High levels of psychosocial distress among Australian frontline healthcare workers during the COVID-19 pandemic: a cross-sectional survey

Natasha Smallwood, Leila Karimi, Marie Bismark, Mark Putland, Douglas Johnson, Shyamali Chandrika Dharmage, Elizabeth Barson, Nicola Atkin, Claire Long, Irene Ng, Anne Holland, Jane E Munro, Irani Thevarajan, Cara Moore, Anthony McGillion, Debra Sandford, Karen Willis

ABSTRACT

Background The coronavirus disease 2019 (COVID-19) pandemic has had a profound and prolonged impact on healthcare services and healthcare workers.

Aims The Australian COVID-19 Frontline Healthcare Workers Study aimed to investigate the severity and prevalence of mental health issues, as well as the social, workplace and financial disruptions experienced by Australian healthcare workers during the COVID-19 pandemic.

Methods A nationwide, voluntary, anonymous, single timepoint, online survey was conducted between 27 August and 23 October 2020. Individuals self-identifying as frontline healthcare workers in secondary or primary care were invited to participate. Participants were recruited through health organisations, professional associations or colleges, universities, government contacts and national media. Demographics, home and work situation, health and psychological well-being data were collected.

Results A total of 9518 survey responses were received; of the 9518 participants, 7846 (82.4%) participants reported complete data. With regard to age, 4110 (52.4%) participants were younger than 40 years; 6344 (80.9%) participants were women. Participants were nurses (n=3088, 39.4%), doctors (n=2436, 31.1%), allied health staff (n=1314, 16.7%) or in other roles (n=523, 6.7%). In addition, 1250 (15.9%) participants worked in primary care. Objectively measured mental health symptoms were common: mild to severe anxiety (n=4694, 59.8%), moderate to severe burnout (n=5458, 70.9%) and mild to severe depression (n=4495, 57.3%). Participants were highly resilient (mean (SD)=3.2 (0.66)). Predictors for worse outcomes on all scales included female gender; younger age; pre-existing psychiatric condition; experiencing relationship problems; nursing, allied health or other roles; frontline area; being worried about being blamed by colleagues and working with patients with COVID-19.

Conclusions The COVID-19 pandemic is associated with significant mental health symptoms in frontline healthcare workers. Crisis preparedness together with policies and practices addressing psychological well-being are needed.

INTRODUCTION

Healthcare workers (HCWs) experience unique workplace demands and stressors, with doctors and nurses particularly experiencing poor mental health and increased rates of occupational burnout, anxiety, depression and suicide than other occupations. Although less is known about other groups of clinicians, the findings of early studies are concerning. These issues have ramifications beyond the health of practitioners themselves, given that poor mental health of clinicians translates to adverse effects on overall mental health of patients.
quality of care,6 patient safety, workforce retention and engagement.7

Crisis, such as the current coronavirus disease 2019 (COVID-19) pandemic, represent a profound threat to mental health. HCWs, particularly those on the ‘frontline’ in hospitals and the community, have had to respond quickly to many challenges including heavy workloads, large volumes of new information, new work practices and roles, redeployment or job insecurity, social change and increased risks to their own lives and for family members. Evidence regarding the impacts of the severe acute respiratory syndrome (SARS) pandemic demonstrated that the mental health of many HCWs was adversely affected, with potentially long-lasting mental health effects.8,9 Studies from overseas during the current pandemic suggest high rates of anxiety, depression, stress and burnout in HCWs, with the prevalence rates of up to 57%.10–16 Before the onset of COVID-19, certain demographic and workplace factors have been associated with increased risk of psychosocial harm for HCWs, particularly female gender,17 inexperience,17 excessive work hours,1819 and certain frontline areas.2021 Similarly, studies of the general public during COVID-19 reveal a disproportionate impact on women,2223 young people,2224 and people with previous mental health diagnoses.2125 It is therefore vital to comprehensively identify and act on the mental health needs of Australian frontline HCWs to minimise the far-reaching effects of crisis events. This article reports the first findings from the Australian COVID-19 Frontline Healthcare Workers Study, which was both initiated and led by frontline clinicians in partnership with academics. This study investigated the severity, prevalence and predictors of symptoms of mental illness, as well as the social, workplace and financial disruptions experienced by Australian HCWs during the COVID-19 pandemic.

METHODS

The second wave of the pandemic in Australia occurred predominantly in Melbourne, Victoria, between June and October 2020. Severe lockdown restrictions were instituted locally including (but not limited to) mandatory mask wearing; travel limited to 5 km from home; an evening curfew, 1-hour limit for outdoor exercise per day; limits on seeing extended family; working from home; home schooling; the closure of most shops, hospitality and entertainment venues; and closure of international and interstate borders.

Participants and study design

A nationwide, voluntary, anonymous, online survey was conducted between 27 August and 23 October 2020, concurrently with the second wave of the pandemic. Australian HCWs, comprising medical, nursing, allied health, medical laboratory, administrative and other support staff, who self-identified as frontline HCWs in secondary or primary and community care, were invited to participate. Participants did not need to have cared for people with COVID-19 to participate. Over 8 weeks, 9518 survey responses were received, with complete data from 7846 (82.4%) participants reported in this article (figure 1).

Participants were recruited through multiple strategies. Information regarding the survey was emailed to chief executive officers and departmental directors of frontline areas (emergency medicine, critical care, respiratory medicine, general medicine, infectious diseases, palliative care and hospital aged care) of all public hospitals throughout Victoria, and to multiple hospitals around Australia. Hospital leaders were asked to share the survey information with colleagues. Thirty-six professional societies, colleges, universities, associations and government health department staff also disseminated the information about the survey across Australia. In addition, the study was promoted through 117 newspapers, 8 television and radio news items and 30 social media sites.

Data collection

Each participant completed the survey once, with no longitudinal data collected. Participants completed the online survey either directly or via a purpose-built website (https://covid-19-frontline.com.au/). Before commencing the survey, participants provided online consent to participate. Data were collected and managed using REDCap electronic data capture tools.26

