



2013 NURSE STAFFING LITERATURE REVIEW[©]

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ABSTRACT

Since 2011, the Registered Practical Nurses Association of Ontario (RPNAO) has undertaken an annual review of RPN-related research as reflected in scientific and academic literature. The objective of this year's review was to locate research material published in the last twelve months that relates to the nursing themes identified in previous studies, follow up on the status of enrolled nurses, and investigate high-functioning nursing teams. The review project involved a three-phase process that coincided with each objective, and necessitated the searching, compiling and evaluating of documents from publicly available information sources and databases. The results corresponded with many of the findings from the previous reviews. Education and training is primarily RN focused, as is nurse staffing. Nursing work environments can be simplistically summed up as "a positive nursing work environment is associated with fewer patient adverse effects." When thinking of nursing categorization, the role of nurses in a global environment should be considered. The selection of nursing care models still needs evidence-based decision making. The UK has moved from having Enrolled Nurses to struggling with how nursing Assistant Practitioners should fit into its healthcare system, while Australian Enrolled Nurses are viewed as major contributors to patient care delivery. Although the topic of teams is a major area of research, no studies were located that dealt with high-functioning nursing teams. As has been seen in the previous reviews, RPN research continues to be a wide-open field for future research endeavours.

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INTRODUCTION

Overview

The professional body that provides education and professional practice supports for Registered Practical Nurses (RPNs) in Ontario is the Registered Practical Nurses Association of Ontario (RPNAO). Since 2011, the association has committed to the Ontario government to undertake an annual review of RPN-related research as contained in scientific and academic literature. For the past two years, Dr. R. Owen Parker has been engaged by the RPNAO to complete the required literature review.

The inaugural review in 2011 embarked upon a broad view of the nursing academic literature, spanning at least two decades, especially with respect to patient care. In 2012, the review's primary focus remained centred on patient care but only in relation to the themes articulated in the earlier report. However, because of occupational changes being suggested for RPNs, an additional need was identified to examine the roles, responsibilities and functions of State Enrolled Nurses (SENs) in the United Kingdom (UK) and Enrolled Nurses (ENs) in other British Commonwealth nations. Hence, research aimed at SENs and ENs was included in last year's report.

The current literature review continues the work initiated by the previous reviews. This report summarizes the academic literature produced over the past twelve months that deal with RPN practices, and any publications or articles concerning SEN and EN matters. In addition, to complement and expand other research initiatives being carried out by the RPNAO, a search of the literature will endeavour to find publications associated with high-functioning nursing teams.

Objectives

The objectives of the 2013 RPNAO literature review study are to:

- Undertake a literature review of any articles, reports, documents or studies published since the 2012 literature review, concentrating on the issues and topics raised in previous summary reports.
- Locate research literature connected with the "enrolled" nursing role in the UK, Australia and New Zealand.
- Identify any publications that discuss topics linked to high-functioning nursing teams.

Purposes

The purposes of this report are to

- Describe the methods employed in conducting the literature search and review.
- Delineate the variables applied in the review.
- Discuss the major findings produced from any nursing literature since the 2012 RPNAO report.
- Highlight research or commentary pertaining to the employment of SENs and ENs in specific British Commonwealth countries.
- Reveal papers, reports or articles that raise the issue of high-functioning nursing teams.

APPROACH

Overview

The current literature review comprises multiple objectives and can be framed in the following manner:

- Phase One – RPN Replication. In the first phase of the study, the focus is on published academic and professional literature produced since the 2012 summary report.
- Phase Two – EN Follow On. The second phase runs through the academic and professional literature found on the roles and changes experienced by enrolled nurses in certain commonwealth countries.
- Phase Three – High-functioning Nursing Teams. The final phase of the review attempts to locate articles and publications that discuss the characteristics of high-functioning nursing teams.

Phase One – RPN Replication

Scope

As with the previous reviews, the present literature review was constrained in terms of scope and time. The searching and analytic activities encompassed recent articles and documents, and reflected particular elements of the nursing profession, as follows.

- Independent variables reflecting:
 - specific nursing related attributes, such as entry level education, continuous training, certification, experience levels and employment conditions,
 - delivery of care models and continuity of care, and
 - work setting context, including acute care, long-term care, hospital unit, staffing mix, support levels and type, etc.
- Dependent variables dealing with patient outcomes comprising patient mortality and morbidity, and nurse job satisfaction.

Literature Sources

Past reviews depended on information being available from both the RPNAO and non-association sources, such as academic databases and professional journals. This year, however, there was a greater reliance on articles, documents and reports in various external databases found in public information sources (i.e., libraries) and university databases.

Literature Analysis

The analysis of the various published materials involved:

- Assembling relevant material.
- Scanning and reading the documents and articles to determine their relevance.
- Recording and categorizing individual items and overall themes.
- Synthesizing and summarizing any findings.

Phase Two – EN Follow ON

Scope

Unlike in 2012, the EN Follow On review was more circumspect with efforts devoted to identifying research with EN applicability within the past twelve months. Moreover, the original intention was to locate material similar to the dependent (e.g., patient outcomes) and independent (e.g., role, education, staffing, etc.) parameters used in the RPN replication approach.

