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Nursing care and patient outcomes: international evidence

Robyn B. Cheung, **Linda H. Aiken**, **Sean P. Clarke**, and **Douglas M. Sloane**
Center for Health Outcomes & Policy Research, University of Pennsylvania School of Nursing, Philadelphia, Estados Unidos

Abstract

Countries across the globe are experiencing nursing shortages. In hospitals, supportive practice environments have positive effects on both nurse and patient outcomes. However, these relationships have been established primarily in the US. International studies of the effects of nurse staffing levels and the practice environment on nurse outcomes and the quality of care mirror the findings from the US, thus raising these issues to the international level. The solutions that have been successful in the US for improving practice environment and patient outcomes are solutions that should be successful in any country, thus putting them on a global scale. The Magnet hospital program is one model that has been shown to improve nurse and patient outcomes and is one solution to the shortage of hospital nurses.

Keywords

Nursing care; Quality of care; Hospitals; Patient outcomes; Work environment; Burnout

Introduction

Over 150 years ago Florence Nightingale conducted the first nursing outcomes research, documenting unsanitary and unsafe conditions in hospitals. Nightingale introduced basic measures for improving sanitation and hygiene. The effect on mortality rates was dramatic. Within six months the death rate at the military hospital in Scutari, Turkey fell from 43% to 2%. Nightingale's focus on outcomes as a method to measure quality efforts was a major contribution to the field of health services research. But her passionate belief that highly trained nurses make the difference in creating a safe care environment that vastly improves patient outcomes transformed nursing into a profession that was respected and demanded high caliber nurses.

While innovations introduced by Nightingale had far-reaching effects on patient outcomes, today, we not only still struggle to improve hospital death rates and infection rates, but we also struggle with new and different problems and within different contexts. In Nightingale's time there were fewer medical interventions and infections were the major threat to hospitalized patients. In hospitals of today there are many invasive procedures that vastly increase the risk of infection and include the administration of powerful medications that require a higher level of vigilance and a more highly educated nurse. The World Alliance for Patient Safety estimates that 10% of hospital patients in developed countries suffer an adverse event each year[1]. Others estimate that 1.4 million hospital patients worldwide on any given day experience a hospital-acquired infection. Medical error has become an increasing problem resulting in many preventable deaths each year[1].

Correspondencia: R.B. Cheung, Claire M. Fagin Hall, Center for Health Outcomes & Policy Research, 418 Curie Boulevard, Philadelphia, PA 19104-6096. cheungr@nursing.upenn.edu.

In spite of well documented adverse outcomes in hospitalized patients, hospitals continue to implement restructuring and reengineering policies in an effort to increase efficiency and reduce costs. Decreases in the length of hospital stays combined with increases in patient acuity, heavier nursing workloads, and sparse staffing are the unfortunate results of these cost saving measures[2-4]. Recent studies show that Hospital-based bedside nurses are burned-out, emotionally exhausted, and highly dissatisfied with their jobs[5]. Given the current and ongoing nursing shortage, the detrimental effects on the nursing workforce from unsupportive and under staffed work environments predicts poor prospects for recruiting adequate numbers of nurses and gives cause for concern when countries grapple with the serious current and projected shortfall in the supply of nurses.

Surprisingly, during the peak of hospital restructuring, little attention had been devoted to the effects of organizational changes on nurse and patient outcomes. However, some hospitals stood apart; achieving great success in recruiting and retaining nurses. These organizations were distinguished by their competent managers, decentralized decision making by direct care givers, chief nurse executives who were directly involved in top management decisions, flexible nurse scheduling, investment in their employees, recognizing their contributions and supporting continuing education of the nursing workforce[6,7]. These hospitals became known as the first Magnet hospitals, so named because they were and continue to be places where nurses want to work and patients have good outcomes.

Research in a number of countries finds that challenges for retaining a qualified professional nursing workforce and achieving good patient outcomes are similar. Whilst in every country there are hospitals that provide exemplary care and have excellent out, comes, there is still a wide variation across countries in hospital nurse staffing, educational level of nurses, and adequacy of the work environment. In this paper we describe factors that have been shown to influence the nursing workforce, quality of care, and patient outcomes in the US and across the globe. We also propose solutions that have worked in one country and should also work in others.

Nurse and patient outcomes: US studies

The early work of Kramer and Schmalenberg[6,7] served as the impetus for later studies seeking to explore further the link between organizational features of hospitals and nursing and patient outcomes. Finding lower mortality rates in Magnet hospitals compared to matched non-Magnet hospitals, Aiken and colleagues attributed the better outcomes in Magnet hospitals to the combination of organizational attributes where nurses experienced more autonomy, more control over their practice and better relationships with physicians[8]. In a second study of AIDS units, differences in patient and nurse outcomes were compared between units dedicated to the care of patients with AIDS, Magnet hospitals without dedicated AIDS units, and non-Magnet hospitals where the care of AIDS patients took place on medical-surgical units scattered throughout the hospital[9]. They found lower death rates in both Magnet hospitals and hospitals with dedicated AIDS units as compared to hospitals where AIDS care was scattered throughout. Moreover, patient satisfaction was higher, nurse burnout levels were lower, and needlestick injuries were less in these same units. The practice environment in Magnet hospitals and hospitals with dedicated AIDS units were similar. Nurses were supported in their decision making and staffing was such that nurses were able to engage in the observation activities that allow for early detection of complications and avert errors. These early studies of Magnet and Magnet-like hospitals were the first to establish a link between the practice environment and nurse and patient outcomes.

