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Research Article

Effective communication is key to intensive care nurses' willingness to provide nursing care amidst the COVID-19 pandemic

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ABSTRACT

Background: The COVID-19 pandemic posed and continues to pose challenges for health care systems globally, particularly to Intensive Care Units (ICU). At the forefront of the ICU are highly trained nurses with a professional obligation to care for patients with COVID-19 despite the potential to become infected. The aim of this study was to explore ICU nurses' willingness to care during the COVID-19 pandemic.

Methods: A prospective cross-sectional study to explore ICU nurses' willingness to provide care during the COVID-19 pandemic was undertaken between 25 March and 3 April 2020 at a large principal and referral teaching hospital in Sydney, NSW Australia.

Results: A total of 83 ICU nurses completed the survey. Approximately 60% reported receiving sufficient information from managers regarding COVID-19 and about caring for a patient with COVID-19. Ninety percent of nurses were concerned about spreading COVID-19 to their family. Sixty one percent of the nurses indicated that they were willing to care for patients with COVID-19. Receiving timely communication from managers was the only predictor of willingness to care among ICU nurses.

Conclusions: Effective communication is a vital component during a public health emergency in order to promote nurses' willingness to care for patients in the ICU.

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Implications for clinical practice

- Nurses that felt they had higher knowledge and communication regarding COVID-19 had an increased willingness to provide nursing care.
- Nurses with higher personal concerns were less willing to provide nursing care during COVID-19.
- Instituting early strategic communications activities provides adequate and essential communication enabling theintensive care nurses to improve their knowledge about caring for a patient the COVID-19 pandemic.

Background

COVID-19 is a novel strain of coronavirus that was first detected in China in December 2019 causing a severe pneumonia like illness (Gong et al., 2020; Zhou et al., 2020). Rapidly spreading globally, by early March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. By 8 April 2020, COVID-19 had infected 1.28 million people and caused 72,774 deaths (WHO, 2020). The COVID-19 pandemic posed and continues to pose C immense challenges for health care systems, particularly to intensive care services. The burden of COVID-19 on health care resources of affected patients in countries other than Australia indicates that approximately 5–16% of confirmed COVID-19 cases required

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admission to intensive care units (ICU) (Guan et al., 2020; Grasselli et al., 2020). This is predominately due to COVID-19 related shortness of breath resulting in hypoxaemic respiratory failure requiring mechanical ventilation (Bhatraju et al., 2020).

Following the first reported COVID-19 case in Australia on 25 January 2020 (Liebig et al., 2020), transmission continued, with strict public health measures implemented in March 2020. ICU services however, outside of Australia were struggling to deal with a surge in critically ill COVID-19 cases (Liew et al., 2020). ICU nurses in Australia were acutely aware of international trends and thus had to be prepared to respond to this potential situation nationally. Being at the forefront of the ICU and having the most amount of close patient contact, nurses have a professional obligation to respond to the COVID-19 pandemic through delivering health care to critically ill infected patients (Liew et al., 2020; Seale et al., 2009). A nurse's willingness to provide nursing care during a pandemic can be influenced by their own perceptions of risk of exposure to COVID-19, but also fear for their family's health (Corley et al., 2010). This perception of risk cannot be underestimated as in some instances, nurses have experienced post-traumatic stress disorder (PTSD) as a direct consequence of working during a pandemic (Corley et al., 2010; Ives et al., 2009).

Previous research (Ives et al., 2009; Fernandez et al., 2020; Koh et al., 2005; Liu and Liehr, 2009) on the psychological distress and wellbeing of health care workers during a pandemic, have indicated that many health care workers exhibit high levels of psychological stress, have concerns about stigmatization and internalize fear associated with their own personal health and their family's wellbeing and health. Nurses' anxiety, concerns and psychological distress in previous pandemic responses have been substantially associated with social isolation, physical and emotional exhaustion, increased job stress, media scrutiny and rapidly changing information and communication (Liu and Liehr, 2009; Maunder, 2004).