In reality, however, very few publications surfaced that met the dependent/independent measures. Hence, greater latitude was taken in broadening the range of materials that dealt with EN issues.

Literature Sources

As opposed to the last review, where both RPNAO and non-RPNAO sources provided information, the current review depended entirely on external, non-RPNAO databases and materials.

Literature Analysis

Generally, the EN Follow On literature analysis duplicated that of the RPN replication phase, as follows:

- Assembling relevant material.
- Scanning and reading the documents and articles to determine their relevance.
- Recording and categorizing individual items and overall themes.
- Synthesizing and summarizing any findings.

Phase Three – High-functioning Nursing Teams

Scope

A new element was added to this year's literature review, that being a search of professional publications and academic databases to unearth articles or reports which discuss the characteristics of high-functioning nursing teams. The information gleaned from this review might be included in a research initiative being considered by the RPNAO to investigate such nursing teams.

For the purposes of the 2013 review, a definition of the main nursing team concept was deemed necessary. In this case, a "high-functioning nursing team" is *an identifiable, collaborative group of nurses that achieves, both practically and professionally, superior performance in executing its patient care duties.*

Initially, the main search term of "high-functioning nursing team" yielded no "hits" from the various information databases. Therefore, it was decided to expand the search by using a mix of different terms and expanding the number of related words. These include combinations of varying lengths, content and concepts, such as:

- High-functioning nursing teams.
- Exceptional performing nursing teams.
- Superior nursing teams.
- Nursing groups.
- Excellent teams.
- Highly effective teams.
- Efficient nursing groups.

- Successful nursing teams.

Literature Sources

The literature sources searched for high-functioning nursing teams covered a wide gamut of academic publications and nursing journals. By employing a multitude of search terms based on the terms indicated above, a number of articles were found. Nevertheless, relatively few of these materials pertained to the nursing world.

Literature Analysis

As with the other phases, a common approach to the analysis was undertaken, which included:

- Assembling relevant material.
- Scanning and reading the documents and articles to determine their relevance.
- Recording and categorizing individual items and overall themes.
- Synthesizing and summarizing any findings.

FINDINGS

Phase One – RPN Replication

Overview

Previous reviews showed that materials collected from the research literature could be classified according to five major themes. These included:

- Education.
- Staffing.
- Work environment.
- Nurse categorization.
- Models of nursing care.

To maintain continuity and for comparison purposes, these same themes were employed to align the various articles, reports and publications. Still, in several instances, a single document overlapped with two or more categories. In such cases, the particular publication was assigned to the category where it subjectively seemed most appropriate.

Education

Introduction. Over the course of the review projects, the educational focus has been on entry-level standards and continuing education training with an emphasis on links between education and patient care outcomes. Another important factor was what differences between RNs' and RPNs' (or LPNs') education could be discovered.

Comparatively few publications materialized during this year's review. Most of these articles concerned RN education and training, not RPNs/LPNs. The recurring discussion seemed to revolve around RNs who had degrees and those who did not. Seldom was RPN education or training needs dealt with.

Research. Blegen et al. (2013) conducted a cross-sectional study with patient records from 21 university-based hospitals and education information from a mailed survey to chief nursing officers. They determined that hospitals having larger proportions of BSN or advanced degrees in their nursing staffs had lower rates of patients with congestive heart failure, decubitus ulcers, failure to rescue, and

postoperative deep vein thrombosis or pulmonary embolism, as well as shorter lengths of stay. Although similar to findings in the 2011 and 2012, this study had the unusual feature of controlling for nurse staffing and hospital characteristics. No mention was made of RPN/LPN education and the contribution of RPNs/LPNs to patient care.

Hasson et al. (2013) examined the training provided RN students as part of their education with respect to their responsibility for supervising unregistered healthcare assistants (HCAs) in the UK. A multi-phased approach proceeded with focus groups and interviews being held with 32 students in phase one and a survey questionnaire administered to 662 students in phase two. The results showed that the students did not feel their education prepared them for clinical realities, especially in regards to supervising of other hospital staff. Since the UK, eliminated the EN role more than a decade ago, the interesting question raised by this study was whether the findings would be similar in other jurisdictions where RPNs or LPNs with greater educational attainment than HCAs were included. Further, the issue of how the formal relationships between RNs and RPNs are managed was broached.

In a research brief from the Saskatchewan government, Hoffart et al. (2013) discussed a pilot project in which intra-professional opportunities were established for student nurses from the three major educational programs offered at the Saskatchewan Institute of Applied Science and Technology. These students shared their learning experiences with each other while working in a rural First Nations community. Nine students from each of the RN, LPN, and Registered Psychiatric Nurse programs were included. Feedback was obtained from the faculty advisors, community advisors and the students themselves. The students worked together on different teams and in different healthcare environments. Overall, the project was deemed successful with the integration aspect developing an understanding amongst students of their different roles and those of other healthcare professionals. Although not an empiric study, this research initiative demonstrated the value obtained in breaking down barriers by having nursing students from different disciplines learning together in clinical settings.

