Erratum

Dans notre numéro de septembre 2010 (vol. 42, n°3), le nom de Charmaine M. McPherson a été mal orthographié dans le résumé en français de son article intitulé « Les déterminants influant sur la santé mentale des enfants : l'intersectionnalité comme cadre pour le renouvellement des soins de santé primaires ». Nous présentons nos excuses à Mme McPherson pour cette erreur.

In *CJNR* Vol. 42, N° 3 (Sept. 2010), the name of Charmaine M. McPherson is misspelled in the French abstract. Dr. McPherson is co-author of "Addressing the Determinants of Child Mental Health: Intersectionality as a Guide to Primary Health Care Renewal" (p. 50). The Journal regrets and apologizes for this error.

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McGill University School of Nursing

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EDITORIAL

Researchers and Productivity Metrics: The Tail That Wags the Dog?

For many of us who work in higher education in nursing, every few years a new list of some kind ranks us, or our department, or our university. And every time there are those who confidently chuckle that the list or ranking merely confirms what everybody already knew and some happy souls who thrill about their change in fortune. Then there are those who fall below some "line" within the ranking and either accept the poor designation or are saddened, believing that the metrics fail to capture the excellence that embodies their program or institution.

The rankings of universities and programs published by news magazines around the world can be critiqued as hopelessly subjective. Ratings with a narrower scope, such as citation indices for articles published by a scholar or group of scholars or counts of funding dollars, can be argued to be grossly oversimplified snapshots of scholarly output. Nonetheless, it is difficult to hold to the idea that these ratings have no real impact on the lives of those who work in and manage academic institutions, not to mention the lives of our students. Furthermore, one cannot discount the very real role of these ratings (and their critics) in discussions about the future of higher education. Metrics, for those of us who live in the real world of accountability to stakeholders — including taxpayers and tuition-paying students — are a fact of life. In nursing, for example, in mere decades we have moved from a handful of people holding graduate degrees and participating in scholarly forums to a branch of academia with impressive programs of research. Nonetheless, because we still struggle to find our place among the disciplines in universities and other institutions, measuring outputs — including those that place some or all of us in a favourable or unfavourable light — has become an inescapable part of the professional landscape in academic nursing.

What is the ideal balance between free-flowing passion for the pursuit of knowledge and the management of researchers based on metrics alone? The favouring of scholarship to the exclusion of any imperative to produce evidence of impacts or potential impacts on other researchers, patients, quality of care, or policy may be appealing at first blush, but it is in fact unworkable, especially in an applied discipline like nursing. While many of us are intrinsically motivated, achieving our best as individuals

and as a collective probably requires some degree of reliance on countable outputs or "indicators."

However, an exclusive reliance on metrics, particularly on impossibly high standards, without clear pathways, suitable resources, and environments for attaining them, can be equally disastrous. It can produce a winner-takes-all attitude that splits departments into haves and have-nots. It can render life needlessly miserable for the losers (whatever criteria are used to define them). It can even discourage individuals with much to offer the world of scholarship from considering an academic career. At worst, it can encourage research fraud.

I would argue that we are not spending enough time, in nursing and in many other fields, on fostering scholarly craft and passion. Striking the right balance between making short-term gains and aiming for enduring impact in one's field can be extremely challenging. It requires skills that take years to develop, not to mention dedicated mentoring. It also requires a love for the larger questions and traditions in one's discipline and a commitment to the profession's social mission as well as its scholarship. Brave individuals exploring basic questions in new ways are essential to the advancement of any research field.

However, many would argue that high-minded ideas and the desire to make a lasting impact should be the furthest thing from the mind of a novice scholar, that safe bets and careful calculation of the shortest distance to a quick win should predominate, especially in the early years of a research career.

I would never discourage a budding scientist from learning about the business side of research, and learning it well. Nevertheless, emphasizing metrics with no more than a nod to the importance of pursuing well-crafted ideas with integrity will lead, at best, to fleeting success. One can angle for funding and publication by endlessly strategizing and using selective reporting and buzzwords to bulletproof one's work against criticism. But this approach tends to yield bland, repetitive work rather than solid contributions to the body of knowledge in a particular field. Furthermore, an obsession with metrics can suck researchers into a mindset where competition for time to plan and conduct research, funds to conduct the research, and opportunities to present in high-profile publications overshadows all else.

In mentoring and evaluating researchers, we need to be informed by a range of objective benchmarks of scholarly productivity. This means accepting that not all work will be heavily funded, extensively cited, or covered in the mass media. All scholarship, however, should represent an honest effort to extend dialogue in the field or to build skills and credibility in a given area. And all nursing scholarship should ultimately be aimed at enhancing the lives of patients, families, and communities.

Passion for nursing scholarship and its social mission helps researchers to solve problems creatively, including juggling time and resources to achieve their goals. It helps them develop patience for the slow and steady, often unpredictable, path that research careers tend to take, promotes excitement rather than dread when they learn about the work of others, and leads them to show kindness and generosity towards colleagues and trainees carving out their own career paths.

There is no magic way to evaluate a scholar or a department. Excellence is manifested in a constellation of activities and outputs that feel "right" in relation to the resources allocated to a researcher or department and the missions of their institution and the nursing profession. Researchers, and institutions, at the top of their game do not depend on benchmarks alone, nor do they to attempt to engineer passion. The departments, schools, and faculties that are home to productive researchers select and nurture individuals with potential and give them a supportive environment and time to develop.

Reputation, whether or not confirmed in surveys, may rest on where a department's researchers once stood rather than where its researchers stand today. Citation indices may reflect career longevity (time elapsed since publication of a research article can increase its likelihood of garnering a large number of citations) or may reflect the pursuit of popular research topics that have little long-term impact. At their core, however, these and other types of indices likely represent careful, long-term investment in clear goals, not an attempt to engineer scores on ranking systems — despite what individual researchers and administrators chasing benchmarks might imagine. So, in the end, what we probably should fear more than the rankings themselves is the risk of losing our ability to identify the unique strengths, talents, and contributions of each member of our discipline and its schools and facilities, as well as the risk of promoting conduct that undermines the norms of academia and scholarship.

Regardless of where we fall in a ranking, the best course of action is critical reflection on the true meaning of the metric in question, followed by discussions with colleagues, especially trainees and junior colleagues, about the implications of that metric (and its pursuit) for our own scholarship and that of our discipline, as well as for our students and the public. The moral of my favourite Aesop's fable (The Dog and Its Shadow) is "Beware that you do not lose the substance by grasping at the shadow." While we cannot avoid turning to measurable outcomes in steering the course of scholarly careers, we must, to paraphrase Aesop, beware of losing deep scholarly inquiry that improves nursing care, and health, by grasping for narrow measures of achievement and impact. To preserve our sanity, as well as our contributions to society as scholars, we must ensure that everyone in the field understands that the single-

minded pursuit of metrics or indicators, and the interpretation of such metrics out of context, must never be allowed to overtake the commitment to advancing knowledge as the drivers of nursing scholarship.

Sean P. Clarke
Associate Editor

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GUEST EDITORIAL

The Challenge Is Before Us: Nursing Health Systems Research

Linda McGillis Hall

This inaugural issue of *CJNR* on the focus topic of Nursing Health Systems gives us an opportunity to see the breadth of this field of study. Research in this area emerged in Canada primarily with work conducted by nurse researchers located in universities with graduate programs in nursing. By the end of the 1990s the federal government had allocated substantial funding through the Nursing Research Fund — a 10-year initiative aimed at building nursing-related research capacity in Canada. Much of that funding was directed towards nursing health systems research, providing us with over a decade of study in the area.

Nurse scientists in the area of health services research lead and participate in investigations that inform health-care policy and health systems management globally. Because of the methods employed, findings from these studies guide policy and practice in nursing and health care relating to the management of health services; assessment and measurement of outcomes; evaluation of care delivered by different groups and organizations; allocation of health human resources through planning and modelling; and the design, implementation, and management of health-care policy.

This issue of *CJNR* highlights several of these approaches in the context of current issues in the health-care system. The articles included in the pages that follow suggest a number of common themes, the most salient relating to the changing roles of nurses (registered nurses and/or registered practical nurses) in health-care settings as researchers study emerging models of care. A second theme is integration — from the integration of new roles in health service delivery models to the integration of findings into practice. What is clear in each of the articles is recognition of the important contribution of nurses in the system of care delivery and the extent and scope of nursing roles. The methodological breadth of nursing health systems research is evidenced in the prevalence of scoping literature reviews, which provide access to a broader information base, as well as surveys and mixed-method study designs, which incorporate quantitative and qualitative approaches.

In the Discourse analysis by Professor Cheryl Jones, the reader is challenged to consider the need to balance the "idealism" of nursing health systems research with the "realities" of practice settings and work environments. Jones suggests that the discipline of nursing has an opportunity to play a larger and more public role in the health-care systems of the future. She outlines the development of nursing research in the arena of health services research, tracing its links from Nightingale in the 1800s to the agenda-setting policy position that nursing research occupies today. Her contribution provides evidence of just how "well established" nursing health systems research has become within the discipline of nursing. Jones contends that many of the challenges identified at a 2005 conference she convened on this topic still confront us today. This may suggest that the conference participants had the topics right. Alternatively, it could indicate that progress towards implementation of nursing health systems research takes time. Jones explains that critical opportunities in this field lie in the area of comparative effectiveness research and analysis, implementation science, and informatics and health information technology. She lays down the challenge!

Tschannen and a team of researchers at the University of Michigan present the results of a study across 10 acute-care hospitals in the Midwestern United States. These investigators examined nurses' intention to leave their position and turnover in the context of missed nursing care. Given the ongoing concern about the global shortage of nurses, a better understanding of the factors that contribute to intention to leave and turnover is of great importance to policy leaders. The authors consider components of nursing care that are missed or omitted to be key indicators in the nursing-care process. While several study variables were associated with turnover and intention to leave, only gender was found to be significantly predictive of turnover in the final analytic model. One specific finding was an association between turnover and units with a higher percentage or female nurses. In addition, higher levels of missed care and overtime work on units were significant predictors of intention to leave. In contrast, units with older nurses who worked overtime were less likely to be staffed by nurses who intended to leave their position. The authors cite the importance of considering the current economic environment and a region's employment statistics when situating study results. This caution accentuates the central role that context plays in the interpretation of nursing health systems research.

Kaasalainan and colleagues at McMaster University report on the findings of a study conducted in nine long-term-care homes in Ontario using questionnaire surveys with open-ended questions. One of the strengths of this study is that participants included both registered nurses and registered practical nurses, who were surveyed to determine percep-

tions of medication administration practices in nursing homes. The authors identify differences between the two groups, with registered nurses reporting less satisfaction with the current system of medication delivery, specifically related to safe practices. Both provider groups identified barriers or challenges to safe practice in their current medication administration system, related to time constraints and knowledge development. What is of particular interest in this work is the use of respondents' ideas in developing strategies for improving practice — which demonstrates integration, a key aspect of nursing health systems research. Comments by respondents add meaning to the survey data and highlight the challenges of everyday practice environments in health-care delivery today. The complexity of care delivery and roles is evident, and somewhat daunting, when respondents describe administering medications to as many as 52 residents "in one med pass." The authors analyze their findings in the context of the scope of practice of different care providers and models of delivery in place in long-term care in Canada.

Banner and colleagues at the University of Northern British Columbia and the Northern Health Authority provide us with perspectives on nursing roles in primary health care in the context of rural and remote nursing in Canada. The results of their scoping literature review illustrate the need for processes in role transition. The authors also provide an analysis of professional and organizational issues that should be considered when models of care are being changed, as well as the supports needed to both change and sustain key nursing roles in primary care. They note the importance of facilitating role transition when engaging in health human resource planning. The results of their synthesis inform practice while demonstrating the value that a scoping literature review can add to the phenomenon under study. In addition, this research highlights one of the focuses of applied health services research — researchers working collaboratively with decision-makers and policy leaders to determine effective models of care delivery.

The two Happenings contributions in this issue showcase the innovation, leadership in the field, and strong history of nursing health services research in Canada. First we learn about the WHO Collaborating Centre on Health Workforce and Planning and Research based at Dalhousie University under the directorship of Dr. Gail Tomblin-Murphy. Founded in 2008, this innovative centre collaborates with Canadian and inter - national partners to build capacity and enhance health human resources planning worldwide. The authors outline a number of local and international health services research projects that demonstrate the planning and evaluation context of the Collaborating Centre.

We are also provided with an overview of the Nursing Health Services Research Unit, a collaborative research unit funded by the

Ontario Ministry of Health and Long-Term Care between the Lawrence S. Bloomberg Faculty of Nursing at the University of Toronto and the Faculty of Health Sciences at McMaster University. An impressive body of research has had a tremendous influence during the more than 20 years that the unit has been funded, under the leadership of Drs. Linda O'Brien-Pallas and Andrea Baumann initially and Drs. Baumann and Diane Doran more recently. The authors identify nursing health services research initiatives currently underway in collaboration with a number of health services decision-makers and policy leaders across Canada.

Moving Forward: Challenges and Opportunities in the Next 5 Years

This issue on Nursing Health Systems offers a first glimpse of the important role played by this field of study in the health-care system and in the health of society. We have research exemplars from acute-care hospital practice settings, long-term-care nursing homes, and primary care rural and remote nursing. Throughout all of the articles, the relevance of policy and practice is evident, and it is clear that nursing health systems research plays a large role in evidence-informed decision-making. This situation is not likely to change in the next 5 years. If Jones is correct in her discourse on the field, nursing health systems research will continue to grow in importance and in terms of impact. Health-care systems are changing and becoming more complex, and we will need research that addresses the multifaceted issues and relationships that emerge. As nurse researchers move forward in the field, it is imperative that research methodologies be broadened to include more robust designs such as mixed-method, quasi-experimental, and longitudinal, as well as tests of interventions, to address these issues. In addition, research is needed to test the many substantive theoretical models that have been developed and that might be applied in nursing health services research. Secondary data could be used, to a greater extent than currently, to model and test phenomena of interest to nursing systems research. It is clear that health services research has embraced nurse researchers in the interdisciplinary context of health-care delivery, and that nursing systems researchers are leading in several domains of this area of study. We have much to look forward to with the next issue of *CJNR* devoted to Nursing Health Systems. The challenge is on.

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Discourse

Reflections on Nursing Health Services Research: Where the Idealism of Research Meets the Realities of Practice

Cheryl Bland Jones

Introduction

There is no question that nurses and nursing are central to health care, particularly at the "sharp end" of care delivery. Nurses and nursing care have been recognized as critical influences on patient, system, and societal outcomes (Burstin, Lewis, & Hubbard, 2001; Hubbard, Walker, Clancy, & Stryer, 2002; Jones & Lusk, 2002; Jones & Mark, 2005) and as playing key leadership roles in a changing, global, patient-centred health-care system (Institute of Medicine [IOM], 2010). Yet, despite the importance of nurses in the delivery of health care, regulatory, financial, and political barriers may prevent societies from fully appreciating the positive effects of nurses and nursing care on outcomes at all levels.

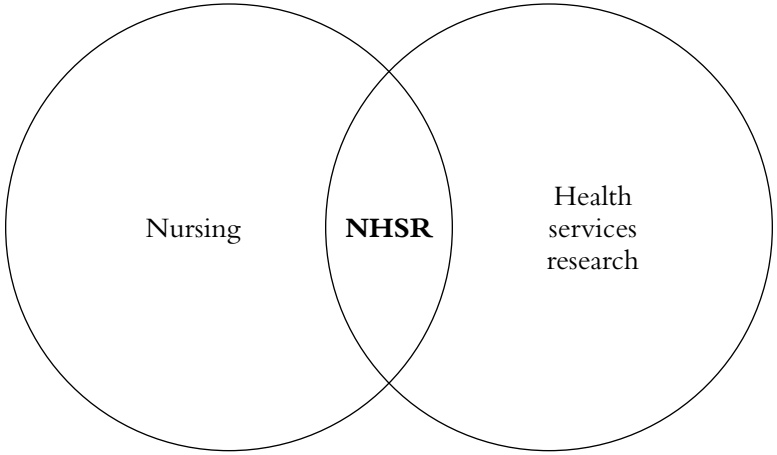
Recently, nurses have been recognized by leaders at the "blunt end" of care as "the new rainmakers" (Betbeze, 2007; PricewaterhouseCoopers Health Research Institute, 2007). As described in the context of the American health-care system, nurses are expected to make a "significant impact on the key metrics that will drive reimbursement" (PricewaterhouseCoopers Research Intitute, 2007, p. 2). The connection between nurses and key reimbursement metrics places nurses front and centre in the financial health of American health-care organizations, and suggests that the discipline will play a much larger — and more publicly acknowledged — role in the health-care system of the future. This view is likely held outside of the American health-care system as well, as the body of evidence has evolved, linking nurses to the quality, safety, and outcomes of care, including organizational financial performance.

A recent US report, *The Future of Nursing: Leading Change, Advancing Health* (IOM, 2010), has generated great interest globally because it not only envisions nurses' role in a transformed and patient-centred health-

care system, but also highlights their contributions to value-based care. However, evaluating nurses' role in a re-envisioned health-care system will require new approaches in order to value nurses' contributions to care delivery. The report identifies health services research (HSR) as a means of examining nurses' contributions to health care (IOM, 2010). HSR allows researchers to study problems in clinical practice and health-care systems that are associated with errors in care delivery, patient safety, and quality (IOM, 2001). While the HSR community is interdisciplinary in nature and clearly understands health-care issues on many levels, it must include nurses, as the single largest group of health-care providers worldwide, to ensure that nursing practice is adequately studied and that the nuances of nursing practice are adequately represented in HSR.

Nursing health services research, or NHSR, has been identified as a means of contributing knowledge at the intersection of nursing and HSR (Jones & Mark, 2005), as depicted in Figure 1. In order for the reader to fully appreciate the role of NHSR in evaluating nurses' contribution to health-care delivery, this article will describe first the field of HSR and then NHSR as a means of studying the contributions of nurses and nursing in the context of health-care research. The article will end with a challenge to the discipline to embrace the full integration of NHSR into nursing research. If it accepts the challenge, the discipline will be better able to address those questions that are critical to a full

Figure 1 ***NHSR: At the Intersection of Nursing and Health Services Research***



understanding of the effects of health care on society, locally and globally; our interdisciplinary research colleagues will better understand the contributions of nursing services to health-care research; and policy-makers will better understand nurses' contributions to organizational and industry performance.

The Nursing-HSR Connection

HSR has been defined as "a multidisciplinary field of inquiry, both basic and applied, that examines the use, costs, quality, accessibility, delivery, organization, financing, and outcomes of health care services to increase knowledge and understanding of the structure, processes, and effects of health services for individuals and populations" (Field, Tranquada, & Feasley, 1995, p. 3), and, more recently, as "the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being" (Lohr & Steinwachs, 2002, p. 16). HSR is viewed as part of the health-research continuum because it uses the findings from biomedical research to ask questions about the broader aspects of health-care delivery, and because it is a means of informing health-care decision-making at the levels of clinical practice, health-care systems, and public policy (Eisenberg, 1998). While biomedical (or basic clinical) research has traditionally focused on mechanisms of human disease and treatment, HSR takes what we know from biomedical research and advances that knowledge to focus on questions related to the organization, delivery, and financing of care for patients and patient populations. HSR complements biomedical research by addressing issues of importance for health-care delivery and society that cannot be addressed through traditional biomedical research methods (Eisenberg, 1998).

HSR uses research methods and techniques from a variety of disciplines to examine health-care delivery problems encountered in real-world situations (Black, 1997; Bradham et al., 2000; Kane, 1997; Shi, 2007). Tools and techniques common to HSR can be used to evaluate and test theory-based interventions and innovations in clinical practice, and to determine the impacts of those interventions on clinical practice and outcomes of care (Bradham et al., 2000; Ingersoll, Hoffart, & Schultz, 1990; Sidani & Braden, 1998). In combining a clinical perspective with research methods, HSR narrows the gap between research and practice by asking, Does this innovation work? For whom, why, and at what cost? (Black, 1997; Eisenberg, 1998).

Given that HSR has the potential to address questions pertaining to clinical and health-care delivery, it is reasonable to assume that it holds great promise for addressing similar issues pertaining to the organization of nursing practice and the organization and delivery of nursing care. Bringing HSR into nursing allows us to advance what we know from basic research — including nursing research on human responses to health, illness, and disease — in order to consider the effects on individuals and families. It also helps to bridge the gap between research and clinical nursing practice, to advance our knowledge of what works in nursing-care delivery and why, and to better determine the effectiveness, costs, quality, and outcomes of care.

In 2005 an interdisciplinary conference was convened to develop an NHSR agenda. NHSR was considered a means of developing both basic and applied knowledge in five areas: improving access to nursing services and ensuring an adequate health workforce; improving health and reducing health disparities in minority and vulnerable populations; addressing key issues in quality of care and patient safety; examining the cost, effectiveness, and efficiency of nursing and health care; and improving the organization, delivery, and environment of care (Jones & Mark, 2005). Others have advocated the use of NHSR for studying problems in nursing practice and health-care systems that are associated with concerns about errors in care delivery, patient safety, and quality of care. For example, Blegen, Donaldson, Seago, and Shapiro convened an international conference, The Impact of Patient Safety Initiatives on Nursing Workflow and Productivity, for the purpose of developing a research agenda addressing the effects of implementing quality-improvement initiatives on the organization, costs, and outcomes of nursing care. Both conferences were based on two assumptions: for those aspects of health-services delivery in which nursing is directly involved, nursing practice must be examined; and failure to examine nursing practice will result in the omission of important aspects of care delivery that could affect decision-making. Thus, given the importance of nursing care in the context of overall health-care delivery, NHSR is consistent with mainstream research.

NHSR: "Old Wine in New Bottles"?

Dr. Kerr White (1993), considered by many to be the father of HSR, contends that health-care research is "old wine in new bottles." White recounts the history of HSR and builds the argument that it is derived from and grounded in known and established scientific methods, including epidemiology, statistics, economics, demography, survey research, anthropology, sociology, and psychology. He then argues that HSR aims

to improve clinical practice, advance the organization and management of care, demonstrate "value for money spent," and elucidate the therapeutic effects of various interventions. White also draws a line between HSR and caring, noting that HSR can help us to better understand the contribution of caring to processes and outcomes. He traces the history of HSR from Sir William Petty to Ernest A. Codman, Avedis Donabedian, Archie Cochrane, and beyond, to illustrate how HSR has evolved from a curiosity to know and better understand why and how care impacts on those who receive it.

The emphasis on caring in HSR provides a logical link to nursing. White (1993), along with many prominent health services researchers, recognizes the essential contributions of Florence Nightingale to HSR. Nightingale, widely acknowledged to be the originator of professional nursing, showed an intense interest in and reliance on statistics, and her attention to detail provided a strong foundation not only for the evolution of the nursing profession and nursing research, but also for innovations to enhance the care of hospitalized patients. Her groundbreaking efforts to develop a standard method for tracking and reporting hospital statistics gave the world a better understanding of how to prevent and treat infections and solidified her role in the evolution of HSR. "No account of Health Care Research should omit the seminal contributions . . . of that remarkable nurse, statistician, administrator, and political advocate Florence Nightingale" (White, 1993, p. 13).

This point is illustrated in a frequently quoted Nightingale passage that conveys her perspective on the importance of using statistics and research to manage hospital care and of being responsible to those who receive and pay for care:

> I am fain to sum up with an urgent appeal for adopting this or some uniform system of publishing the statistical records of hospitals. If they could be obtained . . . they would show subscribers how their money was being spent, what amount of good was really being done with it, or whether the money was doing mischief rather than good. (Nightingale, 1863, pp. 175–176)

Nightingale has even been credited with having the discipline apply research findings in practice, which has evolved into what we know today as evidence-based practice (Titler, 2008).

Thus Nightingale's work not only made her the first nursing scholar and one of our most recognized nurse researchers, but has given nursing a prominent place in the evolution of HSR. Nightingale's role in the evolution of HSR also suggests that NHSR is not new to nursing; in fact one could argue that, because of her part in it, NHSR may have con-

tributed in substantial ways to the origins of contemporary nursing science.

Jennings (2004) makes a strong case for a link between HSR and the evolution of nursing administration research, highlighting both the overlap and the distinctions. Nursing administration research (NAR) has a deep-rooted history of agenda-setting, which has helped to shape the ways that nursing services are managed, the approaches used to examine problems in nursing care, and the resulting evidence base for policy-making. NAR has been described as much narrower than HSR, with research questions focusing on issues in nursing practice, whereas HSR questions concern broader issues such as the organization and financing of health services.

Even when NAR and HSR focus on similar phenomena — for example, quality — NAR tends to be more narrowly focused on nursing practices related to quality, whereas HSR is likely to take a broader perspective by concentrating on quality at an organizational level, its financing, and/or methods for implementing quality-improvement initiatives (Jennings, 2004). However, NHSR allows us to bridge even these distinctions, as nurse researchers have taken on and examined nursing-relevant issues from the broader perspective of HSR. The more recent focus on nursing-related issues by health services researchers also indicates an appreciation for nursing-related issues that one must consider when studying various aspects of health-care delivery and clinical practice. As Jennings notes, when variables pertaining to nursing care and practice are excluded, evidence on the relationship between structural measures and patient/system outcomes viewed solely from an HSR perspective is weak at best. The point is that the two areas complement each other and allow researchers to study phenomena in ways that would exceed their individual capacities. The connection between NAR and NHSR also implies that NHSR is more established in the discipline than might appear on the surface.

