The relationship between organizational culture and the health and wellbeing of hospital nurses worldwide: a mixed methods systematic review protocol

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Review objective: The objective of this mixed methods systematic review is to examine the relationship between organizational culture and the health and wellbeing of hospital nurses, and to develop an aggregated synthesis of quantitative and qualitative systematic reviews to derive recommendations for policy and practice. Organizational culture comprises factors such as leadership, management and support, a health and safety oriented workplace climate and job characteristics. The quantitative component of this review will explore the relationship between organizational culture and the following outcomes in hospital nurses which may be indicators of health and wellbeing: work-related injury such as needlestick or sharp injuries, musculoskeletal injuries and conditions such as low back pain, burnout and general wellbeing. The qualitative component of this review will explore the perceptions of hospital nurses in relation to the impact of organizational culture on their own health and wellbeing and those of their nursing colleagues.

Keywords Burnout; professional; health and wellbeing; nursing staff; hospital; organizational culture

Background

Changing patterns of employment are characterized by an aging workforce, higher levels of female workers, more part-time working and employees in multiple jobs, migration of workers from the global south to more developed countries and from rural to urban settings, flexible working, and concerns around work-life balance.¹ Changing demands for skills and restrictions on training in the financial recession have also impacted on the workforce.² Within this global context, the healthcare sector is facing a particular crisis³, with most countries in the world reporting a shortage of nurses.⁴ According to the United States Bureau of Labor Statistics Employment Projections measured in 2012,⁵ there will be a need for 525,000 more nurses in the United States by 2022. In Australia, a 27% shortfall of nurses has been predicted by 2025,⁶ and there are also significant shortages in South Africa,⁷ Russia⁸ and other countries giving rise to international migration.⁹ In Asia, there are issues relating to shortfalls and uneven distribution of nursing and other healthcare staff,¹⁰ and the 47 countries of sub-Saharan Africa have a critical shortage of healthcare workers, the deficit amounting to nearly 2.5 million doctors and nurses.¹¹ In the United Kingdom, 90% of organizations responding to the National Health Service Qualified Nurse Supply and Demand Survey¹² indicated a current shortage of qualified nurses.

This shortage has an adverse impact on health systems globally¹³ and leads to negative outcomes for patients.¹⁴ Adding to the crisis, as literature sources across a range of countries identify, many nurses are reaching retirement age,¹⁵ and there is a diminishing pipeline of new students in nursing,¹⁶ whereas demand for nursing care is increasing because of aging populations.¹⁷

There is well documented evidence that nurses’ ability to cope with their working life is linked to both the physical and mental demands of the job,¹⁸ Nursing has been seen as a stressful occupation,¹⁹ impacting on quality of life²⁰ with nurses in one rural...
region reporting more distress (strain) and lower levels of morale than other professional healthcare groups\textsuperscript{21} and evidence of links between workplace stress and morale in hospital and other nursing staff.\textsuperscript{22}

The kinds of hazards identified around the nursing role and place of work are extensive. Nurses may be exposed to physical risks such as cross-infection, ergonomic limitations and demands, manual-handling injuries, slips trips and falls, chemical radiation and substance exposure, lone working and violence (threatening or abusive patient behaviors).\textsuperscript{23} There is considerable evidence to suggest that the factors relating to the environment and context within which nurses work are contributing to adverse health outcomes.\textsuperscript{24} Literature demonstrates that outcomes such as nurse burnout, needlestick injury and back pain are the kinds of measurable adverse effects on health and wellbeing, which may be evident among the nursing workforce.\textsuperscript{25–29}

A considerable body of research in Canada and the United States has been carried out centered on trials set up on Magnet hospitals.\textsuperscript{30} Research on these hospitals has highlighted that organizational climate has a significant effect not only on patient health but on the wellbeing of nurses, identifying the relationship with burnout, as well as job satisfaction and intention to leave their position.\textsuperscript{31} Salmond et al. have conducted a comprehensive systematic review of comparative studies investigating data from Magnet as well as non-Magnet hospitals, in which the positive effect of Magnet designation is evidenced in terms of the above factors.

