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Abstract

Aim To conduct a scoping review to examine and map the interventions that are proposed for the improvement of the working conditions of the nursing staff in acute care hospitals.

Background The Registered Nurse Forecasting (RN4CAST) project and other studies have determined the impact that the nursing staff has on the quality of care. The nursing staff's higher levels of burnout, job dissatisfaction, and negative perception of the quality of care provided caused worse health outcomes.

Methods A scoping review was carried out. By searching in SCOPUS, PubMed, CINAHL, Cochrane, Dialnet and in grey literature, 705 potentially relevant papers were identified. The final analysis included 21 papers and three grey documents.

Results The studies analyzed propose interventions at the macro-management, meso-management, and micro-management levels, although the interventions at the macro- and meso-levels produce better staff outcomes.

Conclusions The findings of this review can be applied to management at different levels: measures to improve the patient-nurse ratio at the macro-management level, the horizontal hierarchies at the meso-management level, the mind-body techniques at the micro-management level.

Implications for Nursing Management Nurse managers and leaders should implement interventions at different organizational levels to improve the working conditions of the nursing staff and other health outcomes.

Keywords: Nursing staff, Working Conditions, Workplace, Working Environment, Hospitals.

Interventions to improve working conditions of nursing staff in acute care hospitals: Scoping review

Background

The increasing demand, fiscal constraints and an increased need for accountability have brought about a reorganization of health services focused essentially on the optimization of resources. At times, this optimization has led to unjustified and inappropriate cutbacks of human and material resources (Reeves *et al.* 2014). Among health professions, nursing is the one that is most affected by reductions in salary, rest days, and recruitment, as well as by poorer working conditions and the elimination of bonuses (Phua & Hue 2015).

The World Health Statistics by the World Health Organization (WHO) indicate that the global average ratio (AR) of nurses is 28.6 per 10,000 inhabitants. There are significant differences between the least developed regions (Africa 12.4, South-East Asia 15.3) and the most developed ones (the Americas 44.9, Europe 80.2) (World Health Organization 2015). The intra-hospital nurse-to-patient ratio is also used as a coefficient to determine the workload of professionals. A study conducted by Aiken et al. (2014) establishes an AR of 8.3 patients per nurse in Europe. The countries with the lowest AR are Norway (5.2) and Ireland (6.9), whereas the countries with the highest AR are Spain (12.7) and Belgium (10.8) (Aiken *et al.* 2014).

The Registered Nurse Forecasting (RN4CAST) project and other similar studies have determined the impact that the nursing staff has on the quality of care and on the occurrence of adverse events (Aiken *et al.* 2011). The decrease in the nursing staff and, therefore, a higher ratio directly influence the nurses' working conditions, causing an increase in stress levels, burnout occurrence, job dissatisfaction, demotivation, risk of accidents at work, unfavorable perception of the working environment, and work absenteeism (Aiken *et al.* 2013). Thus, having a suitable nurse workforce translates into the prevention of complications, and the reduction of healthcare costs (Rochefort *et al.* 2012).

The present study conducts an adapted version of Goffman's frame analysis (1986). This analysis has been used in other studies (Caldwell & Mays, 2012) to group interventions into three management levels: macro (government or organizational level), meso (hospital unit level), and micro (staff level).

Nursing interventions have implications for health systems (i.e. macro-management level) in terms of cost reduction. Several studies have shown the cost-effectiveness of interventions such as nurse prescription (Kroezen *et al.* 2012)

and nurse-led early discharge planning programs (Zhu *et al*. 2015). Twigg et al. (2015) indicate the need to demonstrate that nursing is a profitable health intervention in itself, and therefore recommend that more research is done in this regard.

Safeguarding the nursing staff's occupational health in hospitals (i.e. meso-management level) also results in saving healthcare system costs. Parker et al. (2016) identify horizontal violence (HV) as a prevalent problem with a long tradition in the nursing profession which has a negative influence on job satisfaction, retention, and recruitment of nurses. Horizontal violence is determined by unhealthy working environments which cause higher turnover rates among nursing staff, as well as nurse attrition (Kovner *et al.* 2014). High turnover rates among nurses (i.e. micro-management level) is a major problem affecting the performance and cost-effectiveness of healthcare organizations with estimates indicating that, for every additional percentage point that nurse attrition rates increase, costs can rise up to $300,000 per year (Hunt 2009) and nursing turnover costs can range from $82,000 to $88,000 per nurse (Jones 2008).