Exploring Emergent Issues With NHSR

The 2005 NHSR conference identified five areas of concern. These agenda items are still relevant today:

- improving access to nursing services and ensuring an adequate health workforce
- improving health and reducing health disparities for minority and vulnerable populations
- addressing key issues in quality of care and patient safety
- examining the cost, effectiveness, and efficiency of nursing and health care, which can be expanded to include economic analyses to deter-

mine nurses' contributions to value-based care and the financial performance of health-care organizations
- improving the organization and environment of care delivery

Building on this work and on emerging issues in nursing, health care, and HSR, the following represent both areas of critical need and opportunities for NHSR:

- comparative effectiveness analysis research to determine which nursing investments improve care outcomes (IOM, 2010)
- implementation science, including the translation and uptake of research findings into everyday nursing and health-care practice
- informatics and health information technology to better understand the systems for managing and exchanging information to protect patients, while delivering care more efficiently and effectively

As nursing and health care continue to evolve, the list of NHSR needs will evolve with them: Some items will be revised, some will be dropped from the list, and yet others will be added to the list as we continue to improve our practice and the delivery of care. The NHRS agenda is expected to change as the science evolves, both methodologically and substantively; as our world evolves economically, socially, and politically; and as the health needs of societies evolve.

The NHSR Challenge

Given the current global economic crisis, the increasing demand for health care, growing concerns about the future supply of health human resources, and the limited ability of individuals and nations to pay for health care, it is likely that nursing will play a critical role in the delivery of safe, high-quality care in transformed health-care systems. As the future unfolds, the need for nurses to lead and be a part of teams that study and evaluate organizational, delivery, and financial aspects of care delivery will increase. As Pauly points out in the IOM (2010) report, "For nursing to achieve parity with other health services research . . . it must be managed by interprofessional teams that include both nurse scholars and scholars from methodological and modeling disciplines. For nurse researchers to achieve parity with other health services researchers, they must develop the skills and initiative to take leadership roles in this research." (p. 5–14) This calls for the integration of NHSR into our education programs, particularly at the doctoral level, and the mentoring of future nurse health services researchers so they will be able to fill these important leadership roles (Jones & Lusk, 2002).

It is imperative as well that NHSR not only disseminate research findings, but also be a part of efforts to translate knowledge and diffuse

research findings — and innovations — in practice. This will entail not only the generation of evidence from NHSR to inform policy-making at all levels, but also the provision of leadership to address the barriers to practice changes and transformation. Overcoming these barriers will require determination worthy of Florence Nightingale and acceptance of NHSR and the role it can and will play in a transformed health-care system in evaluating the contribution of nursing to value-based care.

Although many may analyze nursing-related issues via HSR, if nurses are not trained and engaged in HSR we run the risk of being absent from studies that have the potential to document the contributions of nurses to patient care. As so eloquently articulated by Dr. Donna Diers over 30 years ago, "If nurses don't do [it] . . . no one else . . . can. It's our special privilege and obligation" (Diers, 1979, p. 4). In other words, NHSR is our responsibility to society. If we do not embrace and get on with the work of NHSR, we fail to fulfil that responsibility; moreover, we leave our future to fate.

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Résumé

Les soins non prodigués : l'incidence sur l'intention de quitter et le roulement du personnel

Dana Tschannen, Beatrice J. Kalisch, Kyung Hee Lee

Cette étude a pour objectif d'examiner les soins non prodigués sur le roulement du personnel infirmier et sur l'intention de quitter. Une étude transversale a été menée à l'aide du questionnaire MISSCARE auprès d'un échantillon de 110 unités de soins, dans 10 hôpitaux de soins actifs. Des données portant sur le personnel, les taux de roulement et les indices de la charge de cas à l'échelle des unités ont été recueillies dans les hôpitaux participant. L'étude a révélé un lien entre les unités comptant des taux d'effectifs féminins supérieurs et la présence de taux de roulement inférieurs (β = -0,235, p = 0,010). Le personnel ayant l'intention de quitter était plus nombreux dans les unités affichant des taux supérieurs de soins non prodigués (β = 0,302, p < 0,0001) et d'absentéisme (β = 0,247, p = 0,034). Le personnel ayant l'intention de quitter était moins nombreux dans les unités où le personnel infirmier travaillait des heures supplémentaires (β =-0,283, p = 0,001) et était âgé de plus de 35 ans (β = -0,270, p = 0,050). En réduisant les incidences de soins non prodigués, les institutions peuvent potentiellement améliorer le taux de satisfaction et réduire l'intention de quitter (et le roulement de personnel qui s'ensuit).

Mots clés : intention de quitter, roulement de personnel, soins non prodigués, personnel

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Missed Nursing Care: The Impact on Intention to Leave and Turnover

Dana Tschannen, Beatrice J. Kalisch, Kyung Hee Lee

The purpose of the study was to examine the relationship between missed nursing care, nurse turnover, and intention to leave. A cross-sectional study using the MISSCARE Survey was conducted. The sample comprised 110 patient-care units in 10 acute-care hospitals. Staffing data, turnover rates, and unit-level Case Mix Index were collected from the participating hospitals. Higher percentages of females on the unit were associated with lower turnover rates ($\beta = -.235$, $p = .010$). Units with higher rates of missed care ($\beta = .302$, $p < .0001$) and absenteeism ($\beta = .247$, $p = .034$) had more staff with intention to leave. Units with nursing staff who worked overtime ($\beta = -.283$, $p = .001$) and who were over 35 years of age ($\beta = -.270$, $p = .050$) were less likely to have staff with intention to leave. By minimizing missed nursing care, organizations may be able to improve satisfaction and reduce intention to leave (and subsequent turnover).

Keywords: intention to leave, turnover, missed care, nurse, staffing

As the nursing shortage continues, the ability to attract and retain nurses in acute-care hospital settings has become critical to maintaining quality patient care. The US Bureau of Labor Statistics predicts that there will be a need for more than 1 million new and replacement nurses in the United States by 2016 (Dohm & Shniper, 2007). Furthermore, it is estimated that by 2020 there will be a 36% shortfall of registered nurses (RNs) in the United States (US Department of Health and Human Services, 2006). According to the Federation of Nurses and Health Professionals (2001), one in five nurses plan to leave the profession within 5 years. A report by the Canadian Nurses Association (2009) identifies a shortage of approximately 60,000 full-time nurses in Canada if no policy interventions are implemented (and if trends continue). In addition, the financial cost of turnover is significant, ranging from $21,514 to $67,100 per nurse (Jones, 2005; O'Brien-Pallas et al., 2006). In light of these statistics, strenuous efforts are needed to recruit and retain RNs.

Although several studies have identified predictors of intention to leave and turnover, only a few have considered the impact of nursing care provided at the bedside on subsequent turnover (Gelinas & Yik-Hin Loh, 2004; Zimmerman, Gruber-Baldini, Hebel, Sloane, & Magaziner, 2002). For example, Strachota, Normandin, O'Brien, Clary, and Krukow (2003)

interviewed nurses who had voluntarily terminated or changed their job status. They found that 46% of nurses were frustrated with the quality of care they were able to deliver, and many of these nurses described instances of substandard care and concerns about errors.

The study reported on here was designed to directly test the relationship between the process of nursing care and both turnover and intention to leave. We used missed nursing care, defined as any aspect of care that is omitted (either in whole or in part) or significantly delayed (Kalisch, Landstrom, & Hinshaw, 2009), as an indicator of the process of nursing care.

Literature Review

Several studies have shown that nursing staff are not consistently completing the standard elements of nursing care (Kalisch, 2006; Kalisch, Landstrom, & Williams, 2009; Kalisch, Tschannen, Friese, & Lee, in press). Failure to carry out specific nursing interventions (i.e., missed nursing care) has been shown to adversely affect patient outcomes (Callen, Mahoney, Grieves, Wells, & Enloe, 2004; Krishnagopalan, Johnson, Low, & Kaufman, 2002). Investigations using direct observation have shown that specific aspects of care, including ambulation (Callen et al., 2004), turning (Krishnagopalan et al., 2002), and administering medications (Anselmi, Peduzzi, & Dos Santos, 2007; Holley, 2006; Rinke, Shore, Morlock, Hicks, & Miller, 2007), are being missed.

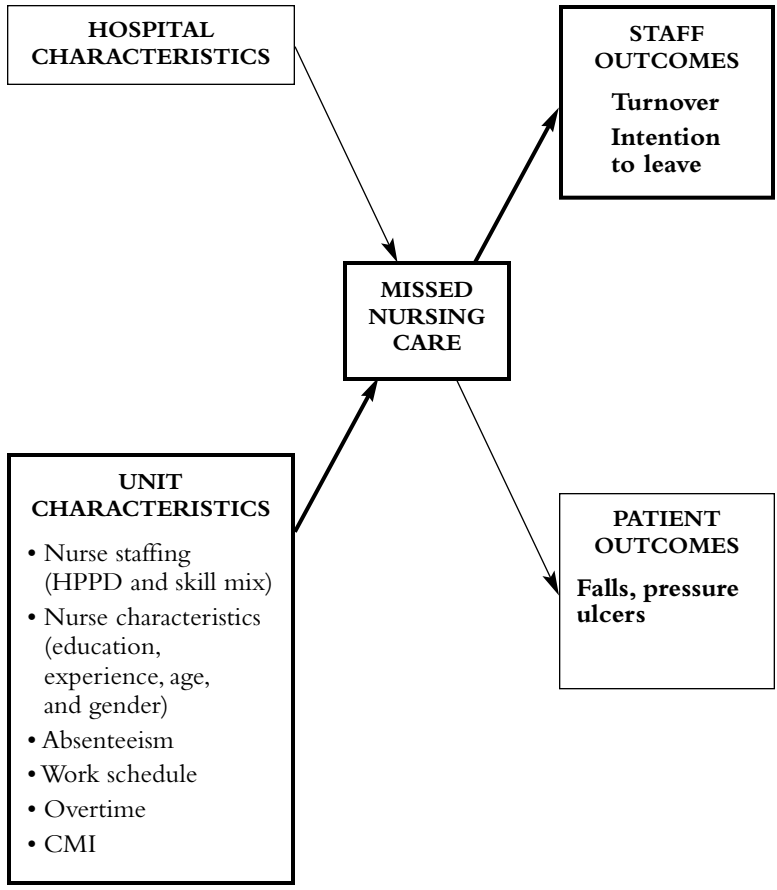
A few studies have identified a link between intention to leave/turnover and the type of nursing care provided to patients. Larrabee and colleagues (2003) found that nurses who were satisfied with the care they provided, were able to meet a variety of clinical challenges, and had an opportunity to be of service to others and engage in research were 2.4 times more likely than other RNs to indicate no intention to leave. Castle, Degenholtz, and Rosen (2006) found that caregivers were more satisfied (a predictor of turnover) when they were able to provide what they perceived as high-quality care; this included being able to complete all the nursing tasks considered necessary for the patient.

Nursing turnover in the hospital setting affects both the organization and patient care (Minore et al., 2005), but few studies have considered what is actually occurring at the point of nursing-care delivery and its relationship to intention to leave and turnover. The present study examined the link between missed nursing care, intention to leave, and turnover rates in the acute-care hospital setting, while considering unit-specific characteristics (staffing levels, Case Mix Index [CMI], work schedules, absenteeism, overtime, and nursing staff characteristics).

Conceptual Framework

The Missed Nursing Care Model served as a conceptual framework for the study (Figure 1). This framework is based on structure, process, and outcome (Donabedian, 1988). Hospital and unit characteristics (structure variables) lead to missed nursing care (process variable), which in turn affects staff outcomes (i.e., turnover and intention to leave) as well as patient outcomes. The study focused on the relationship between missed nursing care and the staff outcomes of turnover and intention to leave.

Figure 1 ***Missed Nursing Care Model***



Note: The heavy lines refer to the present study.

Research Questions

The research questions for the study were as follows: 1. *Do missed nursing care and other unit characteristics (staffing levels, staff and nurse characteristics, absenteeism, overtime, and work schedules) predict staff turnover rates in the acute-care setting while controlling for patient acuity (CMI)?* 2. *Do missed nursing care and other unit characteristics (staffing levels, staff and nurse characteristics, absenteeism, overtime, and work schedules) predict intention to leave in the acute-care setting while controlling for patient acuity (CMI)?*

Methods

Setting and Sample

This was a cross-sectional, descriptive study with 110 medical-surgical, rehabilitative, intermediate, and intensive care units in 10 acute-care hospitals in the Midwestern region of the United States. A sample of hospitals ranging in size from 60 to 913 beds was used to ensure variation in hospital size and type. All of the units within the hospitals eligible for inclusion (i.e., adult inpatient units), which ranged from 2 to 22 per hospital, agreed to participate. A power analysis using an alpha of 0.05, medium effect size (0.50), and beta of 0.8 revealed that 107 units were needed to compute a regression model with eight independent variables.

There were two inclusion criteria for the patient units within each hospital: an average patient length of stay ≥ 2 days and a patient population over 18 years of age. Exclusion criteria were: (1) short-stay units (≤ 23 hours); and (2) pediatric, women's, emergency, perioperative, and psychiatric units. RNs (n = 3,143), licensed practical nurses (LPNs) (n = 83), and nursing assistants (NAs) (n = 943) were included in the study on each of the participating units. The return rate for the survey was 60% overall, with a patient unit response rate varying from 44% to 99%. This return rate is consistent with the average return rate reported in the medical literature, which is also 60% (Asch, Jedrziewski, & Christakis, 1997).

Study Variables and Procedure

Definitions of the study variables, as well as respective referent or cut-off points used for analysis, are included in Table 1. Data were collected from November 2008 to March 2009 by means of (1) surveying the nursing staff on medical-surgical, rehabilitative, intermediate, and intensive care units using the MISSCARE Survey; and (2) collecting turnover, intention to leave, and staffing data by patient care unit. Institutional Review Board approval was obtained at each of the participating hospitals. A survey packet — which included a letter describing the study and assur-

ing anonymity, the MISSCARE Survey (including questions relating to the type of care being missed, intention to leave, nursing characteristics, and work schedules), and a return envelope — were placed in the mailboxes of all RNs, LPNs, and NAs on staff. The nurses were asked to place their completed surveys in a locked box located on their unit. Reminders were sent to all nursing staff approximately 2 weeks into the survey collection in an effort to increase response rates. Although the data for the entire sample of hospitals were collected over a 5-month timeframe, data for each individual hospital were collected over a 4-week timeframe.

For the staffing and turnover data, administrative staff at each hospital were asked to input data into an MS Excel file designed by the research team. The file included specific definitions (i.e., numerator and denominator) and data requirements for each of the study variables (i.e., turnover, hours per patient day [HPPD], skill mix, CMI). Turnover and staffing data were collected for 2 months (beginning 1 month prior to distribution of the MISSCARE Survey). Two months was averaged to account for any unusual events on the unit in a given month. The variables of interest were computed (using the raw data) to ensure consistency in calculation across institutions.

Data Analysis

Analyses were conducted using SPSS Version 16.0. After data cleaning, preliminary analyses of the data were completed using descriptive and bivariate analysis techniques according to the research questions. Characteristics of the sample, although collected at the individual level (n = 4,288), were aggregated to the unit level in order to test the relationships between turnover, intention to leave, missed care, and other unit characteristics. The researchers did this by computing each of the unit characteristic variables into the proportion of staff above a referent point (i.e., median) (Table 1). For example, education values represented the proportion of nursing staff in each unit who held a baccalaureate degree (BSN) or higher. The experience value for each unit represented the proportion of nursing staff on a given unit with more than 5 years' experience (in their occupation). The referent value for intention to leave was having plans to leave (in either 6 months or 1 year), and for absenteeism it was missing work 1 or more days. For missed care, a unit-level missed care score was calculated as the average amount of missed care identified for each of the elements of nursing care by staff on the unit.

Correlation analysis was used to determine the relationship between the study variables. Multiple regression analyses were performed to test the predictive ability of missed care and other unit characteristics on the dependent variables (intention to leave and turnover). All significant variables ($p < 0.05$) from the preliminary analyses were selected as indepen-

Table 1 *Study Variables, Definitions, and Referent Groups*

Variable	Definition	Referent Group (median)
Turnover rate (RN)[a]	Number of voluntary uncontrolled separations[c] during the month for nursing staff divided by number of nursing staff on the last day of the month	NA
Intention to leave[b]	Anticipation to leave his/her current position	Plans to leave versus no plans to leave
Missed nursing care[b]	Average amount of missed care identified for each of the elements of nursing care by staff on each unit	NA
HPPD[a]	Number of productive hours worked by nursing staff with direct patient care responsibilities divided by inpatient days	NA
Skill mix[a]	Number of productive hours[d] worked by RN nursing staff with patient care responsibilities divided by total number of productive hours worked by nursing staff with direct care responsibilities	NA
Education[b]	Highest degree earned	Proportion of nursing staff with BSN or higher

Experience[b]	Number of years in current occupation	Proportion of nursing staff with 5 years' experience or more
Perceived absenteeism[b]	Number of days or shifts missed in the past 3 months due to illness, injury, or extra rest (exclusive of approved days off)	None versus missed 1 or more days of work
Overtime[b]	Number of overtime hours worked in the past 3 months	No overtime versus overtime
Age[b]	Age	Proportion of nursing staff over 35
Gender[b]	Gender	Female
Work hours[b]	Typical shift worked	Day/rotating versus evening/night
Full-time equivalence[b]	Number of hours worked per week (considered full time if more than 30 hours)	Part time versus full time
Shift length[b]	Typical length of shift	12 hours versus other

[a] Data were collected from the administrative databases of the hospitals.
[b] Data were collected via the MISSCARE Survey.
[c] Separation due to death, illness, pregnancy, relocation, retirement, performance or discipline, cutbacks as a result of mergers, cyclical lay-offs, or permanent reduction in workforce.
[d] Actual hours worked as opposed to budgeted or scheduled hours (excludes vacation, medical leave, orientation, education, and committee time).

Note: Validity and reliability of the MISSCARE Survey are published elsewhere (Kalisch & Williams, 2009).

Table 2 *Hospital and Unit Characteristics of Sample*

Hospital	Size (Number of Beds)	Number of Units Participating in Study	Age (Over 35) (%)	Gender (Female) (%)	Education (BSN or Higher) (%)	Experience (More Than 5 Years) (%)	RN (%)	Full Time (%)	Work Hours (Day Shift or Rotating) (%)
1	347	5	57	95	40	63	64	84	55
2	60	2	67	97	35	72	75	71	53
3	760	15	51	90	51	51	68	88	60
4	317	11	66	86	32	59	61	84	55
5	304	6	77	94	37	73	62	82	57
6	411	8	67	94	41	57	76	87	57
7	880	22	39	91	53	45	71	75	58
8	433	9	58	89	38	54	77	89	57
9	479	14	58	90	43	59	76	82	62
10	913	18	54	90	55	47	84	80	59
Total		110	55	90	46	54	73	82	58

dent variables in the multivariate analysis. In addition, to account for hospital effect (i.e., nesting of data) the individual hospital variable was included.

Results

Unit characteristics within the 10 hospitals are presented in Table 2. A large number of nurses on the units were over the age of 35 (55%), with a range of 39% to 77%. The majority of nursing staff (at each hospital) were female (90%), RNs (73%), and full-time staff (82%). The majority of respondents at each hospital worked either day or rotating shifts (58%). In terms of education, the average percentage of staff on the unit holding a BSN degree or higher was 46%. Staff employed on the units were more likely to have more than 5 years' experience in their occupation (54%).

The mean missed-care score for the participating units was 1.55 (*SD* = .19). HPPD values for participating units ranged from a low of 6.5 to a high of 32.0, with the mean being 11.16 (*SD* ± 4.55). The mean skill mix of staff on the units was 0.75 (*SD* ± .15), with a range of 0.39 to 1.00, 1.00 being all-RN staff. The mean turnover rate was 1%, with a range of 0 to 8%. The percentage of staff expressing intention to leave was 19.2%, with a range of f 0% to 64%.

Missed Care and Unit Characteristics Associated With Intention to Leave

Pearson correlations were performed (Table 3) to determine whether there were any significant relationships between the study variables. Four variables were found to be significantly related to nurse turnover: missed care, skill mix, gender, and absenteeism. Larger amounts of missed care were associated with higher turnover rates ($r = .23$, $p < .05$). Positive correlations were also identified for skill mix ($r = .32$, $p < .01$) and absenteeism ($r = .35$, $p < .01$). Furthermore, units with higher percentages of female staff had lower turnover rates.

Intention to leave was significantly correlated with nine variables: turnover, missed care, CMI, skill mix, education, age, experience, overtime, and absenteeism. Turnover and intention to leave were positively correlated ($r = .30$, $p < .05$). Larger amounts of missed care were associated with greater intention to leave ($r = .40$, $p < .01$). A positive correlation was found between intention to leave and several unit characteristics. The higher the CMI ($r = -.22$, $p < .05$) and skill mix ($r = .34$, $p < .01$), the greater the intention to leave among the unit staff. Education and perceived absenteeism were also significantly related to intention to leave. Specifically, greater absenteeism ($r = .40$, $p < .01$) and higher education ($r = .23$, $p < .01$) were associated with greater intention to leave. In contrast, age ($r = -.33$, $p < .01$), experience ($r = -.35$, $p < .01$), and

Table 3 *Intention to Leave, RN Turnover, Missed Care, and Unit Characteristics: Correlation Matrix*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Intention to leave	–													
2. RN turnover	.30**	–												
3. Missed care	.40**	.23*	–											
4. HPPD	.02	-.07	-.32**	–										
5. CMI	.22*	.07	-.18*	.63**	–									
6. Skill mix	.34**	.32**	.01	.20*	.34**	–								
7. Education (BSN or higher)	.23**	-.09	-.08	.48**	.53**	.45**	–							
8. Gender (female)	.02	-.20*	.04	-.18	-.39**	-.24*	-.08	–						
9. Over age 35	-.33**	.04	-.03	-.00	-.18	-.08	-.36**	-.04	–					
10. Experience (more than 5 years)	-.35**	-.15	-.20*	.21*	.00	.00	-.13	-.02	.77**	–				
11. Shift (12 hours)	-.15	-.03	-.06	.33**	.25**	-.22*	.13	-.04	-.15	.01	–			
12. Full time	-.03	.10	-.02	.19*	.19*	-.11	-.16	-.21*	.16	.05	.38**	–		
13. Work hours (day shift or rotating)	.12	-.01	.18	-.08	-.09	.04	-.02	.17	-.13	-.13	.17	.19*	–	
14. Overtime	-.31**	.14	-.02	-.11	-.20*	.03	-.11	-.07	.23*	.16	-.28**	-.12	-.19*	–
15. Absenteeism	.40**	.35**	.25**	-.14	-.02	.48**	.07	-.19*	-.11	-.21*	-.10	.02	.20*	.11

*$p < .05$ **$p < .01$

overtime ($r = -.31$, $p < .01$) were negatively associated with intention to leave. In other words, units whose nursing staff were older, had more years of experience, and worked more overtime were less likely to report intention to leave.

Findings from the preliminary analysis were used to identify the variables that would be included in the multivariate regression analyses utilized to determine whether missed nursing care and unit characteristics predicted intention to leave and turnover.

Predicting Nurse Turnover

The model with the dependent variable turnover considered the following independent variables: missed care, skill mix, gender, absenteeism, intention to leave, and hospital. The hospital variable was included to control for the nested data structure. The overall model accounted for 46.5% of the variation in nurse turnover ($p < .0001$) (Table 4). Gender was the only significant predictor of turnover. Specifically, a higher percentage of females on the unit was associated with lower turnover rates ($\beta = -.235$, $p = .010$). The predictive ability of intention to leave with regard to turnover approached significance ($p = .08$).

Predicting Intention to Leave

A second multiple regression model with the dependent variable intention to leave was computed with the following independent variables: missed care, CMI, skill mix, education (BSN or higher), age (over 35 years), experience (more than 5 years), overtime, and absenteeism

Table 4 ***Predictors of RN Turnover***

Variable	***B***	***SE B***	β	***t***	***P***
Missed care	.009	.008	.108	1.210	.230
Skill mix	.006	.016	.058	.381	.704
Gender (female)	-.062	.023	-.235	-2.647	.010
Absenteeism	-.005	.012	-.058	-.434	.665
Intention to leave	.024	.014	.174	1.745	.084
R^2	$R^2 = .465$				
F (p)	5.781 (.000)				

Note: The analysis included nine dummy variables for the study hospitals to control for their effects, but coefficients were not included in the table to respect privacy of the data.

Table 5 ***Predictors of Intention to Leave***

Variable	*B*	*SE B*	β	*t*	*P*
Missed care	.181	.048	.302	3.758	.000
CMI	.007	.009	.072	.784	.435
Skill mix	.043	.129	.055	.332	.741
Education (BSN or higher)	.050	.075	.069	.662	.510
Age (over 35)	-.175	.088	-.270	-1.985	.050
Experience (more than 5 years)	.000	.078	-.001	-.009	.993
Overtime	-.215	.062	-.283	-3.479	.001
Absenteeism	.168	.078	.247	2.154	.034
R^2	$R^2 = .584$				
F (p)	7.284 (.000)				

Note: The analysis included nine dummy variables for the study hospitals to control for their effects, but coefficients were not included in the table to respect privacy of the data.

(Table 5). The overall model accounted for 58.4% of the variation in intention to leave ($p < .0001$). Missed care, age, overtime, and perceived absenteeism were significantly associated with intention to leave. Specifically, units with higher rates of missed care ($\beta = .302$, $p < .0001$) and absenteeism ($\beta = .247$, $p = .034$) had more staff with plans to leave. However, units with nursing staff who worked overtime ($\beta = -.283$, $p = .001$) and were older than 35 ($\beta = -.270$, $p = .050$) were less likely to have staff who intended to leave. Other variables in the model were not significant predictors of the dependent variable, intention to leave.

