Nursing care left undone, practice environment and perceived quality of care in small rural hospitals

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Informative

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Running Title

Care left undone in rural hospitals

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Abstract

Aim

To examine nursing care left undone and its relationship with the nursing practice environment and perceived quality of nursing care in small Australian rural hospitals.

Background

Nurses in small rural hospitals often work with few resources, limited backup and staff shortages. The relationship between this rural practice environment and care left undone has not been fully explored.

Method

Descriptive cross-sectional survey.

Results

Over half participants (n=241, 62.9%) reported having left some activity undone on their most recent shift. There were moderately significant correlations between care left undone and nursing practice environment and overall quality of care. Nurses who reported leaving care left undone had statistically significant lower perceptions of the nursing practice environment.

Conclusion

Nursing care activities are being left undone in rural hospitals. Both care left undone and quality of nursing care may be affected by the nursing practice environment.

Implications for Nursing Management

To maximise care quality, rural hospital managers must consider the prevalence of care left undone and may use this information as a predictor of both patient outcomes and staffing and resource requirements. Given the challenges of rural hospitals, rural nurse managers can use this evidence to support their requests for increased staffing and resources.

Key words: nurse, rural, hospital, care left undone, missed care, nursing practice environment

1 INTRODUCTION

Hospitals are an integral part of Australian rural communities. Not only are they often the largest employer in the area, they are usually the sole provider of health care to rural communities (Twigg, Cramer, & Pugh, 2016). Health care in rural hospitals is provided largely by nurses who need to have a broad skill set and the ability to work autonomously with limited medical and allied health support (Baernholdt & Mark, 2009).

Studies have shown that rural hospitals operate with fewer resources than their urban counterparts (Smith, 2007) and that rural hospitals also experience ongoing issues with recruitment and retention of skilled nurses (Cosgrave, Maple, & Hussain, 2018; Fields, Bell, Bigbee, Thurston, & Spetz, 2018). This means that nurses in rural hospitals often work with high staff to patient ratios and experience unexpected increases in work demands (Blackman et al., 2015). Low staffing levels have been associated with care left undone, with the odds of care left undone increasing with rising patient ratios (Griffiths et al., 2014). This suggests that there may be insufficient resources and nurses to carry out the work that is required to provide optimal patient outcomes. If the workforce is inadequate, there is the

potential that nurses may prioritise care and important tasks may be incomplete or left undone (Ausserhofer et al., 2014).

Care left undone, implicit rationing of care or missed nursing care encompasses any delayed or unfinished clinical, emotional or administrative nursing care that was not completed, delayed or partially completed on a given shift (Recio-Saucedo et al., 2018). This practice may pose a threat to patient safety and has been shown to increase adverse outcomes such as patient mortality rates, hospital acquired infections, falls and delayed discharge (Ball et al., 2017; Kalisch, Tschannen, Lee, & Friese, 2011; Schubert, Clarke, Aiken, & de Geest, 2012). Care left undone is also directly related to lower patient satisfaction as 'comfort and talk with patients' is frequently left undone, contributing to patients feeling overlooked and dissatisfied (Ball, Murrells, Rafferty, Morrow, & Griffiths, 2013; Park, Hanchett, & Ma, 2018). This may lead to a reluctance to utilise services or recommend a hospital to others (Bruyneel et al., 2015). This is of concern in rural communities where a reluctance to engage with health services can be of further detriment to already poor health outcomes in these communities.

Despite evidence that increased resources and staffing levels have a positive effect on patient safety (Ausserhofer et al., 2014), there are ongoing difficulties maintaining a skilled and adequate workforce in rural hospitals. Reasons for this include geographic location, access to ongoing education and lack of career advancement opportunities (Russell, McGrail, & Humphreys, 2017). This means that care may be left undone in rural hospitals and patient safety may be at risk. This paper reports on care left undone in small rural hospitals as a predictor of sufficient staffing and resources in these practice environments. The study explored what aspects of nursing care was being left undone in Australian rural hospitals and what effect the nursing practice environment has on care left undone, whilst also examining nurses' perceived quality of care. This forms part of a larger study of the experiences of nurses working in small Australian rural hospitals (Author's own).

