

EDITORIAL

**Lessons from SARS:
Challenges for the International
Nursing Research Community**

Last March, I (Laurie Gottlieb) travelled by train from Montreal to Toronto. As the train approached Toronto, tension hung in the air. People spoke in hushed tones about SARS (severe acute respiratory syndrome) and about their fear of visiting a city under siege. This was the first inkling I had of the magnitude of the crisis. I had come to Toronto to conduct a focus group session. As the group convened, participants greeted each other with a nod rather than the customary handshake or hug. A few used a hand disinfectant before leaving the meeting. Nobody ate the food. Toronto was caught up in SARS hysteria.

Canada was the hardest-hit country outside of the Asian Pacific region. An influenza that had “smouldered” in China was transported to Toronto, carried by a Canadian citizen returning from a visit to Hong Kong. Both mainland China and Hong Kong had been dealing with SARS for several months.

The international crisis lasted many months, with 8,500 persons diagnosed with probable SARS and 900 deaths attributed to SARS worldwide (Naylor, 2003). The influenza’s lack of respect for borders served to underscore the fact that the world has become a village. In many ways it is fortuitous that Toronto and Hong Kong were the centres of this outbreak. These two cosmopolitan cities, with their know-how and wealth of resources, struggled to cope with the crisis. If these modern, sophisticated cities had difficulty coping, what would have happened elsewhere? Both cities were humbled by the experience, ill prepared to deal with a health threat of this magnitude. To their credit, they have revisited the SARS experience and have learned from its lessons.

The challenges faced in Toronto were not that dissimilar to those faced in Hong Kong. The deadly SARS epidemic exposed the inner workings of the health-care and related systems, and much was found wanting. The various systems proved vulnerable and lacking the capacity and flexibility necessary to adapt quickly and efficiently to a situation that was unpredictable and constantly changing.

Despite their different health-care systems, forms of government, cultures, infrastructures, and communications systems, Canada and Hong

Kong faced similar difficulties. At first glance this may seem surprising. In exercising fiscal restraint during the 1990s, however, governments in both Canada and Hong Kong had targeted the health-care system for reorganization or downsizing. The budgets of public health units were severely cut. Priorities, and subsequently resources and monies, were diverted from infectious diseases to other debilitating and chronic conditions. Health promotion and illness prevention received short shrift. Nursing and other health-care personnel were made redundant. SARS served as a wake-up call for the need to revisit priorities and reorient health-care services.

Now that the dust has settled and government-commissioned reports in Canada (Naylor, 2003) and Hong Kong (Hospital Authority, 2003) have been tabled, it is time to examine what has been learned from this event and to identify the challenges facing our nursing research communities. The overriding questions we must ask ourselves are: If there were a similar epidemic tomorrow, what would the nursing community need to know in order to deal with it effectively? More specifically, what would administrators need to know in order to support nursing practice and ensure quality care? What would administrators and clinicians need to know in order to protect themselves and their patients? What knowledge do clinicians require in order to meet the physical and psychological needs of patients, families, and communities? What should educators be teaching future clinicians?

Let us examine a few of the many lessons learned and what we, as a scientific community, should be considering. The lessons we have selected are those that are common to the Canadian and Hong Kong experience and are important to nurses and all health-care workers.

Public Health

SARS was a completely unknown disease, and no one was prepared for it. The public health system was in such disarray that basic epidemiological methods for determining etiology, spread, and mode of communicability and for tracking down cases were lacking. Nurses have always played a key role in case detection, infection control, public education, risk mitigation, containment, and so forth — good old public health nursing à la Florence Nightingale. Being on the frontline, nurses are part of the team when it comes to detecting patterns. (In fact, a nurse, Agnes Wong, is the person credited with first identifying SARS in Canada. She connected the dots. While caring for a patient who presented with a virulent, unidentified respiratory infection, Wong recalled reading in a Chinese newspaper of a deadly influenza spreading across Hong Kong and mainland China, and she raised the question of whether her patient could have had that same flu.) There has been a call to renew public

health agencies and units and to increase the numbers of public health nurses.

Do we have enough nurse researchers trained in public health and infection control surveillance to collaborate with other scientists? What are the informational needs of patients? Do we have sufficient information to predict risk reduction in situation x or y ? Do we have sufficient collaboration between frontline nurses and nurse researchers to know the most effective way of detecting cases, understanding the risks, disseminating information to patients and communities, and caring for patients and families at home?

Protective Equipment

During the SARS epidemic, nurses and all frontline health workers found themselves using protective equipment and clothing that were wholly inadequate. In Hong Kong there were problems securing enough protective items because of a worldwide shortage. In Canada the equipment in use was ill-suited for frontline health personnel caring for patients with SARS. Most masks, for example, have been developed for industrial purposes and to fit the male, Caucasian facial structure — hardly suitable and appropriate for clinical situations and the gender and racial distribution of health personnel.

Do we have nurse scientists capable of examining the efficacy of different protective equipment for different nurses under different conditions? What kind of knowledge is required to develop guidelines on the use of protective equipment both for nurses and for patients? What additional training in infection control should be included in nursing curricula?

Organizational Issues

The government commissions appointed in the wake of SARS found serious disconnects between and within organizations at various levels: between governments and public health departments; between public health departments and hospitals; among and within hospitals; between hospital administrators and hospital units; among public health units, governments, and the media. There was a disconnect between those making the policies and issuing directives and those needing directives to follow — directives that in fact did not fit the realities on the frontline. There was a disconnect between those communicating information and those needing information; in reality, CNN became the principal clearinghouse for information on SARS. There was a disconnect between manpower needs and the effective deployment of nurses from one hospital to another and from one hospital unit to another. These disconnects under-

score the critical need for planning in the event of an emergency such as an epidemic of SARS proportions.

How can frontline nurses influence policy and decision-making? What factors must be considered in the coordination and planning of care to ensure maximum functioning of the health-care system? What are the informational needs of patients? Nurses? Other health-care workers? What is the most effective means of disseminating accurate and timely information? What are the manpower needs, manpower capacity, and safest, most effective ways of deploying nurses during times of crisis? What strategies are in place for maximizing the health of nurses during future crises?

Emotional Toll

The SARS outbreak proved to be a painful experience for the people of Toronto and Hong Kong, and for those involved in protecting and caring for patients, families, and the public. The suffering was experienced by not only those people who were infected with the disease but all those who lived through the crisis. We have little data concerning the short- and long-term effects of SARS on the physical and mental health of medical personnel and patients and their families, and concerning the effects of prolonged isolation on healing.

What was the experience of living through SARS for individuals, families, health-care workers, and communities? How did the isolation and screening procedures affect patient outcomes? What type of interventions mitigated the stress and suffering? What factors have contributed to post-traumatic stress? What people are at risk for long-term disability?

These are but a few of the questions we are challenged to ask.

Finally, the SARS epidemic highlights the importance of national and international cooperation among governments and agencies to ensure the timely sharing of information. Countless numbers of people stand to benefit from the collaboration of key stakeholders. How can nurses position themselves to play a critical role in planning and organizing care? In this latest crisis, nurses have shown once again, through their sometimes heroic efforts, that the health-care system cannot function without them. Nurses have invaluable information that must be part of any action plan.

How can nurses best contribute our knowledge, skills, and know-how? Should we consider establishing an international centre for the collection and management of data, so that we can share information on all matters that affect nurses, patient care, and nursing practice in order to deal with pandemics and epidemics? Should we consider establishing central repositories for case studies, best practices, and innovations in practice? Should we be thinking in terms of creating a central database to aid in manpower, systems, and organizational planning? Such a data-

base, possibly linked to the World Health Organization, the International Council of Nurses, or the Centers for Disease Control, could be an invaluable resource for disseminating nursing and patient-care information to governments, policy-makers, scientists, educators, administrators, frontline nurses, and the public.