Discussion

Turnover among nursing staff results in significant organizational costs, in addition to the potential ramifications for the quality of care delivered at the bedside. Evidence shows that a high level of turnover leads to adverse patient outcomes. Zimmerman and colleagues (2002) examined the impact of home nursing care on patient infection rates. They found that each proportionate loss of an RN increased the risk of infection by almost 30% and the risk of hospitalization by more than 80%. Another

study found that organizations with low turnover (4%–12%) had lower risk-adjusted mortality and shorter patient length of stay than organizations with moderate (12%–22%) or high (22%–44%) turnover (Gelinas & Yik-Hin Loh, 2004). Although high turnover has been associated with adverse patient outcomes (Gelinas & Yik-Hin Loh, 2004; Zimmerman et al., 2002), we do not know the specific relationship between care that a nurse is able to provide and the nurse's intention to leave (and subsequent turnover). In an attempt to better understand this relationship, the present study examined the link between missed nursing care, nurse turnover, and intention to leave.

In terms of turnover, gender was the only variable significantly related to turnover rate — other than the specific hospital where the nurses worked, which was included as a control. Specifically, units with a higher percentage of females (i.e., fewer males) had lower turnover. This finding aligns with the results of previous studies (Estryn-Béhar et al., 2007), some of which found males to be more active in seeking outside advancement opportunities (Williams, 1995). Other variables in the model (missed care, skill mix, overtime, gender, absenteeism, intention to leave) failed to show significance. In addition, several indicators identified as predictors of turnover in the literature review (i.e., workload, work schedules) failed to show an association with turnover, even in the preliminary analysis. This may be partly due to (1) the low turnover rate for this study (1%), and (2) current economic conditions in the geographic location of the study. The region in which the data were collected had very high unemployment rates, exceeding 13.1% (Bureau of Labor Statistics, 2010). Research has shown that the importance of a nurse's income to the family significantly reduces intention to leave (and potentially turnover) (Zeytinoglu et al., 2006). Due to the high unemployment rate in the region of this study, the reliance on a nurse's income for financial well-being is growing increasingly more prevalent. Estryn-Béhar and colleagues (2007) found that having children still living at home resulted in lower rates of intention to leave. This may partly explain why intention to leave was not a significant predictor of turnover in the present study. Staff with children to support may be more willing to remain in their current position even though they are unhappy with clinical practice and environmental conditions.

Units with high levels of missed care had more staff with intention to leave within 1 year. This finding supports the results of previous research (Larrabee et al., 2003; Strachota et al., 2003). Of the nurses interviewed by Strachota and colleagues (2003), 70% shared a passion for nursing, wishing to provide good patient care and to be supportive of families in crisis. Inability to provide the care they viewed as needed was a reason for leaving their position. In the present study as well, high rates of missed

care and absenteeism were associated with greater intention to leave. Nursing staff (similar to employees in other fields) want to perform at a high level (Cameron & Caza, 2004; Wooten & Crane, 2004). When that is not possible, they may be absent more often. Interestingly, units where staff worked overtime had fewer staff with intention to leave. This finding, again, could be related to the current economy (i.e., staff might have had an unemployed spouse or were seeking ways to earn more money). Furthermore, units with older staff were less likely to have nurses who expressed an intention to leave their position. This finding is consistent with the results of earlier work (Estryn-Béhar et al., 2007) indicating that older adults may be willing to remain in their current job longer due to financial concerns (Andrews, Manthorpe, & Watson, 2004) as well as perceived investment in their current organization (Strachota et al., 2003). Another reason could be the belief that a relatively advanced age will limit one's ability to secure a job elsewhere. Work schedules in the present study were not a predictor of intention to leave, although previous research supports this link (Larrabee et al., 2003).

Limitations

There are several limitations to this study. Generalizability is limited to hospitals of similar size (60 to 913 beds) located in the Midwestern region of the United States. Another limitation is that the measure of missed nursing care was based on perceptions of nursing staff. The other ways to determine actual missed care — conducting an observation study or carrying out a chart review — also have limitations (reporter bias, documentation errors). Finally, absenteeism and overtime were measured using participant self-report instead of obtaining data from attendance records. Gaudine and Gregory (2010) compared self-reported absenteeism with organizational attendance records. Although there was a tendency to underreport absences, they found a strong positive correlation, intra-class correlation, and Cronbach's alpha for the two measures.

Implications

The ability to attract and retain nursing staff in acute-care hospitals is critical for optimal patient outcomes. As confirmed by this study, the care that nursing staff are able to deliver has an impact on their intention to leave. Nurses want to provide good patient care and struggle when they are unable to do so. The findings from this study point to the need for systems and approaches that allow and encourage staff to miss less care. The development of such systems and approaches begins with knowledge about the extent and types of care being missed. Staff providing direct patient care need to be engaged in evaluating missed care (along

with other indicators) and in developing action plans to improve care. This issue must be handled in a non-punitive manner. Only through an understanding of the elements of care being missed can targeted interventions be implemented. These interventions must be co-created with direct-care providers and administrators if acceptance and sustainability of the change are to follow.

Further work is needed before we can fully understand the relationship between missed care, intention to leave, and patient outcomes. Previous work has highlighted the impact of missed elements of care on patient outcomes (Callen et al., 2004; Krishnagopalan et al., 2002). What is not clear is how these outcomes are affected by staff intention to leave and subsequent turnover. In addition, further work is needed to determine the point at which missed care affects patient and professional outcomes. Nursing care demands are increasing and in many instances require the nurse to prioritize as to which nursing tasks are essential and which ones can be eliminated. Understanding the impact of missed care (i.e., ambulation missed once vs. multiple times) on patient outcomes and nurses' sense of satisfaction may facilitate the development of further strategies for improving quality and retaining nurses in acute-care settings.

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Résumé

L'évolution du rôle de l'infirmière dans le secteur des soins primaires en région rurale et éloignée : un examen de la portée des études sur la question

Davina Banner, Martha L. P. MacLeod, Suzanne Johnston

Afin de répondre adéquatement aux besoins de la population en matière de santé, les autorités sanitaires des localités peu peuplées des régions rurales et nordiques du Canada étudient aujourd'hui les moyens à mettre en œuvre pour améliorer l'organisation et la prestation des soins de santé primaires (SSP). Un aspect important de cette réflexion touche l'évolution des rôles, des milieux de travail et du champ d'exercice des infirmières autorisées. Même si un grand nombre d'études insistent sur la nécessité de revoir le rôle des infirmières, peu se penchent sur la question de la transition en soi. Les auteures présentent les conclusions d'un examen de 69 articles scientifiques sur l'évolution des rôles dévolus aux infirmières en SSP, notamment en milieu rural et éloigné. Leur recension offre des exemples concrets du processus de transition et des grandes questions professionnelles et organisationnelles qui s'y rattachent, tout en définissant les appuis qu'il faudra mobiliser pour transformer et soutenir les rôles et les responsabilités des infirmières en SSP.

Mots clés : rôles des infirmières, soins de santé primaires, évolution des rôles, région rurale et éloignée

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Role Transition in Rural and Remote Primary Health Care Nursing: A Scoping Literature Review

Davina Banner, Martha L. P. MacLeod, Suzanne Johnston

In order to align health services with population health needs, health authorities in sparsely populated rural and northern Canada are exploring how to better organize and deliver primary health care (PHC) services. A significant component of PHC innovation involves changes to the roles, work settings, and practice modes of registered nurses. While many studies have identified the need to revise nursing roles, few have examined the transition itself. The authors present the findings of a scoping literature review examining the transition of nursing roles in PHC, with a focus on rural and remote settings. Their review of 69 articles provides clear examples of the process of role transition and key professional and organizational issues, while also identifying the supports needed to change and sustain nurses' roles and responsibilities in PHC.

Keywords: nursing roles, primary health care, role transition, rural and remote

Introduction

In order to provide services that are aligned with population health needs across large geographic distances, health authorities in sparsely populated rural and northern Canada are exploring how to better deliver and organize primary health care (PHC) services (Northern Health, 2009; Russell et al., 2007). A significant component of PHC innovation is making changes to nurses' roles, settings, and modes of practice. While many studies have identified a need to revise nursing roles, few have examined the transition itself. The need for a smooth transition is particularly acute in rural and remote settings where overall population health is poorer and where health-care demands and health human resource (HHR) challenges are greater (Des Meules et al., 2006; MacLeod et al., 2008; Romanow, 2002). This article summarizes a scoping literature review that examined the transition of nursing roles in PHC, with a focus on rural and remote settings (Banner, MacLeod, Johnston, Schellenberg, & Chisholm, 2009). The review was undertaken in response to a health authority's need to inform the transformative change process in order to better deploy nurses in PHC.

Background

Rapid changes in the organization and delivery of PHC and growing health-service demands across Canada have created the need for nurses to adapt to, and assume, new and transformed roles (Holt, 2008; Russell et al., 2007; Watson & Wong, 2005; Williams & Sibbald, 1999; Wong, Watson, Young, & Mooney, 2009). In these emerging roles, nurses provide the functions of PHC — first-contact care and services considered to be responsive, comprehensive, continuous, and coordinated (Wong et al., p. 101). The ongoing reform and transformation of PHC in rural and remote Canada have afforded nurses an opportunity to expand their current roles, maximize their scope of practice, and develop services that are more responsive to population needs (Bonsall & Cheater, 2008; Lowry, 1996; Porter-O'Grady, 1991). These changes and transformations are not limited to those in advanced practice roles (such as nurse practitioners, who have an extended scope of practice and a greater degree of autonomy) but apply to all nurses providing generalist services within the PHC and community context (Annells, 2007).

Numerous nursing roles in PHC exist internationally. These include health visitor, practice nurse, nurse practitioner, advanced practice nurse, public health nurse, and community nurse. They can be classified as community-based nursing roles, where care is provided directly to individuals or families (e.g., nurse practitioner; district, home care, or practice nurse) or community-health nursing roles, where the focus of care is the community (e.g., health visitor; public health nurse) (Hunt, 2005; St. John, 2007; Stamler & Yiu, 2008). A role that is commonplace in Australia, New Zealand, and the United Kingdom but not in Canada is that of practice nurse. Practice nurses work in general practice clinics and provide a range of nursing services, including health promotion, immunization, well-woman and general-health screening, venepuncture, and case management of some acute and chronic conditions (Annells, 2007). They work in collaboration with general practitioners and do not as yet hold an extended scope of practice.

An important component of HHR planning is facilitating the transition of nurses as they take on new and transformed roles in PHC. Such planning is crucial to the overall success and sustainability of PHC initiatives (Federal/Provincial Territorial Advisory Committee on Health Delivery and Human Resources, 2007). Even though system-wide planning is important, argue Tomblin-Murphy and O'Brien-Pallas (2002), plans should not be too formulaic, should respond to population need, and should acknowledge the complex and dynamic nature of the health-care environment and workforce. Accordingly, a scoping review, includ-

ing the context of role transition in PHC, was undertaken to produce evidence that might be useful in regional planning.

Methods

A scoping literature review provides a comprehensive examination of the research and non-research literature. In contrast to the classic systematic review, a scoping review seeks to identify pertinent themes within a given field as opposed to assessing research literature within a narrowly defined protocol (Arksey & O'Malley, 2005). Scoping reviews are gaining in popularity and are commonly used to inform policy and practice initiatives (Davis, Drey, & Gould, 2009).

While there is a plethora of literature exploring specific nursing roles in PHC, investigating this literature in detail was beyond the scope of this review, and the focus remained on the transition of roles. The review was driven by four questions: *What roles and responsibilities can nurses assume within integrated PHC systems? What is the process of role transition in nursing? What supports are needed for nurses and others to assume and sustain new and transformed roles and responsibilities? What are some of the criteria for evaluating changing nursing roles in rural and remote PHC?*

The review was undertaken in four stages, with two workshops and ongoing consultations with academics, health-care providers, and decision-makers to refine the review process, ensure that the relevant literature was captured, and ensure that the findings and their interpretations were robust and responsive. The first stage, planning and conceptualization, formed the foundation of the review. A review proposal was developed following initial discussions and refined through further consultations.

The second, preliminary search, stage involved a database search of subject headings, search terms, and keywords (medical subject headings MeSE) and a review of reference lists. The research literature from January 1990 to February 2009 was captured through searches of Medline, Medline Ovid, Alt Health Watch, Biomedical, Health Source, PsycINFO, and Cumulative Index of Nursing and Allied Health Literature (CINAHL). Initial search terms were collated; these were extended following consultation with other researchers and nurses at the first workshop (Table 1). The nurse practitioner literature was largely excluded, for two reasons. A wide range of contemporary research studies and systematic reviews is available in this area, including material on introducing the nurse practitioner role (DiCenso & Bryant-Lukosius, 2010; Mundinger et al., 2000; Venning, Durie, Roland, Roberts, & Leese, 2000). Also, the health authority intended to use the evidence from this review to inform its alignment of ongoing nursing services with PHC, rather than to introduce nurse practitioners into PHC settings. Therefore,

Table 1 ***Expanded List of Search Terms, Subject Headings, and Keywords***

Health visitor	Nursing identity
Professional nursing identity	Nursing role
Nursing role changes	Practice nurse
Primary health care	Primary health care nurse
Rural nursing	Rural primary health care nurse
Rural public health	District nurse
Generalist nurse	Home and community care
Home care	Home care nurse
Role transition	

only the nurse practitioner literature examining the *role transition processes* was included in the review. Core documents from nursing regulatory bodies were identified to contextualize the findings. An article was considered if it was peer-reviewed, written in English, published in Canada or internationally, related to PHC and nursing role transition, and published since 1990. Articles outlining health systems in developing countries were excluded, as they were not considered focally relevant to the Canadian context. The preliminary search generated more than 250,000 articles. This number was reduced to just over one thousand by refining the list of search terms and removing duplicates.

The third stage consisted of a focused search and review of the titles and (where necessary) abstracts of more than a thousand articles. Data were extracted by a research assistant using a guide sheet and were re-evaluated in detail by the investigators to establish key concepts and contributions. A final cohort of 65 articles was identified. These articles were organized in a Thomson Reuters EndNote™ library and distributed to review team and workshop members for evaluation of comprehensiveness. A further four articles were suggested during the first workshop and were included in the review, for a total of 69. Finally, review data were compared for similarities and differences, organized into key themes, and mapped to demonstrate the breadth of knowledge and scope of the literature. Key themes were presented and discussed in a second workshop (Banner et al., 2009), where the interpretations of the findings were confirmed and extended. By engaging with other nurses, decision-makers, and researchers, the investigators were able to refine the review process and ensure the capture of relevant material and findings.

Findings

The findings from the Canadian and international literature were delineated into four categories: developing new and transformed roles, moving towards innovative and integrated health-service delivery, rural and remote PHC, and the process of role transition.

Developing New and Transformed Roles

For the most part, the literature has focused on the development and transition of nurses to advanced practice roles such as nurse practitioner and clinical nurse specialist (Biggs, 1999; Bonsall & Cheater, 2008; Laurenson, 1997; Lowry, 1996; Mitchinson, 1996; Porter-O'Grady, 1991). For example, a review by Bonsall and Cheater (2008) found that advanced practice roles in PHC are frequently developed in response to physician shortages and are particularly important in rural and remote settings where health-care resources and physician services are limited or non-existent. Advanced practice nursing roles in PHC are shown to improve accessibility, clinical effectiveness, and patient satisfaction, but more data on long-term follow-up of health outcomes are required. While few studies have examined the development of new and transformed generalist nursing roles in this context, the important contribution and role of nurses in PHC and community health is well documented (Annells, 2007; Boucher, 2005; Goodman, Ross, MacKenzie, & Vernon, 2003; Jenkins-Clarke & Carr-Hill, 2001; Thomas, Reynolds, & O'Brien, 2006); the nursing role is viewed as most effective when integrated within an interdisciplinary team (Howlett & Tamlyn, 1999; Sibbald, Laurant, & Reeves, 2006).

The literature indicates that the careful planning and development of new and transformed nursing roles is an essential means through which to gain clarity on the expectations and scope of nursing roles; education, resources, and regulation sufficient to support implementation and practice; and evaluation of the benefits and costs (Aranda & Jones, 2008; Atkin & Lunt, 1996a, 1996b; Castledine, 2003; Ewens, 2003; Glen & Waddington, 1998; Hatzfeld, 2008; Howlett & Tamlyn, 1999; MacDonald, Herbert, & Thibeault, 2006; Takase, Maude, & Manias, 2006; Todd, Howlett, MacKay, & Lawson, 2007). For example, McKenna, Keeney, and Bradley (2003) examined professional and lay views of generic and specialist community nursing roles. Their multi-method study, undertaken in Ireland, included the use of focus groups, a survey (Delphi technique), and interviews to explore issues such as role conflicts, development, and enhancements. The authors found that physicians were unlikely to advocate for specialization in community nursing roles and were concerned that this could lead to role confusion and loss of the benefits of general-

ism, which in turn could cause some patients to "fall between the cracks." In contrast, community nurses felt that while it was crucial to preserve generalism, clearly delineated specialist roles were also important. Likewise, the participating senior strategists and policy-makers believed that generalist roles promoted balanced care and could be supported by specialist nursing roles (such as diabetes, palliative, and stoma care roles).

Much of the literature examining the development of new and transformed nursing roles is based on the specific development of advanced practice roles as opposed to more generalist nursing roles in PHC. Further research is warranted, to examine both the processes and the outcomes of developing and transforming generalist nursing roles in PHC.

Moving Towards Innovative and Integrated Health-Service Delivery

An important component of PHC transformation has been the growing inclusion of nurses in the community and general practice environment. Hall (2007) describes the need to "create space" for nursing within "divisions of general practice" — groups of general practitioners (GPs) who control PHC resources regionally. Hall reports that, in Australia, there has been significant expansion in the number of community nurses working in these PHC settings, including practice nurses who provide health promotion, chronic disease management, and education. Hall argues that the success of such initiatives depends on clarity of nursing roles and on infrastructure that promotes interdisciplinary collaboration and peer support. When nurses are employed directly by physicians, the employment relationship can complicate team collaboration, lead to a sense of uncertainty (Hall, 2007; Heartfield, Gibson, Chesterman, & Tagg, 2005), and constrain the scope of nursing practice (Mills & Hallinan, 2009).

Despite considerable PHC reform in Canada, few examples of how reform has impacted nursing are evident in the peer-reviewed literature. However, Gallagher, Relf, and McKim (2003) describe the initiation of integrated PHC services in northeast Edmonton, Alberta. They examine the development of a community health centre that provides a broad range of services, including women's health clinics and chronic disease clinics. Gallagher et al. contend that a key avenue to enhanced accessibility is integration of multicultural health brokers and interdisciplinary health professionals into the design of interconnected community-hospital services. This includes nurses working to their maximum scope of practice and nurse practitioners working in clinics and local emergency departments, in order to improve the flow and delivery of services.

The changes in PHC provision call for adequate preparation in the revised nursing roles as well as opportunities for health professionals to

work collaboratively to overcome perceived biases. In some PHC models, health-care teams include nurses from a number of different practice areas, such as public health and home care, as well as practice nurses (Hall, 2007; Hughes & Calder, 2006). This integration of roles can lead to confusion and territorialism within the nursing team unless clear boundaries and role expectations are established (Bryant-Lukosius & DiCenso, 2004).

Galvin et al. (1999) conducted an action research study to examine and implement change within a PHC nursing team. The aims of this British study were to gain perspectives on service needs and delivery, examine the roles and types of work undertaken by nurses, identify core and specialist skills, and define new roles and responsibilities. Data were collected from one primary care trust in South West England comprising five GPs and a nursing team, including practice nurses, a health visitor, and a support worker, serving a population of 7,700. This multimethod study used a range of data-collection techniques, including task analysis, focus groups, interviews, reflective diary analysis, and patient surveys.

Galvin et al.'s (1999) patient survey identified a desire for more continuity of health-care providers, especially in relation to childhood immunization and wound care. The data revealed that nurses wanted to identify key skills, clarify specialist roles, and work collaboratively across professional boundaries. GPs and community nursing managers suggested that an effective skill mix within an interdisciplinary team was essential and that the inclusion of specialist and generalist nursing roles was necessary to meet patient needs. A coordinated team approach was considered most appropriate, and practice changes included new mechanisms for cross-referral between members of the nursing team to avoid duplication of services and improve continuity. Galvin et al. report that while these changes were viewed positively, the process of change was challenging, particularly as nurses attempted to establish and maintain collaborative working relationships.

Key mechanisms that support the development of collaborative PHC practice include collaborative practice frameworks, shared principles and vision, and interdisciplinary education and professional development (Integrated Primary Health Care Working Group, 1998; Roblin, Vogt, & Fireman, 2003; Romanow, 2002; Sharp, 2006). Supports for ongoing interdisciplinary education, for example, can alleviate some of the difficulties in initiating and sustaining change processes (Integrated PHC Working Group, 1998). Sheehan, Doolan, and Veitch (2008) cite the need to challenge traditional leadership models and sources of conflict in rural PHC, such as the assumption that integrated teams will always be led by physicians. They argue that patient outcomes are more positive when the expertise of all group members is acknowledged and a flexible approach

to team dynamics is promoted. Other barriers to integrated team functioning, and therefore to role transition, are professional regulation, financial constraints, PHC funding models, and lack of resources (Integrated PHC Working Group, 1998; Pringle, Levitt, Horsburgh, Wilson, & Whittaker, 2000).

Continuing professional development modules have been found to enhance interdisciplinary collaboration. Curran, Sargeant, and Hollett (2007) present an example of how team functioning can be supported. Participants in the program they describe included dietitians, physicians, nurses, physiotherapists, and social workers. The program encompassed the introduction of six education modules, including understanding PHC, conflict resolution, and team-building. Evaluation data were gathered from 3,725 individuals, with interprofessional education being shown to increase the understanding of PHC principles while enhancing interdisciplinary collaboration. Likewise, Healey, Milbourne, Aaronson, and Errichetti (2004) used simulation to provide health professionals with insight into role differences as a means of promoting collaboration and effective communication. Simulation enabled team members to appreciate the competencies and strengths, as well as the perceived challenges, of the other professions represented on the PHC team.

Effective interdisciplinary collaboration and the introduction of new and transformed nursing roles can enhance job satisfaction, recruitment, and retention (Collins et al., 2000; Ewens, 2003; MacDonald & Schoenfeld, 2003). Collins et al. (2000) examined whether new advanced practice nursing roles contributed to job satisfaction and retention of nurses and allied health professionals in the United Kingdom. Their questionnaire study involved nurses transitioning into advanced practice roles such as nurse practitioner and nurse specialist. The sample comprised 452 nurses and 162 allied health professionals. The authors report that although 89% of nurses and 90% of allied health professionals reported a sense of satisfaction with the transition into new roles, it is critical, during the early part of the transition, that adequate support and training be available and that role boundaries be clearly articulated.

The transition to innovative and integrated approaches to health-service delivery can be problematic unless adequate preparation is undertaken to examine key barriers and facilitators. An understanding of these factors may be essential to the long-term success of PHC and nursing initiatives. Therefore, it is crucial that adequate education, support, and training be available to foster collaborative practice, improve recruitment and retention, and streamline role transition. Further research examining the transition of nursing roles in relation to innovative PHC delivery is essential.

Rural and Remote PHC

Many nurses in rural and remote practice deliver PHC as part of their nursing role (MacLeod et al., 2004, 2008; Wong et al., 2009), in part because of the intimate connections between the nurses and the small communities in which they live and work. Transitioning nursing roles in rural PHC services can build upon and extend the strengths inherent in the multidimensional working relationships that rural nurses form with their clients (Forbes & Jansen, 2004; Moules, MacLeod, Hanlon, & Thirsk, 2010). Greater understanding of the challenges of nursing in the rural and remote context is essential to the overall success and sustainability of new roles, job satisfaction, and retention (Alford & O'Meara, 2001; Molinari & Monserud, 2008).

Pearson and Care (2002) highlight the beneficial effects of facilitating the systematic implementation of new roles and providing ongoing support (education and mentoring) to enable effective role transition. They explain that the staged implementation of new nursing roles in rural PHC can serve to maintain service provision and help nurses adjust to their new roles. Pearson and Care argue that the engagement of the community, decision-makers, and health-care providers in this process results in services that are appropriate for and responsive to local health-care needs as well as in recognition of the educative, legislative, and regulatory aspects of the new roles.

Similarly, Vukic and Keddy (2002) discuss strategies for enhancing the transition to rural nursing roles and examine northern nursing practice in the First Nations PHC setting. Their institutional ethnography of the everyday practice and work of nurses in a northern First Nations community shows that nurses provide a wide range of services that extend beyond those typically associated with the nursing role, including community development. The study demonstrates that building trust and engaging with communities is essential to the effective delivery of PHC services and can enable nurses to address the wider determinants of health. An understanding of the contextual and social factors relevant to the renewal and transformation of PHC services and their impact on nursing roles in the rural and remote Canadian context is therefore essential to the success of such initiatives.

The Process of Role Transition

Role transition can involve a developmental process within an existing role or the introduction of a new position or context (Holt, 2008). In either case, it is essential that one understand the transition process in order to support those undergoing change and to maximize positive outcomes and sustainability (Ewens, 2003; Holt, 2008). Holt (2008)

undertook an exploratory study of role transition as experienced by 11 registered nurses in British PHC settings. A comparative analysis of the data was conducted and a theory of role transition developed. The theory encompassed four core concepts of role transition. In *centring identities,* nurses experienced changes to their self-identity, social roles, and work-life balance, in addition to changes associated with their professional role. When focusing on a *current and anticipated role,* nurses reported that they had high expectations of what they could deliver and therefore often placed an emphasis on achieving specific tasks. The notion of *enacting roles in a given context with available resources* demonstrated that successful role transition was influenced by the availability of resources and that many participants felt they were unable to reach their full potential due to shortages of both human and physical resources. In his examination of *shaping role(s) through loss and/or expansion of role(s) or part of role(s),* Holt notes that many transitioning nurses delegated non-specialized tasks and roles in order to fulfil their newer, expanded role. The study found that a supportive workplace culture is essential to the success of role transition. Further research to examine the processes and stages of role transition would be valuable, particularly with respect to nurses practising in rural and remote Canada.

Discussion

This scoping review has captured a diverse range of literature examining the transition of nursing roles in PHC, with a particular focus on the rural and remote context. It provides important insights into the development of nursing roles, the transition to innovative and integrated health-service delivery, rural and remote PHC, and the process of role transition. The following sections summarize key recommendations and limitations.

