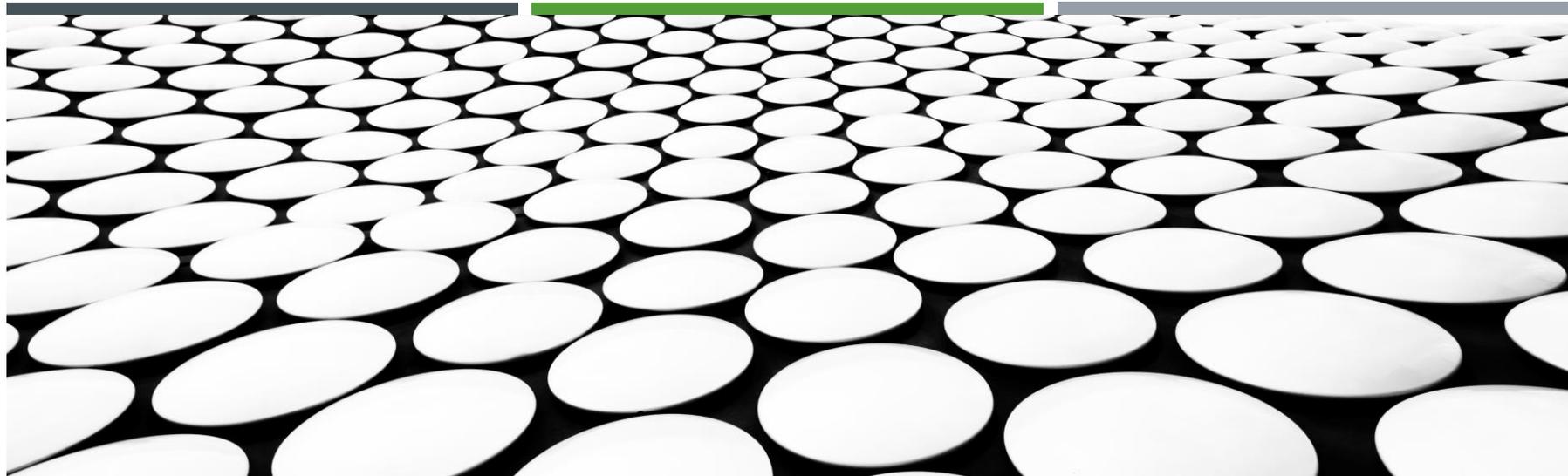
Published online by Cambridge University Press: 09 August 2021

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Thank you

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COVID AND MENTAL HEALTH ISSUES

PROF KAY WILHELM
ST VINCENT'S HOSPITAL, CL PSYCHIATRY
PROFESSOR UNDA /CONJOINT PROF UNSW



THE UNIVERSITY OF
NOTRE DAME
AUSTRALIA



UNSW
SYDNEY



TIME COURSE

ONSET

Managing fear, uncertainty
Re-emerging MH problems

LONG COVID

Managing cognitive, emotional, physical sequelae

ACUTE PHASE

Managing panic, fear, delirium, isolation

RECOVERY

Adjusting to full recovery or 'new normal'

KEY POINTS

- Neuropsychological weaknesses are not uncommon among COVID-19 survivors, particularly in the domains of attention and executive functioning.
- COVID-19 is associated with high rates of psychiatric symptoms, including anxiety, depression, fatigue, sleep disruption, and posttraumatic stress, and consistent risk factors for psychiatric symptoms include the history of a psychiatric disorder and female gender.
- Rates of anxiety and depression are similar, if not higher, among patients who were never hospitalized compared to those who required inpatient hospitalization, whereas rates of posttraumatic stress appear higher among previously hospitalized patients.



DISCUSS MENTAL HEALTH ISSUES AT STAGES OF COVID

- Onset
- Acute phase
- Long COVID
- Recovery and/or re-adjustment

COPING STYLES WHEN STRESSED

These compound stress later, hamper sleep and immunity

Emotion focussed

- ✓ Distraction/creativity
- ✓ Talking to friends
- ✓ Shopping
- ✓ Wine and food
- ✓ Exercise, yoga
- ✓ Relaxation
- ✓ Mindfulness

Problem focussed

- ✓ Information seeking
- ✓ Discussing problem
- ✓ Seeking assistance
- ✓ Problem solving
- ✓ Making lists
- ✓ Goal setting

Avoidant

- Denial to self and others
- Avoiding behaviours
- Getting angry
- Ignoring/downplaying warning signs
- Substance use (smoking, sedatives, stimulants), gambling
- I have to do everything myself: others will mess up
- Going through the motions... "I'll try..."

SIMPLE BUT EFFECTIVE MEASURES THAT AID IMMUNITY

- Slow breathing
- Mediterranean diet
- Self-paced exercise
- Good quality sleep



VAGUS NERVE

enables brain to monitor data from several body functions involved in ↓inflammation, fear management.