Information collected included demographics, home life details, professional background, work arrangements, the impact of the pandemic on employment and finances, organisational leadership, workplace change, exposure to COVID-19 and health and recreational habits (online supplemental file 1). Most questions were in a single-choice or multiple-choice format, with free text questions enabling more detailed answers. Five validated psychological measurement tools were completed to assess symptoms of mental illnesses: anxiety (Generalized Anxiety Disorder Scale-7 (GAD-7)),27 depression (Patient Health Questionnaire-9 (PHQ-9)),28 post-traumatic stress disorder (PTSD) (abbreviated Impact of Events Scale-6 (IES-6))29 and burnout (abbreviated Maslach Burnout Inventory (MBI)),30 with subdomains of emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA). Resilience was assessed using the abbreviated two-item Connor-Davidson Resilience Scale-2.31 Burnout on the MBI is indicated by higher scores on the EE and DP, and lower scores on the scale of PA. Cut-off scores for validated scales were as follows: depersonalisation: 0 to 3=low, 4 to 6=moderate, 7 to 18=high; emotional exhaustion: 0 to 6=low, 7 to 10=moderate, 11 to 18=high;...
personal accomplishment: 0 to 12=high, 13 to 14=moderate, 15 to 18=low; IES is categorised as 0 to 9=none/minimal and ≥10=moderate-severe; GAD-7: 0 to 4=none/minimal, 5 to 9=mild, 10 to 14=moderate, 15 to 21=severe anxiety; PHQ-9: 0 to 4=none/minimal, 5 to 9=mild, 10 to 14=moderate, 15 to 19=moderately severe, 20 to 27=severe. In addition, participants were asked to report if they subjectively believed they had experienced anxiety, depression, PTSD, burnout or other mental health issues in order to determine their insight into their mental health. Ethics approval was provided by the Royal Melbourne Hospital Human Research Ethics Committee (HREC/67074/MH-2020).

Statistical methods and data analysis
A power calculation for general linear models was computed using RStudio. With an expected medium to large effect size and a power of 0.95, and significance level of 0.05, a sample of 6348 participants was required. To account for missing or incomplete data, a minimum sample size of 7000 responses was chosen. Data analysis was performed using SPSS V.26.0 statistical software (IBM). Demographic and socioeconomic characteristics were reported descriptively. Predictors of mental illness symptoms were identified through univariable logistic regression then entered into a multivariable logistic regression model. Covariates examined in univariable analyses included age; gender; state; occupation; number of working years since graduation; living situation (living alone, living with children, living with elderly); frontline area; practice location; working with patients with COVID-19; anticipating working with patients with COVID-19; having received personal protective equipment (PPE) training; worry that their role will lead to COVID-19 transmission to family; worry regarding being blamed by colleagues, close friends or relatives infected with COVID-19; changed relationships with partner or friends or family or colleagues; changed household income; concerns regarding household income and pre-existing mental health diagnoses. For each mental illness scale, outcomes were merged into dichotomous categories (no or minimal symptoms vs moderate to severe symptoms) in the regression model. Associations between mental illness symptoms and predictor variables are presented as ORs with 95% CIs. Multicollinearity of predictor variables was examined using the variance inflation factor criterion. The Spearman coefficient (r) was calculated to evaluate the correlation between self-reported and objective evidence of mental illness symptoms. For all statistical tests, significance was indicated by p≤0.05.

RESULTS
Demographic characteristics and workplace environment
More than half (n=4110, 52.4%) of the participants were younger than 40 years, and 6344 (80.9%) were women (table 1). Most participants were nurses (n=3088, 39.4%), doctors (n=2436, 31.0%) or allied health staff (n=1314, 16.7%) with 523 participants working in other health roles (table 1). On February 24, 2022 by guest. Protected by copyright.
organisation roles including food services and security. The medical staff group comprised 389 general practitioners, 1221 senior medical staff, 745 junior medical staff and 81 students. More than one-quarter of participants (n=2250, 28.7%) had caring responsibilities at home, and 2133 (27.2%) participants had children who were being homeschooled.

Participants worked in primary care or community roles (n=1250, 15.9%), medical specialty areas (n=1205, 15.4%), emergency departments (n=1146, 14.6%), anaesthetics or surgical areas (n=824, 10.5%) or intensive care units (n=745, 9.5%) (table 2). More than three-quarters (n=6158, 78.5%) had been tested for COVID-19, 136 (1.7%) had been infected with COVID-19 and 77 (0.9%) had been previously quarantined because of unprotected exposure to COVID-19. Three-quarters (n=4551, 76.4%) were worried or very worried that their role could lead to them transmitting COVID-19 to their families, and almost two-thirds (n=4949, 63.1%) were worried about being blamed by colleagues for not taking adequate precautions if they contracted COVID-19.

**Relationship changes and prevalence of mental illness symptoms**

More than three-quarters of participants (n=5994, 76.4%) reported that the pandemic had affected their relationships with family, friends and colleagues, and nearly one-third had a close friend or relative who had been infected with COVID-19 either in Australia or overseas (table 2). Approximately one-third (n=2389, 30.4%) reported having a pre-existing mental illness diagnosed before the pandemic (table 3). Many participants subjectively believed they had experienced mental illness during the pandemic including anxiety (n=4875, 62.1%), burnout (n=4575, 58.3%) and depression (n=2175, 27.7%). Mental illness symptoms measured by objective scales demonstrated a similar or worse trend, with 4694 (59.8%) participants experiencing mild to severe anxiety, 5458 (70.9%) moderate to severe burnout (EE) and 4495 (57.3%) mild to severe depression. Participants had a high score for resilience with a mean (SD) of 3.21 (0.66) out of 4. There was correlation between subjective reporting and objective evidence of moderate to severe mental illness symptoms for anxiety (r=0.346, p<0.001), depression (r=0.346, p<0.001) and EE (r=0.354, p<0.001).

**Predictors of poor mental health**

In the multivariable regression model, independent, personal predictors for worse mental health on all measured outcomes (anxiety, depression, burnout and PTSD) included female gender, younger age, experiencing worsening of personal relationships and low resilience scores (table 4). In addition, independent, personal predictors for anxiety and PTSD included having previous mental health conditions, having a family member or friend infected with COVID-19 and concerns about household income. Depression was also associated with having previous mental health conditions and concerns

| Table 2 Work environment and relationship changes during the pandemic |
| --- | --- | --- |
| Characteristic | Frequency | % |
| Frontline area (n=7846) | 1250 | 15.9 |
| Primary care or community practitioner | 1205 | 15.4 |
| Medical specialty areas* | 1146 | 14.6 |
| Emergency department | 824 | 10.5 |
| Anaesthesics, perioperative care or surgical areas | 745 | 9.5 |
| Intensive care unit | 644 | 8.2 |
| General medicine | 536 | 6.8 |
| Hospital aged care | 336 | 4.3 |
| Respiratory medicine | 292 | 3.7 |
| Palliative care | 171 | 2.2 |
| Infectious diseases | 99 | 1.3 |
| Paramedicine | 61 | 0.8 |
| Radiology | 42 | 0.5 |
| Hospital pharmacy | 31 | 0.4 |
| Pathology | 464 | 5.9 |
| Location of practice (n=7846) | 6373 | 81.2 |
| Metropolitan | 1407 | 17.9 |
| Regional | 66 | 0.8 |
| Remote | 3063 | 39.0 |
| Yes | 4783 | 61.0 |
| No | 1884 | 39.5 |
| Number of patients infected with COVID-19 cared for, mean (SD) | 1.4 (0.43) |
| Anticipating working with people infected with COVID-19 (n=4775) | 2891 | 60.5 |
| Yes | 1884 | 39.5 |
| No | 5137 | 65.5 |
| Received training on PPE during the pandemic (n=7846) | 2709 | 34.5 |
| Being worried that their roles will lead to them transmitting COVID-19 to family (n=5954) | 729 | 12.2 |
| Not worried | 674 | 11.3 |
| Neutral | 4551 | 76.4 |
| Being worried about being blamed by colleagues if they contract COVID-19 (n=7846) | 1275 | 20.7 |
| Not worried | 4949 | 63.1 |
| Worried | 2398 | 30.6 |
| Experiencing close friends/relatives infected with COVID-19 in Australia or overseas (n=7846) | 2398 | 30.6 |