Roles and Responsibilities in Integrated PHC Delivery

There is evidence that new and transformed nursing roles may emerge as a means of addressing service gaps and improving population health (Annells, 2007; Briggs, 1997). The literature suggests that nurses are eager to embrace new practice roles and that their eagerness is associated with enhanced job satisfaction and improved retention (Calpin-Davies & Akehurst, 1999). In the rural and remote context, where there are challenges to the recruitment and retention of nurses, the transformation of nursing roles in PHC may allow for innovative approaches to patient care.

While the transformation of nursing roles in PHC has enormous potential, practice can be constrained by funding issues, limited access to

professional development to support role change, and lack of clarity with regard to the scope of practice (Annells, 2007; Mills & Hallinan, 2009). Also, the introduction of more advanced practice roles may create gaps in service provision, with more "generalist" needs not being met (Annells, 2007). Consequently, the transition of nursing roles in PHC requires systematic and strategic planning (Read & George, 1994).

The Process of Transitioning Nursing Roles

The literature provides some clear examples of role transition. Of these, however, few are primary research articles. Further research is warranted to explicate the process and the outcomes in the rural and remote Canadian context and to reflect the ongoing development and integration of innovative PHC service delivery.

Supports Needed for Nurses and Others to Change and Sustain Roles and Responsibilities

Planning for role transitions must explicitly attend to the population health, HHR, and professional practice issues that are relevant to the rural and remote context. The emergence of new and transformed nursing roles could result in territorialism and confusion among nurses and other health professionals. Consequently, it is essential that nursing roles in PHC be developed collaboratively and that clear guidelines around expectations, roles, responsibilities, and scope of practice be provided (Annells, 2007; Briggs, 1997; Daly & Carnwell, 2003; DiCenso & Bryant-Lukosius, 2010; Dolan, Dale, & Morley, 1997; Mills & Hallinan, 2009). In rural and remote communities, such collaboration includes the community itself. Key mechanisms to support the transition of nursing roles include the ongoing engagement of interdisciplinary health-care providers, decision-makers, and community members, along with effective change-management strategies (Champagne, 2002; Hills & Mullet, 2005) and strenuous efforts to foster interdisciplinary collaboration, such as the provision of workshops and training (Berland, 1991; Hall, 2007; Howlett & Tamlyn, 1999; Hughes & Calder, 2006; Integrated Primary Health Care Working Group, 1998; Sibbald et al., 2006; Speed & Luker; 2006). Ongoing professional development and preceptorship will help nurses to transition successfully to new and transformed PHC roles.

Criteria for Evaluation of Changing Nursing Roles

There is a dearth of literature addressing evaluation criteria. Further research is needed to address this shortcoming. One fruitful approach would be to identify key indicators of successful transition processes and outcomes through action research.

Limitations

While every effort was made to source all available literature, there may be other studies and articles that could deepen our understanding of transitioning nursing roles in rural and remote PHC. In line with the scoping literature review method, the quality of literature was not systematically assessed. Some important examples have been identified, but the review is limited by a lack of available primary research data. In particular, few studies have examined nursing role changes in the Canadian rural and remote context.

Conclusion

This scoping review, conducted in collaboration with decision-makers and health-care providers, has examined a wide range of literature pertinent to the transition of nursing roles in PHC, particularly in the rural and remote Canadian context. Ongoing planning by interdisciplinary health professionals, health authorities, and community representatives is needed to support the transition of nursing roles in PHC. The flexibility inherent in emerging roles must be underpinned by clear responsibilities and role expectations along with appropriate regulation, remuneration, and scopes of practice. In rural and remote settings, the particular dynamics of communities, including indigenous communities, must be taken into account when practice changes are made. Planning for role transitions must explicitly attend to population health, HHR, and professional practice issues, which are influenced by geography and the sparse population that is typical of rural and remote areas. Role transitions cannot be successfully navigated without ongoing professional development and preceptorships. Finally, further research and evaluation are required to better describe the process and impact of role transition within the context of PHC transformation, especially in rural and remote contexts.

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Résumé

Perceptions des infirmières et degré de satisfaction à l'égard du système d'administration des médicaments dans les maisons de soins de longue durée

Sharon Kaasalainen, Gina Agarwal, Lisa Dolovich, Alexandra Papaioannou, Kevin Brazil, Noori Akhtar-Danesh

Notre étude visait à explorer les perceptions des infirmières ainsi que leur degré de satisfaction à l'égard du système d'administration des médicaments dans les maisons de soins de longue durée (SLD). Notre enquête transversale renfermait à la fois des questions quantitatives et ouvertes. Les données ont été recueillies auprès d'infirmières autorisées (IA) et d'infirmières auxiliaires autorisées (IAA) actives dans neuf maisons de SLD du sud de l'Ontario au Canada. Après avoir effectué des tests *t* pour échantillon indépendant, nous avons découvert que le degré de satisfaction à l'égard du système d'administration des médicaments était sensiblement moins élevé chez les IA que chez les IAA, notamment en ce qui concerne les questions de sécurité. Les IA ont relevé un certain nombre d'obstacles : contraintes de temps; problèmes relatifs à l'emballage; information insuffisante sur les médicaments; modifications des ordonnances; lacunes en matière de compétences; chariots de médicaments difficiles à manier. Les implications découlant de ces observations sont présentées en conclusion et assorties de recommandations destinées à améliorer les pratiques en matière d'administration des médicaments et à faciliter le travail des infirmières en SLD.

Mots clés : administration des médicaments, soins de longue durée, infirmières autorisées

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Nurses' Perceptions of and Satisfaction With the Medication Administration System in Long-Term-Care Homes

Sharon Kaasalainen, Gina Agarwal, Lisa Dolovich, Alexandra Papaioannou, Kevin Brazil, Noori Akhtar-Danesh

The purpose of this study was to explore nurses' perceptions of and level of satisfaction with the medication administration system in long-term care (LTC). The cross-sectional survey design included both quantitative and open-ended questions. Data were collected from licensed registered nurses (RNs) and registered practical nurses (RPNs) at 9 LTC residences in southwestern Ontario, Canada. Using independent sample *t* tests, the researchers found that RNs were significantly less satisfied than RPNs with their medication administration system, particularly with respect to safety issues. RNs identified a number of related barriers, including time constraints, poor packaging, insufficient drug information, prescription changes, lack of staff competency, and unwieldy medication carts. Implications for practice and policy are discussed, including recommendations for improving medication administration practices and for addressing the workload demands of LTC nurses.

Keywords: medication management, long-term care, licensed nurses

Background

Nursing in long-term-care (LTC) homes is becoming more complex given the growing resident acuity. One facet that is increasing in complexity is medication administration, because more medications are available for use and seniors who live in LTC homes are prescribed significantly more medications than those who live independently (Cheek, Gilbert, Ballantyne, & Penhall, 2004). However, the numbers of regulated nursing staff in LTC have not increased to meet the growing complexity, which has resulted in a nursing shortage in the sector, higher demands and workloads for nurses working in LTC, and compromised care for residents, particularly related to medication management (Cheek et al., 2004).

The purpose of this study was to explore LTC nurses' perceptions of and level of satisfaction with the medication administration system in their LTC facility, as well as to promote awareness about current issues for nurses in the way they manage medications for seniors in LTC.

Given the challenging medication regimens of LTC residents, it is important to explore nurses' perceptions of their current medication administration system. In fact, almost 40% of LTC residents have four to five active diagnoses at any given time (Hughes, 2008) and one third of residents have drug regimens of nine or more medications per day (Doshi, Shaffer, & Briesacher, 2005). Moreover, the high prevalence of antipsychotic therapy, often irrespective of the clinical indication for it, creates additional challenges to safe medication practices (Rochon, Stukel, Bronskill, Gomes, & Sykora, 2007). Because of these factors, LTC nurses are left to manage progressively more challenging medication regimens.

Complex medication regimens can increase the risk for medication error. Pepper and Towsley (2007) report that at least half of nursing-home residents have an adverse medication event every year and that 80% of such events are due to medical error. Furthermore, more than 45% of residents receive at least one inappropriate prescription every year (Perri et al., 2005). Some of the most common errors, in order of frequency, tend to be dose omissions, overdose, underdose, wrong patient, wrong product, and wrong strength (Barker, Flynn, Pepper, Bates, & Mikael, 2002; Pierson et al., 2007). Therefore, access to safe and effective medication systems in LTC homes is crucial for nurses' ability to provide therapeutic care.

Benner et al. (2002) attempted to determine the cause of medication errors by nurses. They analyzed 21 cases and found the prevalent causes to be inattentiveness, inappropriate judgement, and mistaken or missed physician's orders. Interestingly, several studies found that, when asked, nurses gave different reasons for medication error. Ulanimo, O'Leary-Kelley, and Connolly (2007) surveyed 61 medical-surgical nurses on their perceptions of medication errors and the effects of physician order entry and barcode medication administration. They found that the leading perceived cause of medication error was failure to match the patient's medication administration record (MAR) with the patient's name band (45.8%). A larger, randomized study by Mayo and Duncan (2004) found similar results, but in that study the most prevalent cause of medication error cited by nurses was illegible physician handwriting.

Despite the growing interest in determining the cause of medication errors, less than half of all errors go largely unnoticed as long as the patient remains unharmed (Armitage & Knapman, 2003; Low & Beltcher, 2002; Mayo & Duncan, 2004; Osborne, Blais, & Hayes, 1999). Handler et al. (2007) found that errors are not reported due to (1) lack of a readily available medication error reporting system or lack of forms for reporting errors, (2) lack of information on how to report an error,

and (3) lack of feedback to the reporter or the rest of the facility about errors that have been reported. Moreover, nurses may be reluctant to report for fear of the reaction of either their manager or their co-workers (Osborne et al., 1999; Ulanimo et al., 2007) or because they believe the error is not serious enough to warrant reporting (Mayo & Duncan, 2004).

Although information is available on causes of medication error and barriers to reporting errors, there seems to be little information on the challenges that nurses confront when trying to manage medications safely. Yet LTC nurses play an important role in medication management. With their growing workload, LTC nurses have little time to manage medications safely and therapeutically, and this increases the risk for error. Ulanimo et al. (2007) found that 33% of medication errors occurred when nurses were fatigued and exhausted.

In addition to increased work demands, nurses are confronted with changing staff-mix models in LTC — that is, the ratio of registered nurses (RNs) to registered practical nurses (RPNs) is decreasing. This change in nurse staffing may create additional challenges to the management of medications for residents and its influence on patient outcomes. Scott-Cawiezell et al. (2007) used unobtrusive observation methods to examine differences in medication error rates by level of staff credentials in five LTC homes. In a sample of 39 health professionals, the authors found no differences in error rates by level of credentials for RNs, RPNs, and certified medication technicians. However, they found that RNs were interrupted more frequently than the other health professionals.

Differences between RNs and RPNs with regard to medication management are important, for a number of reasons. In terms of patient safety, the Canadian Nurses Association (CNA) (2003) argues that higher levels of both RN staffing and regulated staff mixing improves patient outcomes and that an inappropriate staff mix can lead to clinical errors with adverse patient outcomes. Moreover, the Institute of Medicine (2003) report *Patient Safety: Transforming the Work Environment of Nurses* suggests that increasing the proportion of RNs in the staff mix improves resident survival rates in LTC. Hence, it is important to explore nurses' perceptions of and level of satisfaction with how medications are administered, especially in light of the growing acuity of LTC residents and their complex medication regimens.

This study was guided by two research questions: *Are there differences between RNs and RPNs with regard to their satisfaction with the current medication administration system and their perceptions of the efficacy, safety, and accessibility of the system? What are the barriers to and facilitators of nurses' medication management practices in LTC?*

Table 1 *Demographics of Sample*

		RPN (n = 88) No.	%	RN (n = 77) No.	%	Total (n = 165) No.	%
Gender	Male	6	6.8	2	2.6	8	4.9
	Female	80	90.9	74	96.1	154	93.3
	Missing	2	2.3	1	1.3	3	1.8
Highest nursing credential	Diploma	88	100.0	65	84.4	153	92.7
	Degree	0	0.0	12	15.6	12	7.3
Typical shift rotation	All shifts	11	12.5	14	18.2	25	15.2
	Evenings	8	9.1	8	10.4	16	9.7
	Nights	9	10.2	16	20.8	25	15.2
	Days/evenings	44	50.0	20	26.0	64	38.8
	Days/nights	3	3.4	1	1.3	4	2.4
	Evenings/nights	0	0.0	1	1.3	1	0.6
	Days	13	14.8	16	20.8	29	17.6
	Missing	0	0.0	1	1.3	1	0.6
Age	*Mean*	44.1		46.8		45.3	
	SD	12.9		10.0		11.7	
	Missing	10		10		20	
Years employed as a nurse	*Mean*	14.6		20.3		17.3	
	SD	12.5		11.0		12.1	
	Missing	3		0		3	
Years employed in LTC home	*Mean*	8.1		6.7		7.4	
	SD	9.3		6.3		8.1	
	Missing	2		0		2	
Hours worked in a typical week	*Mean*	37.6		34.3		36.1	
	SD	9.6		13.8		11.8	
	Missing	0		2		2	

Methods

Design

The study used a cross-sectional survey design that included both quantitative and open-ended questions. The study was approved by a university-affiliated research ethics board.

Setting and Medication Administration System

Data were collected from licensed nurses at nine LTC homes in southwestern Ontario, Canada, in 2007–08. The facilities were purposively chosen to represent a set of diverse conditions in LTC (e.g., for-profit/not-for profit status; large/small in size). All of the homes used a "strip packaging" medication administration system whereby medications are grouped together for specific periods, separately for each resident. All of the medications were listed on the MAR and nurses were required to check the strip or pouch of medications against those listed on the MAR before administering them. Six of the LTC homes used computer-generated MARs, two used handwritten MARs, and one used a complete electronic medication administration system, called an E-Pen system.

In all nine homes, RPNs were responsible for administering medications, assisted by RNs as needed. The average RN-to-RPN ratio was 1 RN for every 1.39 RPNs. All but one of the homes had more RPNs than RNs.

Sample

A total of 301 licensed nurses (130 RNs and 171 RPNs) were asked to complete the survey. Of the surveys distributed, 21 were returned to the investigator uncompleted (nurse currently on leave of absence or no longer employed at the LTC home). Therefore, the final sample comprised 280 nurses, of whom 165 (77 RNs and 88 RPNs) responded to the survey, for a response rate of 59%.

Nurses were primarily female (93.3%) with a mean age of 45.3 years (SD = 11.7). The majority of nurses held diplomas, while 15.6% of RNs held degrees. The participants had a mean of 17.3 (SD = 12.1) years' experience working as a nurse. More specifically, RNs had been employed as nurses for an average of 20.3 years (SD = 11.0), RPNs for an average of 14.6 years (SD = 12.5). The participants had been employed at their current LTC facility for a mean of 7.4 (SD = 8.1) years and worked a mean of 36.1 (SD = 11.8) hours per week. RNs worked only days (20.8%) or only nights (20.8%), while 50% of RPNs rotated from days to evenings (see Table 1).

Measurement

The survey was based on the Medication Administration System-Nurses Assessment of Satisfaction (MAS-NAS) scale (Hurley et al., 2006), originally developed to assist hospital leaders in gauging nurses' satisfaction with their current medication administration system. The 18-item survey has strong internal consistency ($\alpha = .86$) and includes items relating to (a) support for team communication, (b) efficient use of time, (c) ease of observing the five rights of medication administration, and (d) documentation procedures. Each item is scored on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), with higher values indicating a more positive result.

The survey was revised by its developers based on content validity and pilot testing in previous research, and three major subscales were identified using factor analysis: efficacy, safety, and access to both information and the medications (Hurley et al., 2006). The efficacy subscale consists of five items assessing the dependability and effectiveness of the system (efficiency, user-friendliness, ready availability of supplies, error prevention or reduction, and turnaround time). Safety consists of seven items assessing the system components that assure the nurse it is safe to administer the medication (pharmacist check, physician-pharmacist agreement, ease of checking, drug-alert feature, message about drug interaction, and observing the five-rights communication). The access subscale consists of six items assessing whether the necessary information and medications are immediately at hand (ease of finding information about drugs, managing medication reactions and knowledge about expected side effects, access to needed systems, knowledge about where to find medications, and no need to keep stashes of medications). Each of the subscales had adequate internal consistency (.71–.77) and non-significant t tests among the subscales ($t = .27–.88$; $p = .38–.79$). A final question measures overall satisfaction of the medication administration system using a 10-point Likert scale (1 = completely dissatisfied; 10 = completely satisfied).

The survey also included two open-ended questions inviting additional comments related to (a) the degree to which components of the current system supported the nurses' ability to administer medications safely and professionally, and (b) what the nurses would change in their current medication system.

The survey took approximately 10 to 15 minutes to complete.

Procedure

Since the survey had not been used in LTC settings, it was first piloted with a group of 25 LTC nurses (both RNs and RPNs) for assessment of

its feasibility and relevance to LTC. All 25 nurses reported that it was applicable to the LTC sector, that it was clear and easy to complete, and that it reflected the primary nursing domains of medication management in LTC.

The survey was then distributed, along with a $5 gift certificate, to all RNs and RPNs at the participating LTC homes. Nurses completed the survey and returned it by mail in an envelope addressed to the study investigator. A modified Dillman's approach was used to increase response rate: A second distribution followed 2 weeks after the first, with a reminder issued 1 week after the second distribution (Dillman, 1978).

Analysis and Evaluation

Demographic data were summarized using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. Means and standard deviations were calculated for the entire MAS-NAS as well as for the individual subscales (i.e., efficacy, safety, and access). To adjust for a potential cluster effect (because participants were employed at nine separate LTC homes), intraclass correlation coefficients (ICCs) were estimated for the scale and for the subscales. Since there were no statistically significant ICCs for the MAS-NAS scores among the nine LTC homes, independent two-sample *t* tests were conducted to examine differences between RNs and RPNs for the total score and for each subscale of the MAS-NAS survey.

Content analysis was used to examine the data obtained from the open-ended questions (Sandelowski, 2000). Words, terms, and semantic units of meaning that emerged from the data were labelled. Once the basic units of analysis were identified, they were sorted into categories (Crabtree & Miller, 1999).

Results

Satisfaction With the Medication Administration System

The participants were moderately satisfied with the current system (*mean* = 7.0; *SD* = 2.2) as measured on a scale of 1 (completely dissatisfied) to 10 (completely satisfied). RNs reported less satisfaction (*mean* = 6.60; *SD* = 2.42) than RPNs (*mean* = 7.37; *SD* = 1.93), and this difference was statistically significant ($t = 2.38$; $p < 0.02$) (see Table 2).

Perceptions of Efficacy, Safety, and Access

The mean total MAS-NAS score for RNs and RPNs combined was 85.0 (*SD* = 13.44). RNs scored lower (*mean* = 82.99; *SD* = 15.24) than RPNs (*mean* = 86.82; *SD* = 11.41), with this difference approaching significance ($p = 0.06$).

Table 2 *Nurses' Perceptions of and Satisfaction With the Current Medication Administration System*

	All Nurses (N = 165)		RNs (n = 77)		RPNs (n = 88)			
	Mean	*(SD)*	*Mean*	*(SD)*	*Mean*	*(SD)*	*t*	*p* value
Access (Range = 6–36)	28.7	5.4	28.0	6.1	29.3	4.8	1.59	0.11
Safety (Range = 7–42)	32.1	5.7	31.1	6.4	33.0	5.0	2.11	0.04
Efficacy (Range = 5–30)	24.2	4.3	23.9	4.9	24.5	3.8	0.91	0.37
TOTAL (Range = 18–108)	85.0	13.4	83.0	15.2	86.8	11.4	1.83	0.06[a]
Satisfaction (Range = 1–10)	7.0	2.2	6.6	2.4	7.4	2.2	2.28	0.02

[a] Marginally significant ($p \leq 0.10$).

An independent sample *t* test was also conducted in order to determine if there were any differences between RNs and RPNs for the individual subscale scores and the individual items on the MAS-NAS. The results revealed a statistically significant difference ($p = 0.04$) between RNs and RPNs for the safety subscale. There were no significant differences for the access and efficacy subscales nor for any of the individual items (see Tables 2 and 3).

Facilitators of Safe Medication Administration

Participants identified a number of factors in their current practice that supported their ability to administer medications safely and professionally. These facilitators included packaging of the medications, access to resources, and support from other staff members.

With respect to packaging, many participants explained that the medication pouches made administration safer and more efficient: "The pre-packed pouches enable med administration safely and professionally" (RPN). Access to resources, such as the *Compendium of Pharmaceuticals and Specialties* (CPS) and the Internet, were described as facilitators of medication administration. The availability of the pharmacist as a resource was described by one RN as essential to safe medication administration:

> *With pharmacy alerts re: interactions, we [RNs, RPNs] usually communicate with the doctor . . . pharmacy will tell us if interactions are too severe [and] new med must be substituted [and] we call MD.*

Another RN wrote that support from other staff members contributed to safe administration:

> *We have other staff to assist with paperwork, [and] even do assessments if we are already extra busy. This helps with medication safety i.e. less rushed.*

Barriers to Safe Medication Administration

The participants also described several factors that impeded their ability to administer medications safely and professionally. These barriers included time constraints, workload demands, single-dose packaging, insufficient information provided by the drug manufacturer and/or the pharmacy, prescription changes, limited access to pharmacists and physicians, lack of competency of some nurses related to medications, and difficult-to-manoeuvre medication carts.

Lack of time and workload demands were described as major challenges. These barriers were commonly reported by both RNs and RPNs:

Table 3 *MAS-NAS Results: Comparison of RNs and RPNs*

Questions	RNs (n = 77)		RPNs (n = 88)		t	p value
	Mean	*(SD)*	*Mean*	*(SD)*		
1. Because of information available through the current medication administration system I know both the intended actions and side effects of medications I administer.	2.84	1.55	2.65	1.52	0.81	0.42
2. I find the drug alert feature (drug/drug and drug/food interaction) of the current medication administration system helpful.	2.22	1.51	2.15	1.35	0.32	0.75
3. The current medication administration system makes it easy to check active medication orders before administering medications.	2.11	1.35	1.86	1.05	1.30	0.20
4. The current medication administration system provides me with information to know that a medication order has been checked by a pharmacist before I administer the medication.	2.14	1.62	1.98	1.33	0.72	0.47
5. The current medication administration system promotes 2-way communication between clinicians (MD, pharmacist, RN) about medication orders.	2.14	1.27	1.81	1.11	1.80	0.08

6. I have access to the systems that support medication administration (physician's orders, drug information) when I need them.	1.69	1.00	1.52	0.78	1.23	0.22
7. The drug information available through the current medication administration system is easy to get when I need that information.	2.42	1.50	2.05	1.07	1.84	0.07
8. When I see a message that acknowledges and accepts a known drug/drug interaction, I know that both physician and pharmacist communicated and agreed on the order.	2.97	1.75	2.62	1.44	1.42	0.16
9. I know where all the medications I need are stored (either on the unit or if they need to be procured from the pharmacy).	1.60	0.92	1.47	0.92	0.92	0.36
10. The current medication administration system helps me to be efficient at medication administration.	1.85	1.01	1.79	1.12	0.36	0.72
11. The current medication administration system makes it easy to check that I am following the "5 rights" when I administer medications.	1.92	1.40	1.53	0.85	2.16	0.32
12. The turnaround time for receiving medications needed "stat" or for patients newly admitted to the unit is adequate.	2.72	1.44	2.66	1.33	0.32	0.75

Continued on next page

Table 3 *(cont'd)*

Questions	RNs (n = 77)		RPNs (n = 88)		t	p value
	Mean	*(SD)*	*Mean*	*(SD)*		
13. The current medication administration system is effective in reducing and preventing medication errors.	2.36	1.30	2.29	1.06	0.42	0.68
14. The current medication administration system is user-friendly to the nurses who administer medications.	2.08	1.18	1.86	0.92	1.32	0.19
15. The equipment and/or supplies needed to administer medications are readily available to me.	2.03	1.11	1.89	1.10	0.81	0.42
16. Information available through the current medication administration system helps me to know what to do should my patient have any bad reactions from a medication.	3.19	1.66	3.06	1.52	0.55	0.58
17. I have to keep stashes of medications to be sure I have medications I need when I need them.	4.38	1.97	4.92	1.69	-1.87	0.06
18. When I see a message that acknowledges and accepts a known drug/drug interaction, I believe it is appropriate to give them medication.	3.79	2.00	3.90	1.72	-0.38	0.70

> *We administer [medications] to 38–40 resident[s] — a very heavy load — and on day shift when other problems occur.* (RN)

> *[There are] too many medications to give at each med pass which [is] time consuming and leaves no time to be with the client.* (RN)

> *The ratio between a nurse and residents is too high. One nurse gives 52 residents meds in one med pass. Principles of medication administration are in brain not in hand — no wonder there are med errors.* (RPN)

Additionally, the volume of medications, number of residents, time needed to identify residents, and RPNs' scope of practice (e.g., RPNs are unable to give subcutaneous morphine or Dilaudid and must call an RN to administer these medications) were described by the nurses as exacerbated by the severe time constraints.

Nurses also commented that single-dose packaging was sometimes a barrier. They reported that medication pouches are difficult to open and that often the pouches rip, causing medications to fall out:

> *My comment is that [the pharmacy] only send what residents need and if tablets are dropped, we have to wait for new ones and meds may not be given on time. Also [some] residents will spit meds out and you have no meds to re-try resident or attempt again.* (RPN)

> *I would like the packaging of the medications — the plastic pouches [—] to be stronger. The packets get torn from another time slot and pills drop into the bottom of the resident's medication box.* (RPN)

Other barriers included limited after-hours access to medications and/or the pharmacist and lag times after medications have been ordered:

> *I feel that if new medication[s] are ordered or if there is a new admission I should be able to obtain [them] in a more timely fashion to be able to administer it to [the resident] without doing a lot of writing to replace it in the survey box and less calling to the pharmacy to ensure delivery is prompt.* (RN)

RPNs explained that prescription changes also created challenges:

> *When a medication is [discontinued] or changed there may be mistakes/errors made if sticker is not placed on the package to indicate.*

Another RPN described concerns about nurses' competency related to medication administration, especially when "staff administering drugs do not follow the 5 rights" of medication administration.