A systematic review identified 14 high-quality qualitative studies that explored the perceptions of nurses regarding the hospital workplace culture and environment and its impact on nursing workload.\textsuperscript{33} In view of the global shortage of nurses, it is imperative to understand the factors in the environment of care which may be having an adverse effect, potentially impacting on levels of recruitment and retention in the nursing profession. Exploration of these issues may assist efforts to address this situation and provide insight into possible solutions, offering a timely and relevant contribution to this topic area.

The working environment has been conceptualized as all factors that affect nurse job satisfaction, quality of care and patient safety.\textsuperscript{34} Determinants of nurse job satisfaction, however, are complex and multifactorial, and historically, there has been absence of guidance or robust causal models to define these.\textsuperscript{35} In 2007, Gershon et al.\textsuperscript{36} proposed a new conceptual model relating quality of worklife to organizational and individual characteristics, and working conditions. This characterizes the domains of worklife quality, distinguishing organizational characteristics such as cultural features and the organizational climate (leadership and management support and safety climate) from the practical and operational working conditions and characteristics of individuals working within the organization. Conclusions from a systematic review of US nurses’ health outcomes related to these constructs of organizational culture\textsuperscript{37} were that workplace settings that had more positive organizational cultures had lower rates of adverse, occupationally related health outcomes.

The area of research considering health and wellbeing outcomes, including burnout and also relevant outcomes such as numbers of needlestick injuries, musculoskeletal problems and back pain, has had limited attention in systematic reviews. To explore this area, a scoping exercise was undertaken using the key terms: hospital AND (RN or nurse’) AND (burnout OR “needlestick injury” OR “back pain”) AND “organizational culture”. This was similar to the search strategy employed by Gershon et al. in their systematic review.\textsuperscript{36} The literature found as a result of the scoping exercise indicated that nurses globally continue to report burnout in relation to issues of demands and support from co-workers,\textsuperscript{37} organizational factors such as leadership\textsuperscript{38} and perceived quality of management.\textsuperscript{39} Needlestick injuries are still linked to work environments around the world, in terms of staffing and resource adequacy\textsuperscript{40}, and the prevalence of back pain continues to be associated with perceptions of poor staffing levels and certain shift patterns.\textsuperscript{41}

Recent systematic reviews have explored the research carried out in relation to environmental and organizational factors in Magnet hospitals and their impact in terms of outcomes such as nurses’ workload, absenteeism and job retention.\textsuperscript{31,33} One systematic review includes burnout as an outcome of organizational culture.\textsuperscript{32} For research considering nurses in acute care other than Magnet hospitals, with the exception of the systematic review discussed above,\textsuperscript{36} which focused on literature from the United States, database searching has failed to identify any subsequently published reviews or reviews in preparation.
Therefore, in view of the global crisis in nursing numbers and the need to retain and promote the health and wellbeing of nurses, it would be timely now to conduct a systematic review to synthesize knowledge and inform practice on this important area.

**Inclusion criteria**

*Types of participants*

The quantitative and qualitative components of this review will consider any studies related to qualified nurses of any grade/level in the acute-care setting and will, therefore, exclude those working in community or primary-care settings. Studies may focus solely on nurses, or, if a mixed staff population is the focus, identified outcomes among nurses must be extractable from the data.

The focus on nurses in the acute hospital setting is consistent with the previous systematic review \(^{16}\) which the present review intends to update and expand. Studies will include nurses working with adults and will, therefore, exclude nurses in children’s care. This may be defined as being patients aged 16 years and over; however, due to variation in definitions of pediatric nursing, papers will be scrutinized prior to inclusion in the review.

Nurses in non-hospital settings and those working with children (normally taken to be patients under 16 years of age as above) will be excluded from the review. Nurses working in hospice care will also be excluded from this review. The systematic review will not include Magnet hospitals as these have their own distinctive characteristics in terms of organizational culture.

*Types of intervention(s)/phenomena of interest*

The quantitative and qualitative components of this review will consider studies that evaluate the following dimensions of organizational culture, based on appropriate elements of the concept model adopted for this research \(^{16}\):

- Management and support, including leadership, management, supervisory support and team support.
- Health and safety oriented workplace climate, including education, information, training.
- Job characteristics including demands and workload, nurse–patient ratio, staffing levels.
- Interventions that may include assessment of impact of actual workplace changes, for example supervisory support, in comparison with usual practice.