Psychological distress can likely cause both short and long term effects on the nursing workforce (Liu and Liehr, 2009) of which there is already a shortage. Gaining an understanding of their motivations and willingness to engage in their professional duty of providing nursing care in the midst of extreme challenges can inform future pandemic planning (Ives et al., 2009) and identify strategies to alleviate psychological distress. To date, there is limited literature on nurses' willingness to provide nursing care during a pandemic; what evidence there is, predominately relates to hypothetical situations. This study explores the willingness of ICU nurses to provide nursing care during the COVID-19 pandemic with the purpose of identifying the response of nursing staff to the pandemic and implementing support services to assist current and future pandemic response.

Methods

Study design, setting and participants

This prospective cross-sectional study design to explore ICU nurses' willingness to provide nursing care during the COVID-19 pandemic was undertaken at a large principal and referral teaching hospital in Sydney, NSW Australia. All registered nurses, including nurse educators and Nurse Unit Managers (NUMs) who worked in the ICU during the study period (25 March–3 April 2020) were invited to participate in the study. Potential participants were asked to partake in the study via a link to the survey in their work email. Completion and submission of the questionnaire were considered as implied consent. No identifiable information was obtained and participants were informed that their participation was voluntary.

Data collection

Data collection occurred during the study period 25 March to 3 April 2020, capturing the first few weeks under the newly implemented COVID-19 restrictions in Australia. Data were collected using a self–administered questionnaire via a SurveyMonkey link. The questionnaire was investigator developed based on an extensive literature review. The questionnaire was then reviewed and tested for content validity by a panel of experts in ICU and nursing academics. Information collected in the questionnaire included: (1) demographic data (age, gender, employment status, and length of time worked as a registered nurse and in the ICU, (2) willingness to work in ICU during the pandemic (1 item) (3) knowledge about COVID-19 (4 items), (4) communication from managers about COVID-19 (2 items), (5) preparedness of the ICU (2 items) and (6) personal concerns about COVID-19 (1 item). Participants were asked to respond to the questions using a 5-point Likert scale (strongly disagree = 0, disagree = 1, neither agree nor disagree = 2, agree = 3, strongly agree = 4), with two questions requiring an open-ended response.

Ethical considerations

Ethical approval was obtained from the Hospital's Human Research Ethics Committee (HREC) for this study 2020/ETH00827.

Data analysis

Quantitative data were analysed using SPSS version 25. Categorical data was presented as percentages and continuous data as means and standard deviation (SD). T-tests and one-way ANNOVA were used to assess the relationship between willingness to provide nursing care and the demographic variables. Pearson's correlational analysis was used to investigate the relationships between willingness to care and knowledge of the COVID-19 pandemic, communication from managers, preparedness of the ICU and personal concerns. Only scores for knowledge of the COVID-19 pandemic, communication from managers, preparedness of the ICU and personal concerns scores were included in a standard multiple linear regression analysis to determine the predictors of willingness to provide nursing care. The Beta (B) values and the 95% confidence intervals were calculated in the multiple regression analyses. Statistical significance was set at p less than 0.05.

Qualitative data consisted of responses to open-ended questions. Data analysis was undertaken using a qualitative thematic analysis conducted by two authors independently. The qualitative data was used to gain a deeper insight on the quantitative data.

Results

Demographics

A total of 83 ICU nurses (64 females and 17 males) completed the survey. The overall response rate to the questionnaire was 42% (83/198). Sixty six percent of the respondents were aged below 35 years and the majority (82%) worked full time. A quarter of the nurses (n = 20) had worked as a registered nurse for three years or less and half had worked in the ICU for three years or less (Table 1).

Knowledge of the COVID-19 pandemic

Sixty percent of the respondents reported that they had sufficient knowledge of COVID-19 and 94% agreed that they understood the risks of COVID-19 for the patients. However, only 77% agreed

Table 1
Demographic characteristics and willingness to care scores.