*Balancing para/symp NS

*Modifying ↓HR, BP

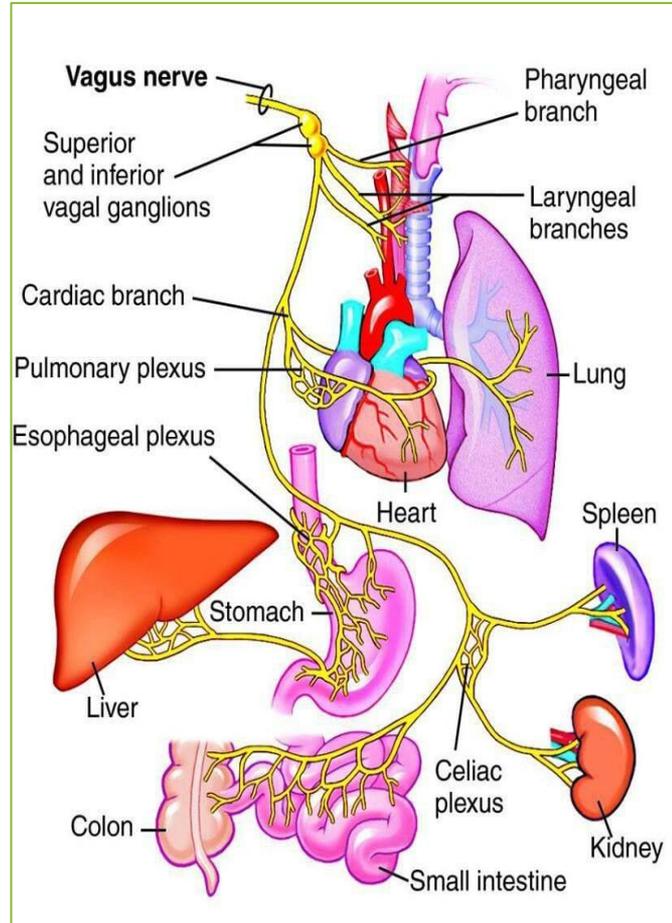
*Brain/gut communication

*Deep breathing relaxation (via diaphragm)

*Taste sensation behind tongue

*Sensory input (throat, heart lungs, GIT, abdomen)

*Motor (swallowing, speech)



STIMULATING VAGUS NERVE

- Deep breathing
- Loud singing, gargling!
- Laughter boosts immune system and vagus nerve
- Foot massage*
- Cold water on face (forehead, eyes, cheeks →HR↓, stimulates gut, immune system)

*Lu WA et al. Foot reflexology can increase vagal modulation, decrease sympathetic modulation, and lower blood pressure in healthy subjects and patients with coronary artery disease. *Altern Ther Health Med.* 2011 Jul-Aug;17(4):8-14. PMID: 22314629.

BENEFITS OF SLOW (DIAPHRAGMATIC) BREATHING

- * Respiratory muscle activity
- * Ventilation efficiency
- * Chemoreflex/baroreflex activity
- * Heart rate variability
- * ↑ Cardiac output
- * Respiratory sinus arrhythmia
- * Cardiorespiratory coupling
- * Sympathovagal balance

The physiological effects of slow breathing in the healthy human

Slow breathing practices have been adopted in the modern world across the globe due to their claimed health benefits. This has piqued the interest of researchers and clinicians who have initiated investigations into the physiological (and psychological) effects of slow breathing techniques and attempted to uncover the underlying mechanisms. The aim of this article is to provide a comprehensive overview of normal respiratory physiology and the documented physiological effects of slow breathing techniques according to research in healthy humans. The review focuses on the physiological implications to the respiratory, cardiovascular, cardiorespiratory and autonomic nervous systems, with particular focus on diaphragm activity, ventilation efficiency, haemodynamics, heart rate variability, cardiorespiratory coupling, respiratory sinus arrhythmia and sympathovagal balance. The review ends with a brief discussion of the potential clinical implications of slow breathing techniques. This is a topic that warrants further research, understanding and discussion.

Cite as: Russo MA, Santarelli DM, O'Rourke D. The physiological effects of slow breathing in the healthy human. *Breathe* 2017; 13: 298-309.

Diaphragmatic Breathing



Drug-free
approach to
stress/pain
management



Improves
Lung
Function



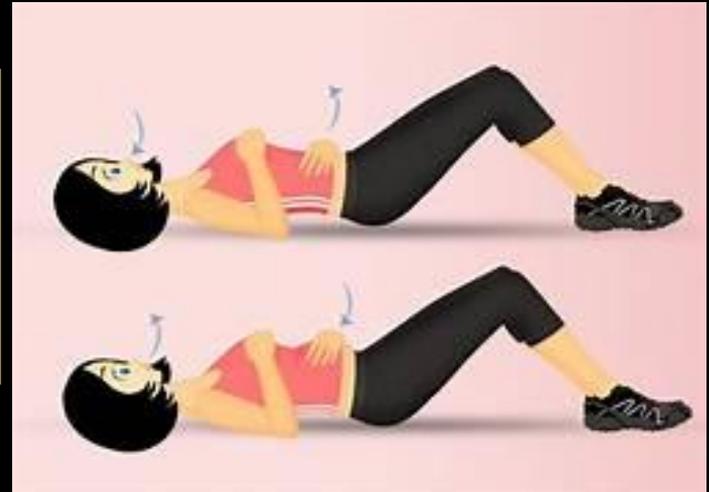
Improves
Cognitive
Function



Lowers
Cortisol
Levels



Lowers
Blood
Pressure



TIPP SKILLS TO AID INTENSE EMOTIONAL DYSREGULATION



TIPP Skills

TEMPERATURE
 Change your body temperature. Splash your face with cold water, hold an ice cube, let car AC blow on your face, take a cold shower

INTENSE EXERCISE
 Do intense exercise to match your intense emotion. Sprint to the end of the street, do jumping jacks, push ups, intense dancing

PACED BREATHING
 Try Box Breathing: Breathe in for 4 seconds, hold it for 4 seconds, breathe out 4, and hold 4. Start again, and continue until you feel more calm.

