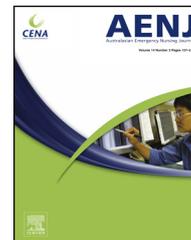




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RESEARCH PAPER

Australasian emergency nurses' willingness to attend work in a disaster: A survey



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KEYWORDS

Disasters;
Mass casualty
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Summary

Background: The type of disaster, individual demographic factors, family factors and workplace factors, have been identified in the international, multidisciplinary literature as factors that influence a person's willingness to attend and assist in their workplace during a disaster. However, it is unknown if these factors are applicable to Australasian emergency nurses.

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Nurses;
Emergency nursing;
Australia;
Willingness

Aim: The research aims to determine the extent to which Australasian emergency nurses are willing to attend their workplace in a disaster.

Method: This research was exploratory and descriptive study design, using online and paper based surveys as a means of data collection. Australasian emergency nurses from two Australasian emergency nursing colleges and four Australian hospitals were recruited to participate. Data analysis was conducted using both descriptive and inferential statistics.

Results: In total, 451 Australasian emergency nurses participated in this research. Participants were more willing to attend their workplace during a conventional disaster ($p \leq 0.001$), if they worked full-time ($p = 0.01$), had received formal education pertaining to disasters ($p \leq 0.001$), had a family disaster plan ($p = 0.008$), did not have children ($p = 0.001$) and worked in an environment in which they perceived their colleagues, managers and organisation to be prepared.

Conclusions: The factors that influenced Australasian emergency nurses to attend their workplace in a disaster were similar to that described in the international multidisciplinary literature. Of particular note, improving disaster knowledge and skills, having a family disaster plan and improving the perceptions of the nurses' workplace preparedness can enhance the nurses' willingness to assist in a disaster.

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What is known

- Willingness of emergency nurses can be expressed in the broad areas of the types of disasters, individual demographic factors, family factors and workplace factors.
- Healthcare professionals' willingness literature is predominantly derived from data that relates to an international, interdisciplinary rather than Australasian nursing perspectives.

What this paper adds

- Formal postgraduate education enhances the willingness of emergency nurses to attend work in a disaster.
- Enhancing the perception of an organisation and colleague's readiness for disaster enhances the willingness of staff to attend work in a disaster.
- Willingness is not influenced by workplace factors such as the participant's hospital size (bed numbers) nor the hospital locality (metropolitan, rural or remote).

Introduction

Emergency Management Australia broadly defines a disaster as a serious disruption to a community causing death, injury and/or property damage requiring mobilisation and organisation of resources beyond that of a normal day-to-day operational capacity.¹ Australasian emergency nurses are frontline responders to disasters and are essential to health-based response and recovery.² Fundamental to individual, community and societal recovery from disasters is emergency nurses' willingness to engage in disaster response. There is some literature on emergency nurses willingness to attend their workplace in a disaster.

A 'conventional disaster event' is an event such as an earthquake, fire or flood. Whereas a 'non-conventional

disaster event' is an event such as a pandemic, chemical, biological or radiological. There is a higher willingness to work during conventional events when compared to non-conventional events.³⁻⁶ Concerning non-conventional events, willingness appears to be higher if the pathogen is known, preventable and treatable.^{7,8}

In terms of demographic factors and willingness, males are more willing to attend their workplace during a disaster than females.^{4,5,8-12} Additionally, the type and amount of disaster knowledge influences an individual's willingness to attend their workplace in a disaster.^{13,14} This is particularly true for non-conventional disasters, which decrease willingness to attend their workplace in a disaster.^{8,15} Employment status also influences willingness to attend work in a disaster with part-time workers less likely to attend their work during a disaster when compared to their full-time colleagues.^{11,16}

Willingness to attend work during a disaster is increased if an individuals' perceived threat of ill health to their families is reduced.^{11,17-20} Additionally, the care of children, pets, and elders is of particular importance, creating a significant barrier to willingness to attend their work during a disaster.^{4-6,8,10,11,17,19-24}