Those who lived the SARS experience need to join forces and seize the initiative to create a new way of doing research, one that transcends borders. The challenge for the international nursing scientific community is to begin talking to our nursing and health-care colleagues now, in order to determine the role that nurse scientists will play in future times of crisis. We need to develop a model for working together as a scientific community in order to meet the next health-care challenge brought about by our connected world and the realities of globalization. The health, recovery, and well-being of so many depend on it.

Laurie N. Gottlieb

Editor

Judith Shamian

Office of Nursing Policy, Health Canada

Sophia Chan

Head, Department of Nursing Studies, University of Hong Kong

References

- Hospital Authority. (2003). *Report of the Hospital Authority Review Panel on the SARS Outbreak*. Hong Kong: Author.
- Naylor, D. (2003). *National Advisory Committee on SARS and Public Health*. Ottawa: Health Canada.

GUEST EDITORIAL

Scholarship in Health Promotion: Complexity and Challenge

Marilyn Ford-Gilboe

Health promotion is an expanding interdisciplinary field of study and practice that is of central concern to the discipline of nursing. The papers included in this issue of the Journal speak to both recent developments in the field and nursing's contribution to them. In *CJNR's* first focus issue on health promotion, published some 7 years ago, O'Neill (1997) suggested that nursing has been on the periphery of health promotion discourse and practice and that its apparent lack of influence stems, in part, from an individualistic orientation that fails to consider the broader context in which health develops. The extent to which this perspective was valid then or is valid now is a matter of debate. However, the papers included in this focus issue of *CJNR* offer some current insights into the question.

The papers included in this issue highlight the complexity and range of interests in the field of health promotion and reflect the perspectives of authors who are situated both within and outside of nursing. Collectively, the papers address the breadth of knowledge needed to understand the *processes* by which people take control of their health and improve their quality of life (World Health Organization, 1986) as well as the practices that may be used by professionals to support these efforts. There is a decidedly ecological emphasis across these papers, and a conscious effort to consider the interactions between people and their social worlds.

Two qualitative studies included in this issue provide a glimpse into people's health experiences in the context of their everyday lives that is foundational to health promotion practice. Bottorff et al.'s analysis of the ways in which adolescents come to think about and understand nicotine addiction highlights their varied and sometimes competing explanations and raises questions about their sense of personal agency to avoid or overcome such addiction. Similarly, Ward-Griffin's feminist study of the experiences of nurses who find themselves in both professional and family caregiving roles illustrates the bind that can occur when women must constantly negotiate the boundaries of their public and private

responsibilities. The analysis and interpretation is decidedly political, challenging dualistic concepts of paid and unpaid work and private and professional obligations. Each of these studies provides a basis for developing health promotion practices that consider the reality of people's everyday lives, including those that address changes in the broader social and political systems.

The majority of papers in this issue of the *Journal* propose innovative approaches for dealing with theoretical and methodological challenges that arise from the adoption of an ecological perspective to inform health promotion research and practice. In the *Discourse* contribution, Rootman makes a compelling case for extending the field of health promotion to include literacy. His analysis of developments in this emerging field of study, including the distinction between "health literacy" and "literacy and health," is clearly articulated and should lead us to consider how nursing might contribute to this important area of knowledge development.

Drummond applies an ecological perspective to address conceptual and methodological challenges in evaluating the impact of health promotion programs focusing on healthy child development. Her work provides a practical way of conceptualizing health promotion action, suggests issues to consider in tracking the implementation of such action, and identifies critical methodological challenges that must be considered in the process.

Edwards, Mill, and Kothari provide an in-depth treatment of issues related to the design of multiple interventions in community health. Through the presentation of a research framework, the authors propose ways to address critical limitations of previous research employing multiple interventions, while providing concrete examples to illustrate how the framework can be applied to meet such challenges.

Kothari and Birch's paper extends this discussion by focusing on a key issue in multilevel research — how to deal with nested data that arise from multilevel research questions. Addressing both conceptual and analytic issues in multilevel research, their treatment of complex issues, including the use of multilevel modelling, is both clear and accessible, and illustrates the potential of this approach for disentangling the effects of individual and community level variables.

In a different vein, Purath et al. present evidence to support the implementation of a brief, tailored intervention delivered by nurse practitioners and designed to increase physical activity among sedentary working women. Findings from this study support the importance of tailoring interventions to client needs and preferences. Given that the intervention is readily adaptable to the reality of the practice setting, it is highly relevant for evidence-based health promotion practice.

It has been my pleasure to serve as editor for this fine collection of papers that reflect progressive, rigorous, and relevant scholarship. If the papers in this issue reflect the calibre of work being undertaken in nursing, there can be no question that nurses are making a significant contribution to the field of health promotion. I applaud these authors for their commitment to a field of study that has so much potential for nursing practice but, at the same time, is fraught with challenges and contradictions. I extend my thanks to Dr. Laurie Gottlieb for providing me with this opportunity. I have learned much from the experience. I am grateful to Joanna Toti for the patience and competence she has shown in assisting an editorial novice with this process from beginning to end. I particularly appreciate the assistance of all who openly accepted my request to review papers for this issue and who returned thorough reviews on time!

References

- O'Neill, M. (1997). Health promotion: Issues for the year 2000. *Canadian Journal of Health Research*, 29(1), 71-77.
- World Health Organization. (1986). *Ottawa charter for health promotion*. First International Conference on Health Promotion, Ottawa and Geneva: Author.

Marilyn Ford-Gilboe, RN, PhD, is Associate Professor and T. R. Meighen Family Foundation Community Nursing Professor, School of Nursing, University of Western Ontario, London, Ontario, Canada.

Discourse

Health Promotion and Literacy: Implications for Nursing

Irving Rootman

Introduction

I am delighted to have been invited to write a Discourse piece on health promotion for this issue of *CJNR*. Not only is health promotion a topic that has been of great interest to me for almost three decades, but writing this piece gives me an opportunity to think about how it relates to my current work in the field of literacy and health as well as to nursing. In this paper, I will address how I got involved in literacy and health research, some conceptual issues in the field, the relationship of literacy and health to health promotion, directions for research, and implications for nursing.

Background

I first became aware of the importance of literacy as an issue for public health in the early 1990s after assuming the directorship of the Centre for Health Promotion at the University of Toronto. At that time, the Ontario Public Health Association was conducting a study on literacy and health in partnership with Frontier College. This study produced two reports that put literacy and health on the agenda of the public health community in Canada (Breen, 1993; Ontario Public Health Association & Frontier College, 1989). Shortly thereafter, the Canadian Public Health Association picked up on the theme and initiated the National Literacy and Health Program, which is still functioning, with 27 partners including the Canadian Nursing Association.

