

Title: The experiences of primary health care nurses during the COVID-19 pandemic in Australia

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Abstract

Purpose: The COVID-19 pandemic has presented an international health crisis of a scope not seen in our lifetime. While much attention has been paid to health workers in critical care and acute areas, nurses working outside of hospitals are also significantly affected. This study sought to investigate the experience of nurses working in Australian primary health care during the COVID-19 pandemic. In particular, it sought to understand the implications on their employment status, role and access to personal protective equipment.

Design and Method: Nurses employed in primary health care across Australia were invited to participate in a cross-sectional online survey through social media and professional organisations. The survey tool was comprised of demographics, questions about the nurses' employment and work role and access to personal protective equipment.

Findings: Of the 637 responses received, nearly half (43.7%) reported a decrease in hours, threatened or actual loss of employment. While most respondents felt that they had sufficient knowledge about COVID-19, they expressed concern about work-related risks to themselves and their family. Most respondents described never or only sometimes having sufficient personal protective equipment in their workplace. Just over half of respondents (54.8%) felt well supported by their employer. A third of respondents (34%) perceived that care provided in their workplace was significantly or slightly worse than before the pandemic.

Conclusions: This is the first study of primary health care nurses experiences during the COVID-19 pandemic. The study findings have highlighted a concerning level of insecurity around primary health care nursing employment, as well as issues with the availability of personal protective equipment for these nurses. The perception that the pandemic has resulted in reduced quality of care needs further exploration to ensure that those with chronic conditions are supported to maintain and promote health.

Clinical Relevance: Understanding the implications of COVID-19 on the primary health care nursing workforce is vital to ensure staff retention and care quality. Ensuring that the community remain healthy and supported at home is vital to both reduce the burden on the health system and reduce secondary mortality.

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Keywords: community nursing, pandemic, primary health care, nursing workforce, primary care.

Introduction

Virus outbreaks and pandemics have occurred regularly over the last 300 years (Balicer *et al.* , 2006). In the last two decades, new viruses associated with Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and the H1N1 epidemic have exposed health system challenges in responding to overwhelming levels of morbidity and mortality (Koh *et al.* , 2005). When the World Health Organization (2020) declared the novel coronavirus COVID-19 a global pandemic on 11 March 2020, there was deep concern

at the severity, levels of spread, and societal and economic disruption occurring internationally. Countries were called on to take immediate action to contain the virus (World Health Organization, 2020).

Global emphasis has been given to public health responses to the pandemic (Patel *et al.* , 2008, World Health Organization, 2020) and on the capacity of acute care services to meet the demands of those infected with COVID-19 (Commonwealth of Australia, 2020a). This includes the impact on health professionals caring for the critically ill (Chunget *al.* , 2005, Madhav *et al.* , 2017, Imai *et al.* , 2005, Fernandez *et al.* , 2020). Less attention has focused on health professionals working outside acute care. However, primary health care (PHC) professionals are pivotal in the identification of new cases, monitoring those at risk, and reducing indirect mortality associated with health and social service disruption (Shaw *et al.* , 2006, Australian College of Nursing, 2020). PHC professionals also have an important role in community education, managing the public's response and psychological sequelae to COVID-19 (Shaw *et al.*, 2006).

In Australia, PHC is provided in a combination of government funded settings, such as community health centres, and non-government organisations, including schools, non-for-profit services, and general practices operating as small businesses (Australian Institute of Health and Welfare, 2016). Highly skilled nurses constitute the largest group of health professionals in PHC, usually employed on a full or part time basis to provide clinical care and delivery of a range of programs designed to meet community needs (Halcomb *et al.* , 2014).

In response to the spread of COVID-19, the Australian Government introduced social distancing, placed limitations on social gathering and imposed a stepped lockdown on movements of people and organisations (Australian Government Department of Health, 2020b). These actions created a unique set of challenges to ensure both a response to the pandemic whilst maintaining continuity of PHC services to support the ongoing health needs of populations (Commonwealth of Australia, 2020b). As face-to-face consultations were reduced, the government introduced funding for telehealth services to be provided by PHC professionals (Australian Government Department of Health, 2020a). Initially, this funding did not extend to nursing service delivery (Australian College of Nursing, 2020). In some circumstances this led to reduced face-to-face consultations and cancellation of specific health initiatives which in turn raised concerns about the financial viability of some PHC nursing services (Nelson, 2020).