The qualitative component of this review will consider studies that investigate the perceptions of hospital nurses in relation to the impact of identified dimensions of organizational culture on their own health and wellbeing and those of their nursing colleagues.

**Outcomes**

The quantitative component of this review will consider studies that include the following health and wellbeing outcomes:

1. Health-related measures including needlestick or sharps injuries, low back pain or musculoskeletal injuries; any method of reporting these will be included in the review.
2. Burnout measured using validated tools such as the Maslach Burnout Inventory. \(^{42}\)
3. Self-reported measures of wellbeing, measured using validated tools (e.g. Warwick-Edinburgh Mental Wellbeing Scale) or elements contributing to these tools, such as measures of life satisfaction, social trust or psychological distress.

Studies concerning stress of the impact of specific shift patterns are outside the scope of this systematic review, as may be discerned from the concept model of worklife quality developed by Gershon. \(^{16}\) Although there is a considerable amount of research in this area, and a systematic review on the topic may well be justified, this review is concerned more broadly with organizational culture rather than one specific work practice.

**Context**

The review will consider studies that concern organizational culture in the acute care setting.

**Types of studies**

The quantitative component of this review will consider both experimental and epidemiological study designs, including quasi-experimental studies, before and after studies, prospective and retrospective cohort studies, case control studies, case series, individual case reports and analytical cross-sectional studies.

The qualitative component of this review will consider studies that focus on qualitative data.
including, but not limited to, designs such as phenomenology, grounded theory, ethnography and action research.

Search strategy

The search strategy aims to find both published and unpublished studies. The search strategy builds on that employed by Gershon et al. However, the search will not be limited to US literature, but will include literature from any country, published in the English language or any language for which the review team can arrange translation.

A three-step search strategy will be utilized in this review:

- An initial search of MEDLINE and CINAHL will be undertaken followed by an analysis of the text words contained in the title and abstract and of the index terms used to describe the article.
- A second search using all identified keywords and index terms will then be undertaken across all included databases. This will include keywords and index terms drawn from the thesaurus for each of the databases to be included in searching (MEDLINE, CINAHL and AMED).
- Third, the reference list of all identified reports and articles will be searched for additional studies. The time period of publication will include that covered by Gershon et al. (1997 onward) and will continue up to the present day.

The search for unpublished studies will include: Conference Proceedings; Dissertation Abstracts; Google Scholar; Networked Digital Library of Theses and Dissertations; OpenDOAR.

Initial keywords to be used will be: hospital AND (RN OR nurse) AND (“needlestick injur” OR “sharps injur” OR “back pain” OR burnout OR “attitude of health personnel” OR “job satisfaction” OR “nurs” satisfaction OR well-being OR well-being) AND (“administrative support” OR “supervisory support” OR leader” OR management OR “organizational climate” OR “safety climate” OR staffing OR “resource availability” OR “interpersonal relation”).

Assessment of methodological quality

Quantitative papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal instruments from the Joanna Briggs Institute Meta Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer.

Qualitative papers selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal tools from the Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-QARI) (Appendix I). Any disagreements will be resolved through discussion or with a third reviewer.

Data extraction

Data extraction will be conducted independently by two reviewers. Where possible, authors will be contacted for missing or incomplete data.

Quantitative data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix II). The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives.

Qualitative data will be extracted from papers included in the review using the standardized data extraction tool from JBI-QARI (Appendix II). The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives.

Data synthesis

The following two stages of data synthesis will be conducted, as per JBI guidance on conducting systematic reviews of this nature.43

Stage 1

Quantitative papers will, where possible, be pooled in statistical meta-analysis using JBI-MAStARI. All results will be subject to double data entry. Effect sizes expressed as a relative risk for cohort studies, odds ratios for case control studies (for categorical data) and weighted mean differences (for continuous data), and their 95% confidence intervals will be calculated for analysis. A random effects model will be used and heterogeneity will be assessed.
statistically using the standard chi-square test. However, it is likely that statistical pooling will not be possible. In this case, the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate.

