



Burnout and the challenges facing pharmacists during COVID-19: results of a national survey

Karlee Johnston¹ · Claire L. O'Reilly² · Brett Scholz¹ · Ekavi N. Georgousopoulou¹ · Imogen Mitchell¹

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Abstract

Background COVID-19 has impacted the psychological wellbeing of healthcare workers and has forced pharmacists to adapt their services. **Objective** To measure burnout and describe the work and psychosocial factors affecting pharmacists during COVID-19, and to compare males and females. **Setting** An online survey was distributed to a convenience sample of pharmacists practicing in any setting in Australia during April and June 2020. **Method** The survey collected demographic data, burnout scores using the validated Maslach Burnout Inventory (MBI), psychosocial and work-related variables using questions adapted from previous surveys. It was tested for readability by a group of pharmacists and academic clinicians before distribution via social media and professional organisations. **Main outcome measure** Burnout was calculated using mean MBI scores, descriptive statistics were used to report work and psychosocial variables and Pearson's chi-square compared males and females. **Results** Overall, 647 responses were analysed. Most participants were female $n=487$ (75.7%) with hospital $n=269$ (42.2%) and community $n=253$ (39.9%) pharmacists well represented. Mean (SD) for emotional exhaustion (possible range 0–54) and depersonalisation (possible range 0–30) were 28.5 (13.39) and 7.98 (5.64), which were higher (increased burnout) than reported pre-COVID-19. Personal accomplishment (range 0–48, lower scores associated with burnout) mean (SD) 36.58 (7.56), was similar to previously reported. Males reported higher depersonalisation indicating more withdrawal and cynicism. Working overtime, medication supply and patient incivility were reported to affect work. **Conclusion** Pharmacists are experiencing burnout, with work and psychosocial factors affecting them during COVID-19. Knowledge of this and that males experience more depersonalisation is valuable to inform advocacy and interventions to support pharmacists.

Keywords Burnout · COVID-19 · Pandemic · Pharmacist · Psychological

Impacts on practice

- This study demonstrates that pharmacists experienced burnout during the global COVID-19 pandemic. Burnout is associated with absenteeism, leaving the profession, self-reported errors, and reduced patient care. Providing supports and interventions for pharmacists to optimise psychological wellbeing is an important step in reducing

long-term impacts on pharmacists, their patients, and the workforce.

- Male pharmacists experience burnout as depersonalisation including cynicism and feeling disconnected more than their female colleagues. It is important to understand how burnout is experienced to optimise interventions for its prevention and treatment. The symptoms of depersonalisation are more difficult to recognise, limiting early recognition of burnout in males. Efforts should be made to improve recognition of burnout.
- This study has identified modifiable factors that have affected pharmacists during the COVID-19 pandemic including medication supply and provision of Personal Protective Equipment (PPE). Pharmacists should be included in emergency preparedness planning given they are crucial front-line healthcare workers being affected by these modifiable factors.

✉ Karlee Johnston
karlee.johnston@anu.edu.au

¹ ANU Medical School, ANU College of Health and Medicine, The Australian National University, Acton, ACT, Australia

² Sydney Pharmacy School, Faculty of Medicine and Health, The University of Sydney, Sydney NSW, Australia

- The COVID-19 pandemic has changed work practices for pharmacists with many working overtime, experiencing an increased workload, and working with reduced staffing. Interventions such as increased pharmacist numbers and increased training and support for pharmacists is required, and should be incorporated into pandemic planning at organisational, National, and International levels.

Introduction

Pharmacists are front-line healthcare workers playing a vital role in medication management during the global COVID-19 pandemic, with a unique role in the healthcare system [1]. Community pharmacists remain an accessible face-to-face resource during a period where in-person healthcare consultations are reserved, and the use of telehealth is increasing [2, 3]. Continuing face to face care provides an opportunity for education and counselling for patients, but also carries a risk of exposure [4]. Hospital pharmacists provide advice during disaster planning, accelerated training of staff to work in specialised areas and facilitation of medicine supply during a time where supply is tenuous and best-practice guidelines are changing rapidly [5]. Pharmacists are designing and implementing legislative and technological solutions to enhance medicines management on accelerated timeframes and academic pharmacists are adapting to ensure continued delivery of teaching and research [6]. Like many healthcare workers, pharmacists are providing a vital service during COVID-19 [7–9].