At the time I thought this was interesting, but it did not really capture my imagination and commitment. However, this began to change in the late 1990s when I read an article by Don Nutbeam that was subsequently published in *Health Promotion International* (Nutbeam, 2000). At the time I was chairing the World Health Organization-EURO Working Group on Health Promotion Evaluation (Rootman et al., 2001) and was impressed with Nutbeam's suggestion that "health literacy" was an outcome of

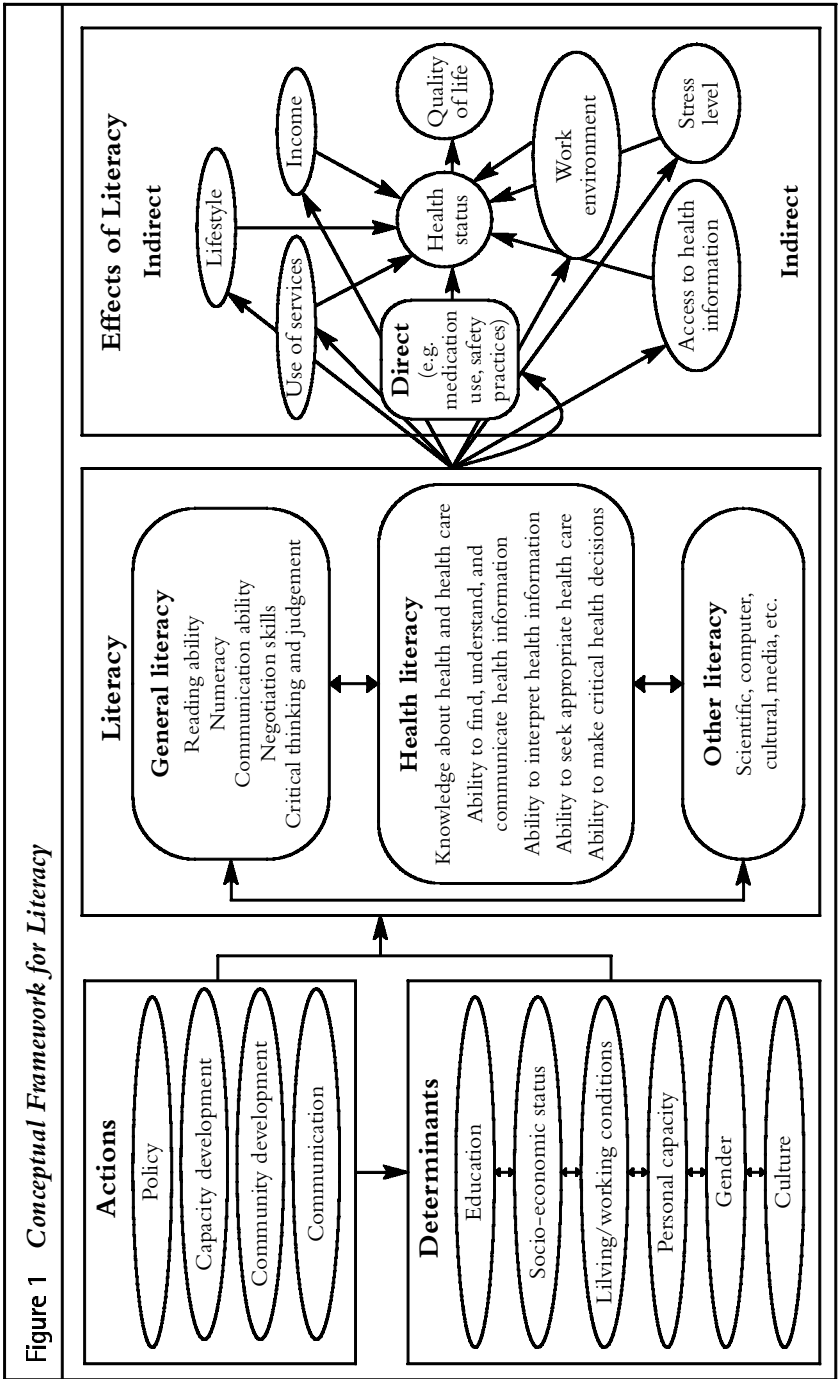
health promotion actions for which we might legitimately be held accountable — in contrast to other, more distal, outcomes that are affected by so many other factors it is difficult to determine what kind of contribution health promotion actions have made. As a consequence, I became involved in a number of national and international meetings on literacy and health, which ultimately led to my choosing literacy and health as the focus of my Michael Smith Foundation for Health Research career award that began in July 2002 at the University of Victoria.

At the moment I am leading several projects on the topic including one supported by the Social Sciences and Humanities Research Council (SSHRC) to develop a national program of research on literacy and health, another supported by the Canadian Institutes of Health Research (CIHR) to develop new measures of health literacy, and a third supported by the British Columbia Ministry of Health Planning to evaluate the BC Health Guide Program. I am also one of two Canadian members¹ of a US Institute of Medicine Committee on Health Literacy that is due to report in early 2004. This puts me in a unique position to comment on the significance of literacy and health literacy as issues for health promotion and perhaps to draw some implications for nursing.

Literacy and Health Versus Health Literacy

You may have noticed that I have used the terms “literacy and health” and “health literacy.” This is not accidental and the terms are not interchangeable. There are many definitions of both literacy and health literacy, which vary considerably in their scope and focus. The definition of literacy that is probably most widely used is the one employed in the International Adult Literacy Survey, which defines it as “the ability to understand and employ printed information in daily activities — at home, at work and in the community — to achieve one’s goals and develop one’s knowledge and potential” (OECD & Statistics Canada, 1995) and that appears to limit literacy to reading and writing skills. Partly for this reason, I prefer the definition developed by the Centre for Literacy of Quebec, which suggests that literacy “involves a complex set of abilities to understand and use the dominant symbol systems of a culture for personal and community development” (Centre for Literacy of Quebec, 2000). Other reasons why I prefer this definition are that it recognizes the importance of “culture” and it is consistent with a health promotion perspective.

¹ The other is Dyanne Affonso, Dean of Nursing at the University of Toronto.



With regard to health literacy, a definition that has been widely used in health promotion is the one put forward by Kickbusch and Nutbeam in the World Health Organization glossary of health promotion terms: “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health” (Kickbusch & Nutbeam, 1998). Another definition that is widely cited is the one used in the 2010 *Goals for the Nation* document in the United States, namely “the capacity to obtain, interpret and understand basic health information and services and the competence to use such information and services to enhance health” (Ratzan & Parker, 2000, p. vi). This definition, although perhaps narrower than the WHO definition, has implications for health promotion as well.

This brings me to the distinction between literacy and health and health literacy. Perhaps the best way to describe this distinction is through the use of a conceptual framework that I have been developing with colleagues in the National Literacy and Health Research Program.”²

As can be seen, this framework distinguishes among literacy, health literacy, and other types of literacy and identifies both direct and indirect outcomes of literacy. In this context, literacy and health refers to the relationship between general literacy and other types of literacy (including health literacy) and health outcomes. In other words, literacy and health has to do with the ways in which literacy affects health both directly, by determining our ability to understand information critical to our health and safety (such as directions for use of medications), and indirectly, by affecting factors that determine our health such as our ability to obtain and hold a job, to have an adequate income, and to engage in health-enhancing practices. Health literacy, on the other hand, has mostly to do with the direct effects of certain skills (such as our knowledge about health and health care, our ability to find and communicate health information, and our ability to make critical health decisions) on our health. The two concepts are not antithetical but they can affect our priorities for action. For example, when thinking about literacy and health we might be inclined to focus on reducing the indirect effects of literacy, whereas when thinking about health literacy we might be inclined to focus more on the direct effects.

In Canada the main thrust has been on literacy and health whereas in the United States it has been on health literacy. The former focus is more

²Deborah Gordon-El-Bihbey, formerly with the Canadian Public Health Association and currently with the Council for Health Research in Canada; Jim Frankish, University of British Columbia; Margot Kaszap, Université Laval; and Heather Hemming, Acadia University.

consistent with our interest in Canada in the broader determinants of health and the latter with the more individualistic approach to health promotion in the United States.

The emphasis on literacy and health as opposed to health literacy can also affect the nature of the research that we do. For example, when I contacted the SSHRC about submitting a proposal on health literacy, I was surprised to discover that they would not accept a proposal on that topic but would accept one on literacy and health. As a result, I followed their advice and submitted a proposal on literacy and health, with a sub-component on health literacy. On the other hand, the CIHR accepted my proposal to develop measures of health literacy. The point is that each of these tracks sends you in a different direction. My own feeling is that both are important areas of study that have implications for health promotion — the first in helping us to address the broader determinants of health and the second in addressing the personal capacities that people need in order to make appropriate decisions about their health as well as the information-processing demands that different health contexts (including the health promotion context) place on people.