Objective

Until now, the studies analyzed have sought to find out the causes of burnout, job dissatisfaction, and other staff outcomes, as well as the causes of their negative repercussions on clinical care. Previous studies have pointed out that the interventions that improve some working conditions such as the working environment or staffing level can be more important when it comes to attracting and retaining satisfied nurses within the hospital workforce (McHugh & Ma 2014), which leads to a decrease in healthcare system costs. Consequently, it is necessary to carry out a scoping review in order to examine and map the interventions that are proposed to improve the working conditions of the nursing staff in acute care hospitals.

Scoping review question

What types of intervention are proposed to improve the working conditions of the nursing staff in hospital care?

Specific questions

Which interventions are proposed at the macro-management level in order to improve the working conditions of the nursing staff in hospital care?

Which interventions are proposed at the meso-management level in order to improve the working conditions of the nursing staff in hospital care?

Which interventions are proposed at the micro-management level in order to improve the working conditions of the nursing staff in hospital care?

Methods

Study design

A scoping review was chosen. This methodology is ideal for a first exploration of the field of study because it facilitates the gathering of information from different sources such as scientific or grey literature, and from different study designs concerned with various research questions (Arksey & O'Malley 2005). These authors propose a framework consisting of different stages for conducting a scoping review: 1) identifying the research question, 2) identifying relevant studies, 3) study selection, 4) charting the data, 5) collating, summarizing, and reporting the results. These stages were followed in the present study, and additionally were the recommendations from the Review's Manual (2015) by the Joanna Briggs Institute.

There was no quality rating performed on the studies included, because some authors, such as Elliott *et al.* (2016), argue that not conducting a quality assessment grants the benefit of allowing the inclusion of more papers with different designs and methodologies.

Search strategy and selection criteria

The aim of the search strategy was to identify the papers published between 2010 and 2015 in the main health databases (SCOPUS, PubMed, CINAHL, Cochrane, Dialnet). The key words used were obtained from the Medical Subject Headings (MeSH) and were the following: nursing staff, working conditions, working environment, workplace, job satisfaction, occupational burnout, and workload. Table 1 lists the keywords used. In order to ensure that the review is reliable, two researchers (LVV and BBR) performed the searches following the same strategies between February and March 2016.

[Insert Table 1 here]

A third researcher (RDC) conducted a search in grey literature, which consists of any scientific material not gathered by conventional databases, such as doctoral theses and scientific communications. Searches were performed in the System for Information on Grey Literature in Europe (OpenGrey), the Grey Literature Report, and the TESEO database of the Spanish Ministry of Education, Culture, and Sport. The proceedings of national and international conferences held over the past 5 years by scientific societies related to this topic were also consulted.

Data extraction

In order to select the studies, the following criteria were considered: (1) documents proposing or assessing interventions (2) which sought to improve the working conditions of the nursing staff (3) in acute care hospitals (4) published in Spanish or English.

The digital database search yielded a total of 924 papers. The search in the grey literature yielded 13 documents. Seventy-three papers were screened and reviewed. Twenty-four studies were included in the final review (Figure 1).

[Insert Figure 1 here]

The researchers who performed the searches determined the eligibility of the publications on the basis of their titles and abstracts. The complete texts were retrieved from those publications which met the eligibility criteria according to at least one of the researchers on the basis of their abstracts. If, after reading an abstract, the researchers considered that there was not enough information to make a decision, each researcher read the whole paper independently. Afterwards, they would resolve any disagreements by means of joint discussions and reaching a consensus.

A narrative synthesis of the results of included studies was performed and an Excel spreadsheet was designed which included author and year, origin/country of origin, aims, design, participants, interventions, outcomes, and the key findings related to the questions of the scoping review.

Results

Most of the studies analyzed employed non-experimental and cross-sectional designs (29%). Seven topic-related reviews were found, of which four were systematic reviews, two literature reviews, and one scoping review. The papers proposed experimental designs using randomized controlled trials.

The key findings identified during the analysis were macro-management interventions (A), meso-management interventions (B), and micro-management interventions (C) (Table 2). Table 3 summarizes these interventions as per management level.