Healthcare workers have described psychological impacts during the global COVID-19 pandemic including burnout, anxiety, depression, and insomnia caused by both personal and work-related factors. Personal factors include a sense of fear, anxiety, and uncertainty, as well as a desire for appreciation, respect, and support. Work-related factors include working in unfamiliar roles, inadequate resources, unfamiliarity with personal protective equipment (PPE) and increased workloads [10–16]. Pharmacists are rarely included in studies describing the psychological impacts on healthcare workers despite their public-facing roles during pandemics [15–20].

Even prior to the global COVID-19 pandemic, pharmacists were experiencing psychological impacts from their work particularly burnout [21]. Burnout is an occupational phenomenon resulting in chronic stress that has not been adequately managed [22]. Dimensions associated with burnout are: emotional exhaustion, characterised by feelings of energy depletion or exhaustion, depersonalisation characterised by negativity, cynicism or feeling disconnected and reduced personal accomplishment characterised by a feeling of reduced professional efficacy [22]. The reported prevalence of burnout in

pharmacists varies, with some studies reporting over 50% of pharmacists experiencing burnout at any given time [23–27]. Factors associated with burnout include: working long hours, excessive workloads, increased administrative tasks and a decreased clinical encounters with insufficient rewards and inadequate supports [21, 24, 28–33].

Differences in burnout between males and females is reported inconsistently [34, 35]. A small number of studies in pharmacists have identified female gender as a risk factor with most failing to identify any difference between genders [21]. Females are however, more likely to report higher scores in emotional exhaustion, and males in depersonalisation [35, 36]. Additionally, COVID-19 challenges have exposed a gender gap with women more likely to take on additional carer roles and experience more isolation from social support networks, leading to increased stress and psychological burden [37, 38]. Moreover, mothers have been more likely to quit or lose their job during COVID-19 compared to fathers [39, 40].

With healthcare workers reporting psychological impacts from the COVID-19 pandemic it is important to measure the impact on pharmacists specifically. During pandemics pharmacies remain open, offering a highly trusted and reliable first point of contact for patients, putting pharmacists at risk of exposure [4, 41, 42]. The diversity of professional services as well as their role in medication supply make pharmacists a unique healthcare professional group making it difficult to extrapolate data from others. Knowledge of burnout, the factors affecting pharmacists during COVID-19 and any gender specific differences is required to design interventions. These data can also support advocacy, planning and early preparedness for future pandemics to support the psychological wellbeing of pharmacists during these challenging times.

Aim of the study

The aim of this study was to measure burnout in Australian pharmacists across practice settings during the global COVID-19 pandemic. It also aims to describe work practices and psychosocial factors affecting pharmacists and differences between males and females are documented.

Ethics approval

This cross-sectional national project was approved by the Australian National University Human ethics committee (2020/154).

Method

Study design

A survey was designed and tested (by the authors and a small group of pharmacists for face validity), then distributed to pharmacists across Australia via the online survey platform Qualtrics. The recruitment strategy was to distribute the survey widely to maximise the number and diversity of respondents. This involved convenience sampling by invitation to complete the anonymous survey. A link to the online survey was disseminated via social media platforms including Facebook and Twitter as well as promotion by Australian pharmacist membership organisations and publications. Pharmacists were encouraged to further distribute the survey link to pharmacist colleagues. Inclusion required the participant to be a pharmacist registered in Australia at the time of completing the survey. The survey link was open between 28 April 2020 to 28 June 2020. At the time Australia had closed international borders and enforced physical distancing including closure of non-essential services since 20 March 2020 [43].

