The association of nurses’ shift characteristics and sickness absence

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Disclaimer

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Background

- Characteristics of shift work (e.g. shift length, night work) are believed to affect nurses’ wellbeing (Dall’Ora et al, 2015; Stimpfel et al, 2012)

- Shift work characteristics that impact nurses’ wellbeing have never been studied together (Dall’Ora et al, 2016)

- Previous studies used self reported measures and have failed to take into account shifts prior to adverse outcomes (i.e. cross-sectional studies)
Study Aim

• To investigate the association between shift work characteristics in acute hospital wards and nurses’ sickness absence

• Sickness absence → valid indicator of wellbeing, when wellbeing is understood in terms of physical and social functioning (Kivimaki et al. 2003)
Study setting

• Large acute care general hospital trust (approximately 800 beds) in the Wessex area.

• All adult acute inpatient general wards ($n = 32$)

• Excluded: maternity services, paediatric units; intensive care units; emergency department; ambulatories; day units; theatres; discharge lounges

• Study dates: 1 April 2012 – 31 March 2015
Methods

• Retrospective observational study using routinely collected data on ward nurses’ shifts patterns and nurses’ sickness absence

• Data source: Electronic Rostering system, directly linked to payroll
  + Bank shifts dataset (NHS P)

• The two datasets were linked to have a complete picture of shifts that nurses worked in the hospital

• Info on: type of shifts worked (e.g. E, L, N, LD); hours worked; shifts’ dates, start and end time; missed shifts due to sickness absence; name of the ward and band for all nursing staff employed by the hospital
Data analysis

• Nurses’ ids were pseudoanonymised

• Hierarchical generalised linear mixed models were used to measure the association between nurses’ shift characteristics and sickness absence

• Sickness absence: sickness episode (i.e. sickness spell)

• Calculated for the 7 days prior to a sickness episode: number of long shifts (≥12 h); number of bank shifts; number of night shifts; number of worked shifts; total number of hours worked
Results

- We accessed 543,719 shifts, worked by 1997 staff members (1312 RNs and 685 HCAs). Of these shifts, 33,415 (6.1%) were bank shifts.

- There were 8066 sickness episodes. 345 staff members never called in sick.

- Absence length ranged from 1 day to 496 days.
Association of shift characteristics and sickness absence

<table>
<thead>
<tr>
<th>Model variables</th>
<th>OR</th>
<th>95% CI</th>
</tr>
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<tbody>
<tr>
<td>Scheduled shift ≤ 8 h (reference category)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;8-&lt;12 h</td>
<td>0.99</td>
<td>0.92-1.08</td>
</tr>
<tr>
<td>≥12 h</td>
<td>1.20*</td>
<td>1.13-1.28</td>
</tr>
<tr>
<td>Number of long shifts over past 7 days</td>
<td>1.06*</td>
<td>1.04-1.08</td>
</tr>
<tr>
<td>Number of bank shifts over past 7 days</td>
<td>0.70*</td>
<td>0.66-0.75</td>
</tr>
<tr>
<td>Number of worked shifts over past 7 days</td>
<td>0.89*</td>
<td>0.88-0.91</td>
</tr>
<tr>
<td>Grade (RN)</td>
<td>0.63*</td>
<td>0.56-0.71</td>
</tr>
</tbody>
</table>

Generalised linear mixed model; random effects: ward and nurse id
* If both sides of the 95% CI of the OR are greater than 1, or both sides are less than 1, the result is considered significant.
Association of shift characteristics and sickness absence (with proportions)
Discussion

• Working ≥12 h shifts is associated with an increased likelihood of calling in sick. Nurses may prefer them, but at what cost?

• Consequences for patients: shifts covered by agency nurses (safe?)
• Consequences for nurses: decreased wellbeing
• Consequences for the NHS: higher costs \(\rightarrow\) Sickness absence costs £2.4 bn a year to the NHS
Discussion (2)

• Bank shifts: caution, findings do not mean that working bank shifts is associated with less sickness → healthy worker effect

• HCAs were 40% more likely to call in sick. Resorting to HCAs because of reduced staffing costs may yield the opposite result!
Limitations

• Unable to capture important nurse variables: age, gender, years in shift work, non-work commitments (e.g. childcare, care of relatives)

• Single site: results may be population specific

• Unable to establish causation
Conclusions

• 12 h shifts are here to stay, but how should they be implemented?

• Future studies should take into account nurses’ demographics, years in shift work and should explore further outcomes

“No, your mom isn’t rehearsing for the next ‘Night of the Living Dead’ movie. She always looks like that after working four 12-hour shifts.”

From: allnurses.com
References


Stimpfel AW, Sloane DM, Aiken LH (2012) The longer the shifts for hospital nurses, the higher the levels of burnout and patient dissatisfaction. Health Affairs; 31(11): 2501-9
Any questions?

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