Summary. Even though the nursing education literature from this year still supports the idea that having more baccalaureate educated nurses on staff results in a lower level of patient negative outcomes, other facets of nursing education are worth pursuing. In particular, the working and learning relationships between different kinds of nurses offers a noteworthy area for further investigation.

Staffing Issues

Introduction. Three components comprise nurse staffing concerns:

- The number of nurses available.
- The amount of time devoted by nurses to patient care.
- The mix of different kinds of nursing staff.

Staffing remains a primary issue for nursing and nursing research. Nevertheless, the research methods employed to examine these issues remain varied, covering the range of qualitative to quantitative approaches. Likewise, the results and conclusions drawn from this research also vary considerably.

Research. In a comprehensive review of the available literature, Brennan et al. (2013) evaluated a set of 29 reviews that, in turn, reviewed 112 studies, in an attempt to compare and contrast the findings of the earlier works. In particular, their goal was to find evidence-based directions for nurse staffing that improved patient outcomes. Ultimately, the quality and usability of the studies for providing guidance with respect to setting staffing was diminished by the variability in methods and measurements, inconsistencies in the results, a lack of recognition of nursing processes (i.e., how nurses perform their duties), and the inability to control spurious factors that might affect relationships between variables. The authors suggested that an Integrated Framework for a Systems Approach to Nurse Staffing Research be instituted to impart a level of consistency in staffing research.

Twig et al. (2012) assessed nursing and patient data for three tertiary care hospitals in Perth, Australia over a period of four years following the implementation of a nurse hours per patient day (NHPPD)

staffing model. The study's goal was to determine whether any association between skill mix and patient outcomes was to be found. The analysis included over 103,330 patient records and 73,770 nurse-staffing records. The "nursing-sensitive outcome variables" (i.e., dependent variables) consisted of such conditions as wound infections, pulmonary failure, pressure ulcer, pneumonia, deep vein thrombosis, sepsis, cardiac arrest, failure to rescue, length of stay, and so forth. The predictor variable (i.e., independent variable) was defined as the proportion of total nurse hours provided by RNs expressed as a percentage of total nursing hours. The findings were consistent with similar kinds of studies reported in the previous reviews. Increases in the ratio of RN hours were linked to eight of the nursing-sensitive variables. The researchers concluded that the skill mix of nurses could affect patient care and outcomes, and should be considered when developing strategies to change nurse staffing. However, as has occurred before, no differentiation was made between the contribution of RNs, ENs and unlicensed healthcare aids, only between RNs and the rest.

A research article from China demonstrated the same types of results (Zhu et al., 2012). The study involved 181 hospitals across all eight economic zones. Two data collection instruments were used: the China Nurse Survey (7,802 returns), and a patient satisfaction survey (5,430 returns) from 600 medical and surgical units. The nurse-to-patient ratio (total number of nurses on all shifts on the unit, divided by the total number of patients who stayed on the unit) was compared to the patient satisfaction outcome. Predictably, when the nurse-to-patient ratio increased, the patient outcomes correspondingly improved. However, several weaknesses exist in the study. The researchers point out that the data were all self-reported through the use of surveys, provoking questions about the information's validity and reliability. In addition, the calculation of the nurse-to-patient ratio was non-standard in comparison to other research; the number nurses on shifts is used rather than nursing hours. Although a logistic regression was applied in the statistical analysis, the results and findings appeared somewhat simplistic but this may be a result of the limitations of the data and variables used.

In last year's review, the effects of California's Nurse Staffing Law were assessed. This year, Tellez and Seago (2013) also delved into to the law's effectiveness. They scrutinized 28,168 California Board of Registered Nursing (BRN) surveys returned by RNs over four years: 1997 (before the ratios implementation), in 2004 (at the time of the implementation), in 2006 (mid-post implementation), and in 2008 (post implementation). It was found that an increase occurred in nurse satisfaction after enactment of the minimum staffing law. Furthermore, it was pointed out that a shortage of experienced nurses will probably happen as the nursing workforce ages. The authors also observed that ethnic diversity in the nursing profession in California is "abysmal", with African-Americans and Hispanic-Americans being underrepresented. Unfortunately, the research neither differentiated between RNs and LPNs – only using the generic term of "licensed nurse" when discussing the law's provisions – nor drew distinctions of possible impacts on various groups of nurses.

In a study that explored the occurrence of Nurse Sensitive Outcomes (NSO), Roche et al. (2012) were concerned about the increasing utilization of "less qualified staff" to replace RNs, because of recent policy reform proposals in the Australian healthcare system. They sought to measure the relationship between staffing (i.e., overall nursing hours per patient by all nursing staff), and skill mix (i.e., proportion of RNs to ENs and HCAs) with the number of NSO (i.e., decubitus, FTR, ulcers, pneumonia, sepsis and urinary infection) incidents in 14 medical/surgical wards at two public hospitals in one state. The data were collected from a larger longitudinal research project and included 2.5 years (2004—2006) of routinely collected patient data, along with concurrent nursing payroll data. The results showed that changes in the number of nursing hours did not affect the NSO outcomes but that increases in the proportion of RNs in the skill mix significantly lowered NSO incidents. Roche et al. suggested that the nursing changes being proposed would have deleterious consequences for patient care. Still, the research design and statistical analyses applied in the study were not robust enough or comprehensive enough to support the claims being proposed, particularly when comparing RNs with ENs and HCAs.