Study instrument

The survey consisted of three parts: Part 1 captured demographic information including sex, age, primary practice area, employment status, years of practice and leadership role. Part 2 measured burnout using the Maslach Burnout Inventory (MBI)—human services survey [44]. The MBI consists of 22 questions measuring three distinct dimensions of burnout; emotional exhaustion, depersonalisation and personal accomplishment [45, 46]. Each dimension is scored individually on a Likert scale (0–7) with each question asking to describe the frequency (from “never” to “every day”) with which they experience the statement, for example “I feel burned out from my work”. The MBI is not used to dichotomise burnout or no burnout, instead each dimension is reported separately and represents a continuum and therefore does not provide cut-off scores. The higher the participant scores in emotional exhaustion (range 0–54) and depersonalisation (range 0–30), the higher they score for burnout, however a high score in personal accomplishment (range 0–48) is associated with a lower burnout score. The MBI has been used extensively and has undergone statistical analysis for reliability, convergent validity and construct validity [46]. Part 3 of the survey investigated the psychosocial impacts of the pandemic using a select number of relevant questions from a study by Nickell et al. investigating the psychological effects of SARS on healthcare professionals

[18]. Permission was granted to use the questions which included “degree of concern for personal health, and degree of concern for family’s health, whether precautionary measures in the workplace were sufficient (referring to PPE and infection control measures), changes to regular duties, working overtime, financial losses, positive outcomes from the pandemic, and whether personal life was affected” [18].

Data analysis

The results were exported and analysed using IBM SPSS (version 26). Descriptive statistical analyses were reported using mean (SD) for normally distributed continuous variables or using median (1st, 3rd quartile) when normal distribution was not met. Categorical variables are presented as frequencies (relative frequencies out of valid data). The burnout scores for each of the burnout categories were calculated using the MBI tool and reported as mean and standard deviation as recommended [44]. Differences between males and females were statistically tested using Pearson’s chi-square for all variables, except age where Student’s t-test was used. Only responses with full data sets were used for analysis, to avoid making any assumptions about missing data.

Results

A total of 1202 participants accessed the survey with 647 responses containing complete data. Given the methodology of recruitment it is not possible to determine definitively how many pharmacists had access to the survey link. In March 2020 there were 31,503 registered practicing pharmacists in Australia. Using this data, the response rate is 1.97% however, it is unlikely that every practicing pharmacist would have received the survey link. Whereas, if we assume that all pharmacists who received the survey link proceeded to access it (1202) and 647 completed it the response rate is 53.8%.

Demographics

Participants were predominantly female $n = 487$ (75.7%), working full-time $n = 422$ (65.2%) with more than 10 years’ experience in pharmacy $n = 377$ (59%) and a mean age of 39.68 years (SD 12.07). There was an almost even split between hospital $n = 269$ (42.2%) and community $n = 253$ (39.9%) pharmacists. More than half were in a management position $n = 366$ (56.7%) with a significantly higher proportion being male ($p = 0.018$) (Table 1).

Table 1 Demographic characteristics and employment details of survey respondents overall and in respect to their sex (n=647)

Characteristic	Overall n=647	Females n=487	Males n=149	P
Age in years, mean (SD)	39.7 (12.1)	38.7 (11.4)	42.6 (13.4)	0.001
Primary Area of pharmacy practice				0.186
Community pharmacy only, n (%)	253 (39.9)	181 (37.8)	68 (47.2)	
Hospital pharmacy only, n (%)	269 (42.4)	214 (44.7)	52 (36.1)	
Other (Government/ policy, industry, outpatient/ clinic/ nursing home, accredited pharmacist), n (%)	21 (3.3)	16 (3.3)	3 (2.1)	
Combination of any of the above, n (%)	91 (14.4)	68 (14.2)	21 (14.6)	
Years of practice in pharmacy				0.094
Less than 5 years, n (%)	118 (18.5)	93 (19.3)	23 (15.8)	
5–10 years, n (%)	144 (22.5)	117 (24.3)	26 (17.8)	
More than 10 years, n (%)	377 (59)	271 (56.3)	97 (66.4)	
Employment status				<0.001
Full time, n (%)	422 (65.2)	296 (60.9)	121 (81.2)	
Part time, n (%)	164 (25.3)	144 (29.6)	30 (8.7)	
Casual, n (%)	32 (4.9)	19 (3.9)	13 (8.7)	
Other, n (%)	29 (4.5)	27 (5.6)	2 (1.3)	
In a position of management/leadership				0.018
Yes, n (%)	366 (56.7)	264 (54.4)	98 (65.8)	
No, n (%)	280 (43.3)	221 (45.6)	51 (34.2)	