			Willingness to Care		
	Frequency	%	Mean	SD	P value
Age					
18–24	11	13.3	3.91	0.83	0.287
25–34	33	39.8	3.55	1.00	
35–44	24	28.9	3.29	1.27	
45–64	15	18.1	3.87	1.06	
Sex					
Female	64	77.1	3.64	1.01	0.702
Male	17	20.5	3.53	1.23	
Employment status					
Full time	68	81.9	3.56	1.10	0.729
Part time	15	18.1	3.67	1.05	
Length of time worked as a Registered Nurse					
0–3 years	20	24.1	3.75	1.07	0.842
4–6 years	16	19.3	3.63	0.89	
7–10 years	14	16.9	3.50	0.85	
Greater than 10 years	33	39.8	3.48	1.28	
Length of time worked in ICU					
1–3 years	35	42.2	3.63	0.94	0.672
4–6 years	15	18.1	3.80	1.01	
7–10 years	11	13.3	3.55	0.93	
Greater than 10 years	22	26.5	3.36	1.40	

that they understood how to protect their patients and themselves during the COVID-19 pandemic. The mean score for knowledge of the COVID-19 pandemic was 15.3 (±2.6) (maximum obtainable 20). Conversely, the qualitative findings from this study demonstrate that ICU nurses understood how to protect themselves and their patients, with a nurse commenting *"The recent education around COVID 19 and updates on the plans the hospital has in place to cope with an influx of patients has given me some reassurance that we are quite prepared for what's to come" Nurse A.*

Communication

Approximately 60% of participants reported that they received sufficient information from managers regarding COVID-19 and about caring for a patient with COVID-19. The mean score for communication was 7.0 (±1.7) (maximum obtainable 10). In the qualitative results one nurse commented on communication by saying *"Distribute information about strategies as soon as they become available" Nurse B.*

Preparedness of the ICU

The prospect of COVID-19 cases being treated in ICU as a cause for concern was identified by 65% of the nurses. Only a third of the nurses indicated that all recommended PPE was readily available in the ICU. The mean score for preparedness of the ICU was 6.4 (±1.5) (maximum obtainable 10). The qualitative analysis revealed that ICU nurses were concerned with PPE in the ICU, with one participant stating, *"Ensure the most appropriate PPE is available for staff to ensure maximum safety" Nurse C.*

Personal concerns

Ninety percent of participants were concerned about spreading COVID-19 to their family members. The mean score for personal concerns was 4.5 (±0.7) (maximum obtainable 5). The qualitative findings were consistent with the quantitative results, with one participant stating, *"Information regarding how staff should/ shouldn't deal with accidental exposure and returning home after work to vulnerable family members" Nurse D.*

Willingness to provide nursing care to patients with COVID-19

Sixty one percent of the nurses indicated that they were willing to provide nursing care to patients with COVID-19 if they were required to do so. The mean score for willingness to provide nursing care was 3.6 (±1.0) (maximum obtainable 5). Scores for willingness to provide nursing care among participants aged 18–24 years were the highest (Mean 3.91 SD 0.83) compared to their counterparts but these results were not statistically significant. Similarly, there were no differences in willingness to provide nursing care based on gender ($p = 0.702$) and employment status ($p = 0.729$). Higher willingness to provide nursing care scores were identified for those who had worked as an RN for three years or less (Mean 3.75 SD 1.06). However, these results were not statistically significant when compared to the other participants ($p = 0.842$). Nurses who worked in the ICU for 4–6 years reported higher willingness to provide nursing care scores (Mean 3.80 SD 1.01). However, these results were not statistically significant when compared to the other participants ($p = 0.672$) (Table 1).

There was a weak but statistically significant positive correlation between willingness to provide nursing care and knowledge of the COVID-19 pandemic ($R = 0.388$, $p = 0.000$) and communication from managers ($R = 0.399$, $p = 0.000$) indicating that higher knowledge and communication was associated with increased willingness to provide nursing care. In contrast, there was a weak but statistically significant negative correlation between willingness to provide nursing care and personal concerns ($R = -0.271$, $p = 0.013$) indicating that nurses with higher personal concerns were less willing to provide nursing care. There was no association between willingness to provide nursing care and nurses perception of the preparedness of the ICU ($R = -0.135$, $p = 0.223$).

