



Coping mechanisms used by pharmacists to deal with stress, what is helpful and what is harmful?

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ABSTRACT

Background: Australian pharmacists encountered increased stressors during the COVID-19 pandemic. This has raised questions regarding the effectiveness of the coping mechanisms used to manage this high work-related stress. Identifying useful and harmful coping mechanisms is critical for providing advice regarding addressing pharmacists' future work-related stress.

Objectives: This study aimed to explore the impact of pharmacy work on stress experienced by Australian pharmacists and the coping mechanisms used during the COVID-19 pandemic. This study also aimed to evaluate the pharmacists' perceptions of the impact of these coping mechanisms on their stress.

Methods: A cross-sectional study was conducted. Practising pharmacists and interns were recruited to complete an online survey that included the Perceived Stress Scale (PSS), which was used to measure pharmacists' work-related stress, and the Brief-COPE scale, used to assess the coping mechanisms used during the COVID-19 pandemic. The key outcome measure was the PSS score. A multiple regression analysis was used to evaluate the relationship between coping mechanisms and stress levels in a sample of Australian pharmacists.

Results: A total of 173 pharmacists and interns were recruited. The mean PSS was 18.02 (SD = 6.7). Avoidant coping mechanisms such as social withdrawal ($\beta = 0.31$; $p = 0.0001$) were significantly positively associated with work-related stress. In contrast, exercise was significantly negatively associated with work-related stress ($\beta = -0.21$; $p = 0.009$). The most frequently reported perceived barrier to seeking help was feeling burnt out and underappreciated.

Conclusions: This study highlights the association of coping mechanisms used by pharmacists during the COVID-19 pandemic with work-related stress. The study results demonstrate the importance of physical activity and spending time with pets in reducing work-related stress levels. Avoiding harmful coping mechanisms such as social withdrawal and drinking alcohol is recommended. This study also highlights the need for interventional studies to reduce work-related stress levels among pharmacists by addressing useful coping mechanisms.

1. Introduction

The Australian Psychological Society describes stress as feeling overloaded, wound-up, tense, and worried, and occurs when an individual faces a situation that they feel unable to cope with.¹ Different causes of stress have been identified; one of these is an individual's workplace. The World Health Organization (WHO) defines work-related stress as "the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope".² Although the terms "stress" and "burnout" are sometimes used interchangeably, they are not the same, and there are key differences between these two terms. Burnout is a response to extended, excessive stress that leaves an individual mentally and physically drained,

cynical, detached, and less effective. The WHO defines burnout as "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed."³ Therefore, it is important to manage stress before it leads to burnout.

It has been recognized that healthcare professionals, including pharmacists, suffer from high levels of stress,⁴ with almost 60% of all Australian pharmacists' stressors being related to workplace issues.⁵ In comparison, workplace issues accounted for approximately 32% of all stressors for the entire Australian population.⁶

In addition, the scope of practice for a pharmacist has expanded in the past two decades with increasingly autonomous, direct patient care roles across all settings.⁷ These additional roles include the provision of vaccination services, medication management reviews, and chronic disease

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screening services, which have led to an increase in work-related stress experienced by pharmacists due to inefficient work environments, the burden of non-clinical duties, excessive workloads and lack of resources necessary to achieve desired clinical outcomes.⁷ More recently, the COVID-19 pandemic has further increased stress for pharmacists.⁸ According to a recent study involving more than 600 pharmacists in Australia, 35.9% of pharmacists reported an increased workload during the pandemic, and more than 50% of the pharmacists were obliged to work overtime.⁹ Moreover, an increase in harassment and verbal abuse experienced by pharmacists during the pandemic has been reported.¹⁰

Consequently, stress among pharmacists working under such conditions has precipitated serious health issues, including insomnia, depression, and anxiety, and has negatively impacted mental health and well-being.^{4,11,12} Therefore, it is important to evaluate pharmacists' work-related stress levels and identify useful coping strategies to support pharmacists' adjustments to stressful work conditions.