All percentages are calculated on valid data

p values derived from Student's *t*-test for age and Pearson's chi-square test (or Fisher's exact test when necessary) for all other variables

SD standard deviation

^aParticipants were able to select more than one answer therefore percentages may add to more than 100%

Table 2 Burnout questionnaire results of survey respondents overall and in respect to their sex (n=647)

MBI Burnout Category	Overall n=647	Females n=487	Males n=149	P
Emotional exhaustion (0–54), mean (SD)	28.5 (13.4)	28.8 (13.0)	28.2 (14.6)	0.656
Depersonalisation (0–30), mean (SD)	7.98 (5.6)	7.6 (5.5)	9.2 (6.1)	0.004
Personal accomplishment (0–48), mean (SD)	36.6 (7.6)	36.6 (7.5)	36.8 (7.7)	0.790

p values derived from Student's *t*-test

MBI Maslach burnout inventory, *SD* standard deviation

Burnout

The mean scores are reported in Table 2. This study found similar mean (SD) emotional exhaustion scores for males 28.2 (14.6) and females 28.8 (13.0), $p=0.656$. There was also no difference in personal accomplishment means (SD) in males 36.8 (7.7) and females 36.6 (7.5), $p=0.790$. However, higher depersonalisation means (SD) were reported in male 9.2 (6.1) compared with female pharmacists 7.6 (5.5), $p=0.004$. Higher depersonalisation scores indicate that males experience more burnout with symptoms of negativity, cynicism and disconnection compared with female pharmacists.

Workplace factors

Although only a small number of pharmacists reported caring for a COVID-19 positive patient $n=115$ (17.8%), almost all reported a change to their role $n=603$ (96.3%) with many reporting an increase in workload $n=431$ (35.9%) and more than half working overtime $n=335$ (52.2%) (Table 3). The challenges most affecting pharmacists include medication supply $n=491$ (40.9%) increased workload $n=425$ (35.4%) and patient/client incivility $n=288$ (24%). Male pharmacists found that providing advice to patients affected them more than their female colleagues ($p=0.031$). Most pharmacists reported that their workplace had sufficient precautionary measures $n=458$ (71.1%).

Table 3 Workplace factors of survey respondents overall and in respect to their sex (n=647)

Characteristic	Overall n=647	Females n=487	Males n=149	P
Cared for a COVID-19 positive patient				0.064
Yes, n (%)	115 (17.8)	87 (17.9)	27 (18.1)	
No, n (%)	421 (65.2)	326 (67.2)	88 (59.1)	
Not sure, n (%)	110 (17)	72 (14.8)	34 (22.8)	
I have been working overtime as a result of COVID-19				0.188
Yes, n (%)	335 (52.2)	245 (50.8)	85 (57.4)	
No, n (%)	307 (47.8)	237 (49.2)	63 (42.6)	
Precautionary measures in my workplace related to COVID-19 are:				0.917
Sufficient, n (%)	458 (71.1)	349 (72.0)	103 (70.1)	
Insufficient, n (%)	128 (19.9)	92 (19.0)	30 (20.4)	
Don't know, n (%)	58 (9)	44 (9.1)	14 (9.5)	
Changes to regular job/role have resulted from COVID-19:				
Nothing has changed, n (%)	44 (3.7)	29 (6.0)	13 (8.7)	0.234 ^a
Increased workload, n (%)	431 (35.9)	315 (64.8)	109 (73.2)	0.059 ^a
Different work area to usual, n (%)	218 (18.2)	169 (34.8)	44 (29.5)	0.236 ^a
Different role to usual, n (%)	151 (12.6)	109 (22.4)	37 (24.8)	0.073 ^a
Other, n (%)	163 (13.6)	130 (26.7)	29 (19.5)	0.084 ^a
What factors have most significantly affected your work:				
Medicines supply, n (%)	491 (40.9)	365 (75.1)	117 (78.5)	0.393 ^a
Exposure to patients with significant morbidity and mortality, n (%)	191 (15.9)	142 (29.2)	44 (29.5)	0.942 ^a
Personal health, n (%)	165 (13.7)	114 (23.5)	44 (29.5)	0.134 ^a
Reduced staffing, n (%)	201 (16.7)	149 (30.7)	48 (32.2)	0.719 ^a
Increased workload, n (%)	425 (35.4)	314 (64.6)	104 (69.8)	0.243 ^a
Providing advice to patients/customers, n (%)	244 (20.3)	171 (35.2)	67 (45)	0.031 ^a
Providing advice to organisation/staff, n (%)	244 (18.7)	165 (34)	56 (37.6)	0.415 ^a
Working in different role to usual, n (%)	157 (13.1)	119 (24.5)	34 (22.8)	0.677 ^a
Incivility/rudeness/poor behaviour of recipients, n (%)	288 (24)	218 (44.8)	64 (43)	0.683 ^a
Other, n (%)	111 (9.2)	95 (19.5)	14 (9.4)	0.004 ^a