Continued
about household income, whereas EE was also associated with previous mental health conditions. Independent, workplace predictors for worse mental health outcomes on all measured scales (anxiety, depression, burnout and PTSD) included having a nursing, allied health or other non-medical role, frontline area, working with patients infected with COVID-19 and being worried about being blamed by colleagues on contracting COVID-19 infection (table 5). There were no significant associations between other demographic, work environment, relationship or financial covariates and each mental illness score.

**DISCUSSION**

**Main findings**

To our knowledge, this is the largest, national, cross-sectional study examining psychosocial distress during the COVID-19 pandemic in Australia that has included all frontline healthcare occupations and areas. Despite participants receiving high scores on the validated resilience instrument, the majority experienced anxiety or depressive symptoms, or EE (burnout). This indicates that the protective effects of resilience are not sufficient to prevent psychological harm during the pandemic. A

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**Table 2** Continued

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>5448</td>
<td>69.4</td>
</tr>
<tr>
<td>Impact of COVID-19 on relationships (n=7846)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closer or stronger relationship with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>2266</td>
<td>28.9</td>
</tr>
<tr>
<td>Children/parents/family</td>
<td>2226</td>
<td>28.4</td>
</tr>
<tr>
<td>Friends</td>
<td>1054</td>
<td>13.4</td>
</tr>
<tr>
<td>Work colleagues</td>
<td>2533</td>
<td>32.3</td>
</tr>
<tr>
<td>Worse relationship with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>1000</td>
<td>12.7</td>
</tr>
<tr>
<td>Children/parents/family</td>
<td>1421</td>
<td>18.1</td>
</tr>
<tr>
<td>Friends</td>
<td>2221</td>
<td>28.3</td>
</tr>
<tr>
<td>Work colleagues</td>
<td>1116</td>
<td>14.2</td>
</tr>
<tr>
<td>No effect on relationships</td>
<td>1852</td>
<td>23.6</td>
</tr>
<tr>
<td>Change in household income due to COVID-19 (n=7846)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased</td>
<td>820</td>
<td>10.5</td>
</tr>
<tr>
<td>Decreased</td>
<td>2415</td>
<td>30.8</td>
</tr>
<tr>
<td>No change</td>
<td>4611</td>
<td>58.8</td>
</tr>
<tr>
<td>Concerns or worries about household income since COVID-19 (n=7846)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2416</td>
<td>30.8</td>
</tr>
<tr>
<td>No</td>
<td>5430</td>
<td>69.2</td>
</tr>
</tbody>
</table>

*Medical specialty areas included all medical specialties other than hospital aged care, general medicine, respiratory medicine, palliative care and infectious diseases. The latter were reported separately due to their potentially increased risk of exposure to COVID-19.
†This group included (but was not limited to) people working in leadership roles, clerical roles, support roles, food preparation, facilities maintenance, screening clinics and clinical scientists. COVID-19, coronavirus disease 2019; PPE, personal protective equipment.
Table 4  Personal predictors of mental health outcomes (multivariable univariate analysis)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Anxiety (GAD-7)</th>
<th>Depression (PHQ-9)</th>
<th>PTSD (IES-6)</th>
<th>Burnout DP</th>
<th>Burnout EE</th>
<th>Burnout PA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>P value</td>
<td>OR (95% CI)</td>
<td>P value</td>
<td>OR (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td>Female</td>
<td>1.18 (1.01 to 1.38)</td>
<td>0.031</td>
<td>1.31 (1.12 to 1.55)</td>
<td>0.001</td>
<td>1.40 (1.22 to 1.60)</td>
<td>0.001</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–30</td>
<td>1.93 (1.64 to 2.27)</td>
<td>0.001</td>
<td>1.55 (1.31 to 1.84)</td>
<td>0.001</td>
<td>1.72 (1.48 to 1.99)</td>
<td>0.001</td>
</tr>
<tr>
<td>31–40</td>
<td>1.31 (1.11 to 1.53)</td>
<td>0.001</td>
<td>1.12 (0.95 to 1.32)</td>
<td>0.163</td>
<td>1.19 (1.04 to 1.37)</td>
<td>0.010</td>
</tr>
<tr>
<td>41–50</td>
<td>1.21 (1.02 to 1.43)</td>
<td>0.028</td>
<td>1.23 (1.03 to 1.46)</td>
<td>0.019</td>
<td>1.03 (0.88 to 1.19)</td>
<td>0.680</td>
</tr>
<tr>
<td>Previous mental health condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.96 (1.74 to 2.20)</td>
<td>0.001</td>
<td>2.23 (1.98 to 2.50)</td>
<td>0.001</td>
<td>1.75 (1.57 to 1.95)</td>
<td>0.001</td>
</tr>
<tr>
<td>Experiencing family or friends infected with COVID-19</td>
<td>1.30 (1.15 to 1.46)</td>
<td>0.001</td>
<td>1.04 (0.92 to 1.18)</td>
<td>0.450</td>
<td>1.41 (1.26 to 1.57)</td>
<td>0.001</td>
</tr>
<tr>
<td>Experiencing worse relationships during the pandemic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With partner</td>
<td>1.97 (1.96 to 2.29)</td>
<td>0.001</td>
<td>1.96 (1.45 to 1.98)</td>
<td>0.001</td>
<td>1.50 (1.29 to 1.74)</td>
<td>0.001</td>
</tr>
<tr>
<td>With family</td>
<td>1.74 (1.51 to 2.00)</td>
<td>0.001</td>
<td>1.56 (1.35 to 1.80)</td>
<td>0.001</td>
<td>1.58 (1.38 to 1.81)</td>
<td>0.001</td>
</tr>
<tr>
<td>With friends</td>
<td>1.38 (1.22 to 1.57)</td>
<td>0.001</td>
<td>1.32 (1.16 to 1.51)</td>
<td>0.001</td>
<td>1.51 (1.35 to 1.70)</td>
<td>0.001</td>
</tr>
<tr>
<td>With colleagues</td>
<td>1.77 (1.52 to 2.06)</td>
<td>0.001</td>
<td>1.45 (1.24 to 1.70)</td>
<td>0.001</td>
<td>1.50 (1.30 to 1.73)</td>
<td>0.001</td>
</tr>
<tr>
<td>Concerns about income</td>
<td>1.96 (1.50 to 1.89)</td>
<td>0.001</td>
<td>1.29 (1.14 to 1.45)</td>
<td>0.001</td>
<td>1.56 (1.41 to 1.74)</td>
<td>0.001</td>
</tr>
<tr>
<td>Resilience</td>
<td>0.62 (0.57 to 0.67)</td>
<td>0.001</td>
<td>0.76 (0.70 to 0.83)</td>
<td>0.001</td>
<td>0.76 (0.70 to 0.82)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

N/A=variable not included for that mental scale in the model because no relationship was observed in the univariate model.