Workplaces can influence the willingness of individuals, and specifically emergency nurses, to attend work in a disaster. Inadequate hospital disaster plans result in a lack of staff confidence in hospital preparedness, which subsequently has a negative influence on willingness to attend work.²⁰ During the H₁N₁ 2009 pandemic in Australia, more than one third of emergency department staff became ill with influenza-like symptoms resulting in an average of 3.7 days away from work for each ill staff member.²⁵

Significance and aim

It is not known whether the above-mentioned factors apply to Australasian emergency nurses' willingness to attend their workplace in a disaster. Understanding the influences on willingness to attend work during a disaster will have workforce implications and will enable health services to put in place strategies to maintain sufficient and appropriate services during or following a disaster. Additionally,

research related to the willingness of nurses specifically is lacking in the published literature with many papers focused on a variety of healthcare professionals rather than nurses specifically.

The aim of this research was to determine the extent to which Australasian emergency nurses are willing to attend their workplace in a disaster, particularly in terms of educational preparedness and their knowledge of disasters, and their professional and personal responsibilities.

Method

Design

This research used an exploratory and descriptive design²⁶ and study data was collected using a survey.

Population and sample

The researched population were Australasian emergency nurses. The research sample included members of either the College of Emergency Nursing Australasia (CENA) or Australian College of Emergency Nursing (ACEN) who had current e-mail addresses with these Colleges. Additionally, the sample included emergency nurses employed in the emergency departments from four Australian hospitals each from a different state or territory.

Instrument design

No existing published and validated tool was located that was suitable for this study. As such, a survey tool was developed based on the professional expertise of the research team and themes from the existing literature. Content and face validity was established following a review of the survey by a panel of experts in emergency health care and disaster response. The survey was piloted on 21 emergency nurses from two Australian hospitals. The results of this pilot were summarised, discussed by the research team and minor amendments were made to tool in response to comments from the pilot.

Participant recruitment

CENA and ACEN distributed the survey via e-mail to approximately 800 and 520 members respectively. Additionally, four Australian hospitals distributed the survey to emergency nurses using local e-mail, staff intranet systems and staff noticeboards.

Data collection

Online surveys are readily distributed, easy to complete and obviate researcher bias.²⁷ The survey used in this research was designed to be brief, taking less than 10 min to complete. Remark Web Survey Version 4™, a secure online survey was used at all recruitment sites. Additionally, two hospitals elected to distribute the survey using a paper version. The paper version was completed by participants and

returned to a secure locked box within the participant's workplace.

Data analysis

The characteristics of the participants were explored using descriptive statistics. Univariate associations between the overall willingness to attend their workplace in a disaster and the characteristics of the participants were assessed using chi-squared tests of association. The willingness of emergency nurses to attend their workplace during one or more different types of disaster events was assessed using mixed effects logistic regression models. The dependent variable for these models was the willingness to attend their workplace (yes or no) and the independent variables, the type of event, and the demographic variable of interest. Data were analysed using STATA version 11.1 (2009).

Protection of human participants

Ethics approval to conduct this research was granted by the four Australian hospital, as well as the author's affiliated institutions. The research was conducted in accordance with the approved protocol and there were no withdrawals or complaints received. Surveys were anonymous and consent was implied when participants completed and returned their survey.

Results

In total, 451 participants completed the survey. The mean age (\pm SD) of participants was 39.8 (\pm 9.71) years. The majority of the participants were female ($n=373$, 84%).

Type of disaster

The overwhelming majority of participants reported a willingness to attend their workplace in a disaster. There was some difference in their willingness with respect to attending their workplace in a conventional ($n=425$, 97.7%) and non-conventional ($n=341$, 86.3%) disaster. The odds of emergency nurses being willing to attend their workplace during a conventional disaster was 23.9 times higher than the odds of being willing to attend their workplace in a non-conventional disasters (OR = 23.9, 95% CI = 10.85–52.8, $p \leq 0.001$).