Limited research has been published about the experiences of nurses during respiratory pandemics or epidemics, (Koh *et al.* , 2012, Lam & Hung, 2013, Corley *et al.* , 2010). A recent systematic review found most research is focused on acute care nurses (Fernandez *et al.*, 2020). However, understanding PHC nurses' experiences is important to ensure that appropriate support is provided to facilitate workforce retention and high quality clinical practice at a time where community health needs are high. In order to ensure safe, consistent PHC nursing services during the current pandemic and guide future planning, accurate data relating to current experiences of the PHC nursing workforce is vital. Therefore, a survey of PHC nurses was undertaken to explore their experiences of the COVID-19 pandemic. The findings provide policy makers with robust data for urgent decision making now and into the future regarding workforce protection, support and sustainability.

Methods

Design

A cross-sectional survey was delivered online using Survey Monkey (SurveyMonkey Inc., nd).

Survey Tool

The researcher designed survey tool gathered information regarding respondents' personal and professional experiences since the COVID-19 pandemic commenced. Survey items included multiple-choice and short

response items to explore demographics, employment conditions, current service provision, COVID-19 testing, personal protective equipment (PPE), knowledge, attitudes and supports needed. The draft survey tool was reviewed by six experts including nurse academics, policy and industrial experts and individuals with PHC nursing experience prior to survey dissemination. The wording and format of the tool underwent minor changes based on feedback received.

Data Collection

Individuals were eligible to participate if they were Baccalaureate (or equivalent) prepared registered nurses, Diploma prepared enrolled nurses or Masters prepared Nurse Practitioners employed within PHC settings across Australia. Given the absence of a national register of these nurses (Halcomb et al., 2014), recruitment was undertaken via social media and PHC organisations. Information about the study and an electronic link to the survey were circulated via Facebook, Twitter, LinkedIn, professional organisations including the Australian Primary Health Care Nurses Association (APNA) and Australian College of Nursing (ACN), and Primary Health Networks (PHN). The survey was opened on April 9 and closed on April 20 2020. This short timeframe was chosen to capture a snapshot of responses and allow data to inform emerging policy and practice.

Ethical Issues

The study was approved by the Human Research Ethics Committee at the University of Wollongong (Approval Number HE2020/161) and ratified by the University of Notre Dame Australia. The survey commenced with information outlining the purpose of the study and use of data. Consent was considered to be implied by completion of the survey.

Data Analysis

Data were exported into SPSS Version 23 (IBM Corp., Released 2015) from SurveyMonkey (SurveyMonkey Inc., nd) for analysis. Data were cleaned and any missing values identified. Categorical data is presented as frequency and percentage while continuous data is presented as means and standard deviations. The chi-squared test was used to analyze categorical data. The responses to short answer questions were exported to Microsoft Excel (Microsoft Corporation, 2016) and analysed using a thematic analysis approach.

Findings

Respondents & Demographics

Seven hundred and thirty five responses were received, however, 98 responses were excluded as they either had more than 50% missing data or the respondents did not meet the inclusion criteria (i.e. were not PHC nurses). Therefore, 637 responses were included in the analysis. While it is not possible to calculate a response rate as the number of nurses working in PHC in Australia is unknown, this represents one of the largest published surveys of Australian PHC nursing (Australian Medicare Local Alliance, 2012, Halcomb *et al.*, 2018, Halcomb *et al.*, 2008).