Reference categories for each variable were as follows: gender=male; age=older than 50 years; pre-existing mental health conditions=negative response; experiencing family or friends infected with COVID-19=negative response; experiencing altered relationships with partner/family/friends/colleagues=no change; concerns about income=negative response.

Lower OR for personal accomplishment indicates poorer outcomes.

COVID-19, coronavirus disease; DP, depersonalisation; EE, emotional exhaustion; GAD-7, Generalized Anxiety Disorder Scale-7; IES-6, Impact of Events Scale-6; PA, personal accomplishment; PHQ-9, Patient Health Questionnaire-9; PTSD, post-traumatic stress disorder.
### Table 5  Workplace predictors of mental health outcomes (multivariable univariate analysis)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Anxiety (GAD-7)</th>
<th>Depression (PHQ-9)</th>
<th>PTSD (IES-6)</th>
<th>Burnout DP</th>
<th>Burnout EE</th>
<th>Burnout PA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>P value</td>
<td>OR (95% CI)</td>
<td>P value</td>
<td>OR (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>1.79 (1.55 to 2.07)</td>
<td>0.001</td>
<td>1.92 (1.65 to 2.23)</td>
<td>0.001</td>
<td>1.28 (1.12 to 1.45)</td>
<td>0.001</td>
</tr>
<tr>
<td>Allied health</td>
<td>1.25 (1.04 to 1.50)</td>
<td>0.013</td>
<td>1.48 (1.22 to 1.79)</td>
<td>0.001</td>
<td>1.20 (1.02 to 1.41)</td>
<td>0.022</td>
</tr>
<tr>
<td>Other roles</td>
<td>1.83 (1.51 to 2.22)</td>
<td>0.001</td>
<td>1.95 (1.59 to 2.38)</td>
<td>0.001</td>
<td>1.29 (1.08 to 1.53)</td>
<td>0.004</td>
</tr>
<tr>
<td>Frontline area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICU</td>
<td>0.87 (0.70 to 1.10)</td>
<td>0.260</td>
<td>0.73 (0.58 to 0.93)</td>
<td>0.010</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Anaesthetics and surgery</td>
<td>1.18 (0.94 to 1.48)</td>
<td>0.140</td>
<td>0.85 (0.67 to 1.08)</td>
<td>0.190</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Medical specialty areas</td>
<td>1.13 (0.95 to 1.35)</td>
<td>0.150</td>
<td>0.89 (0.74 to 1.06)</td>
<td>0.200</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Primary care, community and residential aged care</td>
<td>0.96 (0.77 to 1.20)</td>
<td>0.760</td>
<td>0.82 (0.66 to 1.03)</td>
<td>0.580</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Other*</td>
<td>1.11 (0.87 to 1.42)</td>
<td>0.380</td>
<td>0.85 (0.66 to 1.03)</td>
<td>0.098</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Currently working with patients with COVID-19</td>
<td>1.21 (1.05 to 1.39)</td>
<td>0.006</td>
<td>1.19 (1.03 to 1.37)</td>
<td>0.015</td>
<td>1.27 (1.12 to 1.44)</td>
<td>0.001</td>
</tr>
<tr>
<td>Received PPE training</td>
<td>0.91 (0.80 to 1.05)</td>
<td>0.210</td>
<td>0.96 (0.83 to 1.10)</td>
<td>0.580</td>
<td>1.04 (0.92 to 1.17)</td>
<td>0.490</td>
</tr>
<tr>
<td>Being worried that colleagues will blame them</td>
<td>1.68 (1.42 to 1.97)</td>
<td>0.001</td>
<td>1.44 (1.22 to 1.71)</td>
<td>0.001</td>
<td>1.82 (1.58 to 2.11)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

N/A=variable not included for that mental scale in the model because no relationship was observed in the univariate model.
Reference categories for each variable were as follows: occupation=medical staff; frontline area=emergency department; currently working with patients with COVID-19=negative response; received PPE training=negative response; being worried about being blamed=disagreed. Resilience was a continuous variable (scores 0–4).
Lower OR for personal accomplishment indicates poorer outcomes.
*Other for frontline area included people working in paramedicine, radiology, pharmacy, pathology and clinical laboratories, or other areas.
COVID-19, coronavirus disease 2019; DP, depersonalisation; EE, emotional exhaustion; GAD-7, Generalized Anxiety Disorder Scale-7; ICU, intensive care unit; IES-6, Impact of Events Scale-6; PA, personal accomplishment; PHQ-9, Patient Health Questionnaire-9; PPE, personal protective equipment; PTSD, post-traumatic stress disorder.
significant proportion also experienced PTSD symptoms. Although less than half of the participants worked with patients with COVID-19 and very few had been infected with COVID-19 or quarantined, many experienced disruptions to family life, altered social relationships and financial worries. Our findings are consistent with those reported in international studies: high mental health burden on frontline workers during COVID-19 and SARS pandemics. Fears of transmitting COVID-19 infection to family and of being blamed by colleagues for not taking adequate precautions if they did contract COVID-19 were extremely common. Personal, social and workplace predictors for mental illness symptoms have been identified.

Around the world, a growing number of largely country-specific, single timepoint, cross-sectional surveys have identified that mental health problems are common in HCWs during the COVID-19 pandemic. Prevalence estimates are as follows: 33% to 59% for anxiety, 30% to 62% for depression, 41% to 51% for burnout and approximately 57% for acute distress or PTSD. The upper limits of these prevalence estimates are strikingly similar to our own findings. However, moderate to severe burnout (EE) was much more prevalent in our study (70.9%), which may be explained by the later timing of our study, by which time Australian HCWs had endured many months of social and workplace disruptions, and lockdown restrictions.