2 AIM

To examine nursing care left undone and its relationship with the nursing practice environment and perceived quality of nursing care in small Australian rural hospitals.

3 METHOD

3.1 Design

This descriptive, cross-sectional online survey was undertaken during 2018. Approval to conduct the study was obtained from the Human Research Ethics Committee of the XXXX prior to commencing data collection.

3.2 Data collection

A convenience sample of diploma (enrolled), baccalaureate (registered) and baccalaureate prepared dual nurse/midwives working in hospitals with up to 99 beds in rural and regional Australia participated. The term 'rural' is not used to classify hospitals in Australia, so hospitals that were described on the Australian Institute of Health and Welfare (2017) *My Hospitals* website as small, medium or large regional hospitals with fewer than 99 beds were selected. Potential participants were recruited via social media campaigns over a 10 week period via Twitter and Facebook. Information packages were also posted to the 479 hospitals that met the inclusion criteria. The packages contained an introductory letter and a request to display postcards and posters in the workplace. Email requests and subsequent follow up emails were also sent to various nursing associations including the Australian Nursing and Midwifery Federation, Australian College of Nurses, Council of Remote Area Nurses of Australia, National Rural Health Alliance and Services for Australian Rural and Remote Allied Health requesting the study be promoted through their regular newsletters and publications.

3.3 Instrument

The survey tool was developed to measure specific concepts related the aims of the project. This was informed by a review of the literature related to the rural nursing workforce (Authors own), previously and validated tools and input from experts. The survey tool was then pilot tested by three experienced nurse researchers and ten volunteers from the researcher's workplace and minor ammendments made to the wording of questions prior to admistration.

This paper reports on the sections of the survey about care left undone, nursing practice environment and quality of care. Other parts of the larger study have been reported elsewhere (Authors own).

3.3.1 Demographics

The survey included demographic items that gathered personal, professional and employment related factors.

3.3.2 Care Left Undone

Care left undone was assessed by asking nurses to identify from a list of 13 activities which items were considered to be 'Necessary, but left undone because you lacked time to complete them?' on their last nursing shift (Ball et al., 2017)(Table 1). The list was informed by the validated Basel Extent of Rationing of Nursing scale (Schubert et al., 2008).

**** Insert Table 1 here ****

3.3.3 Nursing Practice Environment

Twenty nine items from the Nursing Work Index-Revised: Australian (NWI-R: A) (Joyce & Crookes, 2007) were used to assess the nursing practice environment in relation to identify factors that impact on a nurses ability to provide high quality care. Items were scored on a 4-point Likert scale from strongly disagree (1) to strongly agree (4) (Swiger et al., 2017). These items contribute to the scores for five subscales, namely; Nursing foundations for quality of care, Nurse manager ability, leadership and support of nurses, Nurse participation in hospital affairs, Staffing and resource adequacy and Collegial nurse-physician relations. Favourable practice environments are evidenced by a mean score above 2.5, with a mean score below 2.5 considered to be unfavourable (Swiger et al., 2017). The NWI-R: A has been tested for face and content validity and the widespread use of the tool affirms its construct validity (Joyce & Crookes, 2007; Sim, Joyce-McCoach, Gordon, & Kobel, 2019). The tool has acceptable levels of internal consistency with subscales reported to have a Cronbach's alpha above 0.7 (Joyce-McCoach & Crookes, 2011).

3.3.4 Quality of Care

Participants were asked to rate the quality of care provided on their ward using a single 4-point Likert scale from 1 (excellent) to 4 (poor). This item was developed by Ball et al. (2013) from an original study by Aiken et al. (2001). The items were reverse-scored prior to data analysis to ensure that higher scores reflected better quality of care.