Most respondents (n=555; 87.1%) were Registered Nurses and female (n=613; 96.2%). The average age of respondents was 47.6 years (SD=11.0)(Table 1). Over half of respondents (n=338; 53.1%) had worked as a nurse for over 21 years, with respondents working a mean of 10.7 years in PHC nursing. Forty four percent (n=282) were employed part-time. Respondents were employed across Australia, with the majority from New South Wales (n=233; 36.6%) and Queensland (n=145; 22.8%). Three hundred and fifty one respondents (55.1%) worked in general practice, with 106 (16.6%) respondents employed as community nurses and a further 180 (28.3%) employed in other PHC settings, including schools, universities and Aboriginal Medical

Services. Respondents employed in general practice were significantly younger, with less years of nursing experience and less experience in PHC compared to those employed in other PHC settings (p=0.000).

Table 1. Respondent Demographics

	N	%
Gender		
Female	613	96.2
Male	21	3.3
Missing	3	0.5
Age (Mean 47.6 year, SD 11, Range 21-73 years)		
20-29	43	6.8
30-39	114	17.9
40-49	162	25.4
50-59	212	33.3
60-69	94	14.8
[?]70	3	0.5
Professional Designation		
Registered Nurse	555	87.1
Enrolled Nurse	56	8.8
Nurse Practitioner	22	3.5
Years worked as a Nurse (Mean 22.6, SD 13.45, Range 0-56)		
[?]5	90	14.1
6-10	70	11.0
11-15	66	10.4
16-20	70	11.0
[?]21	338	53.1
Years worked in PHC Nursing (Mean 10.7, SD 8.61, Range 0-50)		
[?]5	224	35.1
6-10	151	23.7
11-15	99	15.5
16-20	79	12.4
[?]21	74	11.6
Primary Employment Location		
General practice	351	55.1
Community	106	16.6
Other	180	28.3
Employment Status		
Full-time	241	37.8
Part-Time	282	44.3
Casual	92	14.4
Other	18	2.8
Missing	4	0.6
Location of Employment		
New South Wales	233	36.6

Queensland	145	22.8
Victoria	119	18.7
South Australia	57	8.9
Western Australia	41	6.4
ACT	16	2.5
Tasmania	13	2.0
Northern Territory	11	1.7
Missing	2	0.3

Professional Experience

Just over a third (35.8%, n=228) of the respondents described having prior professional experience in chronic infectious illnesses, and 32.7% (n=208) in clinical care during an infectious disease outbreak. Fewer respondents identified having prior professional experience in either public health surveillance and contact tracing (n=101; 15.9%) or disaster relief (e.g. earthquakes, tsunamis, fires etc)(n=86; 13.5%).

Changes to Employment and Role

Nearly half of respondents (n=278; 43.7%) reported either decreased hours of employment, threatened termination or actual termination of employment since the onset of the pandemic (Table 2). While there was no significant difference between employment setting and employment termination, significantly more respondents employed in general practice reported a decrease in work hours ($p<0.001$) and threatened termination of employment ($p=0.007$).

Some 22.0% (n=140) of respondents reported having considered resignation. The primary reasons for considering resignation related to concern for personal physical (n=74; 52.9%) and psychological safety (n=61; 43.6%), lack of job security / reduced hours (n=71; 50.7%), and family safety (n=60; 42.9%). This concern for safety was beyond the concerns with the virus with qualitative comments describing increased public aggression “*I’ve never been snarked and sniped at, or hung up on, so much in my life*” and “*Increase in mental health presentations due to isolation. Increase in domestic violence presentations*”.

Table 2. Changes to employment

	N	%
Changes to employment		
Increased hours of employment per week	167	26.2
Decreased hours of employment per week	183	28.7
Threatened termination of employment	73	11.5
Actual termination of employment	22	3.5
Deployment to another clinical area	79	12.4
Considerations about leaving employment		
Considered resignation	140	22.0
Have resigned	6	0.9
Reasons for considering resignation		
Concern for personal physical safety	74	52.9

	N	%
Lack of job security / reduced hours	71	50.7
Concern for psychological safety	61	43.6
Concern for family safety	60	42.9
Carer responsibilities	27	19.3
Desire to work in acute care	26	18.6

Many respondents (n=252; 39.2%) reported a reduced nursing role as fewer face-to-face consultations were conducted and there was a scaling up of telehealth consultations by General Practitioners (GPs). The “*decline in the number of patients attending the clinic*” and “*decreased income of the business*” meant that there was a “*lesser need for the nurse at the practice*”. “*GPs actively encouraging patients not to come in, in preference of teleconferencing. Nurses cannot bill for video or phone consults*”. This highlighted the significant impact that funding changes had on the roles of health professionals within PHC.