By contrast, two separate, small (n=320 and n=668), single-site, single timepoint surveys of HCWs undertaken in Melbourne from April to May 2020 and from May to June 2020 both identified a lower prevalence of adverse mental health outcomes. Their findings may again be partly explained by the earlier timing of the studies in the first wave and the lack of power in those studies due to smaller size of the samples. Comparing our data to international data, the high prevalence of symptoms of poor mental health in our study is interesting given the comparatively low case load of COVID-19 in Australia. One explanation is that anticipation and fear of a catastrophic crisis leading to high death rates of patients and HCWs (as Australian HCWs saw occurring overseas) contributed to adverse psychological outcomes. This concept of psychological distress being related to anticipated, perceived risk is important and highlights the critical importance of crisis preparedness, good government and organisational leadership and consistent clear communication. In addition, the pervasive media coverage regarding COVID-19 along with the many restrictions enacted in local lockdowns may have contributed to poor mental health in Australian frontline workers.

Similar to our findings, studies from overseas have found that predictors of poor mental health in HCWs during the pandemic include female gender, less years of work experience (which in our study correlated with younger age), pre-existing psychological illnesses, working in a nursing role and working in certain frontline areas. Many of these groups are at heightened risk of psychosocial harm during non-pandemic times, and it is possible that crises such as COVID-19 exacerbate harm in pre-existing vulnerable groups. Importantly, unlike previous small local and international studies, the large sample size in our study enabled us to demonstrate that female gender and working in nursing or allied health roles are independent predictors of poor mental health. The relationship between nursing and poorer mental health may be explained by the heightened risk of COVID-19 exposure from prolonged and frequent contact with patients. Moreover, nursing and allied health professionals generally have less choice regarding their daily work environments. Reduced finances were not associated with a nursing role and therefore did not explain the association.

The relationship between gender and adverse mental illness outcomes is intriguing, given that this relationship was identified even during the SARS pandemic. One possible explanation is that men and women have different coping styles, with men having greater odds of reporting DP in this study. In addition, a British study identified that women have had to bear greater responsibilities (on average, an extra 11.2 hours of unpaid work per week) than men as primary carers for dependents during the pandemic. General population data from the Australian Bureau of Statistics report similar findings, with women three times more likely than men to perform the majority of caregiving tasks and twice as likely to undertake the majority of unpaid domestic work. In our study, having young or old dependents was not a predictor of poor mental health. However, we did not specifically enquire about the number of additional unpaid hours undertaken in the home for domestic or caregiving tasks during the pandemic. As there was no difference in resilience scores between men and women, this gender difference requires further exploration. The lack of a relationship between PPE training and poor mental health in our study may relate to the majority of frontline staff receiving training and the relatively low rates of COVID-19 infection in Australia compared with other countries.

Limitations

The large sample size in our study enabled detailed examination of independent predictors of poor mental health. Most participants in our study were women, which is consistent with data from both the Australian Institute of Health and Welfare and the Australian Health Practitioner Regulation Agency demonstrating that 75% of the Australian health workforce is female. Because of the very broad survey dissemination strategy, calculation of a response rate was not possible. Selection bias and response bias may have led to overestimation or underestimation of psychological distress and rates of pre-existing mental health illness. Similarly, in line with other international surveys exploring the psychosocial effects of the COVID-19 pandemic on healthcare workers, we were not able to confirm clinical diagnoses of mental illness with...
the symptoms measured by the validated psychological scales. Nevertheless, these scales are validated and the only feasible option for measuring mental health symptoms in a large-scale survey such as this.

Because of the spontaneous and unexpected nature of the COVID-19 pandemic, no baseline data regarding mental health symptoms in non-pandemic times had previously been collected from a large cohort of Australian HCWs. Therefore, it is not possible to demonstrate a change in the prevalence estimates of mental health symptoms in this study. Nevertheless, the prevalence estimates in this study are much higher than those reported in earlier studies in non-pandemic times. Notably, the case load of COVID-19 in Australia at the time of survey closure was low relative to international settings, with 27,484 cases recorded. The prevalence of mental health impacts arising in the Australian context is indicative of harm related to the prolonged stress of a pandemic, even with relatively few cases. Participant responses were measured at a single timepoint, not longitudinally, to avoid excessively burdening the frontline healthcare workers during the pandemic. However, given the ongoing nature of the pandemic, we believe that longitudinal research is urgently required to better understand any persisting psychosocial effects of the pandemic on HCWs and any ramifications for patient safety and workforce retention. Similar prospective studies sampling Italian HCWs during the first and second waves of COVID-19 have reported growing prevalence of mental health issues as the pandemic continues, and it is likely that similar trends exist in Australia. Furthermore, research is required to examine the acceptability, uptake and effectiveness of any new interventions introduced to support the well-being of HCWs.

Implications
Although many factors, including lockdown restrictions, social disconnection and media coverage, likely have contributed to the high prevalence of mental health symptoms in frontline healthcare workers in this study, occupational factors cannot be ignored. Indeed, occupational factors (related to workloads, training, PPE, organisational leadership, communication and policies) must be actively considered because they represent important opportunities to intervene and prevent mental health issues. Both better crisis preparedness and new psychological support services for HCWs are needed. Importantly, such services should not just be short-term ‘fixes’ to address the current pandemic-related issues, but instead should provide long-term support given the high prevalence of pre-existing mental health diagnoses. These supports must be accessible and acceptable to HCWs. Although resilience was identified as a protective factor in this study, the overall resilience level of HCWs was already high, and as such, approaches that aim to build resilience are likely to have limited efficacy in this cohort. Furthermore, it is vital that health leaders in the government, secondary care and the community recognise that certain groups of HCWs are more vulnerable to mental health problems and therefore require additional targeted support interventions. Crucially important are organisational policies and practices that address burnout (and contributing factors such as information overload), given its extremely high prevalence and the risk it poses to workforce retention.

The health workforce is an indispensable asset. Yet crises such as the COVID-19 pandemic are associated with significant mental health symptoms in frontline HCWs, with potentially wide repercussions for individuals, patients and the workforce. Crisis preparedness, along with long-term, evidence-based policies and practices that focus on preventing and actively addressing psychological well-being, is needed to protect, maintain and ‘future-proof’ the health workforce.