Through an opinion piece in *Nursing Management*, Livornese (2012) reflected upon the importance of using LPNs in acute care settings. Attempts to apply for the *Magnet*¹ recognition program by some community hospitals created a shift to a primary care model, which required more RNs, from a nursing team model, which blends the skills of RNs, LPNs and “auxiliary” staff. A literature review led the author to posit three reasons for the underutilization of LPNs in hospitals: the reluctance of having LPNs augment nursing care, a fear of having LPNs function at their fullest capability, and dissimilar attitudes between RNs and LPNs that act as barriers to exercising greater responsibility and accountability for both nursing categories. The author recommended that: LPNs should be used in community hospitals to increase positive patient outcomes, especially during nursing shortages, and clinical staff be educated about the LPN scope of practice and ways to use LPN skill sets to their full advantage.

Summary. The research publications produced during the past year dedicated to nurse staffing issues do not appear to have changed their focus much from previous reviews. The dominant topic is the amount of registered nursing time or number of registered nurses assigned to patients, and the effects of these variables on patient clinical care. While commendable efforts in this regard have been made, opportunities exist for more nuanced approaches that incorporate the contributions of RPNs, particularly as members of nursing teams. Moreover, as indicated by the work of Brennan et al. (2013), the staffing research has some distance to go in forming reliable methods and consistent measures.

Work Environment

Introduction. The diverse environments in which nurses work and the working conditions they experience have yielded a number of studies over the years and continues to be a focal point for research. Although not many, the 2013 review discovered several recent research articles dealing with working environments. The critical issues are the extent to which working conditions influence nurse satisfaction and engagement, and how this sense of satisfaction or engagement affects clinical care and patient outcomes.

Research. Boev (2012) undertook a study with the objectives of examining patient perceptions of their care while hospitalized in an intensive care unit, determining nurses' perceptions of their working conditions in a critical care unit using a standard survey (i.e., Practice Environment Scale of the Nursing Work Index (PES-NWI)), and assessing the links between patient satisfaction and nurses' work perceptions. The research method depended on longitudinal, secondary data collected for a period of five years at a 750-bed tertiary hospital housing four Intensive Care Units. Six hundred and seventy-one RNs completed the PES-NWI. Over 1,500 patient satisfaction surveys were accessed for the study. The results revealed that patients were generally satisfied with their ICU care. Similarly, the nurse surveys revealed moderate levels of satisfaction with their working environments. An unusual finding was the connections with nurse managers, whereby nurses' perceptions of patient satisfaction were tied to nurse manager's leadership skills and professional abilities. A major gap in this study was the apparent lack of any attempt to draw statistical associations, by applying either correlation or regression, between the nurse satisfaction survey and the patient satisfaction survey.

The PES-NWI was also used by Kirwan et al. (2013) in a study of the relationships between ward environments where nurses practice and patient safety outcomes. The cross-sectional quantitative study was performed using PES-NWI data collected from 1,397 nurses (although not specified, it is assumed the nurses were RNs) at 180 medical and surgical wards in 30 hospitals throughout Ireland. Patient safety information was collected as an item in the nurse survey that graded their wards and through the ratings of adverse event reports submitted by the nurses. The findings showed that a positive practice environment improved patient safety with factors such as the ward environment and the proportion of degree-educated nurses being significantly related to safety. A key drawback of this particular study was the absence of quantitative, secondary data drawn from patient records; much of the data were based on self-reported, subjective survey information with no statistical comparison with actual patient figures.

¹ “The Magnet Recognition Program[®] acknowledges health care organizations for quality patient care, nursing excellence and innovations in professional nursing practice.” Downloaded from the American Nurses Credentialing Center at <http://www.nursecredentialing.org/Magnet/ProgramOverview> on September 8, 2013.

In an effort to assess nurse working conditions and quality of care across Europe, Aiken et al. (2013) surveyed 33,659 medical-surgical nurses (i.e., RNs) at 488 hospitals from 12 countries. The number of items in the survey was scaled down from larger surveys, such as the PES-NWI, and concentrated on environmental and patient care issues. A single question in the survey asked nurses to evaluate the working environment of their unit or ward. Broad variations were exposed among countries with respect to the percentage of nurses with degrees, in the patient to nurse ratios, and skill mix (i.e., percentage of nurses to support staff). Additionally, more than one in five nurses was dissatisfied with their jobs, particularly as regards salaries, education and advancement. Substantial proportions of nurses intended to leave their positions, and were concerned about management practices and the availability of resources. The authors concluded that nursing shortages are likely to occur as the economies in Europe improve. The study thoroughly gauged the state of nurse working conditions in Europe, but largely in a descriptive way; little advanced analysis was offered to draw connections and relationships between the variables used and the countries reported upon.