[Insert Table 2 here]

[Insert Table 3 here]

Macro-management level interventions

Firstly, measures are proposed at the legislative level. In 2004, California was the first state of the United States of America to implement minimum nurse-to-patient ratios in hospital care. This reduced workload and increased nursing professionals' satisfaction. Since then, 21 other American states have implemented, to a greater or lesser extent, these regulatory changes (Aiken *et al.* 2010). Spetz and Herrera (2010) estimated a 25% increase in work satisfaction at the intensive care unit after implementing these measures. Subsequent studies analyzing outcomes after the legislative implementation in other states are consonant with the data obtained in California: more appropriate ratios decrease burnout levels, increase work satisfaction, and improve the quality of care.

Secondly, organizational measures are proposed. Ruotsalainen et al. (2015) found that making changes in the organization of work reduced stress levels by 13%. Another proposed organizational measure has been the implementation of a continuous quality improvement program, which yielded positive outcomes regarding working conditions (Costa et al. 2014). Additionally, facilitating the reconciliation between work and private life has a positive impact on the working environment (Cárdenas 2015).

Thirdly, different authors analyze the influence of work shifts on staff outcomes. Measures such as having flexible shifts, rotating shifts or the effective distribution of available resources reduce work absenteeism (Blanca-Gutiérrez et al. 2013), increase commitment and work satisfaction (Chen et al. 2015), and prevent burnout (Linzer *et al.* 2014).

Lastly, studies provide evidence for the importance of the physical location where healthcare activities and coping strategies take place. Locations lacking resources, with a higher number of work documents and night shifts are related to higher stress levels (Lu *et al.* 2014).

Meso-management level interventions

At the occupational level, the influence of coaching has been noted. Among the interventions proposed, those which particularly stand out are mentoring programs aiming to improve skills, attitudes, and organizational commitment (Weng et al. 2010), as does holding frequent meetings between professionals and supervisors to discuss problems and find solutions (D'Ettorre & Greco 2015). This type of meeting is essential in horizontal hierarchies since they lead to lower levels of burnout and work absenteeism (Blanca-Gutiérrez *et al.* 2013).

Other important aspects at this level are communication skills, genuine collaboration, and leadership, which positively improve the working environment (Nayback-Beebe et al. 2013). Additionally, the participation of nurses in hospital affairs, the access to management and leadership posts, and the fostering of a collaborative doctor-nurse relationship all increase satisfaction, the retention of the nursing staff, and the quality of care provided to patients (Twigg & McCullogh 2014).

The psychosocial improvement of working environments has been proven to have an impact on participatory management, job control, and coworker support, but not to reduce the staff's depressive symptoms (Uchiyama et al. 2013, Moody et al. 2013). Furthermore, interventions related to coping styles, emotional intelligence, and the use of new technologies have also been proven to contribute to the reduction of levels of burnout and work dissatisfaction (Fearon & Nicol 2011, Özbaş & Tel 2015, Kutney-Lee et al. 2013).

Micro-management level interventions

Micro-management level interventions refer to those designed to influence the personal sphere but which have an impact on the professional level. Buchberger et al. (2011) proposed a coaching program that combined physical exercise (aerobics, coordination, and stretching) and psychological interventions (coping strategies, communication skills, and exchanging experiences). The results showed a better handling of stress, less burnout, and an improvement in self-perceived health, a greater willingness of the staff when going to work, and physical benefits (greater physical strength and a reduction in muscle pain). Other authors have also shown the beneficial effects of physical and psychological coaching on stress levels (Ruotsalainen *et al.* 2015) and on work absenteeism figures (Blanca-Gutiérrez *et al.* 2013).

Cárdenas (2015) demonstrated that increasing the amount of time dedicated to leisure activities and spare time has a positive influence on the working environment. Among the possible resources to cope with work-related stress or exhaustion, those which particularly stand out are introspection techniques (prayer, reflection, and meditation) and, to a smaller degree, techniques such as yoga, pilates, and tai-chi (Kemper *et al.* 2011). People taking part in these activities showed a better mood, more calmness and serenity, and improved sleep.

Other programs developed for the improvement of staff outcomes are those dealing with emotional intelligence and communication strategies. These have been found to be associated with lower burnout levels (Buchberger *et al.* 2011, Fearon & Nicol 2011). Other studies have shown the influence of self-efficacy and

resilience on the improvement of burnout and occupational quality of life (Kemper *et al.* 2011, Villar Navarro 2015).

Lu et al. (2015) bring to light the importance of coping styles in nursing staff. Techniques such as learning how to prioritize, putting the positive side of circumstances first, and techniques for accepting reality decrease work-related stress levels. Westerman et al. (2014) propose that, in order to reduce staff burnout, individual interventions should be added to work-oriented interventions.