Coping is broadly defined as the conscious or unconscious cognitive and behavioural strategies an individual employs to manage stress.¹³ The coping process consists of two parts: the primary appraisal of the event as being harmful or threatening; and the secondary appraisal of one's coping options or mechanisms that can be used to deal with the potentially stressful event.¹⁴

The American Psychological Association has proposed coping strategies to minimise work-related stress, and these include tracking (e.g., identifying workplace stress situations), developing healthy responses (e.g., good-quality sleep, exercise), establishing boundaries between work and home life (e.g., not checking work email from home), taking time to recharge, learning how to relax (e.g., meditation, deep breathing exercises), talking to supervisors, and/or getting professional support.¹⁵

Coping strategies are often categorised into three different groups: avoidant, emotional, and problem-focused coping strategies. Avoidant strategies seek to avoid the stressor and one's reaction to it, such as withdrawing from others, substance use, and denying the reality of the stressor.¹⁶ Emotion-focused strategies aim to manage emotional distress (e.g., seeking out social support), while problem-focused strategies intend to modify the problem at hand, e.g., informational support and active coping.¹⁷ There is much debate about strategies most beneficial in managing work-related stressors. For example, avoidance strategies may help reduce short-term stress but are generally considered harmful from the perspective of physical well-being as no direct actions are taken to reduce the stressor, leaving the individual feeling helpless or self-blaming.¹⁶

Previous studies have reported on the coping mechanisms used by healthcare providers,¹⁸ including pharmacists.^{5,8,19} The Australian National Stress and Wellbeing Survey involved more than 700 pharmacists, interns, and pharmacy students. This survey addressed several coping strategies used by the participants to manage work-related stress. These included turning to family, friends, and colleagues, exercise, mindfulness, praying, drinking alcohol, self-medication, turning to support groups or insurance companies, holidays, or changing jobs.⁵ However, limited studies have evaluated coping mechanisms used by pharmacists to manage stress during the COVID-19 pandemic or determined the association of coping mechanisms used by pharmacists with their stress levels.

Consequently, this study aimed to explore pharmacists' work-related stress during the COVID-19 pandemic and to identify the coping strategies used during the pandemic. The results of this study may assist in developing support strategies for pharmacists to improve work satisfaction and reduce work-related stress.

2. Materials and methods

2.1. Study design and setting

This study was conducted as a cross-sectional study in Australia after obtaining ethics approval from the RMIT University Human Ethics Committee (24747). The study was designed to assess the relationship between stress experienced by Australian pharmacists during the COVID-19

pandemic and their coping strategies. After being piloted by 6 pharmacists, an online survey displayed in Qualtrics software® was launched from September 6th to September 29th, 2021. Data were collected using a convenience sampling process. Participants were recruited from the Australian pharmacy workforce. Participants were given access to the participant information sheet, which explained the study. The completion of the anonymous survey implied consent.

2.2. Study participants

Both hospital and community pharmacists were recruited by contacting them through their workplace email. The survey was a convenience sample, email addresses of Australian pharmacies were sourced in three ways: 1) researchers' professional networks (emailing pharmacies known to researchers); 2) using Google as a search engine and searching for pharmacies; 3) calling the pharmacies and requesting their email addresses if their email addresses were not shown online. In addition, the survey was promoted on the Society of Hospital Pharmacists of Australia Newsletter (SHPA), the Australian Journal of Pharmacy (AJP), and on popular social media, such as Facebook pharmacy groups and LinkedIn. A reminder email was sent at the end of the first week of data collection to encourage participants to complete the survey.

Those who met the following inclusion criteria were invited to participate in this study: registered pharmacist, intern pharmacist, community pharmacist, hospital pharmacist, over 20 years of age, and had worked in Australia in 2020–2021. Regarding registration status, participants were asked to select one of the following responses: "community pharmacist," "intern pharmacist," "hospital pharmacist," and "others." Participants who selected "others" were excluded from the study as the study focused on pharmacists with a direct patient care role.

2.3. Questionnaire development

The self-report questionnaire consisted of 4 sections and 19 questions. The first section was comprised of socio-demographic information, including age, gender, location of pharmacy workplace, work status (full-time, part-time, casual, or other), number of working hours, and years of experience.