Paquet et al. (2013) did a more focused working environment research project. Their interest was in learning the predominant psychosocial variables that explain organizational outcomes and quality indicators. A working environment survey comprising questions and scales from a series of standard questionnaires (i.e., Psychological Climate Questionnaire, The Siegrist's Effort/Reward Imbalance, and Questionnaire Job Content Questionnaire) was administered to 243 healthcare workers (including nurses, LPNs, managers, clerks, and others) from 13 different care units in a Canadian university health centre. Administrative information for the same units, including absenteeism, turnover, overtime, nurse/patient ratios, length-of-stay and medication errors was collected. Using a path analysis statistical technique, the psychosocial variables (i.e., survey items) were linked to the organizational outcomes (i.e., absenteeism, turnover, and overtime), and to the nurse/patient ratio and quality indicators (i.e., medication errors and length-of-stay). Two primary models resulted from the analysis that linked certain psychosocial variables to the quality indicators, moderated by the organizational outcomes and nurse/patient ratio. In other words, the issues of social support, rewards and effort, workload, and so forth, influenced patient LOS and the number of medication errors, but the relationships were not direct and were modified by such things as absenteeism, turnover, overtime and nurse/patient ratio. The authors concluded that positive employee perceptions of their workplace lead to fewer medication errors and shorter LOS, and that working to improve these perceptions is a good investment to improve loyalty and increase attendance.

Summary. In the previous reviews, links were revealed between positive work environments and better patient outcomes. The studies located for the current review seem to reinforce this view. Nevertheless, a number of the methodological weaknesses identified from the research, such as the lack of definitive relationships being explored, point to the issue not being a settled one. Additional in-depth studies employing advanced statistical techniques are called for to better quantify the connections between nurse satisfaction, especially RPN satisfaction, and patient clinical outcomes.

Nurse Categorization

Introduction. Two categories of nurses are recognized by the College of Nurses of Ontario: RNs and RPNs. Although these two categories learn from the same body of knowledge, their roles in delivering patient care differ with RNs having a longer educational period that is designed to prepare them for broader clinical practice, enhanced decision-making, more critical thinking, and greater leadership responsibility. RPNs have a level of autonomous practice that differs from that of RNs. In conducting the literature search, the goal was to identify those publications that discussed separate work activities related for each of these two categories of nurses.

Research. Currie and Carr-Hill (2012) ask the provocative question, "What is a Nurse?" In this opinion piece, they examined how the function of nursing is defined and characterized, using information assembled from the International Council for Nurses (ICN), the World Health Organization and the Organisation for Economic Cooperation and Development (OECD). Each of these bodies has contrasting nurse classifications. The ICN positions nursing along a continuum of care, which includes the Generalist Nurse who is licensed but has only a basic educational level, the Registered Nurse who has an advanced

education and has passed a nursing board examination, the Enrolled Nurse encompassing enrolled, practical and licensed nurses who can operate within a subscribed scope of practice, and the Nurse Specialist who has advanced training and expertise in an explicit branch of nursing. The WHO has a single, simplified, standard occupational grouping, Nursing and Midwifery Professionals. The OECD distinguishes between Professional Nurses who assume responsibility for the planning, delivery and management of patient care, and Associate Professional Nurses who work under supervision and support the implementation of health care treatments, and can be labeled as assistant, enrolled, practical, or licensed nurses. The authors also highlight differences in “nurse density”, that specifies the ratio of nurses to physicians per capita. By examining OECD data, it was found that the large variation in types of nurses existed amongst developed countries but was less pronounced in developing countries. However, the disparities found in nurse density ratios had more to do with skill mix and clinical role rather than economic status. In the end, any skill mix or role development across countries will only have relevance and comparability once a proper consensus is reached on what a nurse is and does. The standardization of nurse category definitions internationally will be necessary to reduce confusion and promote better understanding of nurse staffing, and the effects on patient outcomes.

Summary. Nurse categorization seems to persist as an elusive concept in the nursing research literature. At an international level, the distinctions among various nurse classes and functions have not been adequately defined or thoroughly tested through empiric research. Until they are, the understanding of their relative value and contributions may continue to be marginalized.

Models of Care

Introduction. Models of care constantly require review and reassessment, if their appropriateness and applicability are to stay current and relevant. Along with new technologies and evidence-based procedures, this persistent re-evaluation leads to clinical innovation and professional progression. During the past year, several studies emerged that spoke to the issue of models of care.

Research. In a cross-sectional, correlational study, Dubois et al. (2013) screened 2,699 patient records from 22 medical units in 11 hospitals across Quebec to identify safety-related events. The units were grouped into four nursing care organizational models: two professional (i.e., management recognizes nursing as a profession) and two functional (management views nursing as a set of tasks that can be done by a variety of workers). The professional models were divided into: a basic professional model having low staffing intensity (i.e., care hours per patient), high skill mix (i.e., greater proportion of RN nursing hours compared to non-RN hours), positive working environment and a low level of innovation capacity; and the innovative professional model with high staffing intensity, high skill mix, positive working environment and a high innovation capacity. Likewise, the functional models were split into: a basic functional model characterized by low staffing intensity, low skill mix, low working environment and low innovation capacity; and an adaptive functional model with high staff intensity, low skill mix, low working environment, and a low innovation capacity. The dependent variable of patient safety outcomes consisted of various clinical conditions, including medication administration errors, falls, pneumonia, urinary tract infection, unjustified restraints and pressure ulcers. These were sorted according to whether the outcomes were “without major consequences” or “with major consequences.” A logistic regression analysis evaluated any associations between the four models of care and the two sets of patient outcomes. The results demonstrated that the risk of patients experiencing one or more events and of undergoing an event with major consequences was significantly lower, in the case of both professional models. No significant differences were found between the functional models. The authors suggested that the two professional models, in which RNs primarily deliver nursing services were linked with lower patient risks than the two functional models.