In contrast, over half of respondents reported additional tasks being incorporated within the nursing role (n=337; 52.9%). Some respondents described an initial increase in hours of employment to prepare workplaces for an influx of patients by “*writing policy, developing triage tool, educating staff, sourcing increased stock etc*”. For others the impetus to commence influenza vaccinations early were a major source of work. “*If it weren’t for flu season I would have a significant loss of nursing tasks in my day’s work*”. Other respondents identified that they were allocated additional tasks such as “*cleaning, answering phone, doing receptionist tasks*”.

Current Service Provision

Just over half of respondents described a caseload decrease since the pandemic commenced (n=351; 57.8%)(Figure 1). While CDM and routine health checks had decreased for over half of the respondents, 66.1% (n=401), others reported an increase in the number of consultations for influenza and pneumonia vaccinations. Most respondents were still engaging in face-to-face consultations (n=516; 81.0%), with a third (n=245; 38.5%) indicating involvement with telehealth consultations, including telephone welfare checks. Of concern was that, 34.0% (n=217) respondents perceived that the quality of care provided was significantly or slightly worse than before COVID-19.

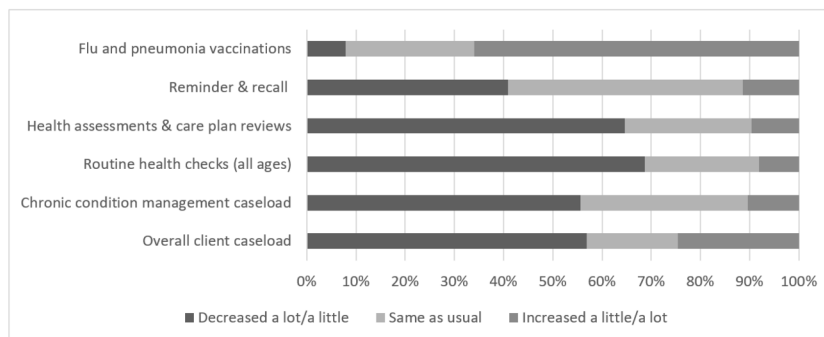


Figure 1: Changes to caseload

Knowledge, Attitudes & Support

Nearly all respondents strongly agreed or agreed that they understood the risks of COVID-19 for patients and health professionals (n=596; 93.5%), and how to protect themselves (n=583; 91.5%) and patients (n=570; 89.5%)(Figure 2). Additionally, 79.1% (n=504) strongly agreed or agreed that they had sufficient knowledge of COVID-19. Many respondents also strongly agreed or agreed that they were concerned about spreading COVID-19 to family members (n=500; 80.9%) or that their clinical role put their health at risk (n=440; 70.8%). Over half of respondents indicated that they had carer responsibilities (n=329; 51.6%), including responsibilities for children (n=208; 32.7%), elderly parents (n=47; 7.4%), spouse (n=11; 1.7%), grandchildren (n=10; 1.6%), and multiple care responsibilities (n=17; 2.7%).