Health Literacy Versus Health Promotion

There are some people, however, who feel that the concept of health literacy does not have a place in health promotion. Keith Tones, the editor of *Health Education Research*, has been most vociferous in his critique of the rush to health literacy in health promotion. According to Tones, “there seems to be little advantage in coining a new term when existing terms are more than adequate” (Tones, 2002, p. 287). In making this point he refers to the terms decision-making (Janis & Mann, 1977) and problem-solving (Gagne, 1985) and associated theoretical literature. On the other hand, proponents of the redefinition of health literacy have suggested a number of reasons why it should be pursued. For example, in addition to arguing that health literacy is a key outcome of health promotion interventions and one for which those who deliver health promotion programs could legitimately be held accountable, Nutbeam (2000) suggests that expansion of the concept is consistent with current thinking in the field of literacy studies; significantly broadens the scope and content of health education and communication, both of which are critical operational strategies in health promotion; implies that “health literacy” leads not only to personal benefits but also to social ones such as the development of social capital; and helps us to focus on overcoming structural barriers to health. Similarly, Ilona Kickbusch, former Director of Health Promotion for the World Health Organization, suggests that it helps strengthen the links between the fields of health and education;

health literacy as a discrete form of literacy is becoming increasingly important for social and economic development; measuring health literacy could be the first major step in constructing a new type of health index for societies; and the typology of three different levels of health literacy (basic or functional, communicative or interactive, and critical) suggested by Nutbeam emphasizes the need for public participation in policy development and allows us to consider the ambiguities of the fit between health promotion strategies and wider social trends (Kickbusch, 2001, 2002). Thus, there are enough strong arguments for walking down this path in health promotion to convince me that it is worthwhile doing so.

Directions for Research

Given that it is worthwhile pursuing literacy and health and health literacy in health promotion, what directions should we be pursuing in our research in Canada? A national workshop on literacy and health held in October 2002 suggested a number of themes and questions worth pursuing, many of which are related to health literacy as well as health promotion. Specifically, it suggested that we should be looking at the following eight themes: *the relationship of literacy to mental, spiritual, physical, and emotional health; the impact of literacy skills on access and use of health promotion, prevention, and treatment; the relationship of literacy to determinants of health; literacy and access to and use of health services; literacy, health status, and medical outcomes; literacy, law, and litigation; best practices and approaches of interventions in relation to literacy; and influencing, evaluating, and developing policy in relation to literacy and health.* Specific questions were suggested in relation to each of these themes and recorded in the workshop proceedings (Health Literacy Research Workshop, 2002).

In terms of overall priorities, the workshop suggested the importance of evaluating interventions, conducting cost/benefit analyses of literacy and health interventions, studying the impact of literacy and lifelong learning on health, and studying literacy and health within the unique circumstances of the Aboriginal and Francophone communities as well as culturally diverse and challenged groups across the country.

Although the workshop did not focus on health literacy per se, a number of the questions above might fall under the rubric of health literacy (e.g., literacy and access to and use of health services). In addition, it should be noted that the Institute of Medicine report to be released in early 2004 will suggest some research priorities consistent with those identified at the workshop. Thus, we have a full agenda for research on literacy and health and health literacy. This is especially true in Canada

where the number of published studies on these topics is extremely small.

Implications for Nursing

Nurses in clinical practice, education, and research have a critical role to play in relation to literacy and health literacy. In clinical practice, nurses have an obligation to communicate clearly with patients in a respectful manner while taking into account the patient's level of literacy and health literacy. In a recent study of physician-patient communication, Schillinger et al. (2003) found that using an interactive communication loop was associated with better diabetes control in patients regardless of literacy levels. Such strategies may also be beneficial for populations with low literacy who are living with various chronic illnesses. However, there is a need for research on literacy and health literacy in various nursing contexts such as direct nursing care and public health nursing. There also is a need for recognition and strengthening of the role of nurses in providing health information and guidance to the public through telephone information services such as the BC NurseLine, which almost certainly will expand in the future.

Nursing educators also have an obligation to make sure that their students understand the important role of literacy and health literacy in different nursing practice contexts, including telephone information services. This may involve the development of new curricula and courses on literacy and health literacy to enhance the current emphasis on teaching and learning. Again, there is a need for research to determine the extent to which nursing programs and continuing education provide opportunities for nursing students to learn about literacy and health literacy and the effectiveness of initiatives to either increase literacy or health literacy or make nursing more supportive of people with different degrees of literacy or health literacy.

Finally, nurse researchers need to be encouraged to take up the challenge of doing research on literacy and health and health literacy. There are certainly many interesting and important questions to study, especially in Canada where research is very limited. Several of the questions identified in the national workshop would be appropriate for nurse researchers to tackle. For example: To what extent do health practitioners understand and identify literacy and health in their work? What barriers do persons with low literacy face in health services? Fortunately, Canadian research funding agencies such as the CIHR and SSHRC are beginning to recognize the importance of this area of study and are encouraging researchers to submit proposals. Nursing researchers should take advantage of these opportunities.

Conclusion

This Discourse has discussed the development of one new area of research and practice in health promotion. There are other important areas as well. I hope the other papers in this issue on health promotion will make equally strong arguments for the pursuit of these areas, because we do need to strengthen research in the field and nursing has a key contribution to make.

References

- Breen, M. J. (1993). *Partners in practice: Literacy and Health Project Phase Two*. Toronto: Ontario Public Health Association.
- Centre for Literacy of Quebec. (2000). Retrieved January 9, 2004, from <http://www.nald.ca/./litcent.htm>
- Gagne, R. M. (1985). *The conditions of learning and theory of instruction, 4th ed.* New York: Holt-Saunders.
- Health Literacy Research Workshop. (2002). Retrieved January 9, 2004, from http://www.nlhp.cpha.ca/clhrp/index_e.htm#workshop
- Janis, I. L., & Mann, L. (1977). *Decision-making: A psychological analysis of conflict, choice and commitment*. New York: Free Press.
- Kickbusch I. (2001). Health literacy: Addressing the health and education divide. *Health Promotion International, 16*(3), 289–297.
- Kickbusch, I. (2002). Health literacy: A search for new categories. *Health Promotion International, 17*(1), 1–2.
- Kickbusch, I., & Nutbeam, D. (1998). Health promotion glossary. *Health Promotion International, 13*(4), 349–364.
- Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International, 15*(3), 183–184.
- OECD & Statistics Canada. (1995). *Literacy, economy and society: Results of the first International Literacy Survey*. Statistics Canada Catalogue #89-545E. Paris and Ottawa: OECD and Minister of Industry.
- Ontario Public Health Association & Frontier College. (1989). *Literacy and Health Project Phase One: Making the world healthier and safer for people who can't read*. Toronto: Authors. [Available: www.opha.on.ca/publications/index.html]
- Ratzan, S. C., & Parker, R. M. (2000). Introduction. In C. R. Selden, M. Zorn, S. C. Ratzan, & R. M. Parker (Eds.), *National Library of Medicine current bibliographies in medicine: Health literacy*. Vol. NLM, publication #CBM 2000-1. Bethesda, MD: National Institutes of Health, US Department of Health and Human Services.
- Rootman, I., Goodstadt, M., Hyndman, B., McQueen, D., Potvin, L., Springett, J., et al. (Eds.). (2001). *Evaluation in health promotion: Principles and perspectives*. Copenhagen: European Regional Office of the World Health Organization.
- Schillinger, D., Piette, J., Grumbach, K., Wang, F., Wilson, C., Daher, C., et al. (2003). Closing the loop: Physician communication with diabetic patients who have low health literacy. *Archives of Internal Medicine, 163*, 83–90.