Many participants described poor access, such as to the pharmacy, the physician, and "stat" or stock drugs, as other shortcomings of the current system:

Need better accessibility to a pharmacist on weekend. (RN)

When there are MD order changes in medications — time consuming to remove med from pouches and the chances of drug error much increased — e.g. giving discontinued med. (RN)

Finally, one RN described the design of the medication carts as a barrier to effective administration:

Design of the med carts needs a review. Currently they do not allow for all the items that are needed to complete a med pass in LTC (cups, straws . . . utensils, etc.). Tops are often cluttered with frequent spills onto MARS and difficult to manipulate/manage when residents are grabbing at items on the [cart].

Nurses stated that lighter medication carts would be easier to manoeuvre.

Suggestions for Improving the Medication Administration System

When participants were asked about changes they would like to see in the medication administration system, responses included better access to resources, more education to improve their knowledge base, better timing of medication administration, fewer distractions, and less waste.

Better access to resources included sources of information about medications:

I would want readily accessible information about all medication i.e. current text book for immediate reference. Not CPS – CPS gives far too much information and is difficult and time consuming. (RN)

Access to the internet and reliable sources to look up meds quick. More info on drug/drug interactions. More info on 1x/wk meds, or Didrocal (meds with specific instructions). (RPN)

One RPN recommended that in-services and ongoing education be provided for staff administering medications in order to improve their knowledge base in this area. She stated:

I feel the system works but as far as knowing your meds, why, what it does, side effects, there is [no] time to look up, so in-services would greatly help.

Another RPN recommended that nursing staff receive ongoing education (upgrade courses):

Upgrade — that all nursing staff should receive paid, ongoing med courses compulsory at least every two years.

An RN wrote:

I would like to have more nursing user friendly resources available for medications, on each unit.

Participants said that the timing of medication administration was something they would like to see changed. For example, they said that administration should not be too late in the evening or conflict with meals. One RPN wrote that distractions such as interruptions by staff, family, and residents contributed to medication errors and that such distractions and the resultant errors would be minimized if medications were prepared in the medication room:

I feel [that] pouring medications in patient rooms or hallways leads to errors as there are so many distractions. I would prefer to pour meds in the med room.

Another concern about the current system was the amount of waste produced:

To develop a system to reduce a lot of waste e.g. if a drug is discontinued the whole blister pack is discarded which contains a lot of other medication that the patient is still receiving. It adds to the waste in the environment not to mention toxic effects as well as bulk. (RN)

Discussion

The results of this study highlight the perceptions of licensed nurses, both RNs and RPNs, about their medication administration system in LTC as well as their level of satisfaction with it. RNs appeared to be less satisfied with the system than RPNs, and to perceive it as less safe. Both RNs and RPNs identified a number of challenges (e.g., time constraints; knowledge deficits) in the management of medications for LTC residents. Strategies that nurses suggested for improving their practices included better access to resources, more education to improve their knowledge base, better timing of medication administration, fewer distractions, and reduced waste.

One of the most salient findings of the study is that RNs were significantly less satisfied with their medication administration system than RPNs, particularly with regard to safety issues. Since it is mainly RPNs who administer medications in LTC homes, as was the case in the homes covered in the present study, this finding could be simply reflective of the different roles and tasks of RNs and RPNs in medication management. Or it could be that RNs, given their more extensive education and training, are more aware of the safety risks inherent in the administration of medications to LTC residents. Scott-Cawiezell et al. (2007) report that more integration of clinical data is entailed when medications are admin-

istered by RNs as opposed to RPNs. Interestingly, these authors also found that, although RNs administered fewer medications than RPNs, they recorded the larger proportion of errors. Scott-Cawiezell et al. argue that this is likely due to the fact that RNs had a higher rate of interruptions, which was directly associated with the number of medication errors. Similarly, Pelletier (2001) reports that performance deficits, often related to fatigue, interruptions such as call bells, and/or failure to observe the five rights of medication administration are common causes of medication error. These deficits and barriers are consistent with the present findings. It is important to determine the sources of errors before developing strategies for improving medication administration practices for LTC nurses.

Although both RNs and RPNs were generally satisfied with the current medication administration system in LTC, they identified some barriers to optimal practice. For example, time constraints were a key barrier to engaging in safe practices. In their study, Browers, Lauring, and Jacobson (2001) found that time was the factor that most affected how nurses in LTC facilities worked, how they felt about their work, and resident outcomes. Nurses stated that time constraints made it difficult for them to complete such tasks as administering medications and monitoring patient status. In fact, Ellis (2008) conceptualizes the medication management process for LTC nurses as a "race" with three phases: preparing to race, running the race, and finishing the race. Within these phases, nurses need to know the medications; collaborate with other members of the health-care team; administer medications while prioritizing and strategizing; and assess, evaluate, and document whether the medications have been given. Lack of time is clearly a major impediment to safe medication practices and warrants attention at both the practice level and the policy level.

Other barriers to the therapeutic management of medications described by nurses in this study are supported by the literature. For example, Cheek et al. (2004) found that the large amount of documentation, inflexible work practices, lack of standard procedures, and lack of trained or qualified staff were factors affecting the quality of medication therapy in LTC facilities. Innovative strategies are needed for overcoming these barriers in order to improve safety and quality of life for LTC residents.

A number of the participants' proposed strategies for improving medication management practices are also reported in the literature. Some of these are intended to address barriers for the purpose of reducing medication errors by nurses. For example, a key method for reducing medication errors is to develop or improve error reporting systems so that errors can be monitored and tracked in a non-punitive manner (Cafeiro,

2003). This would facilitate the identification of key problem areas and redesign of the medication administration system (Cafeiro, 2003). A technological innovation beneficial to nurses is patient-care-based dispensers — computerized bar coding matches the medication, the dose, and the patient, signalling any discrepancies; the computerized bar coding system is reported to reduce medication errors by up to 80% (Cafeiro, 2003).

The findings from this study shed light on the impact of the changing staff-mix patterns in LTC, given the decreasing RN participation in managing medications. RNs in LTC are responsible for coordinating resident care while juggling multiple demands and are positioned to ensure that all aspects of care, including medication management, are safe and therapeutic. Despite the growing complexity of residential care, the number of RNs working in LTC has decreased over the years, resulting in lower RN-to-resident ratios (Pelletier, 2001). Conversely, RPNs are becoming more predominant in the LTC setting. RPNs' scope of practice in LTC has expanded as they assume responsibility for administering medications and making important drug-related decisions in patient care, even though they have less training and education than RNs. Participants suggested ongoing courses or in-services for licensed nurses, particularly RPNs, regarding medications and other issues as a way to improve medication management in LTC. In fact, Finnick, Crosby, and Ventura (1992) found that directors of nursing in LTC recommended that quality improvement programs incorporate more content related to medication management, such as the appropriateness and potential interactions of drugs. This recommendation is supported by the findings of the present study, as nurses reported an apparent knowledge deficit related to drug interactions, contraindications, and side effects.

Limitations

There are some limitations to the study. The results may not be generalizable to all LTC settings due to the use of convenience sampling. Only nine LTC homes were included, most located in urban southern Ontario. Future studies should use larger sample sizes within a randomized sampling approach covering a larger geographical area. Moreover, the limitations of survey design should be acknowledged, in particular the superficial nature of the data elicited. The use of rigorous qualitative methods that employ more in-depth data-collection and analysis strategies would produce richer data on nurses' perceptions and experiences with regard to medication management in LTC.

Implications for Policy and Practice

The results of this study can contribute to the development of interventions or changes to the medication administration system in LTC, with the goal of making improvements at both the practice and the policy level. At the practice level, a number of changes to the current system are recommended, including better packaging of medications, increased access to resources (e.g., access to the pharmacist after hours and on weekends; text/Internet information on medications and their side effects).

The workload demands of LTC nurses was a predominant issue identified by study participants, severely limiting their ability to provide safe and effective care related to the management of medications. The workload demands of LTC nurses and other staff need to be addressed by decision-makers at all levels in order to ensure safe medication management and to promote positive outcomes for both nurses and residents.

Work in this area has begun. For example, the CNA's (2005) *Evaluation Framework to Determine the Impact of Nursing Staff Mix Decisions* was developed to help employers determine how effectively they are using nursing resources while recognizing and respecting the contribution of each regulated nursing group (i.e., RNs, RPNs). This framework assesses the structures and processes of three groups or domains: the nursing staff, the system/environment, and the client or patient. The goal is to achieve effective matching across all three groups to promote positive outcomes for all. Although applying this framework to LTC settings does present challenges (e.g., variable patient acuity, mixed skill set of staff, and heavy workload required to meet the needs of LTC residents), it does represent a first attempt to address the issue of the excessive workload demands of LTC nurses (McGillis Hall et al., 2006). Future research could examine interventions to ease staff workload in LTC, based on the CNA framework, and the impact of these interventions on both nursing and resident outcomes.

Another unique aspect of LTC is that nurses in this setting, as compared to those working in acute care, assume more responsibility for the coordination, decision-making, and administration of drug-related interventions, partly due to the absence of on-site medical staff. However, the short supply of RNs in LTC settings and the low ratio of RNs to other nursing staff (Finnick et al., 1992) pose a risk to the quality of care provided. An appropriate mix of RNs, RPNs, and unregulated care providers is essential to ensure quality of care, particularly with respect to safe medication management. Since an inappropriate mix of nursing staff can lead to clinical errors and poor patient outcomes, consideration of

the core competencies of RNs and RPNs is recommended (CNA, 2003; McGillis Hall, 2003).

Nurses in this study reported that they relied heavily on other health professionals, most notably physicians and pharmacists, to ensure that the medications that had been prescribed were safe and appropriate for residents. However, the fragmentation of health care in LTC settings has lowered the likelihood of seniors having well-coordinated management of their medications (Johnson, 2003). Medication management in LTC is a multidisciplinary matter requiring strategies for improving collaboration and communication within the health-care team.

In summary, the findings advance our understanding of LTC nurses' perceptions of their medication administration system. The participating RNs and RPNs were relatively satisfied with their medication management practices, but RNs appeared less satisfied than RPNs and perceived the system as less safe. Both RNs and RPNs face a number of barriers to safe medication administration practices, most notably time constraints, heavy workload, and knowledge deficits. However, the nurses found the packaging of medications, access to resources, and support from other staff members to be beneficial in their management of medications. Such issues as workload demands, staff-mix ratios, and knowledge deficits need to be addressed in order to ensure that LTC residents receive safe and effective care.

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Happenings

Dalhousie University/WHO Collaborating Centre on Health Workforce Planning and Research: Planning for HHR Around the World

Gail Tomblin Murphy, Adrian MacKenzie

Improving health services changes lives and transforms communities.

The key element in the delivery of health services is an effective, productive workforce. Up to 80% of operational costs in health systems are related to staff and employment. The provision of sustainable health systems that deliver effective services to the communities they serve depends on health human resources (HHR) planning. However, in spite of significant reforms in recent years, health systems still face serious workforce challenges. Aging populations, limited budgets, changing public expectations, new technologies, and the emergence of new diseases are testing health systems as they consider ways to meet needs and protect, promote, and restore health. Traditional planning methods for the professionals required to provide these services have given little consideration to changes in the needs of the populations they serve or to changes in the amount/types of services offered or how they are delivered.

The aim of the World Health Organization Collaborating Centre on Health Workforce Planning and Research, based at Dalhousie University, is to build local and global capacity for HHR planning that is based on people's health needs. The Centre's work falls into three areas:

HHR planning. Whenever possible, the development and testing of enhanced methods of HHR planning is carried out in collaboration with the Centre's Canadian and international partners. In this respect, the organization acts as a resource centre, providing and disseminating information and knowledge on planning for health systems and HHR using needs-based approaches.

Capacity-building and knowledge exchange. The Centre strives to build global capacity for and exchange knowledge about HHR planning in a number of ways: by offering the expertise of its members to the Pan

American Health Organization (PAHO) and the World Health Organization (WHO); by providing education and training sessions for decision-making partners; by supporting undergraduate and graduate education and exchange; and by facilitating the sharing of best practices and tools for HHR planning through local and international forums, both in person and online.

Evaluation. The Centre provides expertise in the evaluation of various HHR management and education initiatives using such methods as outcome mapping. The approaches used are adapted as needed to different contexts but always incorporate the engagement of relevant stakeholders in determining appropriate process and outcome indicators to measure the progress and successes of the initiatives in question.

The Centre is engaged in a number of research, planning, and capacity-building projects in Canada and other countries. Although each project is unique in its scope and objectives, the underlying goals are the same: to improve the way in which health-workforce planning is carried out both at home and abroad.

The work currently being conducted by the Centre in Canada includes an evaluation of the Model of Care Initiative in Nova Scotia, in which teams of health-care providers collaborate to deliver patient-centred, high-quality, safe acute care. The Centre has worked with partners in Nova Scotia's Department of Health, the province's District Health Authorities, and the IWK Health Centre to determine the impact of the Initiative on outcomes for patients and families, providers, and the system, including its potential impact on provincial HHR shortages. Dissemination of the findings of this evaluation is now underway.

Another Canadian project in which the Centre is currently engaged is the testing and application of a competency-based approach to HHR planning for seniors in Nova Scotia and Nunavut. The aim of this approach is to achieve optimal management of scarce HHR by aligning the unique competencies of the available health workforce with the specific health-care needs of the population it serves. Among the collaborators on this project, which is funded through a Contribution Agreement with Health Canada, are partners in the Nova Scotia and Nunavut departments of health. The project began in November 2009 and is slated for completion by the end of 2012.

This competency-based approach to planning is also being explored through a grant from the Canadian Institute for Health Research (CIHR) under its Partnerships for Health Systems Improvement program. This work also involves a partnership with two jurisdictions: the Province of Nova Scotia and the Vancouver Island Health Authority. Its focus is on how a competency-based approach can help planners to better respond to surges in health-care needs, such as seen during the

recent influenza pandemic. The work of the project is based on earlier research by members of the Centre and other partners in Nova Scotia and Ontario. This is a 3-year project now in its early stages.

Internationally, the Centre is currently involved in projects in Brazil, Jamaica, and Zambia. While these countries differ widely in size and in political, economic, social, and cultural makeup, the overall goal is the same: to build capacity for needs-based HHR planning both in the country concerned and in Canada, through the adaptation and application of enhanced planning methods and the exchange of knowledge about shared challenges to HHR planning.

The Centre's work in Brazil is an integral part of a Memorandum of Understanding between the Brazilian and Canadian ministries of health. This project involves the development of a series of simulation models to guide HHR planning for two Brazilian states — Minas Gerais and Ceará — based on population health needs. It entails the ongoing exchange of knowledge between Canadian and Brazilian partners about shared priority areas in HHR planning, including interprofessional collaborative practice and education, team-delivered primary health care, and the provision of health services to rural and remote populations.

In Jamaica, similar to the case in Brazil, the Centre is engaged in the integration of needs-based approaches to HHR planning into the country's health-system planning. This work is being carried out through the development of a suite of simulation models designed to simultaneously estimate the supply of and requirements for specific health professions. Models for five professions have been produced thus far and others are in development. Another component of the Centre's work in Jamaica is the establishment, with its Jamaican partners, of the Caribbean Centre of Excellence (Jamaica) in HHR planning. The CCEJ is an intersectoral network of government bodies, academic institutions, and stakeholders sharing political and technical cooperation in the planning, management, and strengthening of the health workforce in pursuit of the 20 Goals for Human Resources in Health for the Decade. Other countries partnering with the CCEJ are Barbados, Grenada, and St. Lucia, with additional partnerships being developed. The Centre's work in Jamaica has been funded by a Contribution Agreement with Health Canada and PAHO.

Like the Nova Scotia-Nunavut project, the Centre's work in Zambia entails the adaptation of a competency-based approach to HHR planning. However, the focus of the Zambia project is the health needs of the entire population of two of the country's more rural districts: Gwembe and Chibombo. It is hoped that the adoption of competency-based planning will help to offset the critical HHR shortages in these districts. A second component of the Zambia project is the evaluation, using outcome mapping, of various recruitment and retention initiatives aimed

at increasing the supply of HHR in the country. Although a number of such initiatives have been attempted, their effectiveness is not well understood. It is hoped that a comprehensive evaluation of the initiatives will help to inform HHR planning in Zambia, thereby further offsetting the country's HHR shortages. The Centre's work in Zambia is funded by the Global Health Research Initiative, a partnership between CIHR, Health Canada, the International Development Research Centre, and the Public Health Agency of Canada. It is being conducted in collaboration with partners in the Zambia ministry of health, the University of Zambia, and the Zambia Forum for Health Research.

Recently, the Centre hosted its second annual Summer Institute. Participants came from Barbados, Belize, Brazil, Canada, Grenada, Jamaica, St. Lucia, Trinidad and Tobago, the United States, and Zambia. Consistent with the title of this year's event, Evidence to Policy: Building Strategies to Address Priority Challenges in Health Care, the focus was how partnerships between HRH observatories and collaborating centres might be created, how respective countries use different technologies and methods for HRH metrics, and ongoing country-specific projects and initiatives. The discussions were centred on three themes: needs-based planning for primary health care, mental health, and planning for the elderly. In addition to holding numerous round-table discussions on these themes, the organizers arranged several site visits to health-care facilities in order to give international visitors a better sense of the Canadian health system. Throughout the Institute, participants identified shared challenges to HHR planning, as well as their potential solutions, and laid out avenues for future collaboration between international partners.

The Centre is fortunate to have forged partnerships with non-governmental research agencies, which have helped to build its resource network and guide its work. Among these key partners is the Nova Scotia Health Research Foundation, whose mandates of fostering health research, studying priority health areas, and increasing public knowledge about this kind of work and its benefits are well aligned with the goals of the Centre. In addition, the Centre has been physically housed by the NSHRF since its inception. Another valued partner is the Canadian Coalition for Global Health Research, a Canada-based network to promote better and more equitable health worldwide through the production and use of knowledge — an aim that is well aligned with the work of the Centre. The Coalition has been a particularly valuable partner in facilitating the Centre's work in Zambia.

The Centre also collaborates frequently with a number of individual researchers across Canada. Among those who have worked on multiple projects with the Centre are Dr. Stephen Birch, a health economist at McMaster University; Dr. Rob Alder, an epidemiologist at the University

of Western Ontario; and Dr. Stephen Tomblin, a political scientist at Memorial University of Newfoundland.

Since its founding in 2008, the Centre has been engaged in an array of activities as part of its mandate to build local and global capacity for HHR planning. All evaluations of the Centre's work to date have shown that it has been successful in its endeavours. The staff of the Centre look forward to both completing existing projects and taking on new ones in collaboration with its many partners.

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Happenings

Ontario's Nursing Health Services Research Unit Marks the 20th Anniversary of Its Founding

Diane Doran, Andrea Baumann

History

The Nursing Health Services Research Unit (NHSRU) was founded in 1990 with funding from Ontario's Ministry of Health and Long-Term Care (MOHLTC). The Unit's name has been changed twice over the past two decades as its research has evolved and become more diverse. It was known first as the Quality of Nursing Worklife Research Unit, then as the Nursing Effectiveness, Utilization and Outcomes Research Unit, and now as the NHSRU. The Unit was founded as a collaborative effort of two universities — the University of Toronto and McMaster University in Hamilton — and was co-directed until 2009 by Drs. Andrea Baumann and Linda O'Brien-Pallas.

In the early 1990s the Unit conducted multidisciplinary research to better understand factors that influence the quality of nurses' worklife. In the succeeding years it shifted the emphasis to health human resources, examining the impact of health-care restructuring on the nursing workforce. This research led to the development of the Health Human Resource Conceptual Model, which was adopted by the Canadian Institute of Health Information to guide the study of health human resources in Canada. The NHSRU has also focused on the development of key databases that continue to guide research today and has made recommendations on future data collection.

In addition, the Unit has conducted population-based health services research in nursing, with a focus on population health needs and patient, system, and provider outcomes, to determine the number and type of nurses and other health professionals needed to meet future health needs. Over the years, multi-site studies to determine the work-environment factors, system characteristics, and management behaviour most likely to improve nurse recruitment and retention have also informed policy-making on nursing workforce issues.

Current Status

In 2009 the NHSRU was re-funded by the MOHLTC's Nursing Secretariat and Research Unit, receiving a mandate to help strengthen nursing policy for Ontarians for another 3 years. The funding provided for a new 3-year program of research titled Building and Sustaining the Nursing Workforce for Better Patient Outcomes.

Dr. Baumann of McMaster University and Dr. Diane Doran of the University of Toronto are the scientific directors of this new program of research, which was begun on October 1, 2009. The program builds on the studies conducted by the NHSRU in the past and consists of a core team of researchers at the two universities. It also incorporates the NHSRU's expertise, infrastructure, and experience, including its extensive partnerships with researchers and decision-makers.

In addition to celebrating its recent refunding, the NHSRU marks the 20th anniversary of its founding this year. Part of its current mandate is to continue supplying the MOHLTC with rapid-response information and time-limited studies in order to produce background data and evidence to support policy development. Over the past 20 years the Unit has also trained future researchers and decision-makers, thereby increasing capacity and promoting a wider understanding of nursing and health services research. In addition to its McMaster and University of Toronto sites, the new program engages four further academic institutions: Laurentian University, Queen's University, the University of Western Ontario, and the University of Windsor. The main focus of the research program is the understanding that an effective workforce is a prerequisite to excellent patient care. The purpose of the program is to generate evidence through rigorous research to support decisions on how best to build and sustain the nursing workforce for improved patient outcomes.

Research Projects

Under the current research program, the McMaster site is taking the lead on studies such as (a) longitudinal employment patterns and trends among new graduate nurses that impact on workforce planning, (b) projects to support the integration of internationally educated nurses (IENs) into the Canadian workforce, and (c) risk analyses of increased turnover of critical-care nurses based on specific utilization strategies. The NHSRU has created an outstanding environment for building nursing research capacity. Its educational activities involve the support of undergraduate, master's, doctoral, and postdoctoral students from the School of Nursing at McMaster, partner organizations, and other universities in Canada and internationally. There is student involvement in each of the projects listed below.

Original research conducted by Dr. Baumann identified a trend towards part-time employment and casualization of Ontario's nursing workforce. Based on this research, an employment policy, the Nursing Graduate Guarantee (NGG), was developed by the MOHTLC in 2007. The NGG is a financial stimulus package to encourage the full-time employment of Ontario nursing graduates and facilitate their transition to the workplace. A Web site has been developed where new graduates can search for full-time positions posted by employers. The funding provided to employers supports 6 months of employment for new graduates and includes an extended orientation and mentorship program. A multi-year evaluation of the NGG initiative is being conducted by Dr. Baumann and her team. Since 2007, 8,123 new graduates and 250 employers have participated in the program. The hospital sector has the highest percentage of employer participation in the NGG, with over 70% of Ontario's hospitals taking part. Based on the results from the evaluations, Dr. Baumann and her team recommend that the MOHLTC focus on strategies to stimulate employer participation among public institutions identified as belonging to "high need" sectors (i.e., long-term care, community care) and geographic contexts (i.e., rurality). The NGG employment initiative will be supported by other initiatives, such as the Ontario Nursing Workforce Alliance. Researchers are now beginning the next NGG evaluation, for 2010–11.

NHSRU researchers at the McMaster site are collaborating with the Ontario Ministry of Citizenship and Immigration and the Canadian Association of Schools of Nursing (CASN) to help IENs integrate into the workforce. These collaborations involve two projects focused on integrating IENs into the Canadian workforce.

A Framework for Integrating Internationally Educated Nurses Into the Health Care Workforce is a partnership project between the NHSRU and the Ontario Hospital Association (OHA) and is funded by the Ontario Ministry of Citizenship and Immigration. The project aims to enhance the integration of IENs into the health-care workforce through the creation, implementation, and evaluation of a leading practice guide for hospital employers. The guide will identify barriers to the integration of IENs into the workplace and strategies to address these. In phase 1 (Development) a draft guide will be developed from a literature review and key findings of stakeholder interviews. The guide's applicability to a wide range of settings will be evaluated through an interactive think-tank comprising human resources, nursing, and other leaders. In phase 2 (Dissemination) the guide will be disseminated widely and implementation workshops will be held. Phase 3 (Demonstration on Implementing Leading Practices/Evaluation) will consist of field-testing of specific leading practices from the guide at six demonstration sites to further

enhance the guide. The demonstration evaluation and iterative revision by the OHA will ensure that the guide remains current.

The CASN has received funding from Health Canada to conduct a knowledge synthesis research study titled The IEN Bridging Programs Project. Dr. Baumann and her research team have been awarded the contract to conduct the study, which will examine current bridging programs in Canada. The CASN's objective is to standardize IEN bridging programs nationally and to develop and implement essential components of IEN bridging programs.

Another study being conducted at the McMaster site is Development of a Critical Care Nursing Workforce Profile and Tracking System in Ontario, funded by the Critical Care Secretariat (CCS) of the MOHLTC. The goals of the study are to gain a better understanding of Ontario's critical-care nursing workforce and track the workforce on an annual basis. This multi-year project initially involved the development of a survey instrument to collect annual workforce data, including nurse demographics, workplace statistics, and nurse utilization data within the workplace. In the second phase of the study, all levels 2 and 3 critical-care units in the province were surveyed and a nursing database was developed and housed at the CCS. A minimum data set was derived from the initial survey and provincial, regional, and organizational reports were prepared for the 2007–08 fiscal year. The workforce database has been repopulated with 2008–09 data, and data for the 2009–10 fiscal year will be collected in January 2011. This tracking system forms the basis for further studies to assess retention and recruitment challenges, forecast nurse departure rates and training/replacement rates at all levels, and track the impact of government-funded initiatives designed to improve retention. Currently, analyses are being conducted to determine how the use of overtime, agency nursing, and level of full-time nurses might affect nurse turnover (nurse exit) and retention levels.