Predictors of willingness to provide nursing care

Given that no demographic variables were significant, only the following predictor variables were included in the regression model (1) knowledge of the COVID-19 pandemic, (2) communication from managers, (3) preparedness of the ICU and (4) personal concerns. The multiple regression model to predict willingness to care accounted for 24.3% of the variance, R^2 Adj = 0.204

F (4, 78) = 6.26, P = 0.000. Communication from managers was the only predictor of willingness to provide nursing care (B = 0.172; 95% CI 0 0.016, 0.327; P = 0.031) (Table 2).

Discussion

With the need to extend the capacity of ICU in expectation of the influx of critically ill patients, ICU nurses are vital in the response to the COVID-19 pandemic. Despite nurses having a perceived sense of professional obligation to provide nursing care for patients with confirmed COVID-19, ICU nurses' willingness to care for patients with COVID-19 is multifactorial. Willingness to care for patients has been defined as the nurses' intention or wanting to provide nursing care during the pandemic. The aim of this study was to assess ICU nurses willingness to provide nursing care for a patient with COVID-19 during the first few weeks of the COVID-19 pandemic in Australia. This study is novel as it was conducted immediately following the declaration of the pandemic by the WHO and thus at the height of community distress and fear.

Our study demonstrated that 61% of the nurses were willing to provide nursing care for a patient in the ICU during the COVID-19 pandemic. These results are higher than in previous studies (Wong et al., 2010; Etokidem et al., 2012; Damery et al., 2009; Irvin et al., 2008) where willingness to care during a pandemic ranged from 23% (Wong et al., 2010) to 50% (Irvin et al., 2008). Conversely, a study (Ma et al., 2011) conducted in an ICU in China reported a high (82.3%) willingness to care during the H1N1 influenza pandemic. These results could be due to the fact that the majority (90%) of the staff had received training in caring for a patient with H1N1 prior to the commencement of the study and knowledge training prior to patient care was an independent predictor of willingness to care for patients with H1N1. Notably, there was a vaccine available for H1N1 influenza, which may have increased the ICU staffs' willingness to care as the vaccine could be viewed as a protective mechanism. Results from our study concurs with the previous study (Ma et al., 2011) where ICU nurses with greater knowledge about COVID-19 were more willing to provide nursing care for patients.

What is new in our study is that it was conducted in the midst of the pandemic when there was limited knowledge globally about the pathobiology of COVID-19. It is also interesting to note that regardless of their knowledge of the COVID-19 pandemic, their perceptions of the preparedness of the ICU and their personal concerns, the multiple regression analysis identified organizational communication regarding COVID-19 as the only predictor of ICU nurses' willingness to provide nursing care. That is nurses who felt that they received higher level of communication from the organization were more willing to provide nursing care during the pandemic. Our study was conducted in the first few weeks of the COVID-19 pandemic in Australia and the ICU had instantaneously implemented additional communication strategies to update staff with the latest information about COVID-19 in order to allay anxiety and engender confidence in working in the ICU. Such communication included information about the transmission of COVID-19, restrictions required due to the risks associated with COVID-19, use of PPE, availability of education and access to mental health services. The specific communication strategies implemented in the ICU in our study were: The COVID Chronicle, which was a weekly newsletter of updates regarding COVID-19; The COVID-19 FAQ, which was a daily factsheet to answer the many questions staff had, that was emailed to staff and also displayed as a hard copy in the main staff areas; a daily COVID-19 staff huddle to update key staff; and lastly, a face to face question and answer session during in-service time that occurred 3 times a week to capture all ICU staff. The most efficient and effective communication strategy implemented was the daily COVID-19 staff huddle and the COVID-19 FAQs.