Tones, K. (2002). Health literacy: New wine in old bottles? *Health Education Research, 17*(3), 287–290.

Irving Rootman, PhD, is Professor and Michael Smith Foundation for Health Research Distinguished Scholar, Centre for Community Health Promotion Research, University of Victoria, British Columbia, Canada.

Résumé

Les perceptions des adolescents à l'égard de la dépendance à la nicotine

**Joan L. Bottorff, Joy L. Johnson, Barbara Moffat,
Jeevan Grewal, Pamela A. Ratner et Cecilia Kalaw**

La présente étude avait pour but d'approfondir les connaissances sur les perceptions des adolescents à l'égard de la dépendance à la nicotine. Notre analyse, de type secondaire, a porté sur 80 entretiens qualitatifs avec des adolescents ayant fait diverses expériences de la cigarette. Les transcriptions d'entrevues ont fait l'objet d'une étude systématique dans le but de faire ressortir les explications des jeunes concernant la dépendance à la nicotine. On a constaté que celles-ci présupposent un enchaînement de causalité, depuis l'exposition à la nicotine jusqu'à la dépendance; elles citent des facteurs comme l'usage répété, le fait que le cerveau et le corps « s'habituent » à la nicotine, la faiblesse des individus et l'influence de la famille. Les explications avancées démontrent que les adolescents se perçoivent comme des acteurs passifs relativement au phénomène. Ces résultats pourront servir à la conception de programmes destinés à sensibiliser les jeunes à la dépendance à la nicotine.

Mots-clés : adolescents, tabagisme, dépendance à la nicotine, tabac

Adolescent Constructions of Nicotine Addiction

**Joan L. Botorff, Joy L. Johnson, Barbara Moffat,
Jeevan Grewal, Pamela A. Ratner, and Cecilia Kalaw**

The purpose of this qualitative study was to extend our understanding of how adolescents view nicotine addiction. This secondary analysis included 80 open-ended interviews with adolescents with a variety of smoking histories. The transcribed interviews were systematically analyzed to identify salient explanations of nicotine addiction. These explanations presuppose causal pathways of nicotine exposure leading to addiction and include repeated use, the brain and body “getting used to” nicotine, personal weakness, and family influences. A further explanation is that some youths pretend to be addicted to project a “cool” image. These explanations illustrate that some youths see themselves as passive players in the formation of nicotine addiction. The findings can be used in the development of programs to raise youth awareness about nicotine addiction.

Keywords: adolescents, smoking, nicotine addiction, nicotine dependence, tobacco

Nicotine dependence in adolescents is usually classified at about half the rate observed in adults; however, the majority of adolescent smokers consider themselves to be addicted and find it difficult to stop smoking (Colby, Tiffany, Shiffman, & Niaura, 2000a). Although youth smoking has been linked to social factors, some researchers have observed that the reasons for smoking most frequently cited by adolescents are pleasure and addiction (Eiser, 1985; Sarason, Mankowski, Peterson, & Dinh, 1992). Daughton, Daughton, and Patil (1997) found that 52% of high-school smokers were already “hooked” on cigarettes or believed they had a good chance of becoming addicted within 5 years. However, although some adolescent smokers recognize their susceptibility to nicotine addiction, a significant proportion do not. Applying risk-perception theory, Virgili, Owen, and Sverson (1991) concluded that adolescent smokers perceive less personal risk of addiction than “experimenters” (i.e., occasional smokers), former smokers, and those who have never smoked.

Researchers acknowledge the need for more work focusing on nicotine addiction in adolescents (Colby, Tiffany, Shiffman, & Niaura, 2000b; Kassel, 2000; Moffat & Johnson, 2001; Shadel, Shiffman, Niaura, Nichter, & Abrams, 2000). Developments in social science underscore the need for professionals to understand the lay knowledge that underpins health beliefs and practices (Popay & Williams, 1996). In addition, theories of

health behaviour suggest that the way in which one views a health risk has implications for decision-making and lifestyle choices (Montano, Kasprzyk, & Taplin, 1997; Strecher & Rosenstock, 1997). It is well known that most addicted adults started smoking in adolescence. If we are to reduce nicotine addiction, we need a better grasp of how teenagers understand and explain nicotine addiction. The views of 10- and 11-year-old children on smoking and addiction indicate that they are vulnerable to taking up smoking and becoming addicted (Rugkasa, Knox, et al., 2001). Adolescent girls' experiences of nicotine addiction include resistance to a smoking identity, failure to view addiction as a consequence of their smoking, and surprise at how quickly they could become addicted (Moffat & Johnson, 2001). Ongoing close attention to adolescents' views could inform health promotion interventions to better address nicotine addiction among youths.

Several explanatory models of nicotine addiction have been proposed to delineate the causal factors. Genetic researchers have proposed that genetic and environmental factors influence smoking initiation and continuation (Koopmans, Slutske, Heath, Neale, & Boomsma, 1999; True et al., 1997) and that specific genes play a role in determining smoking behaviour (Mah, Tang, Liauw, Nagel, & Schneider, 1998; Marubio & Changeux, 2000; Rosecrans, 1989). Others have proposed a "sensitivity" model in which an individual's initial sensitivity to nicotine determines the development of tolerance for, and thus dependence on, nicotine (Pomerleau, 1995; Pomerleau, Collins, Shiffman, & Pomerleau, 1993). Physiological models also have been proposed to explain the action of nicotine on nicotinic receptors in the brain (Mah et al.; Marubio & Changeux; Lueders et al., 1999; Rosecrans). An additional source of exposure to nicotine is environmental tobacco smoke (ETS). While cotinine levels reveal that many youths are exposed to nicotine via ETS (Ashley et al., 1998), there is no evidence that this exposure increases their risk of addiction. Psychological models focus on affective and emotional factors that predispose a person to nicotine dependence. For example, the self-medication model (Gilbert & Gilbert, 1995) describes how individuals cope with difficult situations by smoking and may explain the addictive potential of nicotine in persons with depression (Balfour, 2000; Benowitz, 1999).

Although influenced directly by emerging scientific and medical evidence, societal explanations of addiction are culturally bound and have shifted over time with changes in dominant social and moral values. Researchers have described the social constructions of addiction to drugs and alcohol, highlighting the common-sense understandings of various publics and how they function as paradigms for constructing the world and give meaning to experience (Heim, Davies, Cheyne, & Smallwood,

2001; Nichter, 2003; Peele, 1985). These constructions are multidimensional and sometimes contradictory. For example, Heim et al. suggest that the concept of addiction is used to remove blame for unfavourable behaviour and simultaneously to stigmatize morally. With the increasing public attention on tobacco control, scientific theories of nicotine addiction are entering public discourse and influencing the ways in which society views nicotine addiction.

Constructivists argue that constructions and reconstructions of reality are experientially based and dependent for their form and content on consensus among individuals or groups (Guba, 1990). Adolescents are exposed to education on the adverse effects of smoking through school programs, television, and the guidance of parents and health professionals. However, little is known about how youths view nicotine addiction in the context of health education, their personal experiences with smoking, and other factors such as policies aimed at limiting youth access to tobacco. The purpose of this qualitative study was to examine dialogues with teenagers about tobacco use and to describe their views on nicotine addiction, no matter how partial or implausible.

Methods

In this qualitative study (Lincoln & Guba, 1985), we carried out a secondary analysis of interviews with youths conducted as part of several research projects focused on teenagers' experiences with tobacco use. Adolescents with a variety of smoking histories were recruited. They included regular smokers, occasional or social smokers, and those who considered themselves to be former smokers. The open-ended interviews were based on techniques described by Kvale (1996) and focused on gaining in-depth accounts of adolescents' experiences with tobacco. The interviews covered a wide range of topics, including personal experiences with cigarettes and smoking, observations of others' smoking behaviour, and views on addiction. The interviews lasted from 45 to 60 minutes and were audiotaped and transcribed. All youths provided informed consent prior to participating in the interviews.

