Original Article

Levels of occupational stress in the remote area nursing workforce

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Abstract

Objective: To identify key workplace demands and resources for nurses working in very remote Australia and measure levels of occupational stress in this population.

Methods: The study used a cross-sectional design, utilising a structured questionnaire.

Setting: Health centres in very remote Australia.

Results: Nurses working in very remote Australia experience significantly higher levels of psychological distress and emotional exhaustion, compared with other professional populations. Paradoxically, results also highlight higher than average levels of work engagement. Nurses working in very remote regions in Australia further report moderate levels of job satisfaction. Most significant job demands identified were emotional demands, staffing issues, workload, responsibilities and expectations, and social issues. Key job resources included supervision, opportunities for professional development, and skill development and application.

Conclusion: In a context of high stress, high levels of work engagement and moderate levels of job satisfaction do not obviate high workforce turnover for this population. There is a need to reduce job demands and increase job resources in order to foster long-term work engagement and reduced emotional exhaustion. This might subsequently decrease remote area nursing workforce turnover.

KEY WORDS: Job Demands-Resources Model, occupational stress, remote area nursing.

Introduction

Remote communities across Australia experience the poorest health outcomes in the country. Consistent with the ‘Inverse Care Law’, there is a decreasing number of health professionals with increasing remoteness across the country. Nurses are the most widely geographically distributed professional group in Australia and those in remote areas are often required to attend to wide-ranging client needs that often lie beyond the scope of metropolitan nursing practice.

Beyond the demands of an extended health practice, remote area nurses (RANs) endure inadequate staffing levels, mandatory on-call duties and frequent overtime, professional isolation and limited opportunities for professional development, violence in the workplace, limited supervision and management support, and concerns for personal safety.

The remote context is very demanding and these conditions can contribute to elevated levels of occupational stress and poor RAN retention. Staff turnover in very remote regions of the Northern Territory (NT) has been estimated at 57% per annum, compared with an average territory nursing turnover rate of 39% per annum. High staff turnover leads to inadequate staffing levels and increased workloads for the remaining nurses, contributing to further occupational stress in this population.

Given the high-demand, under-resourced environment, we adopted the Job Demands-Resources (JD-R) Model to examine stress in this workforce. The model proposes that worker well-being is affected by any number of variables that can be categorised as either job demands or job resources. Job demands become stress when the employee is required to expend considerable effort in order to meet them, with possible

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outcomes such as psychological distress and emotional exhaustion. In contrast, job resources might serve a motivational purpose and are suggested to lead to more positive work outcomes, such as work engagement and job satisfaction. However, a deficit in job resources might also further contribute to occupational stress and exhaustion (or burnout).

Most relevant to the study is the central hypothesis of the JD-R Model, asserting that ‘high job demands predict adverse psychological and physical health consequences, and that low job resources will, by definition, increase job demands and will therefore foster burnout and other maladaptive health consequences’. An adaptation of the JD-R Model of burnout (Fig. 1) provides the theoretical framework for the present research. Unlike the model used by Demerouti et al., our study used job demands considered to be specific to remote area nursing practice, and selected supervision, social support, opportunities for professional development, job control, and skill development and application as the job resources to be incorporated and assessed.

Method

The research was cross-sectional in design. A structured questionnaire was distributed to 1009 nurses working in very remote regions across Australia. Remoteness was identified using the ARIA+ categorisation of ‘very remote’ (score of 10.53–15). Various recognised methods were adopted to maximise survey return, including contact with health clinics before and after survey distribution, personalised cover letters and non-monetary rewards.

Ethics approval was granted by the Central Australian Human Research Ethics Committee, the Top End Human Research Ethics Committee and two university research ethics committees.

Self-report data assessed various workplace demands and resources. Workplace demands included items addressing workplace violence, emotional demands, issues surrounding management and co-workers, on-call, workload, responsibilities and expectations, support, infrastructure and equipment, safety concerns, social issues, isolation, and inter-cultural factors. Workplace resources included items addressing supervision, social support, opportunities for professional development, job control, and skill development and application.