P values derived Pearson's chi-square or Fisher's exact test when necessary

All percentages are calculated on valid data

^aParticipants were able to select more than one answer therefore percentages may add to more than 100%

Psychosocial factors

When asked about the degree of concern for their own health and the health of their family more pharmacists were "very to extremely concerned" about their family's health n = 234 (36.3%) compared with their own health n = 82 (12.7%) (Table 4). Many pharmacists reported that their personal life had been affected n = 563 (87.2%) most commonly due to isolation from family and friends n = 548 (83.0%). Only a small number of pharmacists reported no positive impacts from the pandemic n = 80 (6.7%), with males more likely to report this (p = 0.03). Positive impacts most reported were a greater understanding of infection control n = 407 (33.9%) and believing it provided a learning experience n = 358 (29.8%) (Table 4).

Discussion

This study describes the psychosocial and work-related impacts of the global COVID-19 pandemic on pharmacists. Pharmacists reported experiencing burnout, increased workload, and overtime, and were challenged by managing medication supply and incivility from patients. They were concerned for the health of their families, and their personal lives were affected by isolation and financial losses. Despite these challenges most pharmacists reported some positive impacts from the global COVID-19 pandemic such as increased awareness of disease control and the situation providing a learning opportunity.

The burnout scores in this study are higher than scores reported in hospital pharmacists prior to the COVID-19

Table 4 Psychosocial factors and concerns of survey respondents overall and in respect to their sex (n = 647)