We began by analyzing a set of 47 individual interviews and one focus group interview that were available for secondary analysis. Six youths who were recruited for a pilot study participated in a focus group exploring issues of tobacco use. The majority of the individual interviews ($n = 35$) were collected as part of a qualitative study examining the transition from experimentation to regular tobacco use among adolescents (Johnson et al., 2003). We recruited youths who self-identified as casual, regular, or former smokers, as well as a few who had only experimented with smoking. Another 12 interviews were conducted with adolescent

female smokers in a study to explore the meaning of nicotine addiction (Moffat & Johnson, 2001). Using NVivo, a computer program that facilitates qualitative analysis, we searched the data set for segments of text that included explanations of dependence, addiction, lack of control over smoking, and experiences associated with cessation. These sections of data were then subjected to detailed thematic analysis that compared and contrasted explanations to identify unique explanations of addiction and the strategies used to construct them.

The research team discussed the analyses and interpretation at regular intervals. Questions were raised on the basis of the data reviewed, and directions for additional search and analytic strategies were set. After the initial phase of data analysis, preliminary findings were verified and refined through an additional secondary analysis with a second set of open-ended interviews ($n = 19$) from an ongoing study of dimensions of adolescent tobacco dependence (Johnson et al., 2002). These interviews also focused on adolescents' experiences with tobacco and included individuals with a variety of smoking histories. Finally, eight primary interviews were conducted with selected adolescents. Some of these interviews were conducted with individuals who had been interviewed previously, because they were good informants. The questions in these final interviews focused specifically on adolescents' understanding of how nicotine addiction arises and provided an opportunity to validate the findings.

Results

In total, interviews with 80 adolescents were analyzed in this study. Slightly more males than females participated and the average age was 16 years (see Table 1). On average, participants tried their first cigarette at age 13 (range 9 to 17 years) and smoked for 3 years (range 1 to 7 years). Adolescents with a variety of smoking histories were included in the data sets used in this study: 41 defined themselves as regular or daily smokers, 21 as occasional or social smokers, and 18 as former smokers.

Adolescent Constructions of Nicotine Addiction

The participants constructed their understanding of nicotine addiction in the context of their observations of smokers, integrating what they heard from peers, family members, educators, and the media with their own experiences with cigarettes. Some youths began by admitting that they had "no clue" about addiction and indicated that they had never thought about what made them want cigarettes. The interview represented the first time they had reflected on or discussed the development of nicotine addiction. Many of the participants puzzled over nicotine

Table 1 *Demographic Information for All Participants (n = 80)*

Characteristics	N	%
<i>Gender</i>		
Male	45	56
Female	35	44
<i>Smoking status</i>		
Occasional/social	21	26
Regular/daily	41	51
Former	18	23
	Mean Years (SD)	Range in Years
Age at time of interview	16 (1.3)	13–19
Age at first whole cigarette	13 (1.5)	9–17
Duration of smoking	3 (1.7)	< 1–7

addiction, stating that they did not know much about it. For example, one youth who indicated that she was aware of the health effects of smoking said she did not know how long it takes before one becomes so addicted that it is difficult to abstain [15-year-old female, daily smoker, 3–4 quit attempts]. Others had well-formed opinions and explanations. Nonetheless, when probed, all the participants attempted to understand nicotine addiction. For example, one youth said: “I don’t know if your lungs become dependent on the smoke you inhale. It seems kind of silly, because of course they don’t want the smoke, so why would they?” [16-year-old male, occasional smoker]

The adolescents tended to use several strategies to distance themselves from nicotine addiction. Few admitted to being addicted or even to being vulnerable to nicotine addiction. They drew on their observations of other smokers (who they thought were addicted) instead of exploring their own addiction. Others talked about nicotine addiction in a depersonalized way — for example, by describing the effects of nicotine on “the body” and “the brain,” effectively separating addiction from their subjective and embodied experiences with smoking. Yet others focused on factors beyond one’s control (e.g., the actions of others, personality traits), and in so doing presented some teenagers as passive, vulnerable, and powerless in the face of addiction.

Our analysis of adolescents’ constructions of nicotine addiction revealed four broad explanations. These presuppose causal pathways of nicotine exposure leading to addiction. Some concentrate on the phenomenon of addiction itself, others on the factors or circumstances that

lead to it. A possible fifth explanation is that some youths pretend to be addicted in order to project a “cool” image. While the data support five predominant constructions, some teenagers drew on several concurrently in an attempt to provide a full account of nicotine addiction. Each of the five explanations is described below.

Nicotine addiction as repeated use. Some adolescents explained that addiction occurs with sustained smoking, arguing that nicotine “adds up over the years.” This was perhaps the simplest and most obvious explanation; the more one smokes, the greater one’s chances of becoming addicted. At times, the tone used by adolescents in offering this explanation suggested that the cause of nicotine addiction is self-evident. For example, one youth stated, “It’s not like someone with red hair becomes addicted; it’s just who becomes addicted to it smokes enough and starts to need it” [14-year-old female, daily smoker, 2 quit attempts]. The informants further emphasized that addiction is associated with lengthy periods of smoking, daily smoking, excessive smoking, or “overdoing smoking.”

Some adolescents explained why they believed that repeated use leads to addiction. Three postulations were provided, one focusing on the accumulation of nicotine, another on the development of a “taste” for or enjoyment of smoking, and the third on the development of a smoking habit.

According to the first postulation, nicotine “builds up” in the body and creates a need for more nicotine. One adolescent described the process of nicotine addiction as follows: “You start off with a little bit and you just build up and build up... That’s the way their addiction forms. They just need a little bit and then they need more and then they need more” [16-year-old female, occasional smoker]. Others tried to formulate a more sophisticated response but admitted that they did not know how this “build-up” of nicotine leads to addiction: “I guess it’s just tolerance. I don’t know if there’s a certain tolerance that your body has for addiction... I actually don’t know the basis of addiction. I don’t know if it’s a mental aspect or biological” [18-year-old female, occasional smoker].

The second postulation is that “repeated use” leads to greater enjoyment. This explanation implies that addiction occurs as one acquires a taste for or appreciation of smoking: “You start to like it more, and so the more you like it, the more often you want it. So I think the more that somebody smokes for a while, the greater the chance of them getting addicted” [16-year-old female, daily smoker, 1 quit attempt].

In her effort to understand the phenomenon of “enjoying” an addictive substance, one girl compared nicotine addiction to “addiction to a job,” associating addiction with enjoyment of a chosen activity:

“Addiction means mostly, like, you get addicted because you enjoy it... Say you like a certain job, and you like it a lot, and you start getting addicted to it. That’s how it goes” [15-year-old female, daily smoker].

The third way some adolescents believed repeated use leads to addiction is through habituation, or “getting used to” smoking. One adolescent explained how smoking had become a part of her everyday life:

When you’re a smoker you get used to smoking at different points in the day. Like, it’s weird to think, but certain times, like before I go to bed, I have to have a cigarette. As soon as I wake up and have my coffee I have a cigarette.... There’s certain times where...when I’m driving I have to have a cigarette...I smoke a lot more when I’m driving just because it’s what I do, like, I drive and I smoke. It’s natural to me now. [17-year-old female, daily smoker]

Some adolescents, it was suggested, become attached to smoking routines and used to the actions involved in smoking (e.g., holding a cigarette), the implication being that addiction occurs because smoking is associated with certain events, activities, and feelings, and as a result people “just keep on doing it.”