With the exception of the RAN-Specific Job Demands Scale, a scale specifically developed for this study, the measures adopted for other constructs in the study are well-established research instruments. Measurement of occupational stress (psychological distress) and burnout (emotional exhaustion) was achieved using the General Health Questionnaire-12 (GHQ-12) and Maslach Burnout Inventory (MBI), respectively. The GHQ-12 includes questions such as, ‘Have you recently lost much sleep over worry?’. Participants are required to respond on a 4-point scale ranging from 1 (not at all) to 4 (much more than usual). The emotional exhaustion subscale from the MBI includes items such as ‘I feel emotionally drained from my work’, with responses corresponding with a 7-point scale ranging from 0 (never) to 6 (everyday). Work engagement was assessed using the Utrecht Work Engagement Scale-9 (UWES-9). This scale presents items such as ‘I am enthusiastic about my job’, and asks respondents to indicate the frequency with which they experience such feelings, on a 7-point scale ranging from 0 (never) to 6 (everyday). Finally, job satisfaction was measured with a single item asking participants, ‘Taking everything into consideration, how do you feel about your job?’, with responses correspond with a 7-point scale, ranging from 0 (extremely dissatisfied) to 6 (extremely satisfied).

Data from the questionnaire were analysed using the Statistical Package for the Social Sciences (spss) for Windows, version 16.

Results

A total of 349 nurses working in very remote Australia participated in the study, generating an overall response rate of 34.6%. The majority of respondents were female.

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(88.5%), with ages ranging from 20 to 68 years (M = 44, SD = 11). We assessed the representativeness of the study sample in comparison with the wider remote area workforce population and found that the proportions of responses from each state and territory were representative of overall workforce distribution ($\chi^2(5) = 5.68, P = 0.33$). We also assessed the proportions of our study sample working in very remote clinics and other very remote facilities across Australia and, again, found that responses were representative of proportions within actual health care settings ($\chi^2(1) = 2.43, P = 0.12$). To further assess the representativeness of our study sample, we drew comparisons between our respondents in the NT to a sample of RANs who participated in a NT study of nurse and midwife mobility. Analyses revealed no significant differences between age distribution ($\chi^2(\text{d.f.} = 2) = 1.23, \text{n.s.}$) and gender distribution ($\chi^2(\text{d.f.} = 1) = 2.10, \text{n.s.}$).

The highest proportions of our respondents were working in the NT (30.1%), Queensland (28.1%) and Western Australia (26.1%). Next highest participant representations were in South Australia, New South Wales, Tasmania and Victoria, respectively. The mean length of time working as a nurse in very remote Australia was 6.85 years (SD = 7.42 years), with a median of 4.00 years. Some 19% of respondents had worked remotely for more than 12 years, and 7% for more than 20 years.

In the following sections, results have been compared with those obtained in similar studies of other employees in the human service sector. The rationale for selecting a variety of different professional groups was solely due to the availability of comparable data. Where possible, studies involving nurses were included for comparative purposes.

### Psychological distress

General Health Questionnaire scores confirmed that RANs suffer particularly high occupational stress. Respondents displayed higher than average levels of psychological distress, with significantly higher scores than a sample of psychiatric nurses. Higher scores on this construct were also found for RANs compared with a sample of South Australian human service workers and a sample of Australian Police Officers. Results are displayed in Table 1.

### Emotional exhaustion

Mean scores for emotional exhaustion fell into the average range for this measure, as stipulated by the MBI Manual. Compared with norms from the MBI Manual for a sample of health professionals (including physicians and nurses), nurses working in very remote Australia had significantly higher scores on emotional exhaustion. Additionally, respondents reported significantly higher levels of emotional exhaustion than other nursing samples, including psychiatric nurses, ward nurses and community-based nurses. Mean (emotional exhaustion) comparisons between samples are presented in Table 2.
Work engagement

Work engagement was also assessed, with RANs displaying average levels of work engagement (as defined by the UWES Preliminary Manual25) but high levels of work engagement relative to other samples. Heterogeneous comparative samples from the UWES Preliminary Manual25 were used. These samples incorporate the results of 25 studies that were conducted between 1999 and 2003 in the Netherlands and Flanders. Occupations of respondents included police officers, physicians, nurses and hospice staff, among others. As can be seen in Table 3, nurses working in very remote Australia reported higher levels of work engagement than both of these heterogenous samples.