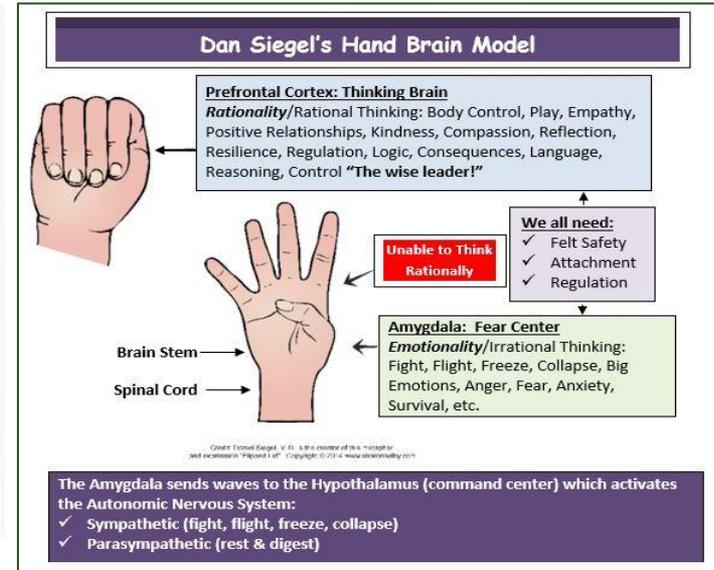
PAIRED MUSCLE RELAXATION
 Focus on 1 muscle group at a time. Tighten your muscles as much as possible for 5 seconds. Then release & relax. Repeat with other muscle groups.

BRAIN MODEL FOR EMOTIONAL REGULATION

(NEUROPSYCHIATRIST DR DANIEL SIEGEL, AUTHOR OF MINDSIGHT AND BRAINSTORM)



<https://www.youtube.com/watch?v=qFTljLo1bK8>



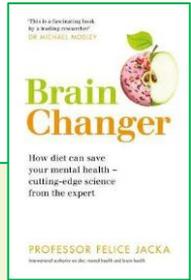
A brief, really useful technique for you and your family.

EATING WELL: MEDITERRANEAN DIET



Reduced vascular disease, cancer, neurocognitive ageing, depression.

- “...reflects food patterns of Greece and Southern Italy in the early 1960s”
- High intake of vegetables, legumes, fruit, nuts, cereals and olive oil, moderate intake of fish, low intake of saturated fats and meat, regular but moderate intake of alcohol (usually wine)
- “This dietary pattern provides essential micronutrients, fibre and plant foods to promote good health”
 - Loughrey et al, Adv Nut, 2017, 8, 571-86



BENEFITS OF EXERCISE

- Improved sleep
- Better endurance
- Stress relief
- ↑ mood, self esteem
- ↓ tiredness
- Weight reduction
- ↑ CVS fitness (vascular function, ↑ blood volume)
- ↓ insulin resistance
- Lowers cancer risk

Physical exercise an important lifestyle intervention for promoting mental health, incl. hippocampal-dependent memory. Mild exercise, on par with yoga and tai chi, may improve memory.

Kazuya S. *Rapid stimulation of human dentate gyrus function with acute mild exercise*. *Proc Nat Acad Sci*, 2018; 201805668 DOI: [10.1073/pnas.1805668115](https://doi.org/10.1073/pnas.1805668115)

Resistance exercise training (RET) significantly ↓ depressive symptoms among adults regardless of health status, total prescribed amount of RET, or significant improvements in strength.

Gordon et al. Association of Efficacy of Resistance Exercise Training With Depressive Symptoms: Meta-analysis and Meta-regression Analysis of RCTs. *JAMA Psychiatry*. 2018 Jun 1;75(6):566-576. doi: 10.1001/jamapsychiatry.2018.0572.

Aerobic exercise*: 132 sedentary pts 20-67 yrs randomised to aerobic exercise or stretching

Exercise: Sig ↑cortical thickness RFC regardless of age

Recommended >15min HI, 30 min MI, 60min LI on 5d/wk

*Slomski et al, *JAMA* 2019, 321,12,1149 doi:10.1001

DIFFERENT TYPES OF EXERCISE

3 P's Principle

Pace, Plan and Prioritise

<https://www.yourcovidrecovery.nhs.uk/your-road-to-recovery/what-next/>

The infographic is divided into three columns, each representing a different type of exercise. Each column includes an illustration of the activity, a circular icon representing a benefit, and a donut chart showing a duration. The first column is for stretching, the second for cardiovascular exercise, and the third for strength training. Each section includes a title, a benefit, and a duration.