Individual demographic factors

Gender did not influence participants' willingness to attend their workplace in a disaster ($\chi^2=0.94$, 1df, $p=0.33$). In total, 92.2% of women ($n=1650$) and 92.7% of men ($n=320$) reported their willingness to attend work during a disaster. Additionally, participants' willingness to attend work during a disaster was not influenced by their employment classification, for example enrolled nurse ($n=14$, 3.1%), registered nurse ($n=224$, 49.7%) or clinical nurse specialist ($n=89$, 19.7%) ($\chi^2=7.02$, 3df, $p=0.07$). However, participants who worked more than 0.5 full-time equivalent (FTE), but not full-time were 3.8 times more willing to attend

their workplace in a disaster (OR = 3.8; 95% CI = 1.17–12.55, $p = 0.03$) and those working full-time were 4.8 times more willing to attend their workplace in a disaster (OR = 4.8; 95% CI = 1.44–15.85 $p = 0.01$) than those working less than 0.5 FTE (OR = 2.11; 95% CI = 0.89–5.04, $p = 0.089$). Only 12.9% ($n = 58$) of participants worked less than 0.5 full time equivalent.

There was no association between participants' willingness to attend work during a disaster and level of qualification, such as having a hospital certificate ($n = 32$, 7.1%), bachelor degree ($n = 105$, 23.3%) or postgraduate qualification ($n = 148$, 32.8%) (OR = 1.4, 95% CI = 0.9–2.2; $p = 0.18$). However, nurses were more than four times likely to be willing to attend work during a disaster if they had skills and/or knowledge in disasters (OR = 4.5, 95% CI = 1.3–16.0; $p \leq 0.001$). Nearly half of the participants ($n = 217$, 48.2%) indicated that they held a qualification that contained some disaster content, such as a qualification in emergency nursing, paramedicine, infectious diseases, disaster management or public health. Participants who held a qualification that included disaster content, were more than two times more likely to attend their workplace in a disaster than those who did not hold such a qualification (OR = 2.62; 95% CI = 1.11–6.19, $p = 0.028$). More than three-quarters ($n = 384$, 85.1%) of participants had completed a disaster-course such as a hospital education session, military training, MIMMS or AIMS. While not statistically significant, this education had a tendency to positively influence their willingness to attend their workplace in a disaster (OR = 2.11; 95% CI = 0.89–5.04, $p = 0.089$).

Family factors

The majority of participants ($n = 317$, 72.9%) reported that they did not have an emergency plan for themselves and their families. The odds of participants with a disaster plan being willing to attend their workplace in a disaster were 7.74 times higher than the odds of nurses who did not have disaster plan (OR = 7.74, 95% CI = 1.72–34.94, $p = 0.008$).

In terms of living arrangements, 39.4% ($n = 176$) of participants lived with children, 34% ($n = 152$) lived with a partner/spouse and had no children, whilst 26.6% ($n = 119$) of participants lived alone or with other family/friends. The highest proportion of participants unwilling to attend their workplace in a disaster were those who lived with children ($\chi^2 = 37.7$, 2df, $p < 0.001$).

Workplace factors

Willingness was not influenced by the size of a participants' hospital of employment (OR = 0.91; 95% CI = 0.61–1.34, $p = 0.63$). Participants' State or Territory ($\chi^2 = 8.45$, 7df, $p = 0.29$), and their hospital setting such as a tertiary, urban, rural and regional hospital ($\chi^2 = 0.68$, 3df; $p = 0.88$) did not influence their willingness to attend their workplace in a disaster. However, participants were more willing to attend their workplace in a disaster if they perceived that their nursing colleagues (OR = 2.63, 95% CI = 1.66–4.15, $p \leq 0.001$), managers (OR = 2.04, 95% CI = 1.36–3.07, $p = 0.001$), medical and allied health colleagues (OR = 2.60, 95% CI = 1.68–4.03, $p \leq 0.001$) and their

employers, were prepared for a disaster (OR = 2.66, 95% CI = 1.75–4.06, $p \leq 0.001$).

Discussion

This research adds to the understanding of Australasian emergency nurses' willingness to attend their workplace in a disaster, and the factors that influence this willingness. Understanding these factors provides insight into the workforce implications and areas of focus for health services to maintain sufficient and appropriate services during or following a disaster. Overall, Australasian emergency nurses' are highly willing to attend their workplace in a disaster. However, the type of disaster, individual demographic factors, family factors and workplace factors, influenced their willingness.