Job satisfaction

On average, nurses working in very remote Australia reported moderate levels of job satisfaction. While this was less than a general sample of South Australian nurses,33 the respondents did display higher levels of job satisfaction compared with samples of South Australian human service workers29 and correctional officers.34 Results are displayed in Table 4.

Job demands

Results of correlations examining the relationship between job demands and psychological distress and emotional exhaustion reveal that emotional demands, staffing issues, workload, responsibilities and expectations, and social issues held the most significant relationships with psychological distress and emotional exhaustion. These were all positively correlated with the above outcome measures (Table 5).

Workplace violence, poor management, safety concerns and the remote context were also found to have positive correlations with emotional exhaustion.

Weak, yet significant positive relationships existed between the remaining workplace demands and either

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**TABLE 1:** GHQ scores (means) – comparison of nurses working in very remote Australia with other samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses working in very remote Australia (present study)</td>
<td>337</td>
<td>13.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Psychiatric nurses (Janman et al.)28</td>
<td>349</td>
<td>10.3**</td>
<td>5.1</td>
</tr>
<tr>
<td>SA human service workers (Dollard et al.)29</td>
<td>798</td>
<td>11.5**</td>
<td>5.8</td>
</tr>
<tr>
<td>Australian police officers†</td>
<td>911</td>
<td>11.8</td>
<td>5.1</td>
</tr>
</tbody>
</table>

*Difference significant at P < 0.05, **difference significant at P < 0.01. †Results provided by M.D.

**GHQ, General Health Questionnaire.**

**TABLE 2:** Emotional exhaustion scores (means) – comparison of nurses working in very remote Australia with other samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses working in very remote Australia (present study)</td>
<td>344</td>
<td>23.9</td>
<td>14.0</td>
</tr>
<tr>
<td>Health sample (Maslach et al.)24</td>
<td>1104</td>
<td>22.2*</td>
<td>9.5</td>
</tr>
<tr>
<td>Psychiatric nurses (Kilfedder et al.)30</td>
<td>510</td>
<td>18.8***</td>
<td>10.6</td>
</tr>
<tr>
<td>Community-based nurses (Fagin et al.)32</td>
<td>245</td>
<td>21.5**</td>
<td>11.5</td>
</tr>
<tr>
<td>Ward nurses (Butterworth et al.)31</td>
<td>586</td>
<td>20.4**</td>
<td>12.0</td>
</tr>
</tbody>
</table>

*Difference significant at P < 0.05, **difference significant at P < 0.01.

**TABLE 3:** Work engagement scores (means) – comparison of nurses working in very remote Australia with other samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses working in very remote Australia (present study)</td>
<td>331</td>
<td>4.19</td>
<td>1.16</td>
</tr>
<tr>
<td>Heterogenous sample 1 (Schaufeli &amp; Bakker)25</td>
<td>9679</td>
<td>3.74**</td>
<td>1.17</td>
</tr>
<tr>
<td>Heterogenous sample 2 (Schaufeli &amp; Bakker)25</td>
<td>12631</td>
<td>4.05*</td>
<td>1.19</td>
</tr>
</tbody>
</table>

*Difference significant at P < 0.05, **Difference significant at P < 0.01.