Characteristic	Overall n = 647	Females n = 487	Males n = 149	P
Vulnerable person close contact				0.743
Yes, n (%)	423 (65.5)	316 (65.0)	96 (64.9)	
No, n (%)	173 (26.8)	130 (26.7)	43 (29.1)	
Not sure, n (%)	44 (6.8)	35 (7.2)	9 (6.1)	
I have suffered financial loss as a result of COVID-19				0.002
Yes, n (%)	187 (29.1)	126 (26.1)	59 (39.6)	
No, n (%)	456 (70.9)	356 (73.9)	90 (60.4)	
I have been treated differently because I work in healthcare during COVID-19	0.151			
Yes, n (%)	262 (40.8)	188 (39.0)	68 (45.9)	
No, n (%)	380 (59.2)	294 (61.0)	80 (54.1)	
My personal life or my family's lifestyle has been affected by COVID-19				0.782
Yes, n (%)	563 (87.2)	421 (86.8)	131 (87.9)	
No, n (%)	83 (12.8)	64 (13.2)	18 (12.1)	
In what way your personal life has been affected:				
It has not been affected, n (%)	41 (6.2)	27 (5.6)	13 (8.7)	0.179 ^a
Financial impact due to loss of income to the household, n (%)	137 (20.8)	96 (19.8)	38 (25.5)	0.168 ^a
Burden of caring for children as school closed, n (%)	139 (21.5)	104 (21.5)	32 (21.5)	1.00 ^a
Isolation from family/friends, n (%)	548 (83.0)	415 (85.7)	122 (82.4)	0.357 ^a
Loss or illness of loved one, n (%)	27 (4.1)	21 (4.3)	6 (4.0)	1.00 ^a
Other, n (%)	154 (23.3)	119 (24.4)	31 (20.8)	0.380 ^a
The degree of concern I have about my own personal health related to COVID-19:				0.611
Not concerned, n (%)	155 (24.0)	120 (24.7)	35 (23.6)	
Slightly to somewhat concerned, n (%)	408 (63.3)	308 (63.5)	91 (61.5)	
Very to extremely concerned, n (%)	82 (12.7)	57 (11.8)	22 (14.9)	
The degree of concern I have about my family's health related to COVID-19				0.925
Not concerned, n (%)	49 (7.6)	37 (7.6)	12 (8.2)	
Slightly to somewhat concerned, n (%)	361 (56.1)	274 (56.5)	80 (54.4)	
Very to extremely concerned, n (%)	234 (36.3)	174 (35.9)	55 (37.4)	
The degree to which my family is concerned about the risk of COVID-19 to mine or their health as a result of my work				0.731
Not concerned, n (%)	90 (14.0)	70 (14.5)	19 (12.8)	
Slightly to somewhat concerned, n (%)	373 (57.9)	282 (58.3)	84 (56.8)	
Very to extremely concerned, n (%)	181 (28.1)	132 (27.3)	45 (30.4)	
In what ways has COVID-19 had a positive impact				
There is no positive impact, n (%)	80 (6.7)	50 (10.3)	29 (19.5)	0.003 ^a
Increased awareness of disease control, n (%)	407 (33.9)	306 (62.8)	93 (62.4)	0.927 ^a
Learning experience, n (%)	358 (29.8)	272 (55.9)	80 (53.7)	0.642 ^a
Increased sense of togetherness and cooperation, n (%)	308 (25.6)	243 (49.9)	62 (41.6)	0.076 ^a
Less busy than usual, n (%)	113 (9.4)	87 (17.9)	24 (16.1)	0.621 ^a
Greater appreciation of life and work, n (%)	289 (24.1)	223 (45.8)	60 (40.3)	0.235 ^a
Other, n (%)	87 (7.2)	65 (13.3)	20 (13.4)	0.981 ^a

P values derived Pearson's chi-square or Fisher's exact test when necessary

All percentages are calculated on valid data

^aParticipants were able to select more than one answer therefore percentages may add to more than 100%

pandemic [21]. A recent meta-analysis combined data from 15 studies of burnout in hospital pharmacists, with our study reporting higher mean burnout scores in emotional

exhaustion and depersonalisation but similar scores for personal accomplishment [21]. There is less data available about burnout in community pharmacists with one

study reporting low burnout scores in emotional exhaustion and depersonalisation but high levels of burnout related to reduced personal accomplishment with no difference between males and females [30]. Given lack of burnout data in pharmacists across practice settings it is difficult to determine whether the relatively higher scores reported in this study are due to the pandemic, or merely a representation of pharmacists across various practice settings. The significantly higher scores in depersonalisation of male pharmacists is of interest, with previous studies suggesting this may be explained by gender role theory [35]. The theory describes women as being more likely to express their emotions resulting in higher scores in emotional exhaustion, whereas it is more socially expected that males will shut off and internalize their emotions, thereby scoring higher in depersonalisation [35]. This creates a risk that the symptoms associated with burnout in males such as withdrawal and cynicism are more likely to go unnoticed than a display of emotional or physical exhaustion [34]. Depersonalisation is considered the interpersonal component of burnout, and has been linked to a decreased ability to appropriately recognise facial expression and self-reported reductions in patient care practices [47, 48]. This reduction in interpersonal communication may help to explain why males reported challenges in interpersonal interactions such as providing advice to patients compared with their female colleagues. Although previous research during COVID-19 has described females as more likely to lose their jobs, be isolated from family and friends and take on more family caring roles, this survey reports no difference between male and female pharmacists in taking on carer roles or isolation from family and friends [37, 49]. Furthermore, our study found males more likely to report loss of income compared to females. This may be explained by pharmacists having access to childcare and schooling during lockdown due to being essential workers and not at risk of losing their jobs during this time.