Author affiliations
1Department of Respiratory Medicine, Alfred Hospital, Prahran, Victoria, Australia
2Department of Allergy, Immunology and Respiratory Medicine, Central Clinical School, Alfred Hospital, Monash University, Melbourne, Victoria, Australia
3School of Psychology and Public Health, La Trobe University, Melbourne, Victoria, Australia
4School of Medicine and Healthcare Management, Caucasus University, Tbilisi, Georgia
5Department of Psychiatry, The Royal Melbourne Hospital, Parkville, Victoria, Australia
6Department of Public Health Law, Melbourne School of Population and Global Health, The University of Melbourne, Parkville, Victoria, Australia
7Department of Emergency Services, The Royal Melbourne Hospital, Parkville, Victoria, Australia
8Department of Critical Care, Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Melbourne, Victoria, Australia
9Departments of General Medicine and Infectious Diseases, The Royal Melbourne Hospital, Parkville, Victoria, Australia
10Department of Medicine, The Royal Melbourne Hospital, The University of Melbourne, Parkville, Victoria, Australia
11Allergy and Lung Health Unit, School of Population and Global Health, The University of Melbourne, Parkville, Victoria, Australia
12Department of Allied Health, The Royal Melbourne Hospital, Parkville, Victoria, Australia
13Parkville Integrated Palliative Care Service, The Royal Melbourne Hospital, Parkville, Victoria, Australia
14Sir Peter MacCallum Department of Oncology, The University of Melbourne, Parkville, Victoria, Australia
15Department of Geriatric Medicine, Western Health, Footscray, Victoria, Australia
16Department of Anaesthesia and Pain Management, The Royal Melbourne Hospital, Parkville, Victoria, Australia
17Centre for Integrated Critical Care, Melbourne Medical School, The University of Melbourne, Parkville, Victoria, Australia
18Department of Physiotherapy, Alfred Health, Melbourne, Victoria, Australia
19Rheumatology Unit, Royal Children’s Hospital, Parkville, Victoria, Australia
20Arthritis and Rheumatology, Murdoch Children’s Research Institute, Parkville, Victoria, Australia
21Department of Infectious Diseases, The Royal Melbourne Hospital, Parkville, Victoria, Australia
22Department of Intensive Care Medicine, The Royal Melbourne Hospital, Parkville, Victoria, Australia
23School of Nursing and Midwifery, College of Science, Health and Engineering, La Trobe University, Melbourne, Victoria, Australia
24Royal Adelaide Hospital, University of South Australia, Adelaide, South Australia, Australia
25College of Health and Biomedicine, Victoria University, Footscray, Victoria, Australia
26Division of Critical Care and Investigative Services, The Royal Melbourne Hospital, Parkville, Victoria, Australia
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Contributors NS, KW: conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, supervision, writing (original and revisions). LX: conceptualisation, formal analysis, investigation, methodology, resources, supervision, writing (original and revisions). MB, MP, SJ, SCD, EB, NA, CL, IN, AH, JEM, IT, CM, AM, DS: conceptualisation, investigation, methodology, writing (original).

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ORCID iD
Mark Pullard http://orcid.org/0000-0002-1994-252X

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**Associate Professor Natasha Smallwood qualified as doctor (BMedSci, BMBS) from Nottingham University Medical School, Nottingham, UK, in 1999. She holds medical fellowships with the Royal College of Physicians (UK) and the Royal Australasian College of Physicians (Australia). She is a consultant respiratory physician in the Department of Respiratory Medicine at the Alfred Hospital (Melbourne, Australia), head of the Chronic Respiratory Disease Research Lab at the Central Clinical School (Monash University, Melbourne, Australia) and principal research fellow (associate professor) at Monash University (Australia). In addition to her qualifications in respiratory care, she got postgraduate qualifications in Palliative Care and Epidemiology (MSc; University of Melbourne, 2011) and a PhD (University of Melbourne, 2019). Assistant Professor Smallwood holds various major research grants including an NHMRC Investigator grant and fellowship research grant from the Windermere foundation. She has clinical and research interests in severe lung disease. As a frontline health worker, she designed and co-led the Australian COVID-19 Frontline Healthcare Workers study, which is the largest multi-professional, national study that has examined the psychosocial effects of the pandemic on healthcare workers in primary and secondary care. She is a board director for the Thoracic Society of Australia and New Zealand (TSANZ), the Victorian TSANZ branch president and serves on multiple national committees for TSANZ, the Lung Foundation Australia and the Palliative Care Clinical Studies Collaborative. In addition, she is a taskforce member for various national and international respiratory guidelines.**
Confidential

Future Proofing Frontline Healthcare Workers in Times of Pandemic and Other Crises

Explanatory Statement

You are invited to take part in this study. Please read this statement before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to visit our website: https://www.covid-19-frontline.com.au

What does the research involve?

The aim of the study is to explore the social, work and mental health effects experienced by frontline health workers during the COVID-19 pandemic and beyond. We aim to examine factors that promote good mental health and risk factors that contribute to poorer mental health.

Participating in this study will involve completing an online questionnaire, which has been piloted and shown to take approximately 15-20 minutes. These questions will include information about you and your work, what you do to stay healthy, and the impact the COVID-19 pandemic has had on your health and wellbeing, your social situation, and your work.

Why were you chosen for this research?

You have been invited to participate in this study because you are a ‘frontline health worker’. In this study frontline health workers are defined as medical, nursing, or allied health professionals, clinical scientists/physiologists/technicians, healthcare students or clerical staff working in hospitals, primary care, the community, private practice or paramedicine.

You have been invited via your Head of Department/Director of Training/manager, your professional association, a colleague or friend, or by advertisement of this study.

You do NOT need to have worked with patients with COVID-19 to take part. We would like to hear from both people who have and who have not worked with people with COVID-19.

Consenting to participate in this project and withdrawing from the research

Participation in this study is voluntary. It is your decision whether to participate. If at any stage, you feel uncomfortable or you feel the questions are too personal, you may stop completing the survey and close it. As this study is an anonymous survey once you submit any answers withdrawal of data will not be possible.

Possible benefits and risks to participate

There are unlikely to be any immediate direct benefits from participating in the study, other than reflecting on your current mental health and wellbeing. Participating in this study will provide data that will help us understand the supports that frontline healthcare workers need and want when confronted with a crisis situation like COVID-19. This information is important for supporting health workers during futures crises.

We do not anticipate that there are immediate risks to you; but we acknowledge that reflecting on the impact of COVID-19 may arouse feelings of disquiet or distress. If this is the case, we encourage you to seek support and we have provided advice and links on our website and at the conclusion of the survey.

Confidentiality

The survey is anonymous and confidential. At no point in the study will we be asking your name, date of birth or address. Your survey results will not be considered individually, instead the results from all the participants will be combined for analysis to provide overall trends when data are presented.

Storage of Data

05.09.2020 10:07 projectrecap.org
Data will be collected through a Melbourne Health account on REDcap, which is password protected. It will only be accessible by the researchers involved in the study. Data will be kept for 5 years and then destroyed via deletion of electronic files when no longer needed.