Exercise Type	Benefit	Duration
Stretching	IMPROVE FLEXIBILITY	10-20 SECS EACH STRETCH
Cardio	IMPROVE CARDIOVASCULAR SYSTEM	30 MINS A DAY
Strength	IMPROVE MUSCLE STRENGTH	45 MINS A DAY

TAI CHI = MEDITATION, MOVEMENT, ATTENTION TO BREATHING

120 SYSTEMIC REVIEW OF >500 TRIALS OVER PAST 45 YEARS

Excellent evidence of benefit for preventing falls, osteoarthritis, Parkinson disease, rehabilitation for COPD and improving cognitive capacity in older adults; improving balance and aerobic capacity in those with poor fitness

Good evidence for depression, cardiac/stroke rehabilitation and dementia; increased strength in lower limbs.

There is fair evidence for increased well-being and improved sleep.

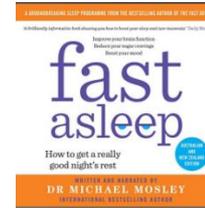
No studies that found TC worsened a condition.

Huston P, McFarlane B. Health benefits of tai chi: What is the evidence?
Can Fam Physician. 2016 Nov;62(11):881-890



Tai Cho Oz has short sequences that can be used at home <https://taichioz.blogspot.com/>

SLEEP AND IMMUNITY



- Numerous studies show clear link between stress, poor sleep and vulnerability to viral infections. “Cytokines are both produced and released during deep sleep, causing a double whammy if you don't get enough”.
- After a night of poor sleep, your T killer cells become less effective. Lack of sleep reduces their ability to latch onto infected cells.
- **Lack of sleep (and stress) will also suppress the production of infection-fighting antibodies, which are vital for combating viruses.**

https://www.ted.com/talks/matt_walker_how_sleep_can_improve_your_immunity

https://www.ted.com/talks/matt_walker_sleep_is_your_superpower#t-6607

Lavender oil and sleep hygiene improved sleep quality >sleep hygiene alone.

Studies have shown effects on serum cortisol, NA and ACh.

Lillehei A, et al. Effect of Inhaled Lavender and Sleep Hygiene on Self-Reported Sleep Issues: A Randomized Controlled Trial J Altern Complementary Med. Jul 2015.430-438.

HOW TO FALL ASLEEP

<https://www.Lifehacker.Com.Au/2020/03/try-this-military-meditation-routine-to-fall-asleep-fast/>

<https://www.sleepfoundation.org/insomnia/treatment/cognitive-behavioral-therapy-insomnia-i-CBT>



This Way UP Managing Insomnia course:
<https://thiswayup.org.au/courses/managing-insomnia-course/>



Relax	Relax the muscles in your face, including your tongue, jaw, and the
Drop	Drop your shoulders as low as they'll go
Relax	Relax upper/lower arm on one side, then other
Breathe out	Breathe out, and relax your chest.
Relax	Finally, relax your legs, first thighs and then calves
	Take about a minute to go through, relaxing every body part fully, then
Pick image	Lying in canoe on calm lake OR snuggled in black velvet hammock in
Let thoughts go	Repeat "let them go" for 10 seconds if thoughts come.

RESTORATIVE YOGA POSES TO HELP SLEEP

[HTTPS://WWW.SVHS.ORG.AU/PATIENTS-VISITORS/WELLBEING](https://www.svhs.org.au/patients-visitors/wellbeing)



Legs up the wall

If on floor, you can support under the hips with a blanket, be aware of neck support under head. It can be done lying on your bed: place 2 or 3 pillows underneath the heels to lift legs up. Stay for at least 5 rounds of breath. Try slightly lengthening the out breath



Reclining Bound Angle

If on the floor: be aware of supporting your neck and head - place a small pillow under the back of your head. Adjust legs by moving feet closer or further away. Can be done lying on your bed, and can also place pillow under the feet for lower back comfort



Child pose

Arms can be placed behind you If your head can rest gently on the floor. If not, fold your arms so they support your forehead. You can place padding (eg rolled towel) behind the knees.

Growing evidence for yoga's neurobiological effects in people with psychiatric disorders.

Postulated mechanisms:

- modulation of the HPA axis;
- enhancement of GABAergic neurotransmission;
- autonomic modulation and
- neuroendocrinological effects.

Yoga as a therapeutic intervention in psychiatric disorders appears promising, merits further attention in clinical practice/research

Varambally et al, Yoga for psychiatric disorders: from fad to evidence-based intervention? Br J Psychiatry (2020) 216, 291–293. doi: 10.1192/bjp.2019.249



LETTING THOUGHTS **GO**

When painful or worrying
thoughts occur....

Acknowledge them

Observe them label them
Then allow them to just
drift or float away



LETTING THOUGHTS GO

The goal of meditation
isn't to control your
thoughts, it's to stop
letting them control you.

Jon Andre

TARGETING SPECIFIC SYMPTOMS



- Cognitive remediation supporting attention and executive functions may be helpful, especially digital therapies
- Cognitive-behavioral (CBT) and mindfulness-based approaches targeting depression, anxiety, sleep difficulties likely to be beneficial for survivors.
- CBT for anxiety may be useful for ongoing shortness of breath
- Cognitive restructuring and mindfulness focused on self-compassion can target perceived discrimination while modified forms of behavioral activation can ameliorate depression symptoms.
- Cognitive processing therapy or prolonged exposure therapy may help ICU survivors who experience PTS symptoms
- Activity paced increase in activities + medical management may ↓fatigue.

