Work environment determinants of stress in NHS24 nurses

- Martyn C Jones¹ Derek W Johnston², Julia Allan², Barbara Farquharson², Caroline Choudhary³ Marie Johnston²
Universities of Dundee¹ Aberdeen² and Queen Margaret University Edinburgh³

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Introduction:

- High stress in nurses is related to mental health problems, burnout, increased physical illness and reduced job satisfaction, and has significant implications for patient care and service provision. (Greenglass & Burke, 2000; Michie & Williams, 2003; Blegen, 1993).

- Research on stress in nurses has largely focused on nurses in the traditional hospital setting, and may therefore fail to generalise to new nursing initiatives like the NHS-24 out-of-hours telephone helpline.

- Call centres staff exhibit more mental health problems and poorer well-being than employees in comparable occupational groups (Sprigg et al, 2003).

- Call centre working may have introduced additional stressors into nurses’ already stressful roles (Knowles et al, 2002).

- In NHS-24 staff, high stress is suggested by high turnover rates (1 in 5 employees resigned in 2004) and sickness absence (absenteeism is twice the target level of 6%) in the service.
Capturing variation in nurse perceptions of work environment, well-being

- Theoretical models of occupational stress predict that high stress in the workplace results from the interaction of certain predictable factors.

- Specifically, high demands, lack of personal control, high effort, lack of reward (including support from colleagues) are expected to contribute to high levels of employee stress and dissatisfaction (Karasek et al, 1985; Siegrist et al, 2004).

- NHS-24 is without question a high demand, unremitting environment, receiving 90% of its 31,000 calls per week out with office hours (NHS-24 Annual Report, 2005).

- Similarly, as shifts are assigned rather than chosen, and nurses are allocated calls as and when they come in, personal control may be low for this group.

- Finally, as the nurses have no knowledge of ultimate patient outcomes, and must work individually throughout their shifts, opportunities for reward and colleague support may also be limited.
Research aim:

This study aimed to examine the possible determinants of stress in NHS 24 nurses and relate these to measures which may have an impact on service provision and patient care.

Therefore the aims were to:

• Evaluate levels of stress in NHS24 nurses
• Identify determinants and consequences of stress, including work demand, effort, control and reward and job satisfaction, intention to leave
Methods:

This questionnaire study used quantitative assessment to explore the nature and causes of work stress in staff working in NHS 24. Ethical approval was obtained from the relevant NHS MREC prior to the commencement of data collection.

Research Questions

1. In NHS-24 nurses, is self-reported stress high in comparison to published norms?

2. In NHS-24 nurse advisors, perceptions of high job demand and effort / low reward and control relate to
   • High levels of perceived stress?
   • reduced job satisfaction?
   • reductions in speed of information processing/more frequent lapses of concentration?
   • increased intentions to resign from employment?
Procedures:

- **Recruitment:**
  - A comprehensive study of stress was conducted amongst ALL nurses working for NHS 24 in Scotland, between 2008 and 2010 were given a series of questionnaires to complete. March 2008 and March 2009.

- **Measures**
  - **Perceived stress**
    - General Health Questionnaire (GHQ-12, Goldberg & Williams, 1988)
    - Work-Family Conflict Scale (WFC) (Carlson et al. 2000)
    - Positive and Negative Affectivity Scales (PANAS) to measure negative affectivity (NA), an estimate of vulnerability to stress (Watson et al. 1988)
  
  - **Determinants of stress**
    - Effort Reward Imbalance and Overcommitment scale (ERI, Siegrist et al, 2004)
    - Job Content Survey (demand and control, DC Karasek et al, 1985)

- **Consequences of stress**
  - Work-Specific Cognitive Failures Questionnaire (WCFQ) to measure the frequency of slips of attention and memory during work (Wallace and Chen, 2005)
  - Job Satisfaction Scale (JSS) (Kelloway et al. 1999)
  - Intention to leave NHS24 employment
Results: Demographic Characteristics

• Overall 171 (37%) nurses agreed to take part. Four participants were excluded as ineligible, 2 subsequently withdrew and it was not possible to schedule data collection with 13 participants. Thus data is available for 152 nurses.