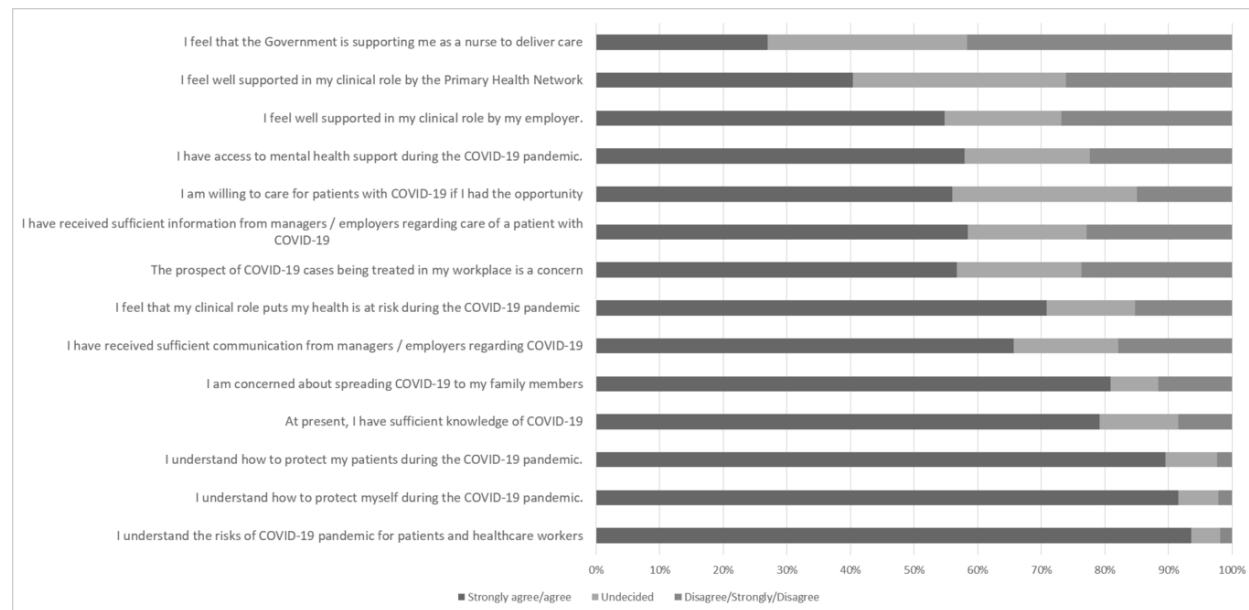


Figure 2. Knowledge & Attitudes

Only 56% (n=357) strongly agreed or agreed that they were willing to care for patients with COVID-19 if they had the opportunity. Respondents were also less positive about feeling supported, with only 54.8% (n=335) strongly agreeing or agreeing that they feel well supported in their clinical role by their employer. Less than half of respondents strongly agreed or agreed that they felt supported by either the Primary Health Network (PHN)(n=193; 40.3%) or the Government (n=167; 29.6%).

COVID-19 Testing

Only 29.4% (n=171) respondents identified that they were undertaking COVID-19 testing in their workplace. Those who were undertaking testing were using either dedicated rooms (n=79; 46.2%), carparks (n=78; 45.6%), standard consulting rooms (n=25; 14.6%) or patients' homes (n=11; 6.4%). Most respondents agreed that they had sufficient testing equipment (n=125; 73.1%).

Personal Protective Equipment

Slightly less than half of respondents indicated that their workplace had general guidelines for PPE use (n=248; 42.5%) or COVID-19 specific guidelines (n=276; 47.3%). Only approximately one quarter of respondents reported always having sufficient gowns (n=156; 26.7%) and P2/N95 masks (n=136; 23.3%), with

just under half of respondents never having sufficient gowns (n=234; 40.1%) and P2/N95 masks (n=265; 45.4%) available (Table 3).

Table 3. Sufficient PPE in the workplace

	Always		Sometimes		No	
	N	%	N	%	N	%
Gowns	156	26.7	194	33.2	234	40.1
P2/N95 mask	136	23.3	183	31.3	265	45.4
Surgical mask	232	39.7	223	38.2	129	22.1
Goggles	266	45.5	151	25.9	167	28.6

Qualitative data confirmed a high level of concern regarding the paucity of PPE. This was largely attributed to lack of stock availability related to the worldwide shortage. *“All stock on back order. Can’t get anything”*, *“Local suppliers have run out and orders placed are taking longer to process”*. However, some responses spoke of management rationing PPE for nurses; *“Office manager refused to allow me to order decent supply at start of pandemic”*; *“PHN only giving limited stock of masks”*; *The masks available have been kept aside by the practice manager who allocates them. No surgical masks or P2 have been allocated to nurses*. Several respondents commented on hospitals being prioritised with PPE supply: *“We are told hospitals need them more than us”*, with suppliers *“reserving stock for those who actually have COVID19”*, or to their own organisations informing them that they do not need PPE since there is *“minimal face-to-face assessment, if the person is COVID19 positive or suspected, face-to-face assessment cannot occur”*.