Vanderlind W, et al. A systematic review of neuropsychological and psychiatric sequelae of COVID-19: implications for treatment. *Curr Opin Psychiatry*. 2021 Jul 1;34(4):420-433.

ONE MINUTE MINDFULNESS



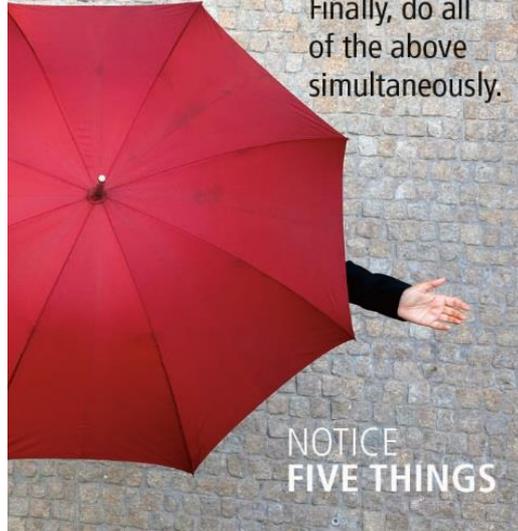
Follow the second hand of a clock or watch for ONE minute

Focus attention on your breathing. Gently bring your focus back to your breathing if it wanders

Take some time.
Notice five things:

- ♦ You can see around you,
- ♦ You can hear,
- ♦ You can feel in contact with your skin.

Finally, do all of the above simultaneously.



MINDFUL BODY SCAN

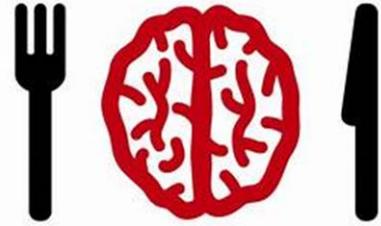
Find a comfortable position, close your eyes
Bring your awareness to the top of your head, let it settle there...
mentally **SCAN** across your scalp from back to front ...
then slowly down to your forehead, eyebrows, eyes, nose until you've scanned your entire face...

MINDFULNESS



<https://thiswayup.org.au/courses/intro-to-mindfulness-course/>

MINDFUL EATING



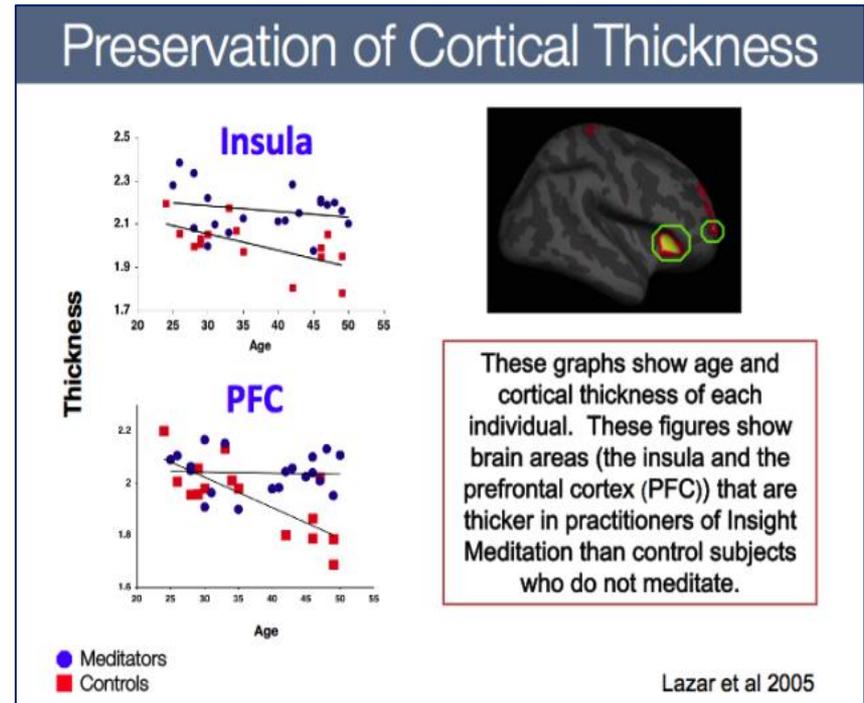
1. Make the time to sit down and step away from technology completely, eat at the table and focus your attention and awareness on the meal.
2. Eat slowly and chew your food well. Be mindful of the ingredients you've used, where they have come from and how they benefit your mind, body and soul.
3. Avoid eating on the run: if you must, make time to really slow down and chew your food well. This optimises digestion and will help your body respond to natural satiety cues.
4. Mindfully engage all your five senses: Mindful eating is a pleasurable, sensory experience. Take time to notice and feel the aromas, textures, sounds, flavours, colours of the food.
5. Be mindful of the atmosphere, who you are with, what is happening in the present moment. This allows you to be fully present and get the most enjoyment, pleasure out of your food.

CAN MEDITATION CHANGE BRAIN STRUCTURE?