3.4 Data Analysis

Data were exported directly from SurveyMonkey Inc. (2017) to the Statistical Package for the Social Sciences (SPSS) version 25 (IBM Corp., 2018). Following removal of incomplete responses, 383 complete surveys were included in the analysis. Descriptive statistics were used to analyse sample characteristics and examine variables of care left undone, the nursing practice environment and quality of care. Pearson's r was used to assess strength of the association between care left undone, the subscales of NWI-R: A, nurse's perceived quality of care rating and additional hours worked. The sample was then dichotomised based on whether or not there were items of care left undone and differences in NWI-R: A, nurse's perceived quality of care rating and additional hours worked and examined using the independent t-test. The threshold for statistical significance was set at $p < 0.05$.

4 RESULTS

4.1 Demographics

A total of 383 nurses completed the survey. The mean age of participants was 47.7 years (SD 12.0; range 20-76) and most were female (n=329, 85.9%). A large proportion of participants were permanent staff (n = 306, 79.9%), who either worked part-time (n=159, 41.5%) or full-time (n=147, 38.4%). The majority (n=259, 67.6%) had been employed at their current workplace for up to 10 years. The largest group worked in a hospital with less than 50 beds (n=340, 88.8%). Under half (n=145, 37.9%) of the participants regularly worked across different clinical areas. Only 32.1% (n=123) worked on average the same hours as they were scheduled (Mean 32.75 hours), some 67.9% (n=260) on average worked more hours than scheduled (Mean 36.57 hours)(Table 2).

**** Insert Table 2 here ****

4.2 Prevalence and Type of Care left undone

More than half of the participants (n=241, 62.9%) reported that they had missed some nursing care activity on their most recent shift (Table 3). The mean number of missed activities was 2.6 (SD=2.98) and the greatest number of missed activities was 3 (n=45, 11.7%). The activities that were most frequently missed were comfort/talk with patients (n=192, 50.1%), educating patients and/or family (n=122, 31.9%) and adequate patient surveillance (n=105, 27.4%).

**** Insert Table 3 here ****

4.3 Nursing Practice Environment

Findings demonstrated an overall favourable nursing practice environment, with the total mean NWI-R: A score of 2.86 (SD 0.56) (Table 4). All subscales were rated highly by participants, with each sub-scale scoring greater than 2.5. The highest rated subscale was the collegial nurse-physician relations subscale (mean=3.16, SD 0.67) suggesting relationships between nurses and physicians were positive. The nursing foundations for quality of care subscale was also rated highly (mean= 2.99, SD 0.57). The lowest scoring subscale was the nurse participation in hospital affairs subscale (mean=2.67, SD 0.65).

**** Insert Table 4 here ****

4.4 Quality of Care

More than half (n=199, 52.0%) of participants indicated the quality of care provided on their ward was good, whilst 32.1% (n=123) perceived the quality of care as excellent. Only 14.9% (n=57) and 1.0% (n=4) rated the quality of care provided on their ward as fair or poor respectively.

4.5 Correlations of care left undone, quality of care, hours worked and NWI-R: A

There was a moderately significant negative correlation between care left undone and participants' overall quality of care rating (r= -0.37, p<0.01)(Table 5). Moderately significant negative correlations were found between care left undone and each of the NWI-R: A subscales and care left undone and the NWI-R: A total mean (r= -0.36, p<0.01).

There was also moderately significant positive correlations between quality of care and collegial nurse-physician relations (r= 0.43, p<0.01), quality of care and nurse participation in hospital affairs (r= 0.48, p< 0.01) and quality of care and nurse manager ability, leadership and support of nurses (r= 0.44, p<0.01). Strong significant positive correlations were found between quality of care and staffing and resource adequacy (r= 0.52, p<0.01), quality of care and nursing foundations for quality of care (r= 0.61, p<0.01) and quality of care and the NWI-R: A total mean (r= 0.60, p<0.01). There was a weak significant positive correlation between staffing and resource adequacy and whether additional hours were worked (r= 0.16, p<0.01).