Qualitative research findings will, where possible, be pooled using JBI-QARI. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings (Level 1 findings) rated according to their quality and categorizing these findings on the basis of similarity in meaning (Level 2 findings). These categories are then subjected to a meta-synthesis to produce a single comprehensive set of synthesized findings (Level 3 findings) that can be used as a basis for evidence-based practice. Where textual pooling is not possible, the findings will be presented in narrative form.

Stage 2
The findings of each single-method synthesis included in this review will be aggregated. This will involve the configuration of the findings to generate a set of statements that represent that aggregation through coding to attribute a thematic description to all quantitative data, assembling all of the resulting themes from quantitative and qualitative syntheses, and the configuration of these themes to produce a set of synthesized findings in the form of a theoretical framework, set of recommendations or conclusions.

Acknowledgements
The reviewers wish to acknowledge the support of East Kent Hospitals University NHS Trust for one of the authors (Emma Palmer).

References


### Appendix I: Appraisal instruments

**MAStARI appraisal instruments**

#### JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

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<td>3. Was allocation to treatment groups concealed from the allocator?</td>
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<td>6. Were the control and treatment groups comparable at entry?</td>
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<td>7. Were groups treated identically other than for the named interventions</td>
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<td>8. Were outcomes measured in the same way for all groups?</td>
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<td>9. Were outcomes measured in a reliable way?</td>
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<td>10. Was appropriate statistical analysis used?</td>
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<tr>
<th>Overall appraisal:</th>
<th>Include □</th>
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**Comments (Including reason for exclusion)**

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JBI Critical Appraisal Checklist for Descriptive / Case Series

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<td>1. Was study based on a random or pseudo-random sample?</td>
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<td>2. Were the criteria for inclusion in the sample clearly defined?</td>
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<td>3. Were confounding factors identified and strategies to deal with them stated?</td>
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<td>4. Were outcomes assessed using objective criteria?</td>
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<td>5. If comparisons are being made, was there sufficient descriptions of the groups?</td>
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<td>6. Was follow up carried out over a sufficient time period?</td>
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<td>7. Were the outcomes of people who withdrew described and included in the analysis?</td>
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<td>8. Were outcomes measured in a reliable way?</td>
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Overall appraisal: Include □ Exclude □ Seek further info □

Comments (Including reason for exclusion)

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**JBI Critical Appraisal Checklist for Comparable Cohort/ Case Control**

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**Author**  
**Year**  
**Record Number**

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<td>3. Has bias been minimised in relation to selection of cases and of controls?</td>
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<td>4. Are confounding factors identified and strategies to deal with them stated?</td>
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**Comments (Including reason for exclusion)**

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## QARI appraisal instrument

### JBI QARI Critical Appraisal Checklist for Interpretive & Critical Research

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<td>2. Is there congruity between the research methodology and the research question or objectives?</td>
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<td>3. Is there congruity between the research methodology and the methods used to collect data?</td>
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<td>4. Is there congruity between the research methodology and the representation and analysis of data?</td>
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<td>6. Is there a statement locating the researcher culturally or theoretically?</td>
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<td>8. Are participants, and their voices, adequately represented?</td>
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**Comments (including reason for exclusion)**
Appendix II: Data extraction instruments

### MASTARI data extraction instrument

#### JBI Data Extraction Form for Experimental / Observational Studies

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<td>Record Number</td>
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##### Study Method

- [ ] RCT
- [ ] Quasi-RCT
- [ ] Longitudinal
- [ ] Retrospective
- [ ] Observational
- [ ] Other

##### Participants

- Setting
- Population

##### Sample size

- Group A
- Group B

##### Interventions

- Intervention A
- Intervention B

##### Authors Conclusions:

- 
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##### Reviewers Conclusions:

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### Study results

#### Dichotomous data

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QARI data extraction instrument

JBI Data Extraction for Narrative, Expert opinion & text

Reviewer .................. Date ..................
Author .................. Year .................. Record Number ..................

Study Description
Type of Text:

Those Represented:

Stated Allegiance/ Position:

Setting

Geographical

Cultural

Logic of Argument

Data analysis

Authors Conclusions

Reviewers Comments

Data Extraction Complete ☐ Yes ☐ No ☐
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Extraction of findings complete: Yes ☐  No ☐