Discussion

This scoping review provides a first view of the interventions that would enable a significant improvement in staff outcomes, and new management and leadership strategies.

The majority of the studies included propose interventions to improve the working environment, a decisive variable in the presence of staff outcomes (McHugh & Ma 2014) and other patient outcomes (Stalpers *et al.* 2015). Such interventions match the variables that the RN4CAST consortium identifies as decisive in a good working environment, such as the need for enough staff, nurses holding positions of power and participating in the decision-making process, and good interdisciplinary communication (Aiken *et al.* 2011). More recent studies identify the environments in which policies, procedures, and work processes are clearly defined as Healthy Work Environments (HWEs), which empowers nurses to do their job, increases their satisfaction and helps to retain them in healthcare (Huddleston *et al.* 2017).

Regarding staff retention, in the United States of America, the Magnet Recognition Program, proposed by the American Nurses Credentialing Center, assesses the capability of any given hospital to retain its staff. This program has 14 Forces of Magnetism divided into 5 components (American Nurses Credentialing Center 2011). On the basis of this framework, the interventions proposed in this scoping review can be classified according to these 14 forces of magnetism. Interventions such as participatory management, and access to management and leadership posts could be included in Force #1: Quality of Nursing Leadership. Horizontal hierarchies and implementation of changes in the organization of work could be included in Force #2: Organizational Structure. Frequent meetings between professionals and supervisors could be included in Force #3: Management Style. Therefore, the results of this scoping review indicate that the forces of magnetism not only facilitate greater staff retention in hospitals but also improve the working conditions of the nursing staff.

This study is a starting point from which to discover on which interventions more research is done worldwide in order to improve the working conditions of nursing staff in hospital care. Among the limitations of this work is the possibility that some relevant studies could have been left out, although the search and screening by peers and the search in the grey literature have been able to reduce this possibility. On the other hand, the quality of the studies included has not been assessed. Future systematic reviews could select only those studies of higher level of evidence to assess the effectiveness of the proposed interventions.

Additionally, this scoping review has made it possible to identify gaps in knowledge. Among other things, the need to define the optimal staffing level of nurses to minimize the occurrence of negative staff outcomes stands out, due to the fact that some studies indicate that staffing influences these outcomes (Aiken *et al.* 2010) and also the cost-effectiveness of health systems (Twigg *et al.* 2015). On the other hand, future studies should aim to analyze the medium- and long-term influence of the proposed interventions as well as the influence of concurrent interventions (multivariate studies). Another line of research could be related to the measures that could be implemented in order to promote the reconciliation of work and private life, as there are studies that suggest that this could have a positive impact on reducing negative staff outcomes (Cárdenas Gonzalo 2015).

Conclusions

The findings of this review can be applied to management at different levels, as they propose interventions which improve the working conditions of nursing staff. In the macro-management interventions, measures to improve the patient-nurse ratio are proposed. At the meso-management level, it is proposed that horizontal hierarchies be enhanced and coaching-derived techniques be developed. The results of micro-management interventions suggest that techniques aimed at seeking mind-body balance be encouraged.

Implications for Nursing Management

This scoping review provides evidence for nurse managers and leaders on the need for implementing interventions which improve the working conditions of the nursing staff at different organizational levels. Firstly, at the macro-management level, health policies designed to improve the patient-nurse ratio should be established, thus avoiding excessive caseload and improving the quality of care.

Secondly, at the meso-management level, managers are encouraged to include coaching-derived motivation techniques. The empowerment derived from having more horizontal hierarchies fosters better staff outcomes for hospital nursing staff. Managers should promote a healthy working environment and

support the staff who show greater optimism and proactive coping (Kutney-Lee *et al.* 2013).

Thirdly, clinical supervision is a valuable strategy for managing problems when nurses are given sufficient time to engage in it (Fearon & Nicol 2011). Nurse managers have to consider whether having a fixed schedule for nurses in inpatient care is linked to stressful working conditions and take action in the future (d'Ettorre & Greco 2015). In addition, group cohesion and organizational commitment could have a positive influence on job retention, on nurses' outcomes, and on the quality of patient and family care (Li *et al.* 2014), as does ensuring that staff members have protected release time and ongoing coaching support.

Lastly, very different techniques are proposed at the micro-management level. Despite the fact that these have not shown very conclusive results, managers are called upon to create a work atmosphere that enables mind-body balance and development.

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Conflict of Interest

Authors declare that they have no conflict of interest.

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