The NHSRU's University of Toronto site, in the Lawrence S. Bloomberg Faculty of Nursing, is studying (a) the relationship between nurse-utilization patterns and health and safety outcomes for chronic-disease populations; (b) nurse staffing changes, quality work environments, and Health Outcomes for Better Information and Care (HOBIC) across Local Health Integration Networks; (c) improvements in worklife issues for correctional nurses; and (d) evidence-informed decision-making at the point of care.

Another study currently underway at the University of Toronto site is The Relationship Between Nurse Utilization Patterns and Health and Safety Outcomes for Chronic Disease Populations. This study is exploring the processes that impact on patient-safety outcomes in home care settings and inpatient psychiatric settings by investigating the relationship

between nurse utilization and patient-safety outcomes in these two environments. NHSRU researchers recently completed a detailed demography of nurses working in inpatient psychiatry. Over the next year they will be building on these data with much-needed information on the relationship between established measures of nurse utilization and patient-safety outcomes for individuals with chronic illness who are receiving either inpatient psychiatric care or nursing home care. Findings from this study will demonstrate to researchers and policy-makers how treatment settings form an important bridge for a patient's ultimate recovery or ability to return to a more independent level of functioning. Outcomes of the study include the development of a database of nursing-workforce and patient-safety outcome variables that will allow for investigation of these factors both longitudinally and across sectors.

Dr. Doran and her team at the University of Toronto site will also be undertaking a MOHLTC applied-research study. Home Care Nursing Health Human Resources: Building and Sustaining a Quality Nursing Workforce in Home and Community Care is intended to generate evidence on strategies for recruiting and retaining home care nurses and sustaining home care nursing capacity in order to meet the health needs of Ontario's diverse population. Findings from this study will assist with developing ways to attract nurses to under-resourced areas by improving the prospects for rewarding, long-term employment in home care. The study, comprising two interrelated projects, will generate information on priority issues identified by both the MOHLTC and individuals working in the nursing profession, with an emphasis on innovation and development of healthy work environments specific to home care nurses. The first project in the study explores the utilization and skill mix of community nursing resources for home care patients managing complex medical concerns such as diabetes, mental illness, congestive heart failure, and Alzheimer's disease. The second project will add knowledge about factors related to worklife, supportive work environments, and innovative work arrangements in recruiting new graduates and retaining early-, mid-, and late-career home care nurses.

Another research project to be conducted at the University of Toronto site is a systematic evaluation of the Late Career Nurse Initiative (LCNI). The LCNI was introduced by the MOHLTC in 2004 to help reduce the loss of Ontario's late-career nurses. It entailed the provision of funding to individual organizations that presented a workable plan to implement a .20% full-time equivalent to engage nurses in less demanding and more enriching employment activities. In addition to evaluating "hard" indicators of success (e.g., retention rates), the study is exploring the secondary benefits of the initiative, such as capacity-building and its impact on patient care.

The research project Career Transitions Among Specialist Nursing Roles is expected to have policy implications with regard to specialist nursing as a career path and strategies for retaining nurses in clinical practice roles within the health-care system. In addition to describing the transition patterns, the project will provide evidence on whether exit patterns and retention rates vary between specialist and non-specialist nurses. Little is known about the number of nurse specialists currently working in Ontario, their qualifications, characteristics of their roles, and the impact of their roles on nurses' job satisfaction and retention. Specialist nursing roles may be a means of retaining nurses who wish to have a rewarding career while maintaining a clinical practice focus. One of the purposes of the study is to describe the transition patterns of specialist nurses working across the different health-care sectors and in/out of the nursing profession.

HOBIC, funded by the MOHLTC, is an initiative to measure outcomes relevant to the practice of nursing across sectors. Among other benefits, HOBIC information can be used by nurses to monitor the impact of care and ensure that patients are prepared for discharge. Dr. Doran is currently leading an NHSRU project to investigate Factors That Contribute to Variation in HOBIC Adoption and Utilization and to identify strategies for improving utilization of HOBIC information for clinical care planning and health-system improvement. Examination of the current evidence and consultation with experts will inform changes in evidence-based practice and facilitate HOBIC use by health-care organizations in Ontario.

Future Path

As health-care systems prioritize quality improvement by reducing wait times and increasing access to care, nursing health services research has played and will continue to play a facilitating role. The Nursing Health Services Research Unit, by working with policy-makers, health-care managers, and clinicians for the past two decades, has provided expertise and timely data to inform evidence-based decision-making. Its current program of research is aimed at addressing how best to build and sustain the nursing workforce for better patient outcomes. The Unit will continue to evolve in order to identify and analyze priority issues in this field and will continue to create and implement interventions relevant to these issues.

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Book Review

Nursing Outcomes: The State of the Science (2nd ed.)

Edited by Diane M. Doran
Sudbury, MA: Jones & Bartlett Learning, 2011, 522 pp.
ISBN 978-0-7637-8325-9

Reviewed by Virginia Lee

Of the myriad possible effects of nursing care on patients, what outcomes do I include in my research study? When and how often do I need to measure those outcomes? How nursing-centric do these outcomes need to be? How clinically useful are the instruments employed to measure these outcomes?

The answers to such familiar questions as these can be found in the long-overdue second edition of Diane Doran's *Nursing Outcomes: The State of the Science.* Eight years have passed since publication of the first edition, and the need for an update has been clear. The settings in which health care is delivered and in which nursing services are provided have shifted from predominantly inpatient hospital settings to a variety of non-traditional acute-care, community or home, and long-term-care settings. With the exponential growth in health outcomes research, there is a need to appraise new studies and take stock of new outcomes, new outcome measurements, and new evidence.

The relevance of nursing outcomes research is still rooted in the imperative to investigate the impact of health human resource utilization and to determine whether nursing care is effective, and for whom, how, and in what context. The standardization of nursing-sensitive outcome concepts will allow for comparability of outcomes and for benchmarking — regionally, nationally, and globally — to identify nursing best practices and to continue with quality-improvement initiatives. Given that nurses now often work within interdisciplinary teams and contexts, nursing-centric outcomes are important for our understanding of how to use nursing resources to best effect. Thus, while the outcomes discussed in this book are not specific to nursing, all outcomes must be responsive and sensitive to nursing's interventions.

Doran notes that the primary goal of this second edition is to provide an updated, comprehensive, critical analysis of the latest evidence on nursing-sensitive outcomes by reviewing the conceptual and empirical literature, and that the secondary goal is to critically review the various

methods and instruments used to measure the outcomes. This new edition is in effect a compendium of systematic reviews of nursing-centric outcomes conveniently organized into one encyclopedic volume. The 11 chapters are authored by leading Canadian nursing scientists who, in their respective areas of expertise, raise sometimes controversial but always relevant and illuminating issues. Two frameworks guided the selection of variables to be included in this review of the state of the science on nursing-sensitive outcomes. The Nursing Role Effectiveness Model (Irvine, Sidani, & McGillis Hall, 1998) informed the identification of structure, process, and outcome variables, and a measurement framework by Sidani and Irvine (1998) guided the psychometric review of the instruments measuring the outcomes of interest.

All of the authors are similarly transparent in their review methodology. A standardized framework and tables for extracting the data pertinent to each outcome are used to promote a consistent approach throughout the volume. Each chapter begins with a theoretical overview of the particular nursing-sensitive outcome and proposes a conceptual definition. It highlights the specific research issues that are pertinent to the assessment and measurement of the outcome. It then critically examines the empirical evidence linking patient outcomes to nursing inputs or processes. Each chapter discusses and critically reviews the psychometric properties of the instruments available to measure the outcome, thus forming a self-contained, comprehensive synthesis of the state of the science on a specific nursing-sensitive outcome.

The specific nursing-sensitive outcomes discussed in the book are as follows: functional status (chapter 2); self-care (chapter 3); symptom management with an emphasis on fatigue, nausea, vomiting, and dyspnea (chapter 4); pain (chapter 5); adverse patient outcomes or patient safety outcomes that are sensitive to nursing (e.g., medication errors, nosocomial infections, patient falls, pressure ulcers) (chapter 6); psychological distress (chapter 7); patient satisfaction (chapter 8); mortality rates (chapter 9); health-care utilization (chapter 10); and nursing minimum data sets (chapter 11). The chapters on psychological distress, health-care utilization, and mortality constitute the chief distinction between the first and second editions. These three chapters were added to address important gaps identified in the first edition. It should be noted that while there was no explicit criterion to exclude pediatric or adolescent clientele in each author's search strategy, the scope of the book is overwhelmingly in favour of adult patient outcomes. The value of *Nursing Outcomes: The State of the Science* for nurses who work primarily with children rests on the extent to which these nurses can extrapolate or adapt the content to their patient population.

This book is a valuable resource for graduate students, researchers, clinicians, and policy-makers and decision-makers. It has immediate utility for researchers and students in the judicious selection of nurse-sensitive outcomes for primary research. It is also valuable for its long-term, broader vision: to build and establish a clinical database that will house nursing-sensitive outcomes in acute, community or home, and long-term-care settings. This edition is systematically structured so there is no time wasted looking for content. Conceptual definitions are consistently provided, thus avoiding the conceptual confusion so often found in the nursing vernacular. *Nursing Outcomes* is also notable for its attention to the Canadian health-care context. For example, chapter 11 situates us internationally, among our nursing counterparts in terms of our progress in developing nursing minimum data sets. In summary, the authors provide an evidence-based understanding of which outcomes have demonstrated sensitivity to nursing care. Future editions using the same format and methodology would be welcome, to chart the state of outcomes research over time.

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Résumé

Évaluation d'un modèle de prestation des soins : résultats systémiques en soins cardiaques actifs

Linda O'Brien-Pallas, X. Mingyang Li, Sping Wang, Raquel M. Meyer, Donna Thomson

Nous avons recouru à la modélisation linéaire hiérarchique afin d'évaluer, à partir de données recueillies auprès de services hospitaliers de cardiologie, l'incidence sur les résultats systémiques de la dotation en personnel infirmier, du milieu de travail et de variables relatives aux infirmières et aux patients. Une utilisation inférieure à 80 % de l'effectif du service et un moindre recours aux heures supplémentaires accroissent au maximum la perception de la qualité des soins et l'exécution des interventions thérapeutiques. Un ratio infirmière/patients peu élevé améliore la perception de la qualité des soins tout en réduisant les séjours prolongés imprévus. Une dotation jugée adéquate par le personnel infirmier est associée à une diminution de l'absentéisme et du nombre d'interventions infirmières inachevées ou remises à plus tard. Les résultats systémiques sont également tributaires des caractéristiques de la clientèle (état de santé, éducation préopératoire, diagnostics infirmiers), des caractéristiques du personnel infirmier (expérience, expertise, état de santé, déséquilibre effort-récompense) et des facteurs associés au milieu de travail (autonomie, instabilité au sein du service).

Mots clés : dotation en personnel infirmier, milieu de travail, qualité des soins, absentéisme, interventions infirmières

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Evaluation of a Patient Care Delivery Model: System Outcomes in Acute Cardiac Care

Linda O'Brien-Pallas, X. Mingyang Li, Sping Wang, Raquel M. Meyer, Donna Thomson

Hierarchical linear modelling was used to evaluate the influence of nurse staffing, work environment, and nurse and patient variables on system outcomes based on data collected in Canadian cardiac and cardiovascular inpatient units. Staffing utilization levels below 80% at the unit level and less overtime optimized perceived care quality and the completion of therapeutic interventions. Fewer patients per nurse improved perceived care quality and reduced longer-than-expected length of stay. Nurse reports of greater resource adequacy were associated with less absenteeism and fewer uncompleted or delayed nursing interventions. System outcomes were also influenced by patient characteristics (health, pre-operative education, nursing diagnoses); nurse characteristics (experience, expertise, health, effort-reward imbalance); and work-environment factors (autonomy, unit instability).

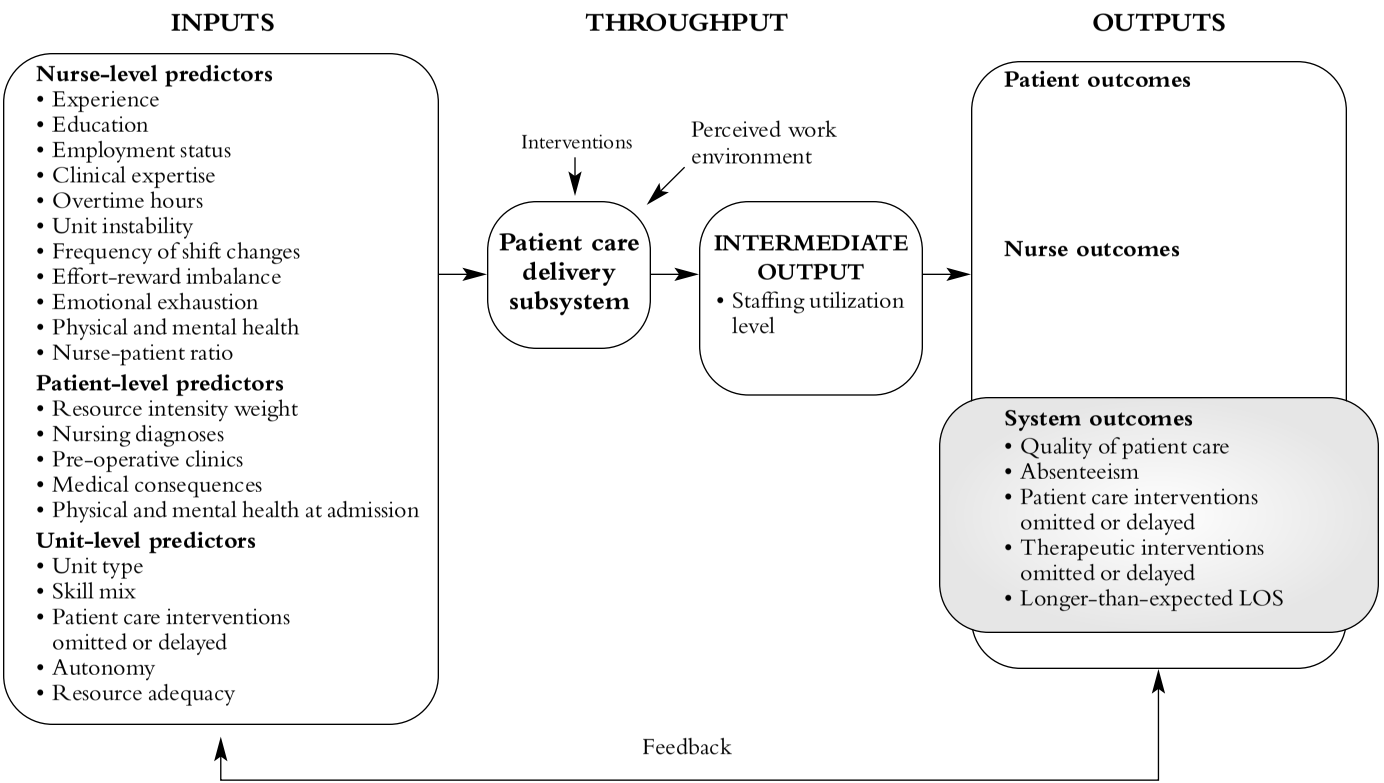
Keywords: nurse staffing, work environments, quality of care, absenteeism, nursing interventions, length of stay

Introduction

The management of organizational factors is key not only to establishing effective working conditions and worklives for nurses, but also to improving health-care outcomes (Rafferty, Maben, West, & Robinson, 2005). Work-environment factors and nurse staffing are closely linked to outcomes for patients, nurses, and the system (Lankshear, Sheldon, & Maynard, 2005). A better understanding of complex relationships among these factors is essential to meet the increased demand for cost and quality accountability in health care.

Guided by the Patient Care Delivery Model (PCDM), O'Brien-Pallas, Thomson, et al. (2004) examined the interrelationships between variables theorized to influence system outcomes. In this article we identify key patient and nurse characteristics. We also identify nursing-unit factors that influenced system outcomes and provide evidence-based optimal nurse staffing utilization levels for better outcomes of cardiac and cardiovascular care in tertiary-care hospitals. System outcomes included quality of patient care, nurse absenteeism, patient care and therapeutic interventions omitted (or not completed) or delayed, and length of stay (LOS).

Figure 1 *Conceptual Framework*



Conceptual Model

The PCDM is based on Open System Theory. Its development (Meyer & O'Brien-Pallas, 2010; O'Brien, Meyer, Hayes, & Wang, in press) and testing in hospital (Meyer, Wang, Li, Thomson, & O'Brien-Pallas, 2009; O'Brien-Pallas, Irvine, Peereboom, & Murray, 1997; O'Brien-Pallas, Meyer, & Thomson., 2004) and community (O'Brien-Pallas et al., 2001, 2002) settings are detailed elsewhere. In the PCDM, the hospital is conceptualized as an open system and inputs to the care-delivery system (i.e., characteristics of patients, nursing teams, and the system as well as system behaviours) and throughput factors (e.g., nursing interventions, work environment, and environmental complexity) cross the boundaries of the patient care subsystem to influence distal outputs (i.e., patient, nurse, and system outcomes). The inputs are transformed through nursing work processes and structures at the unit level, which in turn generates outputs and provide feedback for the entire system. A key intermediate output in the PCDM is the staffing utilization level of the unit, which indicates how well a unit is staffed relative to patient needs for nursing care. Figure 1 depicts the conceptual framework that guided this study of system outcomes.

In the PCDM, patient, nurse, work-environment, and system factors interact interdependently and dynamically to influence system outputs such as the quality of patient care, nurse absenteeism, nursing interventions, and LOS. Empirical and theoretical reviews of these relationships are detailed elsewhere (Davey, Cummings, Newburn-Cook, & Lo, 2009; O'Brien-Pallas et al., in press; Pearson et al., 2006). In terms of patient characteristics, age, gender, and education have been associated with system outcomes such as quality of patient care, nurse absenteeism, and nursing interventions (Ganova-Iolovska, Kalinov, & Geraedts, 2009; Gellatly, 1995; Palnum et al., 2009); however, these relationships have been inconsistent (Thoroddsen & Thorsteinsson, 2002; Vinson et al., 2007). Patient health conditions also affect system outcomes. Increased patient acuity has been associated with suboptimal care (Massey, Aitken, & Chaboyer, 2009). Nursing diagnoses remain a strong predictor of LOS in hospital and in intensive care units as well as of costs (Thoroddsen & Thorsteinsson, 2002; Welton & Halloran, 2005).

System outcomes also vary in relation to nurse characteristics. The quality of patient care has been associated with nurse education (Tomey, 2009; Wu & Lee, 2006), employment status (Estabrooks, Midodzi, Cummings, Ricker, & Giovannetti, 2005; Wu & Lee, 2006), and age (Wu & Lee, 2006). Relationships have been observed between nurse absenteeism and lower job satisfaction, longer shifts, working in acute care, and

working full time (Zboril-Benson, 2002) as well as between shorter LOS and higher nursing education (Kutney-Lee & Aiken, 2008).

Organizational characteristics and behaviours in acute-care settings may also influence system outcomes. Labour and material resources are conceptualized as influencing missed care (Kalisch, Landstrom, & Williams, 2009). Absenteeism and care quality have also been associated with throughput factors reflective of nursing work environments, including leadership, management style, communication, autonomy, and role ambiguity (Kalisch et al., 2009; Nyathi & Jooste, 2008; Tomey, 2009). Objective staffing indicators (e.g., hours per patient day, nurse-patient ratios) have been associated with system outcomes such as absenteeism (Nyathi & Jooste, 2008; Unruh, Joseph, & Strickland, 2007), quality of patient care (Aiken, Clarke, & Sloane, 2002; Tomey, 2009), LOS (Padilha, de Sousa, Queijo, Mendes, & Reis Miranda, 2008), and cost (Thungjaroenkul, Cummings, & Embleton, 2007). However, the predominance of analyses at the hospital level rather than at the nursing-unit level have limited researchers' understanding of optimal staffing practices at the unit level and have restricted administrators' ability to modify inputs and throughputs to improve nursing at the point of care. In our study, staffing utilization levels were used as an alternative staffing indicator to measure how well a nursing unit was staffed (i.e., worked hours) relative to patient needs for nursing care (i.e., workload hours). Inadequate staffing utilization levels have been associated with poor patient outcomes, including decline in physical health, as well as inpatient knowledge, behaviour, and symptoms related to nursing diagnoses (Meyer et al., 2009). In this article we report on the relationships between staffing utilization levels and system outcomes.

An understanding of the factors that influence system outcomes is essential in the face of rising health-care costs and accountability for care quality. The objectives of the study were to (1) determine the work environment and nurse staffing variables at the nursing-unit level that influence system outcomes, and (2) identify optimal staffing levels for achieving positive system outcomes.

Methodology

Design, Data, and Measures

A prospective, correlational design with cross-sectional and longitudinal components was used to collect data. Of six participating hospitals in the Canadian provinces of Ontario and New Brunswick that met the inclusion criteria (i.e., high patient volumes in the cardiac Case Mix Group of interest), four were teaching hospitals. Cardiac and cardiovascular units that group patients with similar diagnoses were targeted in order to opti-

mize sample size and homogeneity. Hospital size ranged from 121 to 1,060 beds. The multiple data sources included hospital records, unit profiles, nurse surveys, daily unit data, and a patient-data form filled out by nurses or data collectors. Nurse survey data were collected at the beginning of the study. Repeated data, either daily or at two time points between admission and discharge, were collected during a 6-month period in 2002. In total, 1,230 patients and 727 staff nurses from 24 units completed the data forms; of these, only 1,198 patients and 555 nurses were included in the final modelling because of missing values. The study was approved by university and hospital ethics review boards.

In addition, some individual nurse measurements were aggregated to the unit level to measure the atmosphere or morale of a unit. This included the Revised Nursing Work Index (R-NWI) resource adequacy subscale, which provides a subjective measure of nurse staffing based on the aggregate score of nurses' ratings of resources present in the workplace. Operational definitions of the variables are presented in Table 1.

Analysis

Because the data were hierarchical in nature, with patients and nurses mostly nested within units and units nested within hospitals, hierarchical linear modelling was conducted at two levels (patient/nurse and unit), using MLwin version 2.11, to better account for the possible clustering of effects within units.

The effects of the PCDM variables that were theoretically important to the outcomes were assumed to be additive. For patient-level outcomes, patient characteristics (e.g., resource intensity weight, nursing diagnoses, medical consequences, health status on admission) were included to control for patient acuity or baseline status. For nurse-level outcomes, nurse characteristics (e.g., education, employment status, health status) were included as control variables. Only the statistically significant R-NWI subscales and unit variables aggregated from individual nurses were retained in the final models. The characteristics of patients (e.g., resource intensity weight, nursing diagnoses) cared for by each nurse were aggregated and treated as nurse-level variables to control for the work environment relative to patients assigned to each nurse. Variables of importance in the PCDM but not statistically significant in the preliminary analysis were not used in the final models.