The second section of the questionnaire assessed perceived barriers to seeking help for work-related stress. Respondents were asked to select one or more of the following barriers that they believe prevented them from seeking help when they were stressed in their workplace: *not aware of adequate stress coping mechanisms, cannot rely on friends, family, or colleagues, work-life balance is compromised, feeling burnout or underappreciated, understaffed, work environment is not a safe place, do not feel fit in at work, too shy to seek help, time and resources are limited, self-reliant to seek help, job security, stigmas or/and others.*

The third and fourth sections used validated and reliable tools to assess stress levels^{20,21} and to explore coping mechanisms used by pharmacists.²² Content validity of the questionnaire was reviewed by two academic researchers and one social worker to ensure that the questions covered all aspects of the study's aims.

2.3.1. Assessment of stress level

Stress experienced by pharmacists' was measured using Perceived Stress Scale (PSS), a validated and widely used instrument.^{20,21,23,24} The PSS normally consists of 10 or 14 items. In this study, the 10-item version (PSS-10) of the survey was used due to the reported benefits in measuring psychometric properties compared to the 14 items tool.²⁵ The PSS-10 has previously been used in a similar research study and with large probability samples.⁵ All items are measured on a 5-point Likert scale from 0 to 4, and four items in the PSS-10 tool are reverse-scored. An aggregate stress score was calculated for each participant by taking the sum of scores across the 10 items on the PSS, where the lowest possible score is 0, and the highest possible score is 40. The higher scores indicate higher stress levels, as stated by Cohen et al.²⁶

In this study, the original questions were revised by replacing the words “in the last month” with “during the COVID-19 pandemic” to ensure the study captured the effects of the COVID-19 pandemic on stress levels (Appendix 1). In addition, participants were asked to indicate the percentage of stress experienced during the COVID-19 pandemic that they perceived was related to the pharmacy-specific workplace.

2.3.2. Coping mechanisms used by pharmacists

The fourth section of the questionnaire utilized the Brief-COPE, a validated and widely used instrument that measures coping strategies in the health context.^{22,27} This questionnaire has been used in previous studies for measuring coping mechanisms used by pharmacists.¹⁹ In addition, it is reported to provide valid results for measuring coping strategies used by different populations, such as patients with different types of illnesses,²⁸ healthcare providers, such as nurses and doctors,²⁹ and pharmacy students.²³

The Brief-COPE questionnaire has a 3-factor structure that measures coping across 14 dimensions³⁰: acceptance, active coping, behavioural disengagement, denial, emotional support, humour, instrumental support, planning, positive reframing, religion, self-blame, self-distraction, substance use, and venting. However, dimensions may be omitted or replaced, or more dimensions may be added to the scale depending on the studied population.²² Participants were asked to report how often they used each mechanism to cope with their stressors, ranging from 1 (I have not been doing this at all) to 4 (I have been doing this a lot). Higher scores indicated higher levels of using these coping approaches.

Elements of the original questionnaire were reframed into real-life coping mechanisms to make it easier for participants to understand the concepts of the three factors of the Brief-COPE questionnaire. These included: 1) visiting healthcare providers, doctors, psychologists, and therapists; 2) spending time with pets; 3) spending time with family and friends; 4) sport; 5) spirituality (meditation, yoga, religion, mindfulness, and other); 6) taking leave; 7) leaving the current workplace or changing the job; 8) using pharmacy organisations such as Pharmacist's Support service (PSS), Professional Pharmacists Australia (PPA), or other support services; 9) drinking alcohol; 10) substance misuse; 11) social withdrawal; 12) binge eating. Many of these strategies were reported to be used by Australian pharmacists in a national survey that recruited more than 1000 participants.³¹

In line with previous research and to enhance the practicality of the Brief-COPE scale, we used a previously-derived 3-factor model for our analyses^{32–34}: problem-focused coping (active coping, planning), emotion-focused coping (positive reframing, acceptance, humour, religion), and avoidant coping (behavioural disengagement, denial, substance and alcohol use, binge eating, and venting).

Prior to implementation of the survey, a pilot study was conducted to examine the questions and statements. This pilot study evaluated how long it took to complete the survey and identified concerns that might lead to biased answers. The process involved administering the survey to 6 practicing pharmacists and to volunteer pharmacists working at the Pharmacists' Support Service. In addition, the intraclass correlation was used to determine the degree to which the researchers in this study agreed with one another on the extent to which each selected coping mechanism belonged to one of the three main categories (i.e., emotional, problem-focused, or avoidant).