Fernandez et al. (2012) completed a literature review targeting published studies that investigated patient and nursing outcomes in which nursing delivery models were considered. Traditional models of care included: team oriented models, shared care nursing, modular nursing, and partners in practice. Contemporary models also include patient allocation models, and hybrid models. Out of approximately 3,000 studies, only 14 met the researchers' quantitative selection parameters. The results revealed that the implementation of a team nursing care model had fewer instances of medication errors, decreased

adverse intravenous outcomes and lower pain scores for patients, but had no effect on the number of patient falls. Where hybrid models were used, improvements were seen in patient care but no differences in cases with pressure area injuries or infection rates. No variations arose regarding role clarity, job satisfaction, and nurse absenteeism rates amongst any of the models of care. The authors concluded that team nursing is the predominant model of care but that little benefit exists within primary nursing comparisons and that the cost effectiveness of team nursing over other models remains debatable.

Mikesell and Bromley E. (2012) provided an interesting insight into patient-centred care. Utilizing interview and observational data collected over a 10 month period from 175 clinical staff (including nurses, nursing assistants, physicians, administrators and therapists, they described the operation of a hospital that opened in 2008 where the patient amenities and comforts were of a very high caliber. The stated concentration on the patient needs altered the way nurses explained their roles. The culture of caring was being replaced by a service culture with nurses spending a significant portion of their time in bringing items requested to the patients' rooms, instead of performing their caring function. These changes challenged how the nurses perceived their professional roles and created a negative impression on their relationships with patients and with each other. Hence, a conflict was present between the implicit and explicit understanding of a nurse's job. The authors maintained that, in instituting a patient-centred model of care, caution must be exercised so that the substantive work of nursing is not disrupted for highly visible but ultimately peripheral kinds of activities.

Summary. The few studies uncovered in the current review focusing on models of care highlight the need for a deeper exploration of the area. Even defining or describing the various models lack unanimity. Moreover, determining what models are most effective for the delivery of patient care presents an opportunity for further research.

Phase Two – EN Follow On

Overview

In last year's review, a broad search of research literature targeting was undertaken. This current review was somewhat narrower in scope, concerned with any changes occurring in the status of ENs over the past year in the UK and any other studies from Commonwealth countries that involved ENs in the delivery of patient care.

The 2012 review summarized the circumstances in the UK over the past two decades that led to the cessation of EN training and reduction of EN jobs in the National Health Service (NHS). Certain recent shifts in the nursing environment were also cited that probed the inclusion of nursing Assistant Practitioners (APs) in the NHS to fill an obvious gap in patient care between RNs and HCAs. One of these indicators was a fact-finding visit in 2011 by representatives of the UK's Nursing and Midwifery Council (NMC) to New Zealand where ENs had been re-introduced. Nevertheless, no additional reports or articles turned up that provided details of any outcomes of this initiative or any intentions on the part of the NHS to reinstate the EN role in the UK

Research

Allen et al. (2012) assessed whether APs had fulfilled the expectations of an original plan to establish this new role into the Critical Care Department of a large NHS Trust in the UK. In total, 16 APs who completed a special two-year course in critical care nursing and who comprised the sample were included in the study. Subsequent to a literature review, a service evaluation of the initiative was performed with a questionnaire and a series of semi-structured interviews administered to the APs, the RNs and the nursing supervisors. Only 60 questionnaires were returned out of the 112 distributed. A very small number of interviews were held (i.e., four), raising a question about this method's validity. Nevertheless, the researchers found that the AP role had achieved the necessary care delivery requirements for critical care patients. There were, however, several issues to be resolved, such as program funding, the length and scope of the training required, and the working environment. While an interesting exploratory study,

the small sample size and involvement of only a single Trust raises some concerns regarding the generalizability of the results.

Another study (Thurgate et al., 2013), considered the role of managers as they engaged APs in the workplace and the managers' relationship with AP educators. As part of a service evaluation, a very limited qualitative effort was undertaken with only five structured, clinical-manager interviews being done at a single NHS Trust in the southeast of England. Nevertheless, the researchers suggested that the AP role should be defined by the competencies, boundaries and skill mix required for a particular clinical team function with careful recruitment being a vital component. Managers have a critical role to fill in terms of liaising with educators, and making decisions related to job descriptions and AP employment. Again, the relative limitations in terms of numbers and methods make any generalizing difficult.