[HTTPS://NWCREATIONS.COM/TED-TALK-THURSDAY-MEDITATION-CAN-RESHAPE-BRAINS-SARA-LAZAR-TEDXCAMBRIDGE-2011/](https://nwcreations.com/ted-talk-thursday-meditation-can-reshape-brains-sara-lazar-tedxcambridge-2011/)

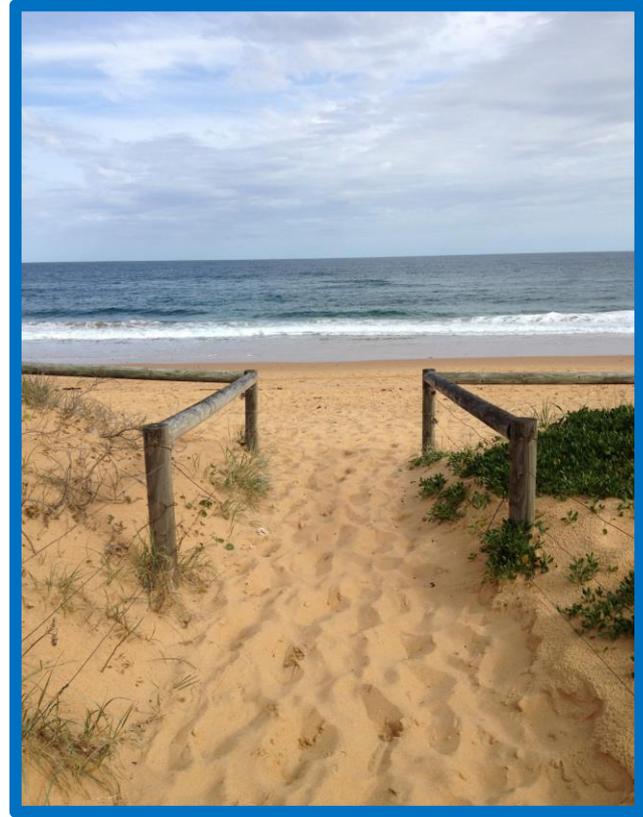
- Lazar looked at individuals with extensive meditation experience, which involved *focused attention on internal experiences* (no mantras or chanting).
- Meditation may slow down/prevent age-related thinning of frontal cortex that otherwise contributes to memory formation.
- While we expect as people get older, they tend to forget stuff. Lazar found that *40-50-year-old meditators had same amount of grey matter in their cortex as 20-30-year-old ones.*

- Lazar SW, Kerr CE, Wasserman RH, et al. Meditation experience is associated with increased cortical thickness. *Neuroreport*. 2005;16(17):1893-1897
- <https://nwcreations.com/ted-talk-thursday-meditation-can-reshape-brains-sara-lazar-tedxcambridge-2011/>



I don't have to chase extraordinary moments to find happiness: it's right in front of me if I'm paying attention and practicing gratitude.

Brene Brown



You can watch Brene Brown's TED Talk on the Power of Vulnerability

THERAPEUTIC WRITING

Letters (acknowledgement,
gratitude)

Journal (reflect, record, lists)

Reflective writing

Poetry, memoirs

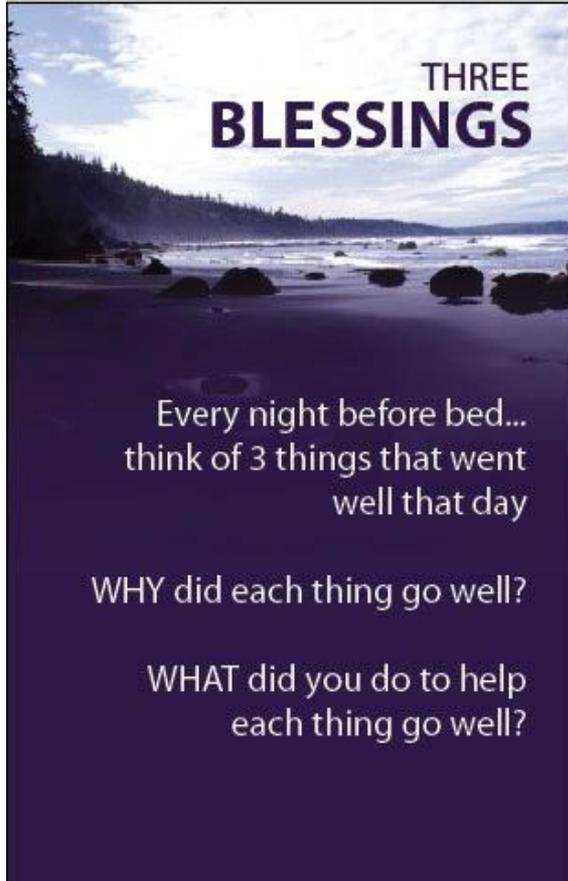
Expressive writing



GRATITUDE EXERCISE

An effective approach
for rebalancing.

It can be done after a
busy day while
regrouping emotionally,
at bedtime, with your
family or night journal.



**THREE
BLESSINGS**

Every night before bed...
think of 3 things that went
well that day

WHY did each thing go well?

WHAT did you do to help
each thing go well?