2.4. Data analysis

Data were analysed using the IBM Statistical Package for the Social Sciences software® (Version 26) for Windows. Qualtrics' inbuilt data analysis and report system were also used as a supplementary data analysis tool for basic statistics and data.

Descriptive statistics examined participants' socio-demographics characteristics and all other variables, including frequencies, percentages, means, and standard deviations. One-way analysis of variance (ANOVA) was used to assess for significant differences in perceived stress based on

pharmacists' workplace (community vs. hospital), work experience, age group, and gender.

A stepwise regression analysis was used to identify possible predictors of stress level of the following variables: all coping mechanisms listed in Table 1 and demographics listed in Table 2. Variables were tested and added according to their contribution to the model. The variable with the smallest *p*-value was selected first, and then additional independent variables were added in a stepwise method to determine whether one would make a significant contribution to the current model. If so, it was kept; if not, this variable was eliminated. At each step, variables were chosen based on their contribution to the model's *R*² and were excluded if the *p*-value was insignificant (>0.05).^{35,36}

3. Results

3.1. Survey tools

The internal reliability of PSS and Brief-COPE mechanisms were assessed using Cronbach's alpha (0.87 and 0.7, respectively) and Intra Class Correlation (ICC) estimates, and their 95% confidence intervals were calculated based on absolute-agreement and 2-way mixed-effects model (ICC = 0.93, CI 0.84–0.97, *p* = 0.0001).

Table 1

General information and demographic data of study participants (*n* = 173).

Respondent type	N (%)
Community pharmacist	120 (69.4)
Hospital pharmacist	38 (22.0)
Intern pharmacist	6 (3.9)
Missing	9 (4.7)
State or Territory	
Victoria	89 (51.4)
New South Wales	34 (19.7)
Canberra	3 (1.7)
Queensland	12 (6.9)
North Territory	5 (2.9)
South Australia	7 (4)
Western Australia	6 (3.4)
Tasmania	17 (9.8)
Location	
Metropolitan area -Major city	100 (57.8)
Regional city	47 (27.2)
Rural town	21 (12.1)
Remote region	2 (1.2)
Other	2 (1.2)
Missing	1 (0.57)
Age (range)	
20–30	48 (27.7)
31–40	76 (43.9)
41–50	25 (14.5)
51–60	15 (10.4)
61 +	5 (2.9)
Missing	4 (2.3)
Gender	
Male	52 (30.1)
Female	119 (68.8)
Do not wish to specify	1 (0.6)
Missing	1 (0.57)
Work experience	
<1 year	6 (3.5)
1–5	33 (19.1)
5–10	50 (28.9)
10–20	50 (28.9)
>20 years	30 (17.3)
Missing	3 (1.7)
Current employment type	
Full time	106 (61.3)
Part-time	44 (25.4)
Casual	8 (4.6)
Missing	15 (8.7)

Table 2

Correlations between pharmacists' work-related stress and coping mechanisms.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Stress level	1												
2. Binge eating	0.36	1											
3. Social withdrawal	0.50	0.38	1										
4. Alcohol	0.41	0.38	0.34	1									
5. Substance misuse	0.04	0.05	0.13	0.26	1								
6. Friends, colleagues, family	-0.35	0.12	-0.36	-0.17	0.13	1							
7. Spending time with pets	-0.3	0.09	-0.21	-0.14	0.04	0.24	1						
8. Exercise	-0.42	-0.25	-0.45	-0.15	0.06	0.44	0.32	1					
9. Spirituality, meditation, religion	-0.08	0.02	-0.14	-0.14	-0.02	0.30	0.07	0.33	1				
10. Taking leave	0.08	0.01	0.19	0.05	-0.13	0.02	0.08	-0.02	0.1	1			
11. Visiting GPs, psychologist, counsellor, etc	0.06	0.06	0.01	0.03	-0.12	0.01	-0.03	-0.04	0.17	0.27	1		
12. Leaving current job	0.15	0.09	0.14	-0.03	-0.06	0.13	0.06	-0.01	0.06	0.57	0.41	1	
13. Pharmacy organisations	0.07	0.1	0.01	0.02	-0.05	0.08	0.05	-0.07	0.02	0.46	0.39	0.64	1

All significant correlations ($p < 0.05$) are bolded.