**** Insert Table 5 here****

Participants were dichotomised into groups based on status of care left undone (n= 241, 62.9%) and no care left undone (n= 142, 37.1%). Independent-sample t-tests indicated that nurses who reported care left undone reported significantly lower nursing practice environment (p < 0.001) as indicated by the scores across all the five NWI-R: A subscales (Table 6). The effect sizes ranged from 0.25 to 0.51 reflecting moderate to medium differences (Bosco, Aguinis, Singh, Field, & Pierce, 2015) in nursing practice environment between the two groups. Similarly, nurses who reported care left undone had significantly lower perceptions of quality of care (mean = 2.95, SD = 0.67) compared to those who had no care left undone (mean = 3.49, SD = 0.63); t (381) = 7.71, p < 0.001, r = 0.38.

**** Insert Table 6 here ****

5 DISCUSSION

This study has reported evidence of the prevalence of care left undone in small Australian rural hospitals. It has also shown associations between care left undone and perceived quality of care with the nursing practice environment. This is not the first study of nursing care left undone to be undertaken in Australia (Blackman et al., 2015; Blackman, Lye, et al., 2018; Blackman, Papastavrou, et al., 2018; Henderson, Willis, Xiao, & Blackman, 2017; Willis et al., 2015). However, this study is innovative in that it is focussed specifically on the rural

hospital setting. This is significant given the unique practice environment, with lower levels of support and fewer resources than urban hospitals (Smith, 2007).

The findings of this study are similar to the findings of the broader literature across settings (Carthon, Lasater, Sloane, & Kutney-Lee, 2015; Park et al., 2018). However, the number of nurses in this study that had some care left undone is somewhat lower than previous studies (Ball et al., 2016; Griffiths et al., 2018; Park et al., 2018). This may indicate that nurses in rural settings are working longer hours to actually complete tasks that they deem to be required, given that more than half of the participants in this study worked more hours than scheduled. It is unknown whether these hours were paid or unpaid; however, it does demonstrate that the nursing hours allocated per patient may be inadequate to complete the nursing tasks required. It is important for nurse managers to consider these findings and ensure that staffing levels provide appropriate resources to deliver quality nursing care in a safe manner for nurses and patients.

Research has suggested that when a nurse's workload increases there is less time to undertake all the necessary tasks involved in caring for an individual patient (Schubert et al., 2008). The prevalence of care left undone has been linked with poorer patient experiences (Aiken et al., 2018) and in our study with lower nurse perceptions of quality care. There are also suggestions that the work nurses undertake has intensified to an extent that nurse's are either reprioritising the task or leaving it undone completely (Willis et al., 2015). There is concern that as nurses prioritise more complex care activities they may lose value for the fundamental patient care needs (Ausserhofer et al., 2014; Richards, Hilli, Pentecost, Goodwin, & Frost, 2018). Rural nurses are known to work in an environment where patient numbers and clinical acuity fluctuate rapidly. They are also known to work with staff shortages, limited resources and limited clinical support (Baernholdt & Mark, 2009). Understanding the relationships between care left undone, perceived quality of care and the nursing practice environment is important for nurse managers to better plan workforce and clinical needs and improve patient experience with care.

Understanding which activities were most frequently left undone helps nurse managers to understand the pressures on nurses working in rural hospitals. In this study, the activities most frequently left undone were comfort/talk with patients and educating patients and/or

family. Both of these items are focused on communication and development of a therapeutic relationship. The activity least likely to be left undone was undertaking treatments and procedures. This pattern of activities is similar to what is reported in other studies (Ausserhofer et al., 2014; Ball et al., 2016) and consistent with findings of a recent review (Griffiths et al., 2018) that found comfort / talk with patients and treatment and procedures as the activity most and least frequently left undone respectively.

Nurse reported quality of care was also examined in this study. Participants' perceived the quality of care provided as either good or excellent, with only a few rating the quality of care as fair or poor. This was despite nursing care activities being left undone. This may indicate that nurses make a conscious decision as to which nursing activities are critical and which activities they may omit. Activities that were prioritised were the tasks related to the immediate needs of the patient rather than the tasks that may develop trust and a therapeutic relationship between the nurse and patient. This supports Ausserhofer et al. (2014) hypothesis that resource shortages may cause nurses to disregard the core principle of person-centred care and instead become more task orientated whilst performing patient care. The implication this may have on patient outcomes requires further investigation. It should also raise awareness of nurse managers that a lack of engagement between nurses and patients may be a sign of excessive workload rather than a performance issue per se.

