Health Sciences

UNIVERSITY OF Southampton

Exploring nursing skill mix and its effect on quality of interaction.

Emily Oliver @e02g11
Professor Peter Griffiths, Professor Jackie Bridges, Dr Ruth Pickering & Ines Mesa-Equiagaray
06/04/2017
Royal College of Nursing International Conference 2017

Background

- Patient's experience of care is becoming increasingly recognised as one of the three pillars of quality across healthcare settings alongside clinical effectiveness and patient safety
- Reports conducted both in the UK and internationally have highlighted that lack of adequate staffing levels is the reason for hospital failures in relational care (Francis 2010) (Keogh 2013).
- Recent pressures on hospitals expenditure is causing a staffing deficit
- Care experience has been directly linked to the quality of interaction between patient and staff.

The Literature

- There is growing evidence base evaluating associations between low registered nurse staffing and adverse patient outcomes (Needleman, Buerhaus et al. 2011)
- Most of the literature reporting on staffing levels, focus solely on clinical outcomes (Griffiths, Ball et al. 2016)
- Lacking in research that explores the association skill mix and the quality of direct relational care.
- The studies looking at direct relational care are inconclusive or require further exploration. (Healthcare 2007), (Sochalski 2004)

Aims and Objectives

Aim:

To address an identified gap in the literature, exploring the effect that nursing skill mix has on quality of interaction with patients in hospital wards.

Objectives

- To identify the effect of registered nurse staffing level on quality of interactions
- To identify the effect of health care support workers staffing level on quality of interactions
- To identify the effect of different nursing staff skill mix in association with negative interactions

Study Design

- Secondary data analysis from CLECC study
- Two NHS hospital sites, 6 wards
- Inclusion approach
- Two hour observation sessions occurring between the hours of 8am and 10pm, Monday – Friday
- Length, frequency and quality of all staff-patient interactions recorded using the quality of interaction schedule
- Contextual data also gathered

Quality of Interaction Schedule

Positive Social

Neutral

Negative Protective

Positive Care

Negative Restrictive

Data Analysis

- A four level mixed effects logistic model
- Predictive variables: Staffing levels, number of patients per nurses, number of patients per health care support workers
- Fixed effects: Observation session characteristics and patient characteristics
- Random Effects: patient, interaction, ward and observation session
- Descriptive statistics for patient and interaction characteristics were also calculated.

Results: Demographics

- 273 participants observed over 240 hours of planned observations equalling to 3,111 interactions. 2,181 with just HCA and Nurse interactions
- Mean number of registered nurses: 4.5 [2-8]
- Mean Number of health care support workers: 4.1 [0-9]
- Mean number of patients per registered nurse: 6.9 [4-13]
- Mean number of patients per health care support workers : 7.7 [1-18]
- Mean Skill mix: 0.5 [0.3 – 1]

Results:

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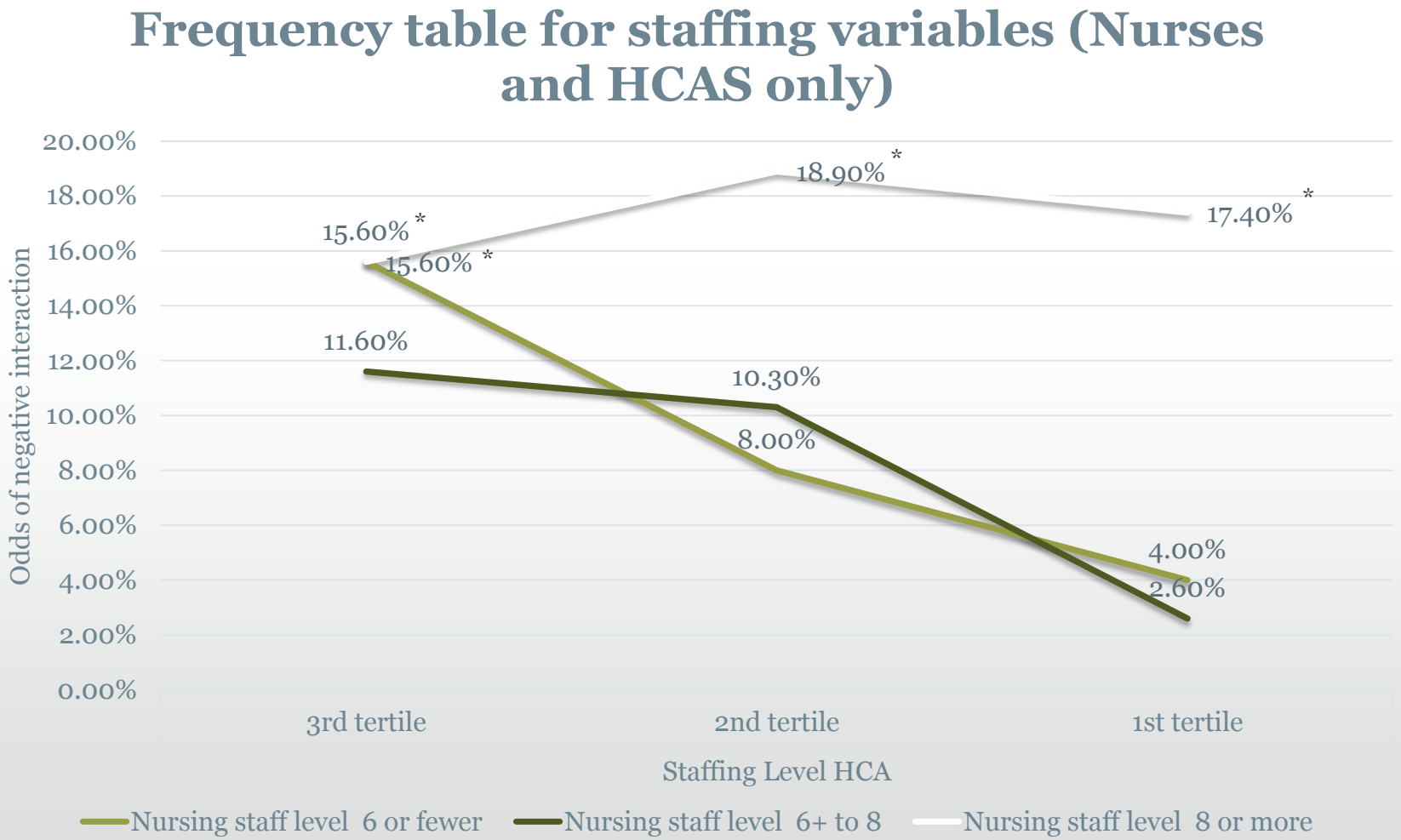
Statistically significant predictors of negative interaction adjusted OR [95%CI]:

- All interactions: Number of patients per nurse 2.66 [1.17, 6.03]. Number of patients per health care support worker 2.27 [1.18, 4.36]
- RN and HCA only: Number of patients per nurse 2.17 [1.01, 4.67]. Number of patients her health care support worker 1.93 [1.06, 3.51]

Variables	All interactions [95% CI] (n=3,111	Nurse & HCA only [95% CI] (n=2,181)
Type of staff **Registered nurse** **Student nurse** **HCA** **Doctor** **Allied HP** **Other**	1.00 1.03 [0.30, 3.55] 0.93 [0.64, 1.36] 1.18 [0.50, 2.81] 1.13 [0.47, 2.70] 0.91 [0.59, 1.39]	
Observation session characteristics		
Number of patients per nurse (continuous)	**2.66 [1.17, 6.03]** *	**2.17 [1.01, 4.67]** *
Number of patients per HCA (continuous)	**2.27 [1.18, 4.36]** *	**1.93 [1.06, 3.51]** *
Interaction of patients per nurse by patients per HCA (both continuous)	0.90 [0.81, 0.99]	0.92 [0.84, 1.02]

Results:



*Statistically significant

Discussion:

- Increased patients per nurse and health care support worker has a negative effect on relational care
- Many studies associate negative interaction with health care support workers, however, the results don't show this.
- When registered nurse staffing is low the likelihood of having a negative interaction significantly increases, regardless of the number of health care support workers – problematic at a time when health providers are trying to substitute qualified staff for those who haven't received same training.

Limitations

- Limited number of wards

- Further validation of the tools use in measuring patients experience would be justified.

Conclusions

- Nurse staffing levels are associated with important psychosocial care outcomes.
- The ability to use health care support workers seems to depend on having sufficient level of registered nurses.
- Further Exploration:
  - Larger sample size
  - Different settings within the hospital
  - Investigate how negative interactions affect overall patient experience

Acknowledgements

The research team would like to thank all patients and staff on participating wards, without their support the study would not have been possible.

Funding Acknowledgement:

- This project was funded by the National Institute of Health Research Health Services and Delivery Research Programme (Project number 13/07/48)

Department of Health Disclaimer:

- The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the Health Services and Delivery Research Programme, NIHR, NHS or the Department of Health

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Any Questions?