



Exploring The Relationship Between Stress and Cortisol in Full-time and Part-time Nurses

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Purpose

- To explore differences in self-reported work stress levels and health outcomes between full-time and part-time nurses.
- To determine if any relationship exists between salivary cortisol, a potential biomarker for stress and questionnaire instruments for work life stressors.

Hypotheses

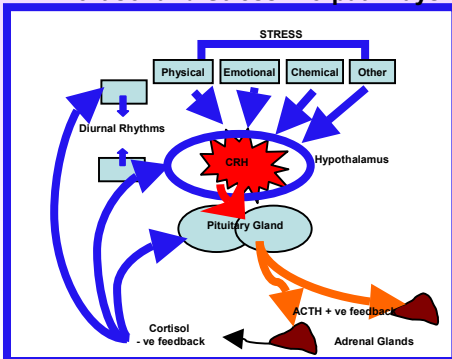
- Full-time work status is associated with higher stress levels and poorer health scores than part-time status.
- Daily salivary cortisol secretion levels are positively associated with work stress and inversely associated with health scores.

Main focus of this poster

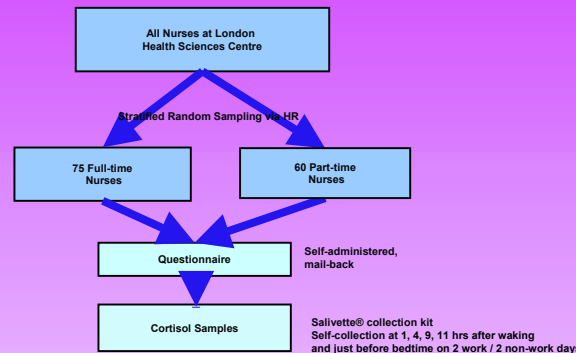
Cortisol and Stress

- Emerging evidence (Kelly et al., 1997) combined with advances in large scale study methods for saliva sampling (Kirschbaum & Hellhammer, 1994).
- Goldstein et al. (1999), concluded that an increase in cortisol levels was a sign of negative emotion or distress.
- Own previous work indicated significant differences in stress and health for full and part time nurses (Shamian et al, 2002).

Cortisol and Stress Bio-pathways



Study Outline



Eligibility to Participate

- Full and Part-time Acute Care Registered Nurses.
- Employed at London Health Sciences Centre (LHSC) for at least six months, between the ages of 20-65.

Method

- Participant packages were mailed to 178 eligible Full-time nurses and 156 Part-time nurses (includes nurses working casual and job share).
- Participants were asked to complete a self-administered questionnaire based on work and life stressors and health outcomes (approximately 30 minutes to fill-out).
- Measures included: Job Content Questionnaire (Karasek); Effort-Reward Imbalance (Siegrist); Copenhagen Burnout Inventory (Kristensen); Maslach Burnout Inventory; SF-36 Health Survey (Ware); Nurse Work Index (Aiken & Patrician); Empowerment (Laschinger)
- Participants collected saliva using a Salivette® collection kit at 1, 4, 9, and 11 hours after waking and just before bedtime on each of 2 work and 2 non-work days. Samples were returned via mail.

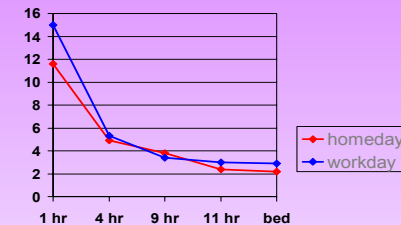
Response Rate:
 Overall = 135 / 334 x 100 = 40%
 • FT = 75/178 x 100 = 42%
 • PT = 60/156 x 100 = 38%

Number of Participants with Questionnaire and Cortisol data:
 62 Full-time Nurses
 41 Part-time Nurses

Results

- In multivariate HLM analyses with workday samples only, physical demands (p<0.01) and job insecurity (p<0.05) were positively related to cortisol, while burnout (p<0.05) and the SF-36 mental health scale (p<0.01) had an inverse relationship.
- Workday cortisol levels possibly higher than non-work days.
- No clear relationship seen for FT/PT status and cortisol levels.

Mean Cortisol by Work versus Non-work Days



Conclusions

- Time of day accounted for most of the cortisol variation observed in the study (i.e. high within-subject variability).
- Heavier physical demands and job insecurity may increase cortisol levels.
- Poorer mental health scores possibly associated with lower cortisol scores.

Practical Implications from this Research

- Determining if any relationship exists between work and life stressors and salivary cortisol might help unravel biological pathways for work-related health problems including the role work stress may play in their etiology.
- Could provide some important practical information regarding cortisol sampling for large scale studies.