3.2. Demographics

A total of 173 participants were recruited. Participants' demographic characteristics are described in Table 1. The highest response rate was from community pharmacists (69.4%), followed by hospital pharmacists (22.0%). More than half of the participants were from the state of Victoria (51.4%). Most participants were working full-time (61.3%), between 31 and 40 years of age (43.9%), and working in metropolitan areas (57.8%) during the study period. The sample included more females (68.8%) than males (30.1%), reflecting the current gender balance of the pharmacy profession. According to the Pharmacy Board of Australia registrant statistics, 63% of pharmacists are female, and 37% are male.³⁷ The study sample reflected more experienced pharmacists with 5–10 years of experience (28.9%) and 10–20 years experience (28.9%). Only 3.5% ($n = 6$) of the participants had less than one year of experience. In addition, the highest number of participants were in the 30–34 year-old age bracket.

3.3. Assessment of stress level

3.3.1. Perceived stress scale

There were no significant differences in stress levels between male and female pharmacists ($p = 0.86$), between age groups ($p = 0.37$), nor

between part-time and full-time employment status ($p = 0.96$). In addition, there was no significant difference in stress perceived by hospital and community pharmacists ($p = 0.6$).

Respondents were asked to indicate the proportion of stress related to a pharmacy workplace, non-pharmacy workplace, and other sources. The pharmacy workplace accounted for 56.3% of the total stress they encounter in their life.

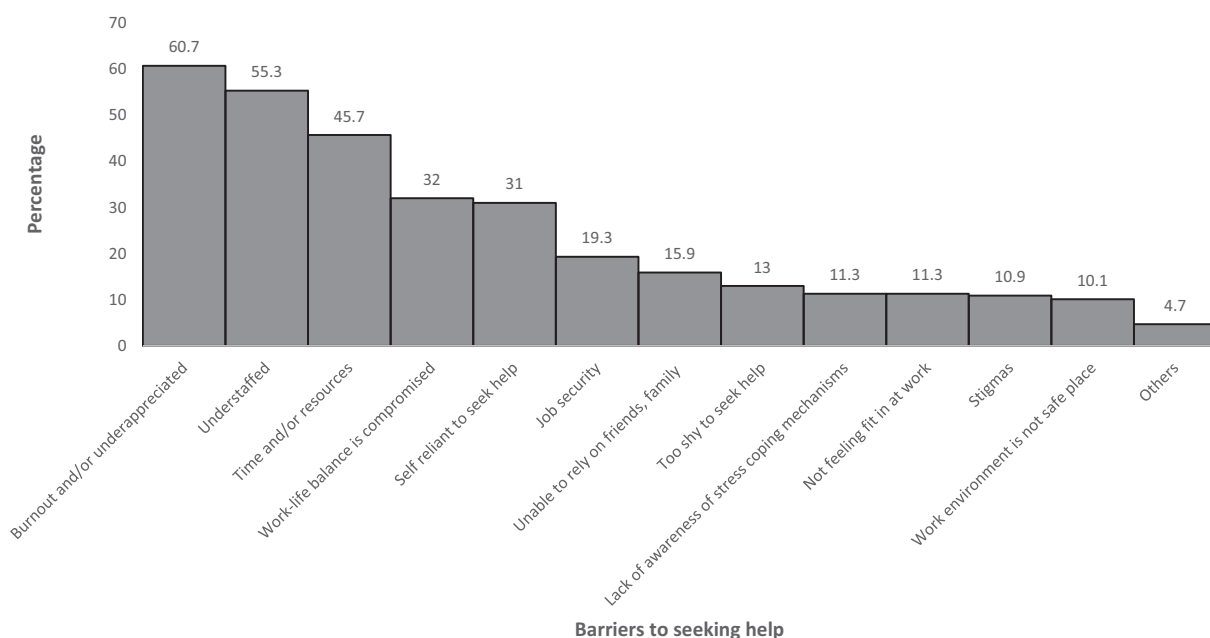
3.3.2. Perceived barriers to seeking help

Most participants reported burnout and being underappreciated as perceived barriers to seeking help (60.7%). This was closely followed by pharmacists being understaffed in their workplaces (55.3%). In addition, pharmacists reported that time and resources were barriers to seeking help (45.7%) (Fig. 1).