THREE BLESSINGS

Write them down

Vary them from one day
to the next

© SV&MHS 2009

1-5 MINUTES

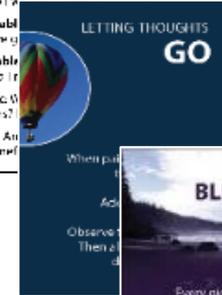
PUT YOUR THOUGHTS TO BED

Night Journal Prompts <https://www.pocketmindfulness.com/night-journal/>



Suggested sections

- **Top 3 goals:** Tomorrow's goals
- **What went well:** Today's achievements
- **Let it go:** Things I need to let go
- **Things I'm grateful for:** 3 blessings



EXPRESSIVE WRITING

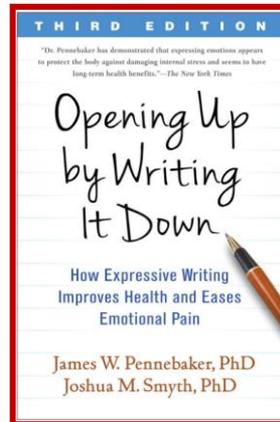
Find a comfortable place and **WRITE** about your deepest thoughts and feelings about an experience that is personally significant to you

LET GO and **EXPLORE** your very deepest emotions and thoughts related to this event: how it affected your view of yourself, others or the world in general

EXPRESSIVE WRITING

OUTCOMES

- Improved skin conductance, HR, pulse transit time, BP
- ↑ CD4 count, ↓ T lymphocytes (CD3)
- ↑ immune response to Hep B immunisation;
- Use of more reflective/causal thinking from Day 1 → 4 linked to greater health improvements: ↓ symptom severity, ↓ visits to Dr



Baikie K, Wilhelm K. Emotional and physical health benefits of expressive writing. <https://doi.org/10.1192/apt.11.5.338> online Cambridge Uni Press: Jan 2018

Krpan et al. An everyday activity as a treatment for depression: The benefits of expressive writing for people diagnosed with major depressive disorder J Aff Dis, 150, 13, 2013, 1148-1151
<https://doi.org/10.1016/j.jad.2013.05.065> [Get rights and content;](#)

Travagin et al. How effective are expressive writing interventions for adolescents? A meta-analytic review
<https://doi.org/10.1016/j.cpr.2015.01.003>

STAGE	STRATEGIES
ONSET Managing fear, uncertainty, stigma Re-emerging MH problems	Active listening, CBT approaches, advocacy Planning with those who know patient best
ACUTE Managing panic, fear, delirium, isolation	Breathing/relaxation techniques, maintain hope Delirium management (consider content of experience)/educate family” Keep some record of experience (involve family/carers) Fluvoxamine may be particularly useful
LONG COVID Managing cognitive, emotional, physical sequelae Recognising pre-COVID ‘unfinished emotional business’	General approaches: Self-paced exercise, diet, lifestyle changes Let patient know they are believed: monitor symptoms PTSD Expressive writing, psychoeducation, cognitive reprocessing IPT and ACT good for role acceptance, change SSRIs and melatonin may be useful Deal with ‘unfinished business’ which may hamper recovery
RECOVERY Adjusting to full recovery or ‘new normal’	Assistance in ‘returning to normal’, processing experience, dealing with change and lessons learnt IPT and ACT good for role acceptance, change Reinforce goals and changes

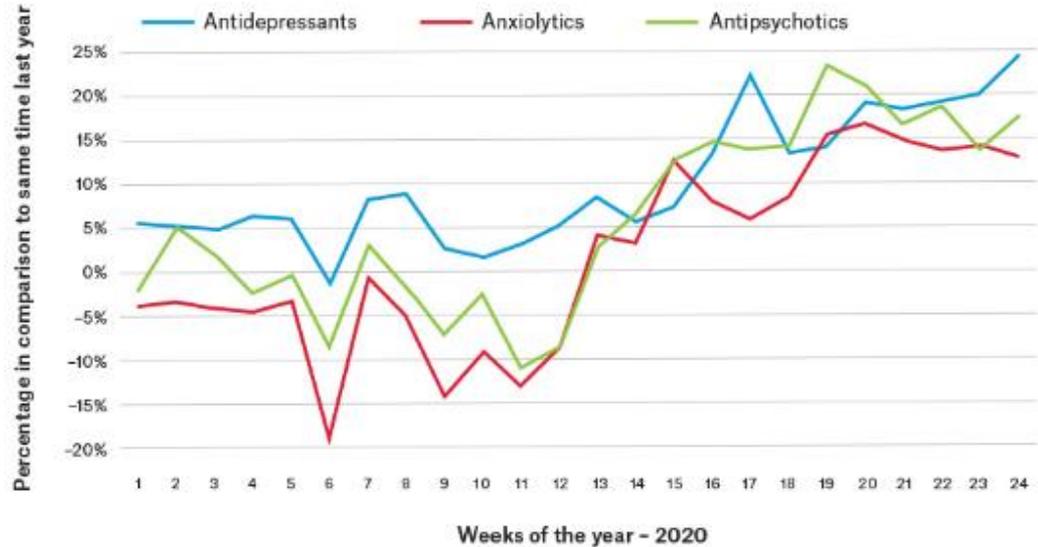
RE-EMERGENCE OF 'PREVIOUS ISSUES'

- Health anxiety (lifestyle changes, CBT, mindfulness)
- Panic (lifestyle changes, breathing training, CBT,
- Depression (lifestyle changes, CBT, IPT, ADMs)
- PTSD (revisiting earlier issues, expressive writing, CBT)
- Resurgence of previous disorders (psychosis, eating disorders, addictions, including gambling, porn), personality disorders
- Relationship issues highlighted by isolation and crisis

Gender differences: Men have more acute symptoms, women (esp white, middle class) seem to have more severe later symptoms of depression and PTSD.