McHugh (2012) proposes that nurses' are an ideal judge of the quality of care delivered in hospitals due to their direct involvement in all aspects of patient care. They found that nurse reported quality of care was accurate and a reliable indicator of patient safety and outcomes. Based on these assumptions, it is reasonable to assume that nurses deliberately prioritised some of the care tasks in the list of activities left undone over other activities. The fact that tasks focused on communication and planning care were most frequently left undone suggests that nurses rate the quality of care by focusing on the safety of care rather than by evaluating the relational components of care. Rural hospitals are a unique environment where nurses are responsible for the majority of work, with limited resources and little backup. They are known for their stoicism and attitude of *getting things done* and this may account for the positive quality of care perception despite having care left undone (Mills, Birks, & Hegney, 2010).

In this study, nurse perceived quality of care was also associated with all subscales of the Nursing Work Index-Revised: Australian, which measures the various aspects of the nursing practice environment. The nursing practice environment has been associated with patient and workforce outcomes (Olds, Aiken, Cimiotti, & Lake, 2017) and has been studied for a number of decades to ensure working conditions are attractive to nurses (Lake, 2002). Given that nurses are in an ideal position to assess the quality of care provided on their ward (McHugh, 2012), prudent nurse managers should ensure the nursing practice environment is one which is conducive to providing quality nursing care. Managers may have a significant impact on the elements of the practice environment and are instrumental in creating a favourable or unfavourable environment (Duffield, Roche, Blay, & Stasa, 2011).

6 STRENGTHS AND LIMITATIONS

A limitation of this study was that it was cross sectional and predominately examined associations rather than causations (Levin, 2006). However, inferential statistics were used to examine differences in participants' perceptions of the nursing practice environment and quality of care based on the status of care left undone. Data were not collected regarding nurse staffing and nurse to patient ratios therefore it is difficult to make assumptions regarding staffing levels or compare findings to studies that discuss nurse staffing. Also, this study focused on data collection from nurses and other surrogate outcome measures without collecting direct patient outcomes data. Consideration should be given to including direct measures of both nurse and patient outcomes in future research on this population.

7 CONCLUSION

This study has explored the prevalence of nursing care left undone and nurses perceived quality of care in rural hospitals in Australia. The study is unique as little research exists regarding care left undone in the rural context. This study found that nurses working in rural hospitals do indeed, leave some care activities undone, however this may be due to prioritising what tasks are important and leaving those deemed less important to patient safety. There is a risk that this prioritising of care activities may force nurses to move away from fundamental nursing tasks which is cause for some concern.

8 IMPLICATIONS FOR NURSING MANAGEMENT

Understanding care left undone in rural hospitals may provide crucial information for hospital managers about the adequacy of staffing and nursing practice environment. Care left undone may also assist in assessing nursing quality of care and predicting patient outcomes. Further studies of care left undone which combined patient outcomes and staffing information would be of benefit to managers in maintaining the rural nursing workforce and ensuring the care they provide is safe and patient focussed.

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Table 1. Care Activities Left Undone

- Adequate patient surveillance
- Adequate documentation of nursing care
- Administering medication on time
- Comfort/talk with patients
- Develop or update nursing care plans/care pathways
- Educating patients and/or family
- Frequent changing of patients position
- Oral hygiene
- Pain management
- Planning care
- Preparing patients and families for discharge
- Skin care
- Undertaking treatments/ procedures

Table 2. Demographic characteristics (n = 383)