With ENs in Australia being permitted to administer medications, Kerr et al. (2012) undertook a study to determine whether any impacts on medication errors occurred. Data were collected from a survey and from medication error reports at a single healthcare organization in Victoria, Australia that included three acute care hospital campuses and two residential aged-care services. RNs (n=81), ENs with medication administration training (n=22) and ENs without medication administration training (n=15) volunteered for the survey. Although a majority (75%) of nurses supported ENs doing medication administration, distinct differences were seen amongst the different nurse categories. Most ENs believed they possessed a clear understanding of the responsibilities involved (78%) and had the proper level of education (74%), whereas a majority of RNs disagreed (53% and 65%, respectively). There was no change in the rate of medication errors after the introduction of ENs with medication administration training. Overall, while nurses supported the initiative, additional RN education was recommended to increase their awareness of the specialized training being received by ENs.

Jacob et al. (2012) undertook an extensive literature review to identify the key differences between RNs and ENs in Australia. They argued that, while the two categories of nurses were distinctly different, changes to educational requirements and supervision responsibilities acted to narrow the gap. From their analysis of the current research literature, the researchers stressed that differences amongst nurses continue to exist. Even though, RNs, ENs and midwives are registered under national registration protocols, current registration is tied to education, with RNs needing a bachelor's degree and ENs having to complete a diploma program. Likewise, in addition to variations in educational length and scope, differences were identified for supervisory and role expectations. In the end, because of the perception that the work of RNs and ENs is becoming more similar, it was recommended that additional research be conducted to compare the decision making and problem solving requirements of both nursing groups.

Summary

Although a few, older ENs continue to work in specific areas of healthcare, such as long-term care, no research revealed that a revival of the EN as a nursing category is occurring in the UK. However, APs seem to be gaining acceptance as a legitimate occupation in quasi-nursing functions, even if they do so in a highly circumscribed manner; typically, they are trained and hired to perform a very specific healthcare task. Whether they will gain additional roles and responsibilities remains debatable at the present time. At least, research is being conducted to explore the ramifications of their contribution to the healthcare system.

Alternatively, the EN continues as a basic nursing position in Australia. Their involvement in healthcare is an accepted reality. Yet, the relationship between ENs and RNs is a subject of scrutiny and argument, especially if ENs extend their responsibilities.

Phase Three – High-functioning Nursing Teams

Overview

The RPNAO is undertaking a research initiative to explore the characteristics and capabilities of nursing teams, especially those deemed to be high-functioning. To that end, the current review attempted to

locate published materials dealing with the composition and performance of nursing teams. Also of consideration were studies that connected team functioning with patient outcomes.

Research

Jansen (2008) considered collaborative, team-based practices in an interdisciplinary environment to be important to the nursing profession and that these collaboration skills addressed complex patient needs. However, implementation of collaborative teams and their outcomes remain tenuous. Instead of an empiric study, she completed a literature review and critical analysis to examine the issue of collaborative teams. The challenges faced by a nursing team as it works to achieve collaboration included: the historical context, political environment, economic conditions and social professionalization. Ultimately, it was argued that, for the present, it may not be possible to forge broad-based team structures because of the amount of effort needed to prepare members of the various disciplines to act as a team and to “address fragmented services”, such as funding and resource procurement, to sustain the team.

Through a broad-ranging literature search, Holleman et al. (2009) endeavoured to find articles related to the characteristics of nurses and successful strategies that led to innovations in nursing teams. After tracing 323 potential articles, only nine were reckoned to meet the study’s inclusion criteria. The researchers deemed the methodological quality of the articles, even the nine selected, to be low. Six team characteristics were linked to the implementation of innovation, including communication, clear purpose, team member attributes, trust and confidence, leadership, and roles and responsibilities. The researchers concluded there were few studies and little evidence of team characteristics or strategies linked to nursing practices innovation.

Emotional Intelligence (EI) is a concept and a process that has resonated with many executives. Its use is deemed to have had positive effects on the operations of many organizations. Quidbach and Hansenne (2009) questioned the actual utility of EI techniques. They investigated the relationship between EI and the performance and cohesiveness of 23 nursing teams for a total of 431 nurses, “auxiliary” nurses, and physiotherapists in a hospital centre located in Liege, Belgium. EI was evaluated using a standard questionnaire. Likewise, cohesiveness was assessed employing a generally accepted measure. Team performance was determined along four dimensions: job satisfaction, chief nursing executives’ ratings, turnover rates, and health care quality. The results indicated that healthcare quality and group cohesiveness were correlated to Emotional Regulation (a sub-scale in the EI measure), but Emotional Appraisal was negatively correlated with healthcare quality. Overall, the authors thought that EI use with nursing teams might be a new way of enhancing nursing team cohesion and patient outcomes.

Summary

Very few studies were found during the current literature review that dealt specifically with the issue of high-functioning teams, let alone nursing teams. Many of the unearthed articles focused on peripheral issues, such as training needs or personal interactions rather than the essential traits or actions of teams that perform at a high level to deliver exceptional patient care. Moreover, the use of qualitative methods, such as literature reviews or focus groups, were relatively common, while the application of quantitative methods were seldom in evidence, making the generalizability of results difficult and limiting a broader understanding of the issues.

WRAP UP

Synopsis

RPN Replication

Searching for relevant research materials that discuss the links between RPN nursing practices and patient outcomes has been the primary goal of this literature review over the past three years. Finding very few publications that met the stated criteria, however, necessitated adopting a somewhat broader

span that included RNs, as well as RPNs in the review. In this way, the critical thematic areas of education, staffing, work environment, nurse categorization and models of nursing care were developed. In each iteration of the project, studies tended to fit into these themes.