For those with some stock of PPE, respondents described *“having to reuse masks for a few shifts to make stock last”* and *“sharing goggles”*. Some respondents indicated that they were making attempts to address the shortages outside the system;

“We couldn’t source long sleeved gowns when COVID hit so had some home made.” “Gowns difficult getting supplies, resorted to making gowns out of garbage bags.” “We have purchased stock privately . . . supply through PHN has not been sufficient. Without our private supply we could not have continued caring for patients.”

Discussion

This study is the first attempt to specifically explore the experiences of PHC nurses during the COVID-19 pandemic. The findings highlight the significant impact that the pandemic has had on the employment of PHC nurses, their role and caseload, and the potential negative impact on the quality of care delivered. It has also revealed the significant lack of PPE within the PHC setting in Australia. Understanding these experiences is vital to ensuring workforce support during and following the pandemic to optimise workforce retention, sustainability and care quality.

A key finding of the study was that the PHC nurses held significant concerns for their job security and many reported lost work hours. This seems somewhat paradoxical given the increased health needs of the community, in terms of pandemic screening and management, and ongoing health care. While health emergencies require a responsive workforce (Hope *et al.*, 2011), the current funding of Australian PHC does not support nursing workforce flexibility to adapt to changing circumstances (Halcomb *et al.*, 2018, Australian College of Nursing, 2020). Despite block funding, bulk and private billing arrangements (Victoria State Government, 2017, Australian Government Services Australia, 2020), vulnerabilities exist in job security for nurses working outside acute care. Changes to funding made by the Australian Government in response to COVID-19 allowing GPs to deliver services via telehealth, were not initially extended to nurses. This had a negative effect by reducing nurse ability to gain reimbursement for services, as face-to-face consultations were

reduced and nurses were not included in funding mechanisms to deliver telehealth. The impact of funding models on PHC nurses delivering services to the extent of their practice scope has been previously identified (Halcomb *et al.*, 2008). This highlights the complexity of the political environment of health care outside the acute care system and the medical dominance of this landscape (Mills & Hallinan, 2009). Since this survey, the Australian Government announced temporary funding for COVID-19 telehealth consultations by nurses to provide services including antenatal care and chronic disease management (Australian Government Department of Health, 2020a). Monitoring funding impacts on workforce retention, clinical roles among PHC nurses and overall care quality will be required to ensure that this funding achieves the desired outcomes. It will also be important to monitor secondary morbidity and mortality during and following the pandemic to ensure that health services meet the needs of the community beyond those infected with COVID-19.

Findings revealed significant personal safety concerns driving many nurses to consider resigning from their place of employment. Heightened anxiety about the risks associated with acute care employment during pandemics has been previously reported (Lam and Hung, 2013, Holroyd and McNaught, 2008, Kang *et al.*, 2018, Koh *et al.*, 2012). Rapidly changing clinical practice, inadequate pandemic preparation, insufficient and limited resources and potential disease exposure all contribute to perceived threats to personal safety (Shiao *et al.*, 2007, Holroyd & McNaught, 2008). While deaths of colleagues have created uncertainty and anxiety in previous pandemics (Holroyd and McNaught, 2008, Koh *et al.*, 2012), the high number of health care workers dying globally due to COVID-19 (Ehrlich *et al.*, 2020) are likely to have increased current concerns. Strategies to promote the dissemination of consistent and reliable information may be the key to ensuring that nurses are well informed and supported to manage these fears.