**TABLE 4:** Job satisfaction scores (means) – comparison of nurses working in very remote Australia with other samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurses working in very remote Australia (present study)</td>
<td>346</td>
<td>4.01</td>
<td>1.22</td>
</tr>
<tr>
<td>SA nurses (Dollard)33</td>
<td>102</td>
<td>4.18</td>
<td>1.10</td>
</tr>
<tr>
<td>Human service workers (Dollard et al.)29</td>
<td>806</td>
<td>3.84*</td>
<td>1.37</td>
</tr>
<tr>
<td>Correctional officers (Dollard &amp; Winefield)34</td>
<td>416</td>
<td>3.20**</td>
<td>1.60</td>
</tr>
</tbody>
</table>

*Difference significant at P < 0.05, **Difference significant at P < 0.01.
psychological distress or emotional exhaustion, or both outcome measures. The only job demand showing no relationship to psychological distress or emotional exhaustion was on-call.

Correlations between job demands and outcome measures are displayed in Table 5.

### Job resources

Correlations were also performed to assess relationships between job resources and positive work outcomes (work engagement and job satisfaction), revealing significant positive correlations between all job resources and both outcome measures (Table 6). Supervision, opportunities for professional development and skill development and application held the strongest relationships with job satisfaction, while skill development and application and job control were most strongly associated with work engagement.

Furthermore, additional regression analyses were performed assessing age, gender and length of service on all of the study variables. Results indicated that longer length of service was associated with lower levels of job demands (i.e. workload, expectations and responsibilities, infrastructure and equipment, isolation, inter-cultural factors, remote context and culture shock) and higher levels of job resources (i.e. social support and opportunities for professional development). Additionally, being female was associated with lower levels of job demands (i.e. workplace violence, inter-cultural factors, remote context and culture shock). No demographic factors, however, we related to outcome measures. This result might suggest that variations in the outcome measures are more likely influenced by workplace factors (i.e. job demands and resources) than personal factors (i.e. age, gender and length of service).

### Discussion

Results are consistent with previous research,\(^5,6,11\) indicating that the most significant job demands for nurses working in very remote Australia include emotional demands, staffing issues, workload, responsibilities and expectations, social issues, workplace violence, poor management and safety concerns. However, in contrast to Kennedy \(^6\) who investigated the most pleasing workforce factors for this population, the study revealed supervision, opportunities for development and skill development and application to be the most significant workforce factors linked to job satisfaction.

The current research presents significant parallels to the findings of Green and Lonne.\(^3,5\) These researchers also found high levels of occupational stress in rural human service workers and discuss the unusual paradox of high work stress and subsequent burnout, with the co-occurring experience of high job satisfaction. These studies confirm the unique nature of occupational experiences in the remote health context.

However, high work engagement and moderate job satisfaction do not ameliorate the need to address the reportedly high levels of psychological distress and emotional exhaustion in the RAN population. Rather, it must be acknowledged that nurses working in very remote Australia are experiencing significantly high levels of stress and burnout, and the high levels of work engagement and moderate job satisfaction do not obviate high workforce turnover.\(^14\) Compared with other professional groups within the human service sector, RANs report

<table>
<thead>
<tr>
<th>Job demands</th>
<th>Psychological distress</th>
<th>Emotional exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace violence</td>
<td>0.26**</td>
<td>0.34**</td>
</tr>
<tr>
<td>Emotional demands</td>
<td>0.33**</td>
<td>0.48**</td>
</tr>
<tr>
<td>Poor management</td>
<td>0.30**</td>
<td>0.36**</td>
</tr>
<tr>
<td>Staffing issues</td>
<td>0.32**</td>
<td>0.47**</td>
</tr>
<tr>
<td>On-call</td>
<td>–0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>Workload</td>
<td>0.31**</td>
<td>0.44**</td>
</tr>
<tr>
<td>Responsibilities and expectations</td>
<td>0.31**</td>
<td>0.48**</td>
</tr>
<tr>
<td>Infrastructure and equipment</td>
<td>0.11*</td>
<td>0.19*</td>
</tr>
<tr>
<td>Safety concerns</td>
<td>0.22*</td>
<td>0.35*</td>
</tr>
<tr>
<td>Social issues</td>
<td>0.32**</td>
<td>0.35**</td>
</tr>
<tr>
<td>Isolation</td>
<td>0.28**</td>
<td>0.30*</td>
</tr>
<tr>
<td>Inter-cultural factors</td>
<td>0.18*</td>
<td>0.30*</td>
</tr>
<tr>
<td>Remote context</td>
<td>0.25**</td>
<td>0.31**</td>
</tr>
<tr>
<td>Culture shock</td>
<td>0.20**</td>
<td>0.29**</td>
</tr>
</tbody>
</table>

* \( P < 0.05 \) (two-tailed), ** \( P < 0.01 \) (two-tailed).