Characteristic	n	%
Age (Yrs)		
Up to 30	36	*9.4*
31-40	62	*16.2*
41-50	84	*21.9*
51-60	121	*31.6*
61+	56	*14.6*
Data missing	24	*6.3*
Gender		
Female	329	*85.9*
Male	29	*7.6*
Transgender	1	*0.3*
Data missing	24	*6.2*
Hospital size		
<50 beds	340	*88.8*
50-99 beds	43	*11.2*
Employment status		
Part-time	159	*41.5*
Full-time	147	*38.4*
Casual	39	*10.2*
Agency	17	*4.4*
Data missing	21	*5.5*
Years at current workplace		
Up to 10	259	*67.6*
11-20	69	*18.0*
21-30	22	*5.8*
31-40	10	*2.6*
41+	2	*0.5*
Data missing	21	*5.5*

Years worked as a nurse		
Up to 10	115	*30.0*
11-20	79	*20.6*
21-30	48	*12.5*
31-40	89	*23.3*
41-50	30	*7.8*
51+	1	*0.3*
Data missing	21	*5.5*
Predominant area of clinical practice		
Regularly work in different clinical areas	145	*37.9*
Medical ward	90	*23.5*
Emergency department	85	*22.2*
Maternity	13	*3.4*
Operating theatre	7	*1.8*
Other	22	*5.7*
Data missing	21	*5.5*

Table 3. Nursing care activities left undone

Activity	n	%
Comfort / talk with patients	192	*50.1*
Educating patients and / or family	122	*31.9*
Adequate patient surveillance	105	*27.4*
Develop or update nursing care plans / care pathways	85	*22.2*
Preparing patients and families for discharge	80	*20.9*
Adequate documentation of nursing care	76	*19.8*
Frequent changing of patient's position	68	*17.8*
Planning care	61	*15.9*
Administering medication on time	60	*15.7*
Oral hygiene	60	*15.7*
Skin care	47	*12.3*
Pain management	27	*7.0*
Undertaking treatments / procedures	25	*6.5*

Table 4. Nursing Work Index-Revised: Australian

Subscale	**Mean**	**SD**
Collegial Nurse-Physician Relations	3.16	0.67
Nursing Foundations For Quality of Care	2.99	0.57
Nurse Manager Ability, Leadership and Support of Nurses	2.87	0.80
Staffing and Resource Adequacy	2.73	0.74
Nurse Participation in Hospital Affairs	2.67	0.65

Table 5. Correlations

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Care left undone	-								
2. Quality of care	-.37**	-							
3. Additional hours worked	-.16**	0.08	-						
4. Collegial nurse-physician relations	-.27**	.43**	0.04	-					
5. Staffing & resource adequacy	-.49**	.52**	.16**	.44**	-				
6. Nurse participation in hospital affairs	-.27**	.48**	-0.03	.51**	.55**	-			
7. Nurse manager ability, leadership & support of nurses	-.23**	.44**	0.01	.48**	.52**	.78**	-		
8. Nursing foundations for quality of care	-.30**	.61**	0.07	.56**	.62**	.78**	.71**	-	
9. NWI-R:A	-.36**	.60**	0.05	.66**	.73**	.92**	.85**	.92**	-

**. Correlation is significant at the 0.01 level (2-tailed)

Table 6. Comparison of NWI-R: A and quality of care with care left undone

Variable	No care left undone (n= 142)		Care left undone (n= 241)		Effect size *(r)*	*t*	*df*	*p*
	Mean	SD	Mean	SD				
Collegial nurse-physician relations	3.40	0.61	3.02	0.67	0.28	5.54	381	0.001
Staffing and resource adequacy	3.20	0.63	2.45	0.65	0.51	10.94	381	0.001
Nurse participation in hospital affairs	2.89	0.65	2.53	0.61	0.27	5.43	381	0.001
Nurse manager ability, leadership & support of nurses	3.12	0.75	2.73	0.79	0.25	4.70	381	0.001
Nursing foundations for quality of care	3.22	0.54	2.86	0.56	0.31	6.08	381	0.001
NWI-R:A Total	3.12	0.53	2.70	0.52	0.37	7.50	381	0.001
Nurse perceptions of quality of care	3.49	0.63	2.95	0.67	0.38	7.71	381	0.001