The shortage of PPE during the COVID-19 pandemic has been extensively reported across the world (Ranney *et al.*, 2020, Livingston *et al.*, 2020). Respondents in our study provided a stark picture of the insufficient PPE available to them in their workplaces. In Australia the shortage of some items, such as particulate masks, was made even more acute as the COVID-19 pandemic followed shortly after the devastating 2019/20 bushfire season (Surf Life Saving New South Wales, 2020). Like the respondents in our study who described using homemade PPE or repurposing other products, such as plastic bags, Shih *et al.* (2007) described nurses using plastic raincoats to protect themselves from SARs transmission. Given the supply of adequate PPE remains one of the largest issues of concern related to pandemics and epidemics (Huang *et al.*, 2020, Cohen & Casken, 2011, Jones *et al.*, 2017, Michaelis *et al.*, 2009, Speroni *et al.*, 2015), more needs to be done to ensure sufficient stockpiles are maintained and supply chains are reviewed to ensure health professionals and frontline workers are adequately protected. Additionally, ensuring clear and consistent communication of evidence-based principles and practice guidelines around the required PPE for specific types of exposures in diverse settings will ensure that available stock is used appropriately (Verbeek *et al.*, 2020).

Beyond their fears of personal physical safety, respondents in this study indicated a level of concern for the psychological impact of the pandemic. A combination of job insecurity, workplace stress, inadequate PPE, concern for personal, family and client safety places a significant toll on the mental health of nurses everywhere during a pandemic (Fernandez *et al.*). Additionally, high workloads and lockdowns related to social distancing are likely to separate some nurses from their usual social support networks (Huang & rong Liu, 2020). In order to ensure that PHC nurses remain healthy and able to provide PHC to the community throughout COVID-19 and beyond, it is vital that they are provided with short and long term, meaningful mental health support.

Previous research during pandemics has shown that routine service disruption has led to increased morbidity and mortality, in particular, for older people with complex chronic medical conditions and those in disadvantaged communities (Dempsey *et al.*, 2019). Consistent with reports by Hendrie (2020), who estimate that presentations to Australian hospitals and general practices is down by 50%, respondents in our study reported a decreased caseload. Reasons for this reduction vary from health professionals being reluctant to see patients face-to-face, people attempting to socially isolate themselves, and people being reluctant to present to what they perceive is an overburdened health system. This highlights a need for community education about service availability and the importance of ongoing management and care for complex conditions, and

strategies to triage health services for those most in need.

Of concern in our study was a perception that the quality of care was significantly or slightly worse than before COVID-19. Pandemics typically cause disruption to services impacting on care quality (Hartmann-Boyce & Mahtani, 2020). Vulnerable populations at risk of chronic disease are especially susceptible to infectious illnesses, requiring ongoing support to prevent increased morbidity (Hartmann-Boyce & Mahtani, 2020). Nurses also face dilemmas during pandemics through inability to provide care in line with patient needs (Corley et al., 2010). Adequately resourcing and utilizing this group of nurses through appropriate funding, workplace organisation and PPE would better support workforce and patient care needs.

Limitations

This study was undertaken rapidly to inform emerging PHC policy and practice associated with the COVID-19 pandemic in Australia. As this study represents a snapshot in time, it will not capture changing experiences and perceptions as the pandemic progresses with adaptations in policy and practice. Given the scope and impact of this crisis, it may also not capture those nurses most affected by the situation. Despite this being one of the largest Australian surveys of PHC nurses to date, the method of sampling and recruitment via social media may have excluded nurses without access to these platforms. Additionally, as we are unsure how many nurses are employed in PHC, it is not possible to calculate a response denominator. This limitation around PHC nurse sampling has been widely recognised (Halcomb et al., 2008, Australian Medicare Local Alliance, 2012, Halcomb et al., 2014). Further qualitative data may have added an extra layer of insight.

Conclusion

Findings from this study indicate that the COVID-19 pandemic has significantly impacted on the job security, workload, service provision and safety concerns for nurses working in Australian PHC. These factors also have the potential to affect quality of care provided and morbidity rates within communities. This paper provides nurse leaders, employers and policy makers with evidence to effectively plan and optimise the allocation of nursing resources in line with organisational goals during the current and future pandemics.

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