Our study found that the majority (94%) of ICU nurses reported that they understood the risk of COVID-19 for patients, however just over half of the ICU nurses (60%) felt they had sufficient knowledge regarding COVID-19. In addition, many (77%) agreed that they understood how to protect their patients and themselves from infection during the COVID-19 pandemic. Of note is the high level of reported understanding of the risks of COVID-19 to patients among ICU nurses compared to the lower levels of participants reporting sufficient knowledge for self. Perhaps understanding high level of risks to patients could be associated with ICU nurses obtaining their information from mass media coverage of the effects of the pandemic on patients globally. Furthermore, ICU nurses are often experienced at caring for patients with respiratory complications, which may have contributed to their higher levels of knowledge regarding protecting patients. The lower levels of participants identifying insufficient knowledge for self, could be due to COVID-19 being a novel virus, where global understanding of the pathophysiology of the disease was limited. Nevertheless, our findings are consistent with the results of a study by Ma et al. (2011) undertaken in a Chinese ICU during the H1N1 influenza pandemic which found that less than half the ICU staff reported sufficient knowledge, despite receiving education sessions.

Interestingly, the willingness of ICU nurses in our study to provide nursing care during the COVID-19 pandemic had no association with demographic factors. That is, irrespective of age, sex or years of experience, ICU nurses are willing to work during the pandemic. These results are similar to another study (Ma et al., 2011) that demonstrated no difference between willingness to care and demographic variables. These studies emphasis that ICU nurses need to feel protected in order to perform their duties regardless of their age, gender or years of experience. A sense of confidence in their skills, knowledge, safety and risk perceptions have been identified in a systematic review (Aoyagi et al., 2015) as enablers for health care workers willingness to care during the pandemic. Our study identified that the majority (90%) of the nurses were concerned about spreading COVID-19 to their family, which could have an effect on their willingness to care. Providing nurses with adequate information and resources on how to protect themselves may assist with alleviating any fears associated with transmission

Table 2
Multiple regression coefficients indicating relationships between predictors and willingness to care among ICU nurses (N = 83).

			95% Confidence Interval for B	
	Unstandardized Coefficients(B)	P value	Lower Bound	Upper Bound
(Constant)	2.647	0.021	0.402	4.892
Knowledge of the COVID-19 pandemic	0.086	0.090	−0.014	0.185
Communication from managers	0.172	0.031*	0.016	0.327
Preparedness of ICU	−0.109	0.159	−0.261	0.043
Personal concerns	−0.198	0.254	−0.541	0.145

*Statistically significant; B Beta.

of COVID-19 to family members. Concerns for personal and family safety was a synthesized finding from a systematic review undertaken by Fernandez et al. (2020) who examined nurses' experiences of working in acute care hospital settings during a respiratory pandemic. Therefore, it is vital that pandemic preparedness planning include comprehensive communication strategy for ICU staff, which in turn can reduce factors that cause hesitation and increase factors that cause motivation for willingness to provide nursing care during a pandemic. The ICU in our study was proactive and instituted early strategic communications activities based on scientifically derived risk communications principles. This provided adequate and essential communication which enabled the ICU nurses to improve their knowledge about caring for a patient the COVID-19 pandemic. It also facilitated being able to make the best possible decisions within short time frames in order to reduce the impact of COVID-19 on mortality and morbidity.

Limitations

Like all studies, our study has several limitations that require acknowledgement. Firstly, there is the potential for selection bias due to only 83 ICU nurses who responded to the survey. Additionally, our study was conducted in a single centre. Conducting a multicentre study would have provided more robust evidence. While the findings of the single centre study may be relevant to and resonate with other centres, the results are not generalisable to all ICUs. A further limitation of this study was that it did not assess previous experience or training in pandemic or emergency preparedness response. Further studies will need to assess these.

Conclusion

This study highlights that ICU nurses' willingness to care is associated with receiving adequate and timely communication from managers. Once again, highlighting the importance of staff management relationships. It is imperative that nurses working in ICUs during a pandemic have all the information they need to rapidly and accurately provide high standards of nursing care. Enabling a rapid response in a pandemic situation has the potential to significantly save lives.

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Conflict of interest

Nil conflict of interest.

Ethical statement

The authors state that this research has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans.

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