PRESCRIBING RATES

- SSRIs helpful for depression
Fluvoxamine may have more specific action



Rates of antidepressant, anxiolytic and antipsychotic use in 2020. (Source: Outcome Health: Mental Health Impacts of COVID-19)

DEPRESSION AND INFLAMMATION

- Fluvoxamine emerged in search for treatments to prevent/treat COVID-19 infections (↓COVID-related symptoms in context of cytokine storm/subsequent lung damage).
- Therapeutic effects mediated via the S1R.
- S1R activators in clinical use include donepezil, citalopram, amitriptyline (depression/anxiety), dextromethorphan (coughs/colds) and pentazocine (pain);
- G protein signaling (RGS) proteins also impacted (desipramine moderates effect)
- Corticosteroids used in COVID-19 patients with positive effects but can cause emotional dysregulation and delirium.

COVID-SPECIFIC SUPPORT

- Coronavirus Mental Wellbeing Service: dedicated phone line, staffed by mental health professionals on 1800 512 348 and coronavirus.beyondblue.org.au.
- Beyond Blue Support Service via phone 24/7 on 1300 22 4636 or via beyondblue.org.au/get-support online chat (3PM–12AM AEST 24 hours).
- Forum community to read or participate in: <https://www.beyondblue.org.au/get-support/online-forums/staying-well/hi-there-i-only-just-joined-and-i'm-worried-about-the-coronavirus->



- [HTTPS://WWW.BLACKDOGINSTITUTE.ORG.AU/RESOURCES-SUPPORT/CORONAVIRUS-RESOURCES-FOR-ANXIETY-STRESS/CORONAVIRUS-RESOURCES-FOR-HEALTH-PROFESSIONALS/DEPRESSION-IN-HEALTH-CARE-WORKERS-DURING-COVID-19/ AND](https://www.blackdoginstitute.org.au/resources-support/coronavirus-resources-for-anxiety-stress/coronavirus-resources-for-health-professionals/depression-in-health-care-workers-during-covid-19/)
- [HTTPS://WWW.MYCOMPASS.ORG.AU/](https://www.mycompass.org.au/)

MYCOMPASS

A personalised self-help tool for your mental health



Resources for teenagers,
including COVID

SOME MATERIAL FROM ONE OF THE ‘LONG HAULERS’

As mentioned, the long-haul Covid patient groups on Facebook are:

- [Survivor Corps](#) and [website](#): 179,000 members, 106 posts/day, interview with founder [Diana Berrent](#)
- [Covid survivors support group](#): 23,200 members, 50 posts/day
- [Long-Haulers – Coronavirus Covid-19 Survivors Support Group](#): 6,500 members, 22 posts/day
- [Australia Long Covid Group](#): 187 members, 3 posts/day

From reading posts on these groups over past year, at least half of the content involves sharing experience with symptoms and recent medical advice.

Other resources from / about the long-haul experience:

- [Message in a Bottle – Long Covid SOS](#) (“*We’re all members of a club no one wanted to join*”)...a poignant short film
- [Long-haul activism](#) article
- Noel Greenspan’s *Long Haul* documentary [trailer](#)

CLINICIANS LOOKING AFTER THEMSELVES



- <https://www.blackdoginstitute.org.au/resources-support/coronavirus-resources-for-anxiety-stress/coronavirus-resources-for-health-professionals/depression-in-health-care-workers-during-covid-19/>



<https://iwards.wordpress.com/>



<https://www.sleephealthfoundation.org.au/component/tags/tag/coronavirus-stress-and-sleep.html>

- <https://www.cebm.net/covid-19/practical-tips-for-clinicians-helping-patients-with-covid-related-anxiety-distress>

<https://www.svhs.org.au/patients-visitors/wellbeing>

Wellbeing

HOME > PATIENTS & VISITORS > WELLBEING



Staying Sane Module

These modules have been adapted from the Staying Sane package, developed by Professor Kay Wilhelm, CL Psychiatry St Vincent's Hospital, Sydney in collaboration with Dr Marni Austin and Kate Jurd from University of Queensland.

Staying Sane for Teams

This module is intended to provide practical advice for strategies that clinicians working in teams in acute settings can use immediately to improve their mental wellbeing. It also provides links to other resources currently available from This Way Up, Black Dog Institute and Beyondblue. It will be updated as time goes on. Please get in touch if you have any feedback.

[Click here.](#)



KAY.WILHELM@SVHA.ORG.AU



Post-COVID-19 Conditions

- **How to assess adult and child patients including:**
 - Medical assessments
 - Mental Health and Cognitive Decline screening tools
 - Recommendations for physical capacity testing and further investigations
- **Holistic management of the patient including Mental Health concerns, community and financial support, and social support**
- **Options for referrals to address presenting concerns for medical services, functional rehabilitation, Mental Health and Online Therapy services**
- **Pathway URL - <https://nbm.communityhealthpathways.org/783098.htm>**