Many of the participants who believed that nicotine addiction is related to repeated use introduced the idea of degrees of addiction — light, moderate, and heavy. Some speculated that “heavy addiction” occurs among older people who have smoked for extended periods. One youth explained: “I think that for someone who has been smoking for maybe 60 years...their addiction is going to be a lot stronger and a lot harder to break, as opposed to someone who is only smoking for 6 months” [16-year-old female, daily smoker, no quit attempts]. These adolescents reasoned that those who smoke relatively little or who have smoked for a short period experience less addiction: “Our friend who just took up smoking is lightly addicted because he doesn’t smoke very much. I’m moderately addicted because I will feel the need for a cigarette every so often” [16-year-old male, occasional smoker]. One adolescent who described her smoking as a “habit” did not believe she had reached the point of being addicted because she had not yet started “craving” cigarettes. Nevertheless, because of her concerns about addiction she remained vigilant for signs of craving so she could stop smoking before passing “the point of no return” [16-year-old female, daily smoker, no quit attempts].

The teenagers drew on observations of people they knew who were addicted to support their conclusions: “My God, Mom...smokes a lot and she’s...always, like, ‘Oh, I need one, I can’t concentrate...’ I think that’s just because she has been smoking her whole life and she just

smokes really a lot of cigarettes” [16-year-old female, daily smoker, no quit attempts].

Nicotine addiction as the body and brain “getting used to it.” Some adolescents suggested that addiction occurs when the body and the brain “get used to” nicotine, thereby creating a continuous need for nicotine to “function normally.” Without nicotine, an addicted individual experiences cravings: “Your body says you need one at that time; you just can’t ignore what your body says.” Some focused on the sensations or effects that the body experiences in the absence of nicotine: “My understanding is that addiction is when...the body can’t function without it, when the body goes, like, nauseous, gets all stressed out and, you know, just doesn’t function, just like your whole mind doesn’t think right or anything” [17-year-old female, daily smoker].

Thus, nicotine addiction was conceptualized by these youths as beyond one’s control and was equated by some with the body’s need for food. Others focused on the role of the brain in nicotine addiction: “The brain forces you to think you need a cigarette.” Although some of the adolescents used the terms “brain” and “body” interchangeably, others were adamant that addiction is caused by one or the other, and still others referred to the combined roles of the brain and the body.

The descriptions of the mechanisms by which the brain and body “get used to it” varied in sophistication and detail. Some of the adolescents were unable to specify the addictive component(s) of cigarettes: “...tar or something in the cigarette.” They pointed to a vague bodily process that causes people to lose the ability to control their smoking: “You’re not wanting it, really wanting it [a cigarette]...but, inside, something’s just, like, needing it.... It’s like the person inside you is wanting just to have one” [18-year-old male, daily smoker, 2 quit attempts].

Others were more specific about the mechanisms by which the brain and body “get used to it.” They suggested that as people smoke more frequently their nicotine “levels go up” and as their body becomes “more tolerant” there is a greater need for nicotine: “That’s the way their addiction forms. They just need a little bit and then they need more and then they need more.” Some of these youths spoke of nicotine in the way one speaks of drugs such as heroin, using terms such as “dose,” “levels,” and “withdrawal.” Others used the concept of “refuelling” to explain the need for nicotine — stating, for example, that smokers lose nicotine through sweating, creating a need to “refuel” the body by smoking to top up their nicotine level. They postulated that this explains why smokers crave cigarettes after exercise and sexual activity.

Finally, some of the adolescents offered more sophisticated explanations, reasoning that it is the “cells” that become addicted. They theorized that certain people become addicted to nicotine because their bodies

lack a chemical or lack a protective gene. Others maintained that the body stops producing naturally occurring chemicals with prolonged smoking:

Just like Chapstick [lip balm], it stops your body from producing the stuff that makes your lips moist. Like, nicotine is replacing a chemical that makes you calm when you are stressed out. And so, when you take away your cigarette, your body doesn't know how to produce the chemical any more, and your body gets all freaked out. [17-year-old male, daily smoker, 3 quit attempts]

These adolescents spoke of the consequences of not acquiring sufficient nicotine. The short-term consequences, they believed, include irritability and cravings.

Nicotine addiction as personal weakness. A third explanation of nicotine addiction was based on the premise that it develops because of “weakness” or vulnerability due to “personal problems.” The youths explained that this weakness is reflected in smokers’ admission that they had not really wanted to start smoking, as well as their inability to cut down or quit. One youth maintained that adolescents often take up smoking when they feel vulnerable in certain situations and have a cigarette whenever they experience this feeling. Another suggested that smokers typically have low self-esteem and smoke to “prove they are better” or to “look cool.” It was argued that not all teenagers who smoke become addicted, that the development of addiction “depends on what kind of person they are.” Thus, addiction was viewed by some as a result of “mental weakness” or “weak-mindedness” rather than as a physical condition.

In these explanations of nicotine addiction as a personal weakness, a moral tone was evident in the language used and the adolescents tended to distance themselves from addicted smokers by disclosing their own perceived character strengths. For example, some maintained that the weak become addicted while those who are “in control” of their lives and their smoking do not: “I’ve been so comfortable with smoking and I’m not really getting addicted because I know I’m so much in control of my life... If people had more control of their lives, perhaps they [would] know when enough is enough” [16-year-old female, occasional smoker]; “Very few young people are lucky enough to be strong enough to not get addicted” [16-year-old female, daily smoker, 3 quit attempts]; “It shows that they are weak if they are addicted because they don’t have the willpower to quit” [15-year-old female, daily smoker, 3–4 quit attempts].

Some adolescents associated personal weakness with a particular kind of “addictive” personality characterized by lack of confidence, inability to

resist peer pressure, and lack of personal conviction. One boy reasoned that immaturity is a factor in susceptibility to addiction: "When you are younger you have...a more addictive personality" [17-year-old male, occasional smoker]. Because of the focus on willpower and mental control of smoking, some adolescents suggested that nicotine addiction is not a true addiction, like heroin addiction, and referred to the need to smoke cigarettes as a "so-called addiction." Although they admitted that some youths need to smoke, they believed that smoking cigarettes "is not really an addiction if you can control it."

Nicotine addiction as family influence. Some of the adolescents explained that nicotine addiction occurs because of the influence of both immediate and extended family members. Instead of viewing nicotine addiction as stemming from personal characteristics or choices, they believed that people become *passively* addicted. Many of the participants who held this position were regular smokers and had several relatives who smoked. Three central arguments were used to support this position: the availability of cigarettes in the home, exposure to smoking and ETS, and an inherited predisposition to addiction.

If family members smoke, reasoned some youths, cigarettes are readily available and the likelihood of their becoming addicted increases: "If they can get their hands on them, chances are they'll become addicted" [15-year-old female, daily smoker, no quit attempts]. These youths suggested that they have no choice but to smoke when cigarettes are available: "I might as well smoke it if I have it" [18-year-old male, daily smoker, 2 quit attempts].

Many of the adolescents maintained that seeing others smoke and being exposed to ETS, particularly in the home, creates an addiction to nicotine. They reasoned that when family members smoke, children "get used" to smoking and ETS and hence view it as "normal." They explained that even the smell of smoke becomes a part of everyday life and is associated with the home:

If your parents smoke, you have so much more chance of becoming [addicted]. For one [thing], you've had it in your system, like second-hand smoke, as long as your parents have smoked. And then it's just...second nature. It doesn't smell like stale cigarettes. It smells like home [laughs] or like...the living room. [17-year-old male, occasional smoker]

These teenagers expressed a belief that continued exposure to smoking creates a disposition to smoke and to become addicted. One youth said that after her parents divorced she was no longer exposed to cigarette smoke because her father, a regular smoker, had left the home. She started to have feelings of panic and reasoned that she was experiencing nicotine withdrawal even though she was a non-smoker at the

time. She maintained that this prompted her to take up smoking and to become a regular smoker [15-year-old female, daily smoker].