In one of the first studies to establish empirical evidence that inadequate nurse staffing ratios can have deleterious effects on patient and nurse outcomes, Aiken et al explored the link between staffing ratios, nurse burnout levels, nurse job dissatisfaction, and patient mortality[10]. This study of nurses and patients in 168 hospitals in Pennsylvania found that the odds of a patient dying increased 7% for each additional patient added to a nurse's workload beyond a baseline of four patients. Furthermore, each additional patient per nurse not only increased the odds of burnout by 23%, but also increased the odds of job dissatisfaction by 15%. The findings from this study provided support for initiatives advocating the establishment of minimum staffing ratios in US hospitals.

A second groundbreaking study by Aiken et al established that the educational level of nurses in hospitals was associated with patient mortality[11]. Indeed, for every 10% increase in the proportion of baccalaureate-prepared nurses, hospital mortality rates decreased by 5 percent. These findings were the first to confirm that the educational level of nurses does make a difference in patient outcomes, and provided the impetus for state-level proposals to establish the baccalaureate degree as the minimum level of entry into the nursing profession in the US.

The international hospital outcomes studies. Forming international multidisciplinary research teams

The high levels of stress and burnout combined with low levels of job satisfaction uncovered by Aiken and others were thought to be strictly a US phenomenon. Yet reports of nursing shortages and discontent from nurses in Canada and the United Kingdom suggested otherwise. Moreover, consumer surveys confirmed public dissatisfaction with hospital care; physicians on a global scale believed the shortage of nurses was a serious barrier to the delivery of high quality care. The International Hospital Outcomes Research Consortium was formed around the basic principle that if the factors leading to poor nurse retention are similar across countries, the same solutions that work for one country should work for other countries, putting solutions on a global rather than a national scale. Initial aims focused on the challenges nurses faced in their day to day work and to test the effect of the practice environment on job satisfaction, burnout, and quality of care. The original consortium consisting of seven research teams, now includes teams from the US, Germany, Switzerland, Iceland, Armenia, New Zealand, Japan, Thailand, Canada, the United Kingdom, Belgium, Russia, Australia, and South Korea. This innovative collaboration has resulted in the largest international set of nurse-based surveys, linked to one of the richest sets of data on hospital organizations generated from primary data collection.

Nurse outcomes, organizational support, and quality of care

The first research endeavor was to study the impact of hospital restructuring on the nursing workforce and patient outcomes. More than 43,000 nurses in 700 hospitals in the US, Canada, England, Scotland, and Germany were surveyed[5]. They found extensive problems in the organization and design of work in North America and Europe, confirming reports that stress, burnout, and job dissatisfaction was not unique to US hospital nurses. In each case, more than half the nurse respondents reported there were not enough nurses to provide high quality care. With the exception of Germany, at least 1 of 3 nurses had high levels of burnout. In those nurses under the age of 30, at least 25% planned to leave their job within a year; in England more than 50% intended to leave. Nurses were in agreement that working relationships with physicians were good, however across the board nurses reported that their hospitals did not provide the support services needed to get their job done, and less than half felt that administration listened and responded to their concerns. At least 1 in 3 nurses were routinely performing non-nursing tasks, such as delivering and retrieving food trays,

transporting patients, coordinating and even performing ancillary services. At the same time, nursing tasks were not being attended to, such as oral and skin care, teaching patients and families in preparation for discharge, and talking with or comforting their patients. Only one-third of nurses would describe the quality of care on their unit as excellent. Reports of medication errors, nosocomial infections, and patient falls were above acceptable rates; patient and family complaints and verbal abuse toward nursing staff seemed to be the norm. This study of nurses in five countries was the first to describe how nurses felt about themselves, the places they worked, and their jobs. The data from this study was the launching pad for many international studies.

A second study of the same five countries examined the effects of nurse staffing and organizational support on nurse job satisfaction and levels of burnout, and on nurse reports of quality of patient care[3]. Their finding that organizational support influenced nurse job satisfaction and burnout validated findings from US studies. A second important finding sent a clear message to hospital administrators that nurses were much more likely to rate the quality of care as poor if they were working in hospitals where organizational support was low and staffing was poor. Clearly on an international scale, hospitals were engaging in restructuring activities that were having harmful effects on nurses and patients and which were not conducive to high quality care.