RAN, remote area nurse.

<table>
<thead>
<tr>
<th>Job resources</th>
<th>Work engagement</th>
<th>Job satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision</td>
<td>0.19**</td>
<td>0.42**</td>
</tr>
<tr>
<td>Social support</td>
<td>0.21**</td>
<td>0.36**</td>
</tr>
<tr>
<td>Opportunities for professional development</td>
<td>0.22**</td>
<td>0.46**</td>
</tr>
<tr>
<td>Job control</td>
<td>0.32**</td>
<td>0.40**</td>
</tr>
<tr>
<td>Skill development and application</td>
<td>0.30**</td>
<td>0.44**</td>
</tr>
</tbody>
</table>

* \( P < 0.05 \) (two-tailed), ** \( P < 0.01 \) (two-tailed).

RAN, remote area nurse.
significantly higher levels of psychological distress and emotional exhaustion. The messages from this work might be not only to increase job resources, but to reduce emotional exhaustion and foster long-term work engagement through workplace actions and organisational supports, which might subsequently decrease remote area nursing workforce turnover. Organisational actions should address the workplace demands most strongly associated with employee stress and burnout. Demands include emotional demands, staffing issues, workload, responsibilities and expectations, and social issues. Interventions might focus on improved debriefing systems or employee assistance programmes for more effective management of the emotional demands inherent in the work role. There might also be consideration for increasing staffing numbers which might minimise, if not rectify, some issues surrounding staffing levels and unrealistic workloads.

Furthermore, increasing job resources would also serve to reduce levels of psychological distress and emotional exhaustion (as proposed by the cross-link pathway in the JD-R Model, see Fig. 1). According to the findings of the present study, three areas for workplace actions in this domain would include heightened management and co-worker support, fostering professional development opportunities and increasing job control through augmented professional influence and decision-making.

Limitations

As the research was cross-sectional in design and limited to nurses working in very remote Australia who were employed at the time of survey distribution, there was no access to data from nurses working in very remote Australia who might have resigned because of occupational stress or who might have been on stress leave. It is possible that the present research presents a more conservative view of stress levels in the RAN workforce.

Furthermore, as the present research was based on data from nurses working in very remote Australia as a homogenous group, there is capacity to further stratify this population and conduct analyses that distinguish among RANs working in different settings. This would allow an opportunity to draw comparisons between the various remote area nursing populations to more sensitively identify the job demands and resources relevant to each health care context in the remote area nursing workforce.

Conclusion

Occupational stress in the remote area nursing workforce causes significant disruption to health care delivery in areas of Australia with very complex health care requirements. As such, the remote health care system requires robust and sustainable workplace interventions that target the reportedly high levels of occupational stress. The present research has implications for the development and implementation of these stress-related workplace interventions which will redress the balance of resources and demands in very remote Australia.

Author contributions

Tessa Opie was responsible for the conceptual development of the paper, the data analyses and the writing of the paper. Maureen Dollard assisted with the application of the theoretical framework and the data analyses. She also provided feedback on drafts of the paper. Sue Lenthall contributed to the conceptual development of the study. She assisted with decisions surrounding which results were to be disseminated and discussed. Sue also commented on drafts of the paper. John Wakeman contributed to the conceptual development of the study and paper, and commented on drafts. Sandra Dunn contributed to the conceptual development of the study and paper, and commented on drafts. Sabina Knight contributed to the conceptual development of the study and paper, and commented on drafts. Martha MacLeod commented on drafts of the paper.

References