The staffing utilization level was calculated daily at the unit level as the total GRASP/Medicus workload hours divided by the total worked hours, multiplied by 100 to obtain a percent value. The higher the percent value, the more the unit was understaffed relative to patient needs for nursing care (i.e., the fewer the worked hours relative to workload

Table 1 *Operational Definitions of Predictors and Outcomes*

Predictors	Variable	Measure [*Source*]
Patient Level	Health-service utilization	Attendance at pre-operative or post-operative clinics and so on [*patient interview*]
	Physical and mental health	Medical Outcomes Study Form 12,®[a] a 12-item scale of physical functioning, vitality, role functioning, physical problems, social functioning, bodily pain, mental health and general health perceptions [*patient interview*]
	Nursing diagnoses	Number of North American Nursing Diagnoses Association[b] diagnoses [*patient chart, Kardex, or nurse*]
	Resource intensity weight	Relative values describing the expected resource consumption of the "average" patient within Case Mix,[c] complexity, and age groups that were used to control for patient acuity levels [*Health Records Department*]
	Medical consequences	Report of death, medical errors with consequences, urinary tract infections, wound infections, pneumonia, falls with injury, bed sores or thrombosis during hospital stay (one or more vs. none) [*patient data form*]
Nurse Level	Experience	Years worked as a nurse [*nurse survey*]
	Education	Highest nursing credential (degree vs. diploma) [*nurse survey*]
	Employment status	Full-time versus part-time or casual status [*nurse survey*]

	Clinical expertise	Being a preceptor for another nurse, providing clinical advice [*nurse survey*]
	Overtime	Number of overtime hours worked per week, whether voluntary/involuntary, paid/unpaid [*nurse survey*]
	Unit instability	Any report of forced change to unit in past year, anticipated forced change of units in next year or expected job less within next year (yes vs. no) [*nurse survey*]
	Shift change	Report of more than one shift change in the past 2 weeks (vs. none) [*nurse survey*]
	Effort-reward imbalance	Effort-Reward Imbalance Scale,[d] a 17-item scale identifying the imbalance between high effort spent and low reward received at work; dichotomized as > 1 at risk versus ≤ 1 not at risk [*nurse survey*]
	Emotional exhaustion	Maslach Burnout Inventory,[e] a 25-item scale measuring emotional exhaustion, depersonalization, and personal accomplishment. Only the emotional exhaustion scores for nurses were included; dichotomized as at risk (score > 27) versus not at risk (score ≤ 27). [*nurse survey*]
	Physical and mental health	SF12[a] [*nurse survey*]
	Nurse-patient ratio	Average number of patients cared for daily by a nurse on day shift over the data-collection period [*Daily Patient Assignment Form*]

Continued on next page

Table 1 *(cont'd)*

Predictors	Variable	Measure [*Source*]
Unit Level	Unit type	Step down versus other unit types (inpatient, day surgery, CCU) [*data collector*]
	Skill mix	Proportion of nursing hours contributed by RN [*Daily Unit Staffing Form*]
	Patient care interventions omitted or delayed	Average number of patient care interventions (vital signs/medications/ dressings, mobilization or turns, PRN pain medications, back rubs and skin care, oral hygiene) omitted or delayed in the last shift at the unit level [*nurse survey*]
	Autonomy and resource adequacy	Autonomy is the sum score of six autonomy items and resource adequacy is the sum score of four resource items from the R-NWI.[f] The unit average score was used as a unit-level predictor. [*nurse survey*]
	Staffing utilization level	At the unit level, workload hours divided by nurse worked hours multiplied by 100; daily unit workload scores were computed using GRASP,© a standard time methodology, or Medicus,© a relative value methodology [PRN Daily Workload and Grasp Patient Care Hours]. Worked hours was measured as the daily number of paid hours (including paid breaks) worked by all nursing staff. [*Daily Unit Staffing Form*]

System Outcomes	LOS	Longer than expected [*Health Records Department*][c]
	Patient care interventions omitted or delayed	At least one patient care intervention (vital signs/medications/ dressings,mobilization or turns, PRN pain medications, back rubs and skin care, oral hygiene) omitted or delayed in the last shift [*nurse survey*]
	Therapeutic interventions omitted or delayed	At least one therapeutic intervention (teaching patients and families, preparing patient and family for discharge, comforting/talking with patients, documenting nursing care) omitted or delayed in the last shift [*nurse survey*]
	Nurse absenteeism	Number of missed-work occasions due to illness and disability in the past year; dichotomized as one or more sick leaves versus none [*nurse survey*]
	Quality of patient care	Quality of patient care in the unit in the past year; dichotomized as improvement versus others [*nurse survey*]

[a] Ware, Kosinski, and Keller (2002).
[b] Kim, McFarland, and McLane (1991).
[c] Canadian Institute for Health Information (2009).
[d] Siegrist (1996).
[e] Maslach and Jackson (1982).
[f] Aiken and Patrician (2000).

hours). Generally, utilization levels should not exceed design capacity and effective capacity. Design capacity is the maximum output that can be attained under ideal conditions with workload hours equivalent to worked hours (i.e., 100%); this usually constitutes an unrealistic goal in actual work settings (Stevenson, 2009). Effective capacity is expected to be less than design capacity and is the maximum possible output given the patient mix, scheduling difficulties and breaks, technology in use, and quality factors (Stevenson, 2009). In our study, effective capacity was 93%, to account for paid mandatory breaks (7% of the shift duration), which were embedded in worked hours. It was hypothesized that the relationships between staffing utilization levels and system outcomes were non-linear (where positive outcomes are observed when unit staffing is adequate relative to patient needs for nursing care, but these turn negative when units are understaffed — that is, as units become increasingly understaffed, nurses do not have adequate time to provide the care that patients require, thereby compromising system outcomes). Several modelling strategies were used to examine the non-linear relationship and to determine the cut-off point — the staffing utilization level at which system outcomes begin to deteriorate, including a curvilinear relationship, piece-wise regression, and indicators at predetermined cut-off points.

Results

Sample

Of the 24 cardiac and cardiovascular care units, 11 were critical care, 9 were inpatient, and the remainder were step-down or day-surgery units; 20 were pure cardiology and 4 were either mixed units or intensive care units. Nearly 60% of nurses were employed full time, with registered nurses (RNs) contributing 97% of nursing worked hours (Table 2). Across units, the overall daily average staffing utilization level was 90% (*SD* = 27.1%) for the study period. On 60% of study days, staffing utilization levels reached 85%. On 46% of study days, staffing utilization levels exceeded 93%, indicating that patient needs for nursing care exceeded the hours worked by nurses (i.e., effective capacity was surpassed).

Patients were elderly and mostly male. The average LOS was 6.4 days and 26.6% of patients stayed longer than expected. The number of nursing diagnoses, which averaged 4.5, was highest on critical-care units. Patient health at admission was poor, with 87% and 49.2% of patients scoring below the US population averages for physical and mental health, respectively.

Table 2 *Characteristics of Sample*

Predictors in Hierarchical Linear Models	**%**	***Mean***	***SD***
***Patient Level* (*N* = 1,230)**			
Surgical patients attended pre-operative clinic	33		
Physical health at admission (range = 4.04–76.36, % above US general population/*mean*/*SD*)	13	35.2	11.2
Mental health at admission (range = -3.41–79.48, % above US general population/*mean*/*SD*)	50.8	48.2	11
Number of nursing diagnoses (range = 1–18)		4.5	2.37
Resource intensity weight		2.8	2.66
Medical consequences	6.1		
***Nurse Level* (*N* = 727)**			
Years of work experience in nursing		16.5	8.78
Education: university degree	42.3		
Employment: full time	59.8		
Clinical expertise (range = 1–4)		2.9	0.61
Overtime hours per week		2.8	6.11
Unit instability (forced/anticipated unit change or lose job)	20.9		
Change shift more than once in a 2-week period	32.4		
Effort-reward imbalance (range = 0.5–2)		0.7	0.25
Emotional exhaustion (range = 9–54)		22.6	10.27
Physical health (range = 4.04–76.36; % above US female population/*mean*/*SD*)	65.2	50.1	8.5
Mental health (range = -3.41–79.48; % above US female population/*mean*/*SD*)	50.8	47.3	10.4
Nurse-patient ratio		2.3	1.43

Continued on next page

Table 2 *(cont'd)*

Predictors in Hierarchical Linear Models	**%**	***Mean***	***SD***
***Unit Level* (N = 24)**			
Unit type: step-down unit	8.33		
Skill mix (% of RN worked hours)		96.9	7.9
Average number of patient care interventions omitted or delayed		1.6	0.66
Average autonomy score (range = 6–24)		16.1	1.4
Average resource adequacy score (range = 4–16)		9.54	1.54
Staffing utilization level (%)		86.6	16.78
System Outcomes			
***Patient Level* (n = 1,198)**			
Longer-than-expected LOS	26.6		
***Nurse Level* (n = 555)**			
Quality of patient care (excellent/good vs. fair/poor)	60.4		
Nurse absenteeism (one or more sick leave vs. none)	79.8		
Patient care interventions omitted or delayed (at least one vs. none)	68.8		
Therapeutic interventions omitted or delayed (at least one vs. none)	58.5		

Nurses were predominantly female (93.9%) and RNs (96.6%). They were in relatively good health. Four tenths of nurses held a university degree. On average, nurses cared for 2.3 patients a day. About one in seven nurses (13.4%) rated the nursing quality as fair/poor and four in ten (41.9%) indicated that the quality of patient care had deteriorated over the past year. When faced with insufficient time, nurses generally omitted nursing interventions (as opposed to physician-dependent interventions). Interventions that were omitted (or not completed) or delayed included, for patient care, vital signs/medications/dressings (37.3%), back/skin care (31.4%), mobilization/turns (30.5%), oral hygiene (28.7%), and PRN pain medications (16.6%); for therapeutic care, comforting/talking (38.6%), patient/family teaching (23.3%), documentation (22.6%), and preparing patients and families for discharge (11.4%). In total, nurses missed 1,768 work occasions in the past year, with each occasion averaging 2.4 shifts. Although 16.4% of nurses were never absent, frequency of missed occasions ranged from one to two (42.9%), three to four (25.2%), and greater than four (15.5%). Physical health (71.4%) was the major reason for nurse absenteeism; mental health (5.4%) and injury (4.8%) were minor reasons.

Multivariate Results

Regression coefficient estimates and odds ratios from the hierarchical logistic regression models for the system outcomes are presented in Table 3.

Quality of patient care over the past year. Nurses who rated themselves as expert clinicians or who reported more overtime hours were less likely to perceive improved patient care. Improvement in the quality of care was 64% less likely when staffing utilization levels exceeded 79%, 22% less likely for each additional patient cared for by nurses, 70% less likely for every additional patient care intervention omitted or delayed per nurse on the unit, and 50% less likely when nurses experienced effort-reward imbalances. Improved care was more likely to be reported by experienced nurses and was 43% more likely for every one-point increase in the average unit autonomy rating.

Nurse absenteeism. Full-time nurses were nearly twice as likely as part-time and casual nurses to miss work. Absenteeism was 2% less likely when nurses scored one point higher on physical health status, 22% less likely when nurses reported unit instability, and 23% less likely for every one-point increase in the average resource adequacy score on the unit.

Patient care interventions omitted or delayed at the last shift. Full-time nurses were 60% more likely than part-time and casual nurses to report patient care interventions omitted or delayed. The likelihood of omitted or delayed patient care interventions declined by 3% for every additional

Table 3 *Results of Hierarchical Linear Models for Quality of Patient Care, Nurse Absenteeism, Interventions Omitted or Delayed, and Longer-Than-Expected LOS*

	Good/ Excellent Quality of Patient Care		Absenteeism		Patient Care Interventions Omitted or Delayed		Therapeutic Interventions Omitted or Delayed		Longer-Than-Expected LOS	
Predictor	**Co-efficient**	**Odds Ratio**	**Co-efficient**	**Odds Ratio**	**Co-efficient**	**Odds Ratio**	**Co-efficient**	**Odds Ratio**	**Co-efficient**	**Odds Ratio**
Nurse Level										
Years of work experience in nursing	0.026★	1.03★	-0.01	0.99	-0.03★	1★	0.018	0		
Education (ref: diploma)	0.094	1.1	0.022	1.02	0.112	1.1	0.179	1.2	-0.312	0.73
Full-time employment (ref: part-time/casual)	-0.38	0.68	0.989★	2.69★	0.473★	1.6★	0.217	1.2		
Clinical expertise	-0.41★	0.67★	-0.04	0.96	-0.07	0.9	-0.05	1	0.322	1.38
Overtime hours	-0.04★	0.96★	0.011	1.01	0.029	1	0.029★	1★		
Unit instability	0.181	1.2	-0.25★	0.78★	-0.1	0.9	-0.14	0.9		
Shift change	-0.35	0.71	0.218	1.24	0.016	1	-0.12	0.9		
Effort-reward imbalance	-0.86★	0.42★	-0.06	0.94	0.613	1.9	0.943★	2.6★		
Emotional exhaustion	-0.03	0.97	-0.13	0.88	0.021	1	0.062	1.1		
Physical health	0.007	1.01	-0.05★	0.95★	-0.01	1	-0.03★	1★	0.017	1.02
Mental health	0.022	1.02	-0.02	0.98	-0.04★	1★	-0.03★	1★	-0.019	0.98
Nurse-patient ratio	-0.25★	0.78★	-0.09	0.91	-0.03	1	0.173	1.2	0.303★	1.35★

Patient Level										
Resource intensity weight	0.015	1.02	0.017	1.02	0.031	1	0.021	1	0.273★	1.31★
Number of nursing diagnoses	0.105	1.11	0.077	1.08	-0	1	-0.04	1	0.119★	1.13★
Pre-operative clinics									-0.907★	0.4★
Medical consequences									0.726★	2.07★
Physical health at admission									-0.017★	0.98★
Mental health at admission									-0.009	0.99
Unit Level										
Step-down unit (ref: other types)	0.805	2.24	-1.01	0.36	-1.16	0.3	-0.7	0.5		
Skill mix (proportion of RN worked hours)[a]	-1.98	0.82	-0.95	0.91	-0.1	1	-1.32	0.9	1.193	1.13
Average number of patient care interventions omitted or delayed	-1.2★	0.3★								
Average autonomy score	0.36★	1.43★								
Average resource adequacy score			-0.26★	0.77★	-0.48★	0.6★	-0.44★	0.6★		
Staffing utilization (beyond 85%)[b, c]			0.188	1.21	0.02	1			0.159	1.17
Staffing utilization (beyond 79%)[b, c]	-1.02★	0.36★								
Staffing utilization (beyond 76%)[b, c]							0.688★	2★		

[a] Odds ratios based on a 10% increase.
[b] Used proportion to model.
[c] A dichotomized staffing utilization level at various cut-off points was tested. If all of these failed, a dichotomized staffing level at 85% was included in the model.
★ $p \leq 0.05$. All outcome measures were dichotomized.

year of nursing experience, by 4% for every one-point increase in nurse mental health score, and by 38% for every one-point increase in average unit resource adequacy scores.

Therapeutic interventions omitted or delayed on the last shift. The likelihood of omitted or delayed therapeutic interventions increased by 3% for every 1-hour increment in overtime, by 99% when staffing utilization levels exceeded 76%, and by 157% when nurses were at risk of effort-reward imbalance. The likelihood of omitted or delayed therapeutic interventions decreased by 3% for every one-point increase in nurse mental or physical health scores and by 36% for every one-point increase in the average unit resource adequacy score.

Longer-than-expected LOS. Patients with higher resource intensity weights, reflecting a higher degree of medical acuity, were more likely to have longer-than-expected LOS. Longer-than-expected LOS was 107% more likely when patients experienced medical consequences, 13% more likely for each additional nursing diagnosis, and 35% more likely for each additional patient cared for by nurses. Longer-than-expected LOS was 2% less likely when patients' physical health status scores were one point higher at admission and 60% less likely for patients who had attended a pre-operative clinic.

Discussion

The health-care sector, like many other sectors, is facing budgetary restraints in response to a global recession. When cutbacks occur, nursing services are targeted for cost savings because these large cost centres account for significant expenditures. The findings of this study suggest that when units are staffed inadequately and nurses are over-utilized, system outcomes deteriorate. Cutting nursing budgets may not be the answer. The findings indicate that staffing resources are associated with improved system outcomes. Yet with each round of budget cuts, this downward spiral continues. The purpose of the PCDM is to determine how outcomes vary relative to the delivery of nursing services at the unit level. In this study, inadequate staffing was not effective for patient outcomes (Meyer et al., 2009) or for hospitals. We will now discuss the influence of inputs and throughputs (including staffing) on system outcomes and the implications for the management of nursing services.

The study used both objective and subjective staffing measures and was consistent with previous research linking low staffing with low quality and safety concerns. In terms of objective staffing indicators, as staffing utilization levels exceeded 79% for quality of patient care and 76% for missed therapeutic nursing interventions, system outcomes declined. This suggests that as the study units became increasingly under-

staffed, nurses had inadequate time to ensure good-quality care or were unable to speed up their work to complete necessary nursing interventions. Overtime was also negatively associated with perceived care quality, and, for each additional patient per nurse, good or excellent care was 22% less likely and longer-than-expected LOS was 35% more likely. These findings corroborate previous findings on the association between higher nurse-patient ratios and lower nurse ratings of quality (Al-Kandari & Thomas, 2009; Cho et al., 2009; Sochalski, 2004). Similarly, the participants' subjective perceptions of greater resource adequacy were associated with improved patient care, less missed care, and less absenteeism. The finding of a negative relationship between absenteeism and resource adequacy, which is consistent with the finding reported by Unruh et al. (2007), indicates that low staffing may contribute to unit absenteeism, which further lowers staffing and may create a vicious circle. Policy formulation and planning strategies to address understaffing and the lack of labour and material resources are therefore likely to improve system outcomes.

In addition to the positive impacts of adequate staffing, hospital administrators need to give high priority to providing an environment that fosters nurse autonomy and good health as well as a balance between efforts and rewards. Consistent with other research (Kane, Shamliyan, Mueller, Duval, & Wilt, 2007; Murphy, 2007), the present study found that patient care stands to improve when nurses report more autonomy and less effort-reward imbalance and that nursing interventions may be completed when nurses report higher levels of physical and mental health and are less stressed by inadequate rewards for efforts expended.

Kalisch et al. (2009) warn that the safety of hospitalized patients may be jeopardized by missed nursing care or errors of omission. The present study found that nurse characteristics such as experience, good mental or physical health, and perceived effort-reward balance lower the likelihood of missed patient and therapeutic care. Therefore, retaining experienced nurses, promoting a healthy workforce, and recognizing and rewarding staff excellence are valuable human resource strategies for fostering patient safety; these strategies have also been cited as tenets of magnet hospitals and as central to healthy work environments (Aiken & Patrician, 2000; Laschinger, Almost, & Tuer-Hodes, 2003).

The study also found that full-time nurses were more likely than their part-time and casual counterparts to report omitted/uncompleted or delayed patient care interventions and to be absent from work. Kalisch and Begeny (2005) note that full-time staff take on the burden of ensuring care continuity in the face of shifting team composition. We surmise that, for this reason, full-time nurses in the present study had less time to complete patient care interventions such as vital signs, medications, dress-

ings, mobilization or turns, PRN pain medications, back rubs and skin care, and oral hygiene. In addition, the full-time nurses had much higher rates of absenteeism, similar to Zboril-Benson's (2002) findings. Management strategies sensitive to the coordination burden placed on full-time staff and to the unrelenting pace of full-time schedules may enable full-time staff to participate more effectively in the workplace.

The system outcome of patient LOS has been studied in the context of different organizational settings, with implications for resource use and medical costs in relation to nurse staffing (e.g., Thungjaroenkul et al., 2007). Findings on the relationship between nurse staffing and actual LOS have been mixed, with either an inverse relationship or no relationship reported. In some instances this may be partially explained by the fact that the actual LOS does not evaluate the adequacy of the length of admission — that is, shorter LOS may not result from better care or lead to cost savings. Deviations from an expected LOS based on Case Mix Group and age group (Canadian Institute for Health Information, 2009) used in this study provide a better measure of the relationship between patient days on the unit and other unit characteristics, such as nurse staffing. Tschannen and Kalisch (2009) indicate that higher numbers of nursing staff resulted in patients being discharged sooner than expected based on Diagnosis Related Groups. Similarly, the present study found that a higher nurse-patient ratio may reduce the likelihood of longer-than-expected LOS.

The findings support the use of pre-operative education, over and above standard care, to reduce longer-than-expected LOS. Cardiac patients who attended a pre-operative clinic were less likely to have longer-than-expected LOS. In contrast to this finding, a systematic review of pre-operative education for hip or knee replacement concluded that LOS is unaffected by pre-operative education (McDonald, Hetrick, & Green, 2004). The difference could be attributable to the fact that longer-than-expected LOS was modelled in the present study, while actual LOS was used in that study. The finding of a significant (60%) reduction in the likelihood of longer-than-expected LOS suggests that pre-operative education may either shorten recovery or expedite the discharge process once patients can be safely sent home.

Conclusion

Several important conclusions emerge from this study. Although hospitals have limited control over patient characteristics and health status, administrators can manage staffing and work-environment factors that impact system outcomes. Adequate nurse staffing and organizational support for nursing are key to improving system outcomes. All system

outcomes in this study were negatively influenced by inadequate nurse staffing, as reflected by either objective (i.e., staffing utilization levels, nurse-patient ratios, overtime) or subjective (i.e., nurse perceptions of resource adequacy) staffing indicators. Understaffing of nursing units ought to be immediately addressed to ensure effective delivery of nursing care and to reduce costly outcomes. Organizational support that attends not only to nurses' health and work autonomy but also to expert and experienced nurses' perceptions of care quality and workflow may be important to designing management interventions to improve care quality, reduce nurse absenteeism, and ensure the completion of nursing interventions. Further studies that assess the influence of workload and other aspects of the work environment on care quality are warranted. This study has demonstrated that system outcomes for cardiac and cardiovascular nursing units are influenced by many interrelated factors and that conceptual models such as the PCDM can be used to evaluate and improve health-system outcomes.

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Résumé

L'intention de s'automutiler : les antécédents de sévices corporels et sexuels constituent-ils un facteur distinctif?

Elaine E. Santa Mina

Nous avons suivi une méthodologie non expérimentale et comparative afin d'examiner l'intention de s'automutiler chez des clients avec et sans antécédents de sévices corporels et sexuels pendant l'enfance, qui se sont présentés à l'urgence après un épisode d'automutilation. La documentation sur le suicide évoque habituellement certains thèmes prédominants comme le désir de mort, la létalité, le désespoir et la dépression. Dans les études sur les traumatismes, toutefois, l'automutilation est présentée comme une réaction adaptative aux sévices subis à un jeune âge, qui permettrait peut-être de maîtriser un affect intense et la dissociation. Selon nos observations, des antécédents de sévices pendant l'enfance ne constituent pas un facteur distinctif relativement à l'intention de s'automutiler. Peu importe leurs antécédents, presque tous les participants ont donné des raisons multiples pour expliquer leur comportement outre le désir de mort. Les ressemblances frappantes relevées entre les deux groupes devraient amener les cliniciens à s'interroger sur l'éventail complet des raisons qui motivent le passage à l'acte en matière d'automutilation et de comportement suicidaire.

Mots clés : sévices pendant l'enfance, adaptation, théorie

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Self-Harm Intentions: Can They Be Distinguished Based Upon a History of Childhood Physical and Sexual Abuse?

Elaine E. Santa Mina

A non-experimental, comparative design is used to measures self-harm intention in clients with and without a history of childhood physical and sexual abuse (CP/SA) presenting to an emergency department with an episode of self-harm behaviour. The traditional suicide literature identifies the key intention concepts of wish-to-die, lethality, hopelessness, and depression. However, the trauma literature understands self-harm behaviour to be an adaptive response to CP/SA and as such possibly helpful for managing intense affect and dissociation. The findings of this study demonstrate that a CP/SA history is not a distinguishing factor in self-harm intention. Almost all participants, regardless of abuse history, gave multiple reasons for their self-harm behaviour, in addition to or other than the wish-to-die. The striking similarity between the non-abused and abused groups with regard to self-harm intention challenges clinicians to assess for the full range of intentions of people who engage in self-harm and suicidal behaviour.

Keywords: child abuse, mental health/pyschosocial, psychiatric nursing, stress and coping, theory

Persistently high rates of self-harm/suicidal behaviours, and their potential outcome of death by suicide, challenge clinicians to develop assessments that direct efficacious treatments and thereby reduce the incidence. Thorough clinical assessments of self-harm/suicidal behaviours include an understanding of the motivations or intentions that drive them. It remains clinically and empirically uncertain whether self-harm and suicidal intentions are distinguishable (Fliege, Lee, Grimm, & Klapp, 2009) and what factors might account for any differences. Conceptualizations of self-harm/suicidal intentions vary from the wish-to-relieve disturbing thoughts and feelings to the wish-to-die (Gratz, 2003; Leenaars, 1988). In addition, there is evidence that a history of childhood physical/sexual abuse (CP/SA) may play a key role in self-harm intentions (Pagura, Cox, Sareen, & Enns, 2008). However, it has not been definitively determined that a history of CP/SA distinguishes between self-harm intentions and suicidal behaviours.

This study investigates the influence of CP/SA in differentiating between self-harm intentions and suicidal behaviour in a clinical sample

of adults admitted to an inner-city teaching hospital with self-harm/suicidal behaviour.

Background

There are disparities in the reported rates of self-harm/suicidal behaviours, suicides, and CP/SA. These disparities result from differences in conceptual and operational definitions and corresponding measures to report each phenomenon (Santa Mina & Gallop, 1998). Despite reported inconsistencies, the incidences remain high and point to a continuing global health problem. In Western countries, adolescent self-harm rates range from 5% to 9% (Skegg, 2005) and in college students the prevalence may be as high as 14% (Gratz, Dukes Conrad, & Roemer, 2002). Of further concern is evidence that people who engage in self-harm and suicidal behaviours have an increased risk of death by suicide (De Munck, Portzky, & Van Heeringen, 2009). Canadian and American rates of death by suicide are comparable, at approximately 20 males and 5 females per 100,000 population (Langois & Morrison, 2002; US National Center for Health Statistics, 2008). Also, CP/SA is known to be a risk factor for both self-harm and suicide in adults (Pagura et al., 2008; Santa Mina & Gallop, 1998). Investigations to better understand the possible distinguishing role played by CP/SA in self-harm/suicidal intentions could lead to strategies for reducing the incidence of suicide through the use of more precise assessments and interventions.

The theoretical and research literatures describe different suicide and self-harm etiologies and intentions (Walsh & Rosen, 1988). The earliest empirical work describes suicide as an act of self-annihilation (Freud, 1917) and suicidal intention as a phenomenon that fluctuates along a life–death continuum. The research literature supports associations between the wish-to-die, multiple etiologic risk factors, and the severity of depression and hopelessness (Fuse, 1997). However, contemporary trauma theorists suggest that self-harm is a phenomenon separate from but related to suicide and that self-harm intentions may counter the death wish and be a method for coping (Alexander, 1999; Arnold, 1995). Theorists suggest that many adults with a history of childhood CP/SA cope with the overwhelming feelings (affect dysregulation) and disturbances in memories and thoughts (dissociation) by engaging in self-harm. The literature does support an association between CP/SA, the experience of intense emotional and cognitive sequelae, and adult self-harm (Browne & Finkelhor, 1986; Santa Mina & Gallop, 1998). Although an association between CP/SA and adult psychiatric disorders has been widely reported (Brown & Anderson, 1991; Welch, Patterson, Shaw, & Stewart-Brown, 2009), its influence on self-harm and suicidal intentions

is not clear. Knowledge about the influence of CP/SA in self-harm intentions may serve to guide assessments of and interventions for either similar or disparate clinical populations.

Literature Review

Association Between CP/SA and Self-Harm/Suicidal Behaviour

Three major reviews report the impact of CP/SA on adult suicide and self-harm (Beitchman et al., 1992; Browne & Finkelhor, 1986; Santa Mina & Gallop, 1998). These reviews report that adults with a history of CP/SA are more likely to engage in suicide and self-harm. Despite methodological problems related to definitions, small sample sizes, and the lack of control and comparison groups, there is evidence of a link between CP/SA and adult self-harm, suicidal ideation, suicidal behaviours, and suicide. Research also supports an association between self-harm and suicide. Many people who engage in self-harm behaviour eventually attempt suicide or die by suicide (Mann & Currier, 2007).