Results

Once the study is complete, a summary of the findings will be posted on our website. Interim analyses (after 2 months) of our research will also be made available on the study website.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Manager, Melbourne Health Human Research Ethics Committee, Ph: 03 93428530; or email: research@mh.org.au

CONSENT

☐ I have read the explanatory statement. I am a health care worker. I am over 18 years of age and I agree to participate.
### PART A - Demographics and Home Life

#### Survey Progress

<table>
<thead>
<tr>
<th>How old are you?</th>
<th>20-30</th>
<th>31-40</th>
<th>41-50</th>
<th>50-64</th>
<th>65-70</th>
<th>71+</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your gender?</td>
<td>Male</td>
<td>Female</td>
<td>Non-binary</td>
<td>Prefer not to say</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many people, including yourself live in your household?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many people aged 65 years or older live in your house?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many children (under 16 years) live in your house?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Since the COVID-19 pandemic started, have you had to actively manage home schooling responsibilities?</td>
<td>Yes</td>
<td>No</td>
<td>Not Applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have any caring responsibilities (such as for children, older adults or others) that have impacted your ability to work during the pandemic?</td>
<td>Yes</td>
<td>No</td>
<td>Not Applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## PART B - Professional Background and Work Arrangements

### Survey Progress

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which state do you work in?</td>
<td>South Australia, Victoria, ACT, New South Wales, Northern Territory, Queensland, Tasmania, Western Australia</td>
</tr>
<tr>
<td>Please tick your places of work (select all that apply)?</td>
<td>Public hospital, Private hospital, Other, Community</td>
</tr>
<tr>
<td>If other, please specify</td>
<td></td>
</tr>
<tr>
<td>Where is the main location of your clinical work?</td>
<td>Metropolitan area, Regional area, Remote area</td>
</tr>
<tr>
<td>What is your profession or work background?</td>
<td>Senior Medical Staff, General Practitioner, Junior Medical Staff, Nursing, Allied Health, Clinical Scientist/Physiologist/Technician, Student - Medical, Nursing, Allied Health, Clerical or Administrative Staff, Paramedic, Other</td>
</tr>
<tr>
<td>Please specify Allied Health profession</td>
<td>Physiotherapist, Occupational Therapist, Speech Pathologist, Social Worker, Psychologist, Technician, Medical Scientist, Other</td>
</tr>
<tr>
<td>If other, please specify</td>
<td></td>
</tr>
<tr>
<td>How many years have you worked in your profession since graduation?</td>
<td>0-5 years, 6-10 years, 11-15 years, More than 15 years</td>
</tr>
</tbody>
</table>
How many years have you worked in your current role?  
- 0-5 years
- 6-10 years
- 11-15 years
- More than 15 years

What health course are you studying?  
- Allied Health
- Applied Medical Science
- Medicine
- Nursing
- Paramedicine

As a student what year are you in for your healthcare course?  
- 1st Year
- 2nd Year
- 3rd Year
- 4th Year or more

Which frontline area do you work with? If you work on an inpatient ward, please select the department below that is most associated with your ward.  
- Emergency Department
- Intensive Care Unit
- Respiratory Medicine
- General Medicine
- Infectious Diseases
- Other Medical Specialty Area
- Surgical Specialty Area
- Anaesthetics /Perioperative Care
- Hospital Aged Care
- Palliative Care
- Primary Care or Community
- Paramedic
- Other

If other, please specify  
__________________________________

Do you CURRENTLY work in direct contact with COVID-19 patients?  
- Yes
- No

Do you ANTICIPATE that you may have to work in direct contact with COVID-19 patients if numbers increase in your state?  
- Yes
- No

Have you received training to care for patients with COVID-19? (please select all that apply)  
- Yes - regarding caring for patients with COVID-19
- Yes - regarding the use of personal protective equipment (PPE)
- Yes - other
- No

If other, please specify  
__________________________________

How confident do you feel to care for patients with COVID-19

<table>
<thead>
<tr>
<th>very unconfident</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>neutral</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>very confident</th>
<th>7</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How confident do you feel using PPE when coming into contact with patients with COVID-19</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Do you feel you need more training related to COVID-19 or using PPE?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>not worried at all</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>neutral</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>very worried</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>How worried are you about the possibility of your role leading to transmission of COVID-19 to your family?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
## PART C - Work and Finances: Impact of COVID-19 Pandemic

**Survey Progress**

We would like to know if your working arrangements have changed due to the COVID-19 pandemic:

**BEFORE** the COVID-19 pandemic what was your employment status?  
- [ ] Full time  
- [ ] Part time  
- [ ] Casual  
- [ ] Other  

If other, please specify  
______________________________

**CURRENTLY** what is your employment status?  
- [ ] Full time  
- [ ] Part time  
- [ ] Casual  
- [ ] Other  

If other, please specify  
______________________________

Have your paid or unpaid hours spent working changed?  
This includes work carried out in the hospital or from home. Please select all that apply  
- [ ] Increased paid hours  
- [ ] Increased unpaid hours  
- [ ] Decreased hours (paid or unpaid)  
- [ ] No change

Have you been redeployed to a new area of work (i.e. change in the department you work in)?  
- [ ] Yes  
- [ ] No

<table>
<thead>
<tr>
<th>very uncertain</th>
<th>2</th>
<th>3</th>
<th>neutral</th>
<th>5</th>
<th>6</th>
<th>very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>How confident do you feel working in your new area?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Has your role at work changed?  
- [ ] Yes  
- [ ] No

<table>
<thead>
<tr>
<th>very uncertain</th>
<th>2</th>
<th>3</th>
<th>neutral</th>
<th>5</th>
<th>6</th>
<th>very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>How confident do you feel working in your new role?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Has your household income altered due to COVID-19?  
- [ ] Increased  
- [ ] Decreased  
- [ ] No change

As a result of COVID-19 do you have concerns or worries about your household income?  
- [ ] Yes  
- [ ] No
### PART D - Exposure to COVID-19

#### Survey Progress

In the last week, please estimate how many patients with **CONFIRMED COVID-19** you have encountered:
- None
- 1-5
- 6-10
- 11-20
- 21-50
- 51-100
- >100
- Don't know

In the last week, please estimate how many patients with **SUSPECTED COVID-19** you have encountered?
- None
- 1-5
- 6-10
- 11-20
- 21-50
- 51-100
- >100
- Don't know

Have you ever been tested for COVID-19?
- Yes
- No

How many COVID-19 tests have you had since the pandemic started?  
____________________________________

Have you ever had a positive test for COVID-19?
- Yes
- No
- Prefer not to say
- Result not known yet

Have you ever been quarantined (i.e. furloughed) due to significant exposure to someone with COVID-19?
- Yes
- No

Do you have close friends or relatives (in Australia or overseas) who have contracted COVID-19?
- Yes
- No
Survey Progress

How true do you believe the following statements are:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The community is worried that health workers will spread the virus to others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The community is generally appreciative of health workers during this time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I contract COVID-19, colleagues will question whether I took sufficient precautions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Has the COVID-19 pandemic had an impact on your relationships with family, friends and work colleagues? (please select all that apply)