3.3.3. Coping mechanisms used by pharmacists

The most frequently reported coping mechanism used by pharmacists in this study was taking leave (45.9% of participants), followed by spending time with friends/colleagues/family (26.0%) and spending time with pets (23.8%). The least frequently used coping mechanisms were substance misuse and pharmacy organisations or support services (1.4%).

Pearson's correlations (r) were used to examine the bivariate associations for dependent variables. Emotional coping mechanisms (spending

**Fig. 1.** Perceived barriers to seeking help to manage work-related stress by Australian pharmacists.

time with friends, colleagues, and family; spending time with pets and exercise) were significantly negatively correlated with pharmacists' stress, while avoidant coping mechanisms (binge eating, social withdrawal, and alcohol) were significantly positively associated with pharmacists' stress. Problem-focused coping strategies were positively but non-significantly associated with pharmacists' stress.

Stepwise multiple regression analysis was conducted to determine the predictors that accounted for the most variance in pharmacists' stress levels. Six independent variables that the researchers determined to be significant underwent stepwise regression analysis (Table 2). Stepwise regression revealed that the significant predictors of stress levels were the use of alcohol, social withdrawal, spending time with pets, and exercise. ($R^2 = 0.38$; $p = 0.001$) (Table 3).

Emotional coping strategies, particularly exercise ($\beta = -0.21$, $p = 0.009$) and spending time with pets ($\beta = -0.14$, $p = 0.03$), were negatively associated with pharmacists' stress levels. This indicates that those strategies are useful in managing pharmacists' work-related stress. In contrast, alcohol ($\beta = 0.27$, $p = 0.0001$) and social withdrawal ($\beta = 0.31$, $p = 0.01$) were associated positively with stress levels (Table 3).

4. Discussion

This study evaluated Australian pharmacists' stress levels during the COVID-19 pandemic and the coping mechanisms used to manage work-related stress. In addition, this study found a positive relationship between exercise and spending time with pets to manage work-related stress among Australian pharmacists and a negative relationship between drinking alcohol and social withdrawal as coping mechanisms. The results from this study are consistent with existing studies on stress levels and coping mechanisms used by healthcare providers.^{37,38} In previous studies, stress level was negatively associated with emotional coping and positively with maladaptive or denial coping mechanisms. However, none of these studies addressed coping mechanisms used by pharmacists. Additionally, most studies address burnout rather than stress.^{39,40} Burnout makes it challenging for people to cope with stress. Thus it is important to understand factors that can help to mitigate stress in pharmacy settings, as stress has been significantly associated with medication errors.⁴¹

Interestingly, participants in this study had lower stress levels than in a similar study in Australia that was completed prior to the pandemic (PSS score of 18.0 in this study vs. 19.6 in the previous study). The large number of participants (586 registered pharmacists) in the earlier study may explain the differences in work-related stress.⁵ In addition, in the current study, most participants had more than 5 years of experience working as a pharmacist. Increasing proficiency could explain why stress decreases as experience increases.⁴²

According to the current study, pharmacists frequently use avoidant coping mechanisms such as drinking alcohol, social withdrawal, and binge eating. Avoidant coping mechanisms are considered harmful because they exacerbate stress and do not help a person deal with the stressors.⁴³ Unexpectedly, social withdrawal was found to be the most significant coping mechanism that increased stress levels of pharmacists. Due to COVID-19 restrictions, some pharmacists were separated physically from their families and friends, leading to unintended social withdrawal. This may also involve shutting themselves off from social support and blaming themselves for the stressors leading to ineffective management of emotions.⁴⁴

Table 3

Beta coefficients of significant coping mechanisms.

Coping mechanisms	Beta Coefficient	t value	P value
Alcohol	0.27	3.9	0.0001
Binge eating	0.11	1.7	0.1
Exercise	-0.21	-2.7	0.009
Friends/colleagues	-0.10	-1.4	0.16
Social withdrawal	0.31	4.2	0.0001
Spending time with pets	-0.14	-2.1	0.03

It is reported that social withdrawal immediately following exposure to a stressor may alleviate some of the negative effects of the stressful encounter by returning the individual's mood, arousal, and energy to baseline levels.⁴⁵