Staffing, nurse educational level, and patient mortality

Researchers from the Canada and England arms of the International Hospital Outcomes Study are finding results that mirror those of the US studies. In Alberta, Canada, researchers studied data from approximately 4800 Canadian nurses in 49 hospitals[12]. Their findings that hospitals where a greater proportion of nurses were educated at the baccalaureate level, the skill mix contained a higher proportion of registered nurses, and nurses reported good working relationships with physicians were hospitals that had lower rates of mortality. In their study of 75 hospitals in Ontario Canada, Tourangeau and colleagues also found lower 30-day mortality rates in hospitals where nurses have a higher level of education and a richer skill mix[13].

In England, researchers add to the rapidly accumulating evidence of the strong links between staffing, mortality, and nurse outcomes[14]. Their study of close to 4000 nurses in 30 hospital trusts found that nurses and patients in hospitals with the most favorable staffing levels had better outcomes compared to hospitals with less favorable staffing. As the number of patients in the nurse workload increased, so too did the mortality rate. Nurses in hospitals with less favorable staffing levels were almost twice as likely to show high levels of burnout, higher job dissatisfaction, and to report low or deteriorating quality of care on their units.

Studies conducted in countries outside the International Hospital Outcomes Research Consortium are providing evidence of the negative consequences on nurses and patients of hospital restructuring efforts. In a study designed to examine the effects of hospital re-engineering on patient outcomes and nurse staffing in New Zealand, McCloskey and Diers established that patient care quality declined as nurse staffing became less favorable[4]. Their longitudinal analysis over an 11-year period, during which New Zealand hospitals had undergone cost controlling policies, provides insight into the role organizational changes play in quality of care and the consequences of restructuring. While they found that skill mix increased 17% over the 11-year period, assistant nurses, similar to Licensed Practical Nurses in the US, decreased by 70%. The increase in skill mix probably did not compensate for the increase in workload as a result of the decrease in assistant nurses. Their analysis indicated a progressive and substantial increase in adverse events after re-engineering was implemented.

The researchers concluded that changes in the nursing workforce during this time of re-engineering explained the increase in several adverse events.

Another study of 695 nurses in one Icelandic hospital tested the effect of the practice environment on job satisfaction and nurse-rated quality of care[15]. The researchers found that in units where managerial support was high, nurses had much higher levels of job satisfaction and were twice as likely to rate the quality of care as excellent. Nursing workload made a difference in job satisfaction as well as burnout levels. As the number of patients assigned to a nurse increased, job dissatisfaction increased, as well as level of burnout.

Quantifying organizational attributes

The ability to quantify the quality of the nurse practice environment is a crucial component in establishing links to the outcomes of patients and nurses. The International Hospital Outcomes Research Consortium collects and maintains survey data from thousands of registered nurses around the world. Nurses serve as informants to provide first hand information about organizational features and relationships, from which aspects such as organizational support, staffing, and quality of care can be quantified with the Nursing Work Index[16,17], placing the research consortium in a unique position to measure attributes of the organizations in which nurses work. In addition to having the ability to measure organizational features, these survey data are distinctive in that they provide valuable demographic information about nurses, as well as measurements of job satisfaction, levels of burnout and emotional exhaustion –something that no other database can provide on as large a scale.

The Nursing Work Index has proven to be a reliable and valid instrument to measure the nurse practice environment and has been used in many studies, across many countries, and within different system.[10,12,14,15] A pilot study conducted in Barcelona suggests that the Nursing Work Index is also applicable to hospitals in Spain[18].

Solutions to improving the nurse practice environment: the Magnet hospital model

Studies have repeatedly found that the practice environment in which nurses work is a determining factor in nurse and patient outcomes. These studies find that the distinguishing attributes of Magnet hospitals are present in where nurses have high levels of job satisfaction and have low levels of burnout where the practice environment is poor, nurses working in hospitals with good work environments have the benefit of adequate staffing and patients in these hospitals have better outcomes.

Magnet hospital accreditation is the best evidence-based initiative to improve nurse practice environments and patient outcomes and has been shown to transform the nurse work environments in the US, the UK, Armenia, and Russia[19,20]. The process of Magnet recognition involves implementing 14 evidence-based standards. A detailed plan of the process toward improving the nurse practice environment can be found at: http://www.nursecredentialing.org. Replicating the Magnet hospital model has proven to be successful in any country regardless of differences in financial and delivery systems because nurses are committed to excellence and leaders are willing to lead. The potential benefits to Spain are enormous.

To summarize, the study findings reviewed here provide convincing evidence of the crucial role that staffing ratios, and administrative and managerial support play in the quality of

patient care and patient outcomes. In spite of vast differences in resources and national system design, the same associations were found again and again across many countries, providing compelling evidence across the globe that nurses and countries are facing very similar challenges. The challenges that nurses face and the solutions to nursing shortages and poor quality of care are common across countries, making the case that nursing is indeed a global community. High levels of job dissatisfaction and burnout contribute to the global shortage of nurses. Hospitals with employment policies that favor highly educated nurses, staffing policies that account for patient acuity and recognize the contributions to quality that registered nurses make, and organizational policies that support nurses in their decision making, are the common attributes of hospitals where nurses will want to work and patients will have good outcomes. The Magnet hospital program is a model that has been proven to transform work environments.

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