- [ ] I have a closer or stronger relationship with my partner
- [ ] I have a closer or stronger relationship with my children/parents/family
- [ ] I have a closer or stronger relationship with my friends
- [ ] I have a closer or stronger relationship with my work colleagues
- [ ] I have a worse relationship with my partner
- [ ] I have a worse relationship with my children/parents/family
- [ ] I have a worse relationship with my friends
- [ ] I have a worse relationship with my work colleagues
- [ ] No effect on relationships
### PART E - Relaxing and Staying Healthy

#### Survey Progress

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally do you consider that your physical health is:</td>
<td>Excellent, Good, Fair, Poor</td>
</tr>
<tr>
<td>Do you have underlying health conditions that you believe increase your risk of becoming unwell with COVID-19?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Do you use digital apps to track your physical health activities (e.g. exercise, diet, other health measures)?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>PRIOR to the COVID-19 pandemic have you ever been diagnosed with depression, anxiety, or another mental health condition?</td>
<td>Yes, No, Prefer not to say</td>
</tr>
<tr>
<td>SINCE the COVID-19 pandemic started, do you believe that you have experienced any of the following? (please select all that apply)</td>
<td>Anxiety, Burn out, Depression, Post-traumatic stress disorder, Other mental health problem, None of the above, Prefer not to say</td>
</tr>
<tr>
<td>Since the COVID-19 pandemic started, what activities have you undertaken to manage any possible mental health issues such as stress, anxiety or depression? (please select all that apply)</td>
<td>Maintained exercise, Increased exercise, Yoga, meditation or similar, Maintained or increased social interaction with family and friends, Used an app (e.g. Smiling mind, Headspace or other), Increased alcohol use, Other strategy, None of the above</td>
</tr>
</tbody>
</table>

If other, please specify: ________________________________________________

If you have used or are currently using an App for stress or to support mental health, which app did you use? ____________________________________________

Was the App useful? | Yes, No, Not Applicable

Are you still using the App? | Yes, No, Not Applicable

Since the COVID-19 pandemic started, have you sought help from any of the following sources for stress, anxiety, depression or another mental health issue? (please select all that apply) | Doctor or psychologist, Employee support program at my place of work, Professional support program outside of work, None of the above, Other

05.09.2020 10:07
Confidential

Please specify __________________________________________

What do you think would help you most in dealing with stress, anxieties, and other mental health issues (including burnout) related to the COVID-19 pandemic? __________________________________________
## PART F - My healthcare organisation and organisational changes during COVID-19

### Survey Progress

Please answer these questions for the healthcare organisation where you mainly work

<table>
<thead>
<tr>
<th>The communications I have received so far about workplace changes due to COVID-19 have been useful and timely</th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well has your healthcare organisation supported your wellbeing and mental health during the COVID-19 pandemic? For example providing new resources e.g. Apps, telephone support lines etc</td>
<td>Very well supported</td>
<td>Somewhat supported</td>
<td>Neither supported or unsupported</td>
<td>Somewhat unsupported</td>
<td>Very unsupported</td>
</tr>
</tbody>
</table>

What did you find to be the main challenges that you faced during the COVID-19 pandemic?

______________________________

What strategies might be helpful to assist frontline healthcare workers during future crisis events like pandemics, disasters etc?

______________________________

### Supplemental material

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General Psychiatry

Smallwood N, et al. General Psychiatry 2021; 34:e100577. doi: 10.1136/gpsych-2021-100577
Survey Progress

The following questions ask about the provision of health care during the COVID-19 pandemic:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Somewhat disagree</th>
<th>Neither agree nor disagree</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am worried that some patients will not receive the care they need due to scarcity of resources.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Having to wear PPE means that I cannot properly provide the care to patients with suspected or confirmed COVID-19.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>If I have to go into quarantine, I am letting down my co-workers who are already overworked and stressed.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Excluding close family from the bedside of patients with COVID-19 goes against my values as a healthcare worker</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
PART G - Measuring wellbeing, resilience, and coping

Survey Progress

The next section asks about your feelings, thoughts, and responses to the COVID-19 pandemic using well validated scales.
### Survey Progress

The next 2 questions consider resilience  
(Connor-Davidson Resilience Scale- the CD-RISC-2)

<table>
<thead>
<tr>
<th>Not true at all</th>
<th>Rarely true</th>
<th>Sometimes true</th>
<th>Often true</th>
<th>True nearly all the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to adapt when changes occur</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I tend to bounce back after illness, injury, or other hardships</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
### Survey Progress

**Over the past TWO WEEKS, how often you have been bothered by the following?**

*(Generalized Anxiety Disorder - GAD-7)*

<table>
<thead>
<tr>
<th>Feeling nervous, anxious, or on edge</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not being able to stop or control worrying</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Worrying too much about different things</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trouble relaxing</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Being so restless that it is hard to sit still</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Becoming easily annoyed or irritable</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling afraid as if something awful might happen</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
## Survey Progress

**Over the past TWO WEEKS, how often you have been bothered by the following?**

*(Patient Health Questionnaire - PHQ-9)*

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little interest or pleasure in doing things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble falling or staying asleep, or sleeping too much?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling tired or having little energy?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor appetite or overeating?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling bad about yourself - or that you are a failure or have let yourself or your family down?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble concentrating on things, such as reading the newspaper or watching television?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving or speaking so slowly that other people could have noticed? Or been so fidgety or restless that you have been moving a lot more than usual?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Survey Progress

**Over the last TWO weeks, how has the COVID-19 pandemic impacted your everyday thinking? (Impact of Event Scale - IES-6)**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>I thought about it when I didn't mean to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Other things kept making me think about it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I was aware that I still had a lot of feelings about it, but I didn't deal with them</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I tried not to think about it</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I felt watchful or on guard</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I had trouble concentrating</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
## Survey Progress

For each statement, mark the box that most accurately reflects your response:

*(Abbreviated Maslach Burnout Inventory)*

<table>
<thead>
<tr>
<th>I deal very effectively with the problems of my patients</th>
<th>Every day</th>
<th>A few times a week</th>
<th>Once a week</th>
<th>A few times a month</th>
<th>Once a month or less</th>
<th>A few times a year</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel I treat some patients as if they were impersonal objects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel emotionally drained from my work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel fatigued when I get up in the morning and have to face another day on the job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I've become more callous towards people since I took this job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I'm positively influencing other people's lives through my work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with people all day is really a strain for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don't really care what happens to some patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel exhilarated after working closely with my patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Survey Progress

Is there anything else that you would like to tell us about the impact of the COVID-19 pandemic or regarding supports that you feel are useful for well-being?

______________________________

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