Childhood Physical and Sexual Abuse

Conceptual and operational definitions of CP/SA differ (Santa Mina & Gallop, 1998). The most common definitions are incorporated into this study and are supported by the literature. Physical abuse is "deliberate striking, hitting, punching, or burning a child less than 18 resulting in physical injury such as: bruises or fractures requiring medical intervention, distinguished from single slaps, or interfamilial fights" (Windle, Windle, Scheidt, & Miller, 1995, p. 1323). Sexual abuse is "sexual contact, ranging from fondling to intercourse, between a child in mid-adolescence or younger and a person at least five years older" (Briere, 1992, p. 4).

Conceptualization of Suicide and Self-Harm Intention

The suicide and self-harm literature and conceptual reviews do not reach consensus on the extent, if any, of overlap of intentions between the two phenomena, or whether they are in fact the same phenomenon (Fliege et al., 2009; Walsh & Rosen, 1988; Whitlock & Knox, 2007). As this study proposes that the intentions may differ based upon a history of CP/SA, the breadth of intentions — as identified across the literature — is included in the study's conceptualization. For this study, self-harm intention is defined, with the key constructs from the self-harm and suicide literature and adapted from Connors' (1996) work, as "the purpose(s) or meaning(s) of the self-harm behaviour, the regulation of affect, the regulation of dissociation, and/or the termination of life associated with direct self-actions that lie outside the realm of social acceptability and that

hurt or harm the body" (Santa Mina, 2005, p. 67). Self-harm behaviour is "the class of actions, outside the realm of social responsibility, that hurt or harm the body . . . including cutting, burning, slapping, punching, scratching, gouging, harmful enemas and douches, interfering with the healing of wounds, inserting dangerous objects into the vagina or rectum, head-banging, . . . choking, hitting oneself with objects, ingesting sharp objects, and biting" (Connors, 1996, p. 199).

The conceptualization of self-harm/suicidal intention and its measurement are informed by the constructs that are known to be risk factors for the behaviours/sociological risk factors; the key suicide-intention constructs; the wish-to-die; lethality, depression, and hopelessness (Leenaars, 1988; Lester, 1991); and the management of emotions (affect) and cognitive disturbance (dissociation) (Gratz, 2003). Previous investigations have minimally integrated these constructs from sociology and psychology to reflect the complexity of the phenomenon. However, the prevalence of trauma history in people who attempt or die by suicide and people who self-harm suggests that intentions may be broader than the intent-to-die that is articulated in the classic suicide literature (Fliege et al., 2006). Therefore, concepts from traditional suicide theories and empirical studies as well as recent trauma theories and investigations direct this study's conceptualization of the phenomenon and the choice of instruments to measure the variables. The conceptualization for the study is that the sociological factor of gender and the cognitive and affective states of wish-to-die, hopelessness, depression, and affective regulation dissociation, as described below, influence self-harm/suicidal intentions in the presence of a history of CP/SA.

Sociological Risk Factors

Sociological suicide theories articulate broad social factors such as geography, culture, socio-economic status, marital status, age-related factors, and gender that support a macro level of analysis to explain suicide (Fuse, 1997). For example, suicide attempts are more frequent in females (De Munck et al., 2009) yet males are at least three times more likely than females to die by suicide (Statistics Canada, 2010). Also, females are reported to engage in more self-cutting behaviours than males and are motivated by recurring issues of previous trauma (Arnold, 1995). Therefore, this study investigates CP/SA and gender as possible factors influencing self-harm/suicidal intention.

Suicide intention. The wish-to-die, which is a quintessential suicide concept, emanates from traditional psychological suicide theories (Freud, 1917; Menninger, 1935) and continues to be fundamental today in the assessment of suicide risk (Registered Nurses Association of Ontario, 2007). Suicide intention fluctuates along a wish-to-live/wish-to-die con-

tinuum; the extent to which someone wants to end his or her life is an indication of intention to die (suicide intention). The wish-to-die lays the groundwork for investigation of the lethality of the suicidal behaviour. Highly lethal suicidal behaviour is associated with an increased likelihood of dying by suicide and is interpreted as proximal to the wish-to-die (Linehan, Comtois, Brown, Heard, & Wagner, 2006).

Depression. Depression is a medical diagnosis that includes the presence, in a 2-week period, of one of two symptoms — depressed mood; and decreased interest in daily activities almost all day, most days — and four or more of the following symptoms: an increase or decrease in weight in the absence of dieting; a decrease in appetite; an increase or decrease in sleeping; restlessness or a decrease in physical activity; fatigue or a decrease in energy; feelings of worthlessness; decreased ability to concentrate or make decisions; and recurring thoughts of death or suicide (American Psychiatric Association, 1994). Depression is highly associated with suicidal intention and suicidal behaviour (World Health Organization, 2010) and childhood trauma, such as CP/SA (Herman, 1992).

Hopelessness. Hopelessness is characterized by negative, constricted thought content and patterns regarding the past, present, and future such that pessimism and meaninglessness permeate the experience of living (Beck, Weissman, Lester, & Trexler, 1974; Mitchell, Garand, Dean, Panzak, & Taylor, 2005). People who feel hopeless rigidly believe that their perceptions are accurate and exclude other explanations that lead to realistic interpretations (Lester, 1994). Suicide becomes the only way to escape emotional suffering. Beck, Morris, and Beck (1974) demonstrate the ability of the cognitive state of hopelessness to influence the nature of emotions and the subsequent behaviour. In their seminal work, Beck, Schuyler, and Herman (1974) report that depression combined with hopelessness is a key factor in suicide intention and may result in highly lethal suicidal behaviour and death by suicide.

Affect regulation. The conceptualization of self-harm without the intent-to-die has evolved within the trauma literature. Prior to the 1980s, few authors (Jung, 1974; Rosenthal, Rinzler, Walsh, & Klausner, 1972) alluded to trauma as a precursor of self-harm. More recently, authors (Klonsky & Moyer, 2008; van der Kolk et al., 1996) have described an association between the constellation of emotional, behavioural, and cognitive disturbances and a history of childhood trauma in people who engage in self-harm behaviour. The emotions of rage, frustration, guilt, and shame are common in trauma survivors and are experienced intensely and rapidly (Herman, 1992). Emotional instability, or sudden fluctuations in overwhelming feelings, is known as affective lability. It is theorized that self-harm is a response to these intense negative feelings,

as it expresses them and thereby restores emotional stability (Alexander, 1999; Arnold, 1995).

Dissociation. A cognitive disturbance known as dissociation is experienced frequently by survivors of CP/SA. Dissociation is a temporary state of cognitive disintegration such that a person's "consciousness, memory, identity and perception of environment" are momentarily disrupted along a continuum of severity, from inattention to inability to integrate affect, behaviour, and cognition (Mulder, Beautrais, Joyce, & Fergusson, 1998, p. 806). Separation of conscious awareness from traumatic events enables a person to withdraw from the psychological, emotional, and cognitive pain. In the dissociated state, the child "observes" him/herself as though the abuse were happening to someone else. Later in life, the person may re-experience dissociative states in the presence of emotional distress and have temporary perceptual experiences that are out of touch with the real world. The behavioural response to a state of dissociation may be self-harm, which can help the person to regain a sense of what is real (Mangall & Yurkovich, 2008; van der Kolk et al., 1996).

Research Hypotheses

It was hypothesized that, compared to those without CP/SA, clients who engaged in a recent episode of self-harm behaviour and reported a CP/SA history would have (1) less suicide intention, (2) more reasons related to affect regulation and dissociation, (3) greater dissociation, (4) greater affective lability, (5) less hopelessness, and (6) no difference in depression.

Method

A non-experimental, comparative design was used. A power analysis for the study was conducted in advance of data collection to determine sample-size adequacy. It was decided that a sample size of 64 per non-abused group and abused group was required in order to detect a moderate effect. Ethics approval was obtained from the research ethics boards of the university and the hospital.

A convenience sample of clients who engaged in self-harm behaviour was recruited from the inpatient and emergency units of the mental health service in an inner-city teaching hospital; the clients were recruited while still in hospital. Recruitment took place weekdays only, due to constraints in providing around-the-clock research assistant support. The principal investigator informed all clinical staff about the study and the clinical staff identified clients who met the inclusion criteria: 18 years of age or older; English-speaking; presenting to the inpatient or emergency unit with an episode of self-harm; and medically deemed as a voluntary admission to the hospital, competent to give

consent under the *Mental Health Act of Ontario, Canada, 1990*. Potential participants were asked if they were interested in learning more about the study. If the client expressed interest, then the research assistant, who was not associated with either unit, met with the client at his or her convenience in a private office on the unit. Study details were described in depth, with opportunities for the participant to ask questions and withdraw at any time. Written informed consent was obtained. The research assistant was a graduate student in psychology with experience counselling people with psychiatric disorders and a history of trauma. Clinical staff were available should the participant become distressed. A contact number was provided to participants for crisis support should they become distressed at any time after completion of the study.

The participants completed all self-report instruments in hospital within 3 days of the episode of self-harm behaviour. They received $10 plus public transit or parking expenses, if incurred. No participant reported distress requiring clinical or crisis support.

The instruments for measuring CP/SA were the Childhood Physical Abuse Scale (Briere, 1992) and Russell's Sexual Abuse Scale (Russell, 1999). The instruments for each hypothesis were (1) the Beck Suicide Intent Scale (SIS) (Beck, Morris, et al., 1974) and the Self-Inflicted Injury Severity Form (SIISF) (Potter et al., 1998); (2) the Reasons for Self-Injury Inventory (SIQ) (Alexander, 1999); (3) the Dissociative Experiences Scale (DES) (Bernstein Carlson & Putnam, 1993) and the Structured Interview for Disorders of Extreme Stress (SIDES) dissociative subscale (Pelcovitz et al., 1997); (4) the Trauma Symptom Checklist-40 (Briere, 1996) and the SIDES affective subscale (Pelcovitz et al.); (5) the Beck Hopelessness Scale (BHS) (Beck, Weissman, et al., 1974); and (6) the Beck Depression Inventory II (BDI II) (Beck, Steer, & Garbin, 1988).

Data Analysis

Descriptive statistics were calculated to characterize the sample on the variables of interest. Inferential analyses were used to address the study purpose. Two-tailed *t* tests and chi-square tests for independence (5% level of significance) compared the non-abused and abused groups on suicide intention, lethality, reasons for self-harm, dissociation, affect regulation, hopelessness, and depression. Of the 64 participants with abuse, 31 had CP/SA, 17 had physical abuse only, and 16 had sexual abuse only. Therefore, an ANOVA for four groups — non-abused, physically abused only, sexually abused only, and CP/SA — constituted the secondary analysis.

Three analyses of the SIQ items were conducted. First, the total number of reasons for self-harm per participant was calculated from the

sum of the items selected. Next, the "reason" items were categorized into two subscales based on trauma theory, in order to test the hypotheses. Finally, a principal component analysis was conducted to extract five SIQ reason factors conceptually grounded in trauma theory. The findings from this work are reported elsewhere (Santa Mina et al., 2006).

Results

The research assistant approached 113 clients for possible participation. Of these, 83 agreed to take part, for a response rate of 73% (non-abused, $n = 19$; abused, $n = 64$). The reason given for refusal was lack of interest and/or time.

Descriptive statistics indicated a demographically homogeneous sample. Although gender was distributed evenly, females were more likely than males to be abused rather than non-abused (females, 7:1; males, 2:1; $\chi^2 = 4.723$; $df = 1$; $p = 0.03$). The participants ranged in age from 18 to 69 years, with the majority (82%) being between 21 and 50 years ($\bar{x} = 37.28$; $SD = 11.05$). Due to the small sample size per group, analysis of additional sociological factors did not produce meaningful results. Types of self-harm behaviour varied somewhat (overdose, $n = 42$; cutting, $n = 20$; other, $n = 21$), although overdose was the most frequent type ($\chi^2 = 11.122$; $df = 5$; $p = 0.049$). Self-harm types were evenly distributed between genders. The predominance of overdose as a self-harm method is consistent with method distributions found in other clinical studies (Haw, Houston, Townsend, & Hawton, 2002; Lester & Beck, 1980; Schnyder & Valach, 1997). The majority of the abused participants in the sample reported isolated incidents of CP/SA. They rarely reported incidents of abuse at a very young age (pre-pubescence) or of a prolonged or severe nature (over several years with force and penetration). All participants were moderately suicidal yet reflected an overall low level of lethality (SIISF; 48/77 had no actual injury). The participants had received immediate intervention after the self-harm episode, which may have served to lower the level of lethality.

The sample was highly dissociative, with high affective lability. All participants reported a "lifetime presence" of affective instability and 70% reported a "lifetime presence" of dissociation, with no significant between-group differences. On the SIDES "current presence" items, 40% ($n = 80$) reported "current presence" of affective instability and 34% reported "current presence" of dissociation, also with no between-group differences. Overall, the sample reported moderate hopelessness and severe depression.

Self-harm/suicidal intentions did not differ for the non-abused and abused groups (Table 1), nor did the level of lethality of the behaviour.

Table 1 *Instruments, Scoring Methods, and Reliability and Validity*

Concept	Instrument	Number of Items	Scoring Method	Interpretation of Scores	Previously Reported Reliability and Validity	This Study's Reliability and Validity
Childhood Physical Abuse	Childhood Physical Abuse Scale[a]	3 items	Yes/no and frequency if yes	Yes to any of the items = history of CPA	No reports	Not tested
Childhood Sexual Abuse	Russell's Sexual Abuse Scale[b]	8 items	Yes/no and frequency of events by perpetrator	Yes to any of the items = history of CSA	Test-retest reliability $r = .91–.99$	Not tested
Suicide Intent	Beck's Suicide Intent Scale (SIS)[c]	10 items	Each item scored as 0, 1, or 2; possible range of scores 0–30	Higher score indicative of greater intent; SIS scores in suicidal clients $\bar{x} = 7.68–10.2$	Interrater reliability $r = .82–.95$[d]; $\alpha = .85$[e]	$\alpha = .76$; 95% confidence interval; $\alpha = .67–.83$
Lethality	Self-Inflicted Injury Severity Form (SIISF)[f]	4 categories of lethality severity for each of 7 self-harm behaviour methods	Based on chart review, self-harm behaviour is categorized by self-harm method and severity of lethality	1 (no injury) to 4 (highly lethal trauma penetrating body cavity)	High internal consistency; high interrater reliability; high discriminate and construct validity[f]	Interrater reliability on method of self-harm $r = .94$; interrater reliability SIISF $r = .77$

Continued on next page

Table 1 (cont'd)

Concept	Instrument	Number of Items	Scoring Method	Interpretation of Scores	Previously Reported Reliability and Validity	This Study's Reliability and Validity
Reasons for Self-Harm	Self-Injury Questionnaire (SIQ)[g]	31 items total: 2 subscales: (i) reasons due to affect, 7 items; (ii) reasons due to dissociation, 4 items	Yes/no per item; total sum of number of reasons; sum of reasons for subscales; factor analysis for reason themes[h]; range of scores: total scale total number of reasons 0–31; subscale reasons due to affect 0–7; subscale reasons due to dissociation 0–4	Yes = reason given by participant for self-harm event; no = not a reason for self-harm given by participant for self-harm event	Good face validity[g]	Strong $\alpha = 0.83$; 95% confidence interval; 0.78–0.86; affective subscale: $\alpha = 0.72$; 95% confidence interval, 0.62–0.80; dissociative subscale: $\alpha = 0.77$; 95% confidence interval, 0.68–0.84; factor analysis: factors I–V: weak significant correlations with SIS, BDI II, BHS, SIISF, TSC-40, DESh

Affect Regulation	Structured Interview for Disorders of Extreme Stress: affect dysregulation subscale, 19 items[i]	(i) symptom current presence; (ii) symptom lifetime presence; (ii) symptom severity 19 items	(i) yes/no; (ii) yes/no; (iii) 0–3 per item mean score on subscale	Yes = present; no = not present; 0 (none) to 3 (frequently) score ≥ 2 is clinically significant	α = .90[i]	α = .83; 95% confidence interval = .76–.87
Affect Regulation	Trauma Symptom Checklist-40 (TSC-40)	40 items	1 (never) to 4 (often) Range of scores 0–120	Higher score indicates greater affective dysregulation	α = .89–.91[j]	α = .90; 95% confidence interval = .86–.93
Dissociation	Structured Interview for Disorders of Extreme Stress (SIDES): alteration in attention subscale 5 items[i]	(i) symptom current presence; (ii) symptom lifetime presence; (iii) symptom severity 5 items	(i) yes/no; (ii) yes/no; (iii) 1–3 per item mean score on subscale	(i) and (ii) yes = present, no = not present; (iii) 0 (none) to 3 (frequently); range of scores 0–3; score ≥ 2 is clinically significant	Alteration in attention = .76[i]	α = .62; 95% confidence interval = .47–.73

Continued on next page

Table 1 *(cont'd)*

Concept	Instrument	Number of Items	Scoring Method	Interpretation of Scores	Previously Reported Reliability and Validity	This Study's Reliability and Validity
Dissociation	Dissociative Experiences Scale (DES)[k]	28 items 0–100; 0 (never) to 100 (always); mean scores	Mean scores range from 0 to 100	Cut-off scores < 10 = low dissociation; 10–29.9 = dissociation common with psychiatric disorders, not trauma; >30 = dissociative disorders[k]	Test-retest reliability $r = .79–.96$ at intervals of 4 to 8 weeks; internal reliability $\alpha = .83–.93$ ($p < .00$)[k]	$\alpha = .93$ 95% confidence interval .88–.95
Hopelessness	Beck Hopelessness Scale (BHS)[l]	20-item true/false	Sum total score	0–3 = no hopelessness; 4–8 = mild; 9–14 = moderate; 15–20 = severe; 9 = criteria for sensitivity (attempters correctly identified as	$\alpha = .92$[m]	$\alpha = .93$ 95% confidence interval .82–.95

Hopelessness *(cont'd)*				eventually dying by suicide) and specificity (attempters identified and did not die by suicide)[l]		
Depression	Beck Depression Scale (BDI II)[n]	21 items	Scores range from 0 to 63	0–9 = no to minimal depression; 10–18 = mild to moderate; 19–29 = moderate to severe; 30–63 = severe[n]	α = .81 –86[n]	α = .87; 95% confidence interval = .82–.91

Note: α = coefficient alpha.
[a] Briere (1992).
[b] Russell (1999).
[c] Beck, Morris, & Beck (1974).
[d] Beck, Morris, et al. (1974).
[e] Beck & Steer (1989).
[f] Potter et al. (1998).
[g] Alexander (1999).
[h] Santa Mina et al. (2006).
[i] Pelcovitz et al. (1997).
[j] Elliot & Briere (1992).
[k] Bernstein Carlson & Putnam (1993).
[l] Beck, Weissman, Lester, & Trexler (1974).
[m] Beck & Steer (1989).
[n] Beck, Steer, & Garbin (1988).

However, the sample overwhelmingly (98%) reported multiple reasons for the self-harm episode. Only 2% of the sample (n = 2) reported suicide as the sole reason for the behaviour, while 60% (n = 50) reported suicide plus other reasons, such as "to achieve a feeling of peace" or "to regain a sense of reality," and 38% (n = 31) reported multiple reasons that did not include suicide. The abused group revealed greater dissociation than the non-abused group, as well as greater affective lability. The secondary ANOVA found no significant difference across the four groups for any of the hypotheses, with one exception: On the SIQ "affect" subscale, the physical and sexual abuse group reported the largest mean number of reasons, as compared to the other three groups (F = 2.88, 3, 79; p = .04). On the factor analysis, the SIQ mean scores for factors I through V did not differ significantly across the groups. The ANOVA, in the secondary analyses, tested for a difference in dissociation (DES) and depression (BDI II) across the four groups. Although there was no statistically significant difference in dissociation or depression across the four groups, a trend of higher scores in the group with both physical and sexual abuse was noted and examined. A linear trend was calculated on the DES and BDI II and demonstrated a statistically significant increase in dissociation (F = 5.211; df = 1; p = 0.025) and depression (F = 7.796; df = 1; p = 0.01), with an increase in abuse severity.

Discussion

The results of this study refute the hypothesis that self-harm intentions can be distinguished based on a history of CP/SA. Although the findings are not statistically significant, they are clinically significant. The majority of participants, regardless of abuse history, reported multiple intentions, reflective of the key concepts in both suicide and self-harm intention. This finding provides direction for practice and research. The participants endorsed numerous, seemingly contradictory, intentions for self-destructive behaviours: "to bring myself back to reality," "to achieve a feeling of peace," "to distract from feelings or thoughts [of suicide] and a suicide attempt." Participants also reported moderate levels of suicidality (SIS) and high levels of hopelessness (BHS) and depression (BDI II), even if they did not report "suicide attempt" as a reason on the SIQ. This mixed clinical picture is consistent with the findings of other studies (Brown, Comtois, & Linehan, 2002; Holden & McLeod, 2000). One might argue that it supports the notion of ambivalence between life and death (Shneidman, 1985). Yet that conjecture misses the breadth of other powerful intentions by narrowly focusing on the wish-to-live/wish-to-die continuum that subsequently may shape assessments and interventions.

Recruitment of an adequate sample size for a non-abused group proved to be very challenging in this inner-city population. When adequacy of sample size for the abused group was achieved (n = 64), the non-abused sample remained at 19. As data analysis demonstrated highly non-significant findings and risk of a type II error was low, the decision was made to stop data collection. However, this limitation is important in placing the findings in context. Participants with a broad history of childhood trauma, inclusive of emotional and psychological abuse and physical neglect, may endorse responses to suicide intention, reasons for self-harm, affect regulation, dissociation, depression, and hopelessness that are similar to responses of those with a history of CP/SA. It is possible that some of the participants in the non-abused group had experienced these other types of childhood abuse, but it was beyond the scope of this study to measure them. This could account for the absence of differences between the groups, as the non-abused sample may have had other forms of childhood trauma and may have been as responsive in intentionality as those with CP/SA. Challenges in finding adequate sample sizes for the non-abused clinical group remain, as abuse prevalence is high in psychiatric populations. It is possible that these findings and a propensity towards an abused population are representative of an inner-city population. Comparisons between inner-city/urban and rural populations, as well as between emergency and community populations, may also be helpful for obtaining comparator groups. Future studies should aim for large sample sizes, to accommodate the breadth of abuse types as well as the myriad sociological factors that can affect intentions. Alternative sampling strategies, such as highly resourced consecutive sampling, would serve to reduce sampling bias and ensure the inclusion of all patients with self-harm who are treated and released from emergency departments during evening/night shifts and weekends.

Evidence also points to a complex relationship between numerous types of childhood maltreatment and adult psychopathology that are not limited to overt self-harm and suicidal behaviours (Welch et al., 2009). The relationship between childhood maltreatment and adult addictions, as one specific type of indirect self-harm behaviour, is an example. Indirect types of self-harm, such as risky behaviour inclusive of substance misuse as discussed by Connors (1996), should be added as factors in our understanding of the complexity and breadth of childhood maltreatment and adult self-harm and suicide.

In the present study, the prevalence of CP/SA in both men and women is noteworthy. The findings point to a similarity in self-harm intentions and methods regardless of gender, a notable sociological risk factor for self-harm and suicide. Much of the self-harm literature addresses females who cut themselves in order to cope with overwhelm-

ing thoughts and feelings in response to their trauma histories. The reports are often focused on female patients who cut themselves and are diagnosed with borderline personality disorder (BPD) (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005). In the present study, interestingly, men as well as women engaged in cutting to relieve intense affect and manage dissociation, and men and women overdosed to achieve the same purposes, regardless of abuse histories. This suggests that males as well as females engage in various types of self-harm behaviours for reasons related to affect and dissociation. As gender did not present as a sociological factor influencing either the type of self-harm behaviour or behavioural intentions, clinicians and researchers may need to rethink intentions in self-harm behaviours, as these may not be exclusively the sequelae of CP/SA and may not be gender-based or associated with specific methods or diagnoses such as BPD.

The associations amongst the spectrum of childhood maltreatment and adult self-harm and suicide are multifaceted and complex. The natures of both childhood maltreatment and self-harm/suicide are highly sensitive and are fraught with issues of stigma and intense emotion. Although quantitative, psychometrically sound instruments for measuring the full range of types of childhood abuse and types of self-harm and intentions may be useful, the nature of the phenomena may be such that numeric measures do not fully capture the essence of the experience. Qualitative methods may serve to enrich our knowledge of these multifaceted problems. Both positivist and naturalist paradigms need to be incorporated into future research, to fully inform us about how gender and the spectrum of abuse types, methods, lethality, and intentions contribute to self-harm intention. It may be that a triangulation of methods will lead to a better understanding of this intricate issue.

The findings from this study indicate that patients who are thinking about or engaging in self-harm/suicidal behaviours need to be assessed for the full spectrum of intentions, regardless of gender, self-harm method, or known abuse history. Research is needed to direct the development and utilization of clinical self-harm/suicide assessments that are more inclusive of the breadth of self-harm intentions. Fully informed assessments may guide clinicians to develop interventions targeted to patient needs. Efficacious, intention-based interventions have the potential to diminish the tragic impact of self-destructive behaviours on individuals, their families, and societies by reducing self-harm and suicidal behaviours.

Conclusion

This is the first published clinical study to investigate the influence of CP/SA on self-harm/suicide intentions among men and women admitted to

an acute-care unit for these behaviours. Although the literature points to CP/SA as a possible distinguishing factor for intentions, the present findings demonstrate that self-harm and suicidal intentions may be remarkably similar, regardless of a history of CP/SA. In the majority of individuals across both abused and non-abused groups, regardless of gender or self-harm type and self-harm/suicidal intentions, intentions were overwhelmingly varied, were seemingly contradictory, and reflected a need to manage distressing feelings and thoughts within the context of the wish-to-die. These findings challenge clinicians and researchers to re-evaluate the breadth of their assessments and interventions and to incorporate knowledge from both suicide and trauma theories in order to best care for people with this multidimensional problem.

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