Type of disaster

Participants were more willing to attend work in a conventional disaster when compared to non-conventional disasters. These results are consistent with the international multidisciplinary literature.^{3–6,14} A possible explanation for this finding is that conventional disasters are more localised and visible, whereas non-conventional disasters are not.⁶ Strategies to increase the willingness of nurses to attend their workplace during non-conventional disasters that may be considered by health services and policy makers may include availability of appropriate treatment, prophylaxis and appropriate infection control measures.^{4,8,15,21}

Individual demographic factors

In Australia 90.6% of nurses are female.²⁸ However, gender did not influence the willingness of participants of this research to attend their workplace in a disaster. This finding is different to that of other studies that identified males to be more willing to attend in a disaster than females.^{4,5,8–12} The explanation for this is difficult to determine and requires further investigation.

This research concurs with previous research that nurses who work part-time are less likely to attend their workplace during a disaster than those who work full-time.^{11,16} There are a number of possibilities to explain this finding, which has not been explored in detail in the disaster willingness literature, such as the relationship between working part-time as a nurse in an emergency department and having family responsibilities or other commitments.

The results from this research support the notion that nurses' with skills and knowledge related to disasters increase willingness to attend their workplace in disasters.^{8,13–15,29} However, concerns about the frequency and type of disaster training and education among Australasian emergency nurses have been raised.^{30–32} This was exemplified in a study of Australasian emergency nurses highlighting that on average disaster training was last received 19.2 months prior to that research data collection.⁷ As such, disaster related content should be included in formal qualifications and more frequent informal courses and hospital education sessions should be conducted to enhance

the willingness of emergency nurses to attend their workplace in a disaster.

Family factors

This research has demonstrated that participants with a family disaster plan were eight times more willing to attend their workplace in a disaster. This is consistent with other research studies that show nurses who have higher personal preparedness, such as a home disaster plan, have correspondingly higher levels of willingness to attend their workplace in a disaster.^{5,33} Nurses should be actively encouraged to develop family and personal disaster plans.

Carer responsibilities for children was a key factor that decreased emergency nurses' willingness to attend their workplace in a disaster. This finding is consistent with previously published literature that shows healthcare workers who have dependent children are less willing to work during a disaster when compared to those without dependent children.^{4,8,10,11,23} Family is a concern for healthcare professionals; as such it is of little surprise that the perceived ability or inability to communicate with family and friends, particularly during periods of quarantine or extended shifts, influences willingness to attend workplace in a disaster.^{6,24}

Workplace factors

Participants in this research were more willing to attend their workplace in a disaster if they perceived their nursing colleagues, managers, medical and allied health colleagues, and employers were prepared for disaster response. This finding is congruent with other studies in which willingness is influenced by the perceived level of hospital preparedness.²⁰ As such, organisations should increase the perceptions of disaster preparedness amongst staff using available disaster preparedness checklists or action cards, undertaking routine disaster exercise, and having visible disaster plans.

Limitations

The major limitation of this study was selection bias. The participants in this research were a self-selecting convenience sample recruited from the two Australasian emergency nursing Colleges and from four Australian hospitals. Therefore, the generalisability of the study findings to all Australasian emergency nurses is limited.

Conclusion

This research is the first Australasian research of the factors that influence the willingness of Australasian emergency nurses to attend work in a disaster. This research has highlighted that willingness can be influenced by the type of disaster, individual demographic factors and workplace factors. Potentially, individuals, families and workplaces can influence their willingness by having improved formal disaster knowledge and skills, having a family disaster plan and improving the perception of workplace preparedness.

Author contributions

All authors were responsible for the research conception, design and implementation of this research project. All authors contributed to the interpretation of the research findings. JR, LC and LB developed the initial publication outline. JR wrote the first draft manuscript. All authors reviewed the made critical revisions for important intellectual content and approved the final manuscript.

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Provenance and conflict of interest

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