As in the past, the need to have baccalaureate training as the entry level for nursing was a recurring topic in studies that discussed nurse education. Nevertheless, other issues arose, particularly with respect to the subjects to be included in nurse education, such as leadership, teamwork and diversity training. Still, no research could be found in the past year that considers the merits and forms of RPN education and their relevance to patient care.

The focus of nurse staffing for this review also seems to reflect the findings from previous years. Primarily, staffing encompasses two main areas: the amount of nursing, and nursing mix. In the former case, the issue frequently equates to the number or proportion of nursing hours or time dedicated to patients as correlated to adverse patient outcomes. In the latter case, the proportion of RNs to other nursing staff – both licensed and unlicensed – is regularly used to show that more RNs result in fewer patient problems or more positive outcomes. Unfortunately, the research designs employed in these research efforts are often unsophisticated and lacking in advanced statistical analyses. Furthermore, as pointed out in the other reviews, the failure to differentiate between licensed, non-RN nurses, and unlicensed staff does not provide sufficient differentiation in any findings.

Work environment research generally views the conditions experienced by RNs. However, the somewhat simplistic premise of many studies can be reduced to “a positive nursing work environment is associated with fewer patient adverse effects.” Attempts to dig deeper employing more complex methodological approaches would be welcomed. Future studies should aim to identify the precise nurse satisfaction factors linked to patient outcomes. Moreover, the inclusion of RPN contribution and satisfaction requirements would be an interesting addition to future research; how would the RPNs differ from their RN colleagues?

The single study included this year under the heading of nurse categorization presents an interesting and tempting digression. With globalization becoming a significant economic and societal consideration, how are nurses, particularly RPNs/LPNs, defined and utilized in multinational environments? Although some consensus has emerged around RN educational requirements, their work expectations and employment are less well defined. Moreover, much less thought seems to be devoted when it comes to characterizing other nursing groups and occupations. If nurses hope to transfer easily across borders and jurisdictions, some of these definitional concerns need to be addressed.

Models of nursing care still seem to be evolving. A challenge appears to be present in having empirical, quantitative research available to facilitate evidence-based decision-making. Many studies in the area that apply qualitative methods are useful in delineating various model options, but limit the validity and reliability of the models being examined. Determining the nursing models that are most prevalent and that can be linked most strongly to patient care outcomes would assist the nursing profession in advancing the requisite skill sets of individual practitioners.

EN Follow On

Last year's review contained an extensive examination of the EN role in the U.K and in other British Commonwealth countries. The aim of the current review was to track down any EN research conducted this year with special attention being paid to published works that discussed the present or potential role of ENs in the UK. Even though the NMC appears to have investigated the employment of ENs in other countries, no formal document or publication was discovered that indicated that it was contemplating a return of ENs to the UK. Instead, the research interest seems centred on the training, employment, and inter-professional relationships of the newly instituted category of AP nurse. Although APs appear to have been introduced to fill a patient care gap resulting from the elimination of ENs, many aspects of their roles and responsibilities have yet to be solidified. Future research projects will have an important place in helping to generate the information required to answer many unsettled issues.

Conversely, Australia has a thriving EN profession. As evidenced by the articles found through the literature search, ENs are viewed as an indispensable component of the country's healthcare system. Although their employment scope does not allow them to perform the full range of nursing functions, ENs occupy an important position. The challenge is in using future research to better define the respective professional boundaries of RNs and ENs so they work as complementary, accountable members of the overall nursing team.

Researchers in the only other major country that employs ENs, New Zealand, did not publish any articles, papers or reports related to ENs, during the past year. The hope would be that they would do so in the future.

High-functioning Nursing Teams

No published materials were found in the research literature that examined high-functioning nursing teams. Nevertheless, the subjects of teams and teamwork embody an extensive corpus of knowledge, both in the theoretical and practical spheres. However, in the context of nursing, the topic of teams seems to have generated comparatively few articles, primarily concerning the characteristics that should comprise a successful team in the delivery of nursing care. Classifying a nurse team as "high-functioning" yielded no direct results. While this lack of appropriate research literature may represent a disappointment amongst those who are looking for suggestions on creating high-performance teams, the reality is that an open field exists for future researchers to delineate and study the phenomenon of high-functioning nursing teams.

Limitations and Gaps

As discussed in the previous reports, the 2013 Nurse Staffing Literature Review has several limitations associated with it. The criteria for selecting the research materials through the search tend to confine the resulting publications to a narrow frame. However, by doing so, concentration is given to the most relevant documents, from the RPNAO perspective.

Many of the studies obtained for the review had methodological shortcomings. Some of these included, small sample sizes, inadequate research scope, and limited research settings. Additionally, generalizability is a challenge because of the use of qualitative techniques, such as secondary data, focus groups, interviews, and observation. More empiric studies using quantitative techniques are indicated. Finally, very few articles exclusively examined the role of ENs in patient care, meaning there was a greater reliance on research with a distinctly RN flavour.

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