The high burnout scores in pharmacists are an important finding, particularly as only a small number of pharmacists had cared for a COVID-19 positive patient. Data from the SARS epidemic supports this finding and suggests that long-term psychological burden is not related to whether a health professional cared directly for a patient with the virus [50, 51]. Studies reporting psychological outcomes from pandemics warn that long-term psychological distress, burnout, or posttraumatic stress could affect more than 50% of healthcare workers leading to significant effects on healthcare including reduced patient contact hours, increased substance abuse and absenteeism [51]. Providing supports and interventions for pharmacists (regardless of whether they cared for a COVID-19 positive patient) must be prioritised to reduce long-term impacts on pharmacists personally, patients and on the pharmacy workforce in the future.

The global COVID-19 pandemic has forced pharmacists to adapt to provide for patients turning to their pharmacists [52–56]. The most common change to the work of pharmacists in this study was an increase in workload and more overtime. This study supports the anecdotal reports describing increased pharmacist workloads during COVID-19 [56, 57]. Pharmacists report medication supply issues, which involves managing procurement, communication with health professionals and patients regarding supply disruption, as well as implications and therapeutic alternatives [55, 58–61]. Medication supply shortages during the global COVID-19 pandemic have been a notable problem, and necessitated legislative changes to assist pharmacists in managing the shortages [2]. The participants in this study report experiencing increased incidents of abuse from patients which supports anecdotal reports of incivility due to sales restrictions on prescription and non-prescription products [62]. Whilst there have been commentaries and case reports of the effect of global COVID-19 pandemic on the work of pharmacists, this study provides data to support these accounts [57, 62]. These are important findings to inform future pharmacist workforce planning for pandemics with the importance of adequate staffing, communication and support particularly with regard to medication procurement and supply management.

Participants in this study reported changes to their personal lives much like those affecting the general population, including caring responsibilities, isolation from family and friends and financial loss. Participants from this study report more effect on their personal lives during COVID-19 than was reported during the SARS epidemic. This may be due to the increased transmissibility of COVID-19, a longer pandemic period and large-scale transmission minimisation strategies resulting in significant impact to daily life [63, 64]. These factors may account for the higher concern of pharmacists for the health of their families (compared to the concern they reported for their own health), with most pharmacists reporting sufficient precautionary infection control measures in their workplace [18, 65, 66].

The strengths of this study relate to its scope, measuring burnout in pharmacists from various practice settings. The survey captured data on many COVID-19 pandemic related effects including demographic, psychological, work, and social. A validated and widely used tool (the MBI) was used to measure burnout. A methodological limitation lies in the inability to report a traditional response rate, due to the decision to collect a convenience sample. Using the number of times the survey was accessed, or the total number of pharmacists registered in Australia are crude measures with limitations. There is the risk that some pharmacists were too burned out to complete the survey, which would result in under reporting. Relying on self-reporting may contribute to both selection bias and response bias, with participants potentially providing socially acceptable answers. These limitations are not unique

to this study and affect all studies using the MBI which relies on self-reporting. Given the variation in pharmacy practice worldwide, the ways that the pandemic has affected different countries, and inconsistent changes to pharmacy practice during the COVID-19 pandemic the results of this study may not be generalisable.

The impact of a burned-out pharmacy workforce is significant, affecting pharmacists, patients, and the healthcare system. Describing the work and psychosocial variables impacting pharmacists during the global COVID-19 provides insights to inform interventions to minimise the effect of the pandemic on pharmacists. Important future work should include repeated cross-sectional or longitudinal studies to identify and explore factors associated with burnout over time and implementing early and sustainable strategies to minimise the negative effects of pandemics and provide protection for pharmacists against burnout. Such interventions may include involving pharmacists in pandemic planning, increasing the pharmacist workforce and training pharmacists to prepare them for the role of pandemic information provider. Appropriate governance and systematic management of PPE, infection control recommendations and medication supply, as well as strategies for early recognition of burnout and implementation of good self-care practices would promote psychological wellness. The burden of burnout on the pharmacist profession during this time deserves attention and should be a priority for further research.

Conclusion

Pharmacists have experienced changes to their lives and work during the global COVID-19 pandemic, with higher than previously reported rates of burnout affecting the profession. High workloads, overtime, medication supply and patient behaviour have affected pharmacist's work during the pandemic. These factors, and the increased depersonalisation of male pharmacists requires further study to inform both the recognition and treatment of burnout in pharmacists.

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