• The mean age of participants was 44 years (SD=7.5). Most were female (n=142) and 9 were male (data regarding gender was not available for one participant)

• Participants worked between 6 and 37.5 hours a week at NHS 24 (mean=22.6, SD=10.4), they had been qualified an average of 21 years (SD=8.3) and had been employed by NHS 24 for an average of 3.5 years (SD=2.6).
Results: Determinants and Consequences of Perceived Stress

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<td>2.71749</td>
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<td>16.0052</td>
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<td>4.99991</td>
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<td>1.00</td>
<td>15.04</td>
<td>9.2023</td>
<td>2.71037</td>
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<td>Control</td>
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<td>88.00</td>
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<td>22.00</td>
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<td>11.00</td>
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</table>
Results: Research question 1:

Q1: In NHS-24 nurse advisors, is self-reported stress high in comparison with published norms?

- Incidence of significant distress (GHQ12 score of 4 or more) was 16%, a figure comparable to the 18% found in an age and gender matched sample of the general population (2010 Scottish Health Survey, Bromley & Shelton, 2010).

- Figure considerably lower than the 28% found in hospital based nurses (McKee et al. 2010).

- Only 48% of NHS24 nurses reported no distress (GHQ12 of 0), compared to 58% of the general population indicating higher levels of mild distress in NHS24 nurses.
Results: Research Question 2

Q2: In NHS-24 nurse advisors, perceptions of high job demand and effort / low reward and control relate to:

- High demand predicted higher shift stress ($\beta=0.051$, $p=.000$) and WFC ($\beta=0.432$, $p=.006$) but not GHQ12 ($\beta=0.060$, $p=.113$).

- Effort predicted higher reported distress (GHQ12) ($\beta=0.195$, $p=.000$) shift stress ($\beta=0.064$, $p=.000$), WFC and low satisfaction ($\beta=-0.240$, $p=.004$).

- High reward was associated with less WFC ($\beta=-0.822$, $p=.002$)

- Job satisfaction was moderately associated with work demand ($-0.307$, $p=.000$), effort ($\beta=-0.169$, $p=.004$) and control ($\beta=0.411$, $p=.000$) and strongly related to perceived reward ($\beta=0.702$, $p=.000$).

- Intention to leave, which was high, was predicted by control ($\beta=-0.306$, $p=.000$) and reward ($\beta=-0.345$, $p=.000$) (but not effort nor demand).
**ERI predictors of speed of information processing: results of multiple regression**

<table>
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<th>Predictor</th>
<th>Unstandardised Coefficients</th>
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<td>Effort (centred)</td>
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<td>.111</td>
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<td>Reward (centred)</td>
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<td>-.178</td>
<td>-2.28</td>
<td>.024</td>
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</table>
Figure 2: Effort, reward interaction on information processing speed
Discussion

• The lower than expected participation rates resulted in less than the target of 200 nurses. However, we sampled over a third of the total NHS24 national workforce and our sample appears representative of the NHS24 population.

• Overall, the study shows that NHS24 nurses do not show high rates of case-level distress compared to the general population but are less likely to report minimal or no distress.

• The NHS24 nurses were less distressed than a sample of hospital nurses we have recently studied (McKee et al., 2010).

• As in other populations, we found support for theoretical models of work stress which propose that greater demand and effort and lower levels of control and reward determine stress.

• However, there was little evidence to support predictions that control moderates the effects of demand or that the combination of high effort and low reward is particularly stress inducing.
Discussion continued

• Nurses who perceived high effort and low reward had longer average speed of information processing.

• Given the nature of the clinical environment and the importance of timely and accurate information processing during telephone consultations and triage, increased information processing times could contribute to adverse clinical events with negative consequences for patients and nurses.

• Job satisfaction was moderately associated with work demand, effort and control and strongly related to perceived reward.

• Intention to leave, which was high, was predicted by control and reward (but not effort nor demand). Perceived reward included factors like esteem and job prospects, suggesting that both job satisfaction and intention to leave might be ameliorated by indications of being valued without altering the amount of work to be done (demand or effort).
Conclusion

- We successfully collected questionnaire, physiological and psychological shift and call data plus data on calls for over a third of all NHS24 nurses completing 304 shifts and 5329 calls.
- Stress experienced was related to important outcomes for NHS, including reduced cognitive performance and likelihood of errors as well as low job satisfaction, intention to leave nursing.
- The data suggest two possible targets for intervention: organising work to reduce work-home conflict perhaps by adjusting shift patterns; and enhancing socially valued rewards.