However, a lack of social connection predisposes individuals to maladaptive stress responses like smoking and alcohol abuse with negative implications for physical and mental health.⁴⁶ Therefore, there is a need to address social withdrawal by implementing regular workplace meetings and facilitating training activities and professional peer support networks.⁴⁷ For example, managers' personal life coaching and constructive feedback may increase pharmacists' self-efficacy and reduce the belief of incapability and the tendency to isolate.⁴⁸

Alcohol consumption was another significantly harmful coping mechanism. Alcohol consumption significantly increased emotional exhaustion as alcohol can change mood and modify awareness of emotions.⁴⁹ Considering this, it is crucial to prevent an increase in alcohol intake. It may be prudent to increase pharmacists' awareness about the negative consequences of alcohol use, defuse the perception of the instant relief of alcohol in stressful situations, and promote safe consumption. Pharmacists also should be advised to use emotional focus coping strategies such as exercise to reduce alcohol intake.

Spending time with pets is an important coping mechanism for pharmacists to lower stress levels. Attachment to a pet can increase self-efficacy and self-esteem and encourage owners to feel positive emotions, which can positively affect their coping strategies for managing stress.⁵⁰ According to a recent meta-analysis, animal-assisted interventions help reduce healthcare workers' stress levels and enhance their overall well-being by affecting their moods and perceptions of feelings such as happiness, relaxation, and calmness. Also, implementing animal interventions in healthcare settings is feasible and acceptable by healthcare providers because of its significant positive impact on mental health, social contact, and communication.⁵¹ Therefore, pharmacy workplaces should consider adopting strategies such as pet therapy to provide pharmacists with a mode to reduce work-related stress; this may be achieved by allocating time for a trained animal handler to provide the service in pharmacy settings.

Expectedly, the impact of physical activities and exercise on stress levels in this study appears in alignment with the findings of several previous studies.⁵²⁻⁵⁴ Regular physical activity should be considered for inclusion into the daily schedule of a pharmacist to manage work-related stress levels. The employment of casual staff members may achieve this by providing a short physical activity break for regular pharmacists. Additionally, employers may enroll pharmacists in career coaching programs that may decrease stress among pharmacists and lead to an increase in workplace satisfaction.⁵⁵

The COVID-19 pandemic may have introduced barriers to help-seeking, such as increased pressures on time and being understaffed. The concept of work-life balance has long been a method of sustaining well-being and mitigating these barriers. However, high work demands, fear of contracting the COVID virus, and various social restrictions during the pandemic have impeded common ways of maintaining work-life balance.⁵⁶

This study recommends further research to understand the nature of pharmacists' perceived barriers to help-seeking behaviours. Additionally, qualitative research is needed to explore how coping mechanisms such as social withdrawal, alcohol, spending time with pets, and exercise are associated with stress to enable the implementation of effective interventions in pharmacy work settings. This study also highlights the importance of conducting future studies to reduce the use of avoidant coping mechanisms by using interventions such as coaching, education, and peer support.

5. Limitations

A self-reported measure was used to determine pharmacists' coping mechanisms and stress levels; hence, there might be over- or underestimation of stress and the use of coping mechanisms. Also, due to the nature of the questionnaire outlining a pre-determined list of coping mechanisms, stressors, and barriers, this may limit the participants from

selecting other options that were not listed. Additionally, participant responses were measured at only one-time point. In practice, there are likely to be complex inter-relationship among stressors at home and work, lockdown restrictions, and coping strategies that cannot be untangled with a cross-sectional survey alone. Moreover, over 50% of recruited participants were from the state of Victoria, which experienced extended COVID-19-related lockdowns.

Another limitation of this study was the pandemic restrictions that might have influenced coping strategies such as exercise and social withdrawal. Therefore, a longitudinal study is warranted to understand better the relationship between coping mechanisms and pharmacists' work-related stress. Additionally, the role of pets in managing stress can not be generalised because people who do not like spending time with pets or those with pet allergies are less likely to benefit from this coping mechanism.

6. Conclusion

This study highlights the concerning moderate work-related stress levels of pharmacists across Australia during the COVID-19 pandemic. Additionally, it highlights the importance of addressing work-related stress through emotion-based coping strategies such as exercise and pet therapy. In addition, the results demonstrate the need to avoid harmful coping mechanisms such as the consumption of alcohol and social withdrawal.

Declaration of Competing Interest

None.

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