One boy reasoned that daily exposure in the home leads to “smoke being in your system.” Another adolescent offered a detailed account of how children’s exposure to smoke sensitizes them to cigarettes and puts them at risk for addiction:

When you’re younger and there’s smoke around you...there’s potential for being addicted to it just from the clouds of smoke that go onto children’s faces. And so they [parents] might already be creating this addiction that they are not even aware of. And so when they [the children] have that first cigarette, it’ll be sort of a re-enactment of when they were younger with all the smoke around them. [17-year-old female, former smoker, 3–4 quit attempts]

This girl attributed sensitization to the subconscious acceptance of smoking that occurs when everyone smokes: “And if they’re smoking it gives you this idea, in your head, that...what those kinds of people do is okay... I think subconsciously, somewhere in my brain, it is still...okay, everyone does this.”

A third attribution of addiction to family influences was based on the proposition that if one’s relatives smoke or have other addictions there might be a hereditary component to nicotine addiction. When asked why some people are more prone to addiction than others, one girl stated, “I don’t know if it’s hereditary, but both my mother and [I] smoke” [16-year-old female, occasional smoker, 1 quit attempt]. Others traced the smoking patterns in their family: “My mom and my auntie and my uncles, they all smoke. And my cousins smoke. And even my dad’s side smoke, his sister and all my cousins. So maybe it’s in your family or something. When they smoke, then you smoke” [16-year-old male, daily smoker, approximately 10 quit attempts]. Some were convinced they were susceptible to addiction because of a family predisposition. One youth who was a daily smoker stated:

I have an addictive personality because people in my family have been addicted to...certain drugs and...alcohol and stuff like that. My dad had a drug addiction and people...my grandparents and...in the family, like, genes, kind of. My dad always tells me I have to be careful with everything. Because of him I can get addicted easily to more stuff, because of him having the addiction. [16-year-old female, daily smoker]

Nicotine addiction as “image.” Most of the youths described nicotine addiction as something they recognized in others. A few theorized that there is no such thing as nicotine addiction, particularly among teenagers, because people can stop smoking if they really want to. They

further suggested that youths who claim they are addicted are simply pretending to be addicted, arguing that smoking “doesn’t seem to come naturally to them” and that they do not look like “real smokers.” They referred to this phenomenon as “false” or “made-up” addiction, explaining that teenagers smoke to impress and to project a “cool” image:

You get that person who has, like, one smoke a month and “Oh, I am so addicted, I am so addicted, blah, blah, blah.” And they just blurt out things they have heard before. They are trying to make it sound like they smoke all the time. [16-year-old male, daily smoker, 7–8 quit attempts]

The adolescents who subscribed to the notion of addiction as image suggested that teenagers who pretend to be addicted are more dependent on the image than on nicotine. Acting addicted was said to offer certain advantages. For example, one youth admitted to “acting addicted” in order to “hang out” with a certain group [14-year-old female, occasional smoker]. Another suggested that people who want to be “known as smokers” act addicted because it is “cool” [16-year-old male, daily smoker].

Discussion

Other researchers have described children’s ideas concerning nicotine addiction (Rugkasa, Kennedy, et al., 2001; Rugkasa, Knox, et al., 2001) and adolescent girls’ experiences of it (Moffat & Johnson, 2001). However, this is the first study to focus specifically on adolescent constructions of nicotine addiction. Compared to the ideas of children, which focus almost exclusively on the dangers and costs of addiction, those of adolescents are more complex and include less dramatic and harmful images of nicotine addiction. We also noticed a tendency for adolescents to recognize and focus on nicotine addiction in others rather than in themselves, and to implicate other smokers in youths’ vulnerability to nicotine addiction. These perspectives on nicotine addiction extend our understanding of the profound influence of parents who smoke on the smoking behaviour of children, beyond that suggested by social modelling theories. Echoing the findings of Moffat and Johnson, the participants in this study downplayed the link between individual behaviour and the development of addiction; a number of them saw themselves as immune to addiction even though they smoked.

Why do teenagers minimize their role in nicotine addiction? It is possible that they are simply resisting the warnings of authority figures about addiction. It is also possible that these findings reflect a tendency to distance oneself from the label of addiction because in social discourse

addiction is often associated with lack of control and immorality and is viewed as distasteful. Some might suggest that the findings reflect theories of a heightened egocentrism during adolescence that contributes to perceived invulnerability to natural hazards and behaviour-linked risks. Nevertheless, there is a growing body of research challenging commonly held views related to adolescent competence in judging risk and uncovering the multidimensional components of risk judgements (Millstein & Halpern-Felsher, 2002).

The constructions of nicotine addiction provided by these adolescents reflect elements of different models of addiction that have had credence in public discourse, such as genetic, exposure, and adaptation theories (Peele, 1985). In general, however, the youths ascribed far less importance to scientific “facts” than to personal experiences and observations, hunches, and, sometimes, misinformation as they struggled to understand the mechanisms involved in nicotine addiction. Other studies have also found that lay conceptualizations of addiction reflect personal knowledge of addictive substances and morals, rather than facts about the addicted state (Heim et al., 2001).

Teenagers clearly draw on various sources of information regarding addiction (and addicts). The challenge for nurses engaged in health education is to be aware of how adolescents position themselves in relation to “addiction” and to be mindful of how education campaigns around tobacco and other drugs impact the social climate for disclosure and dialogue with regard to substance use. By removing some of the moral censure that accompanies “addiction,” and by facilitating meaningful dialogue with youths about tobacco use and addiction, we will be able to provide a foundation for introducing a scientific understanding of nicotine addiction. Our knowledge of nicotine addiction is evolving rapidly, with new discoveries being made related to genetics (Li, 2003; Yoshimasu & Kiyohara, 2003) and the influence of sex and gender on addiction (Benowitz & Hatsukami, 1998). In addition, there is new evidence suggesting that some teenagers develop nicotine addiction more rapidly than previously theorized (DiFranza, Savageau, Fletcher, et al., 2002; DiFranza, Savageau, Rigotti, et al., 2002). Many of these discoveries have received media attention and inevitably inform adolescents’ views on tobacco use. It is important for nurses to keep up to date with new discoveries and incorporate relevant findings into health education programs focusing on tobacco.

Lay theories of health and illness are embedded in causal schemas that are grounded in life experiences (Stein, Roeser, & Markus, 1998). The realities described by the participants in the present study pose considerable challenges for nurses and health educators. How can we provide support for adolescents who do not want to smoke yet belong to fami-

lies in which smoking is “normal” and in which encouragement to quit is non-existent? Furthermore, as suggested by Stein et al., lay theories may not be easily replaced because the behaviours these causal schemas support become enmeshed in individuals’ self-concepts.

The youths interviewed were interested in the topic of nicotine addiction and puzzled over it, but questions remain. What notions of nicotine addiction should be cultivated among youths, and to what end? Tobacco-reduction programs for children and adolescents have concentrated on smoking bans on school premises (Northrup, Ashley, & Ferrence, 1998; Pickett, Northrup, & Ashley, 1999) as well as on prevention regarding the long-term, often delayed, adverse health effects of smoking and strategies for resisting smoking (BC Ministry of Education & BC Ministry of Health, 2000). The limited attention given to nicotine and its immediate effects is perhaps reflected in the views expressed by the participants in the present study.

The findings of this study suggest some priorities for nurses involved in youth tobacco control, including the fostering of accessible and accurate health education related to the action of nicotine. Although information about nicotine addiction will likely be insufficient to deter adolescents from smoking, knowledge that responds to their social contexts and experiences is key to empowering them to make decisions about their health.

References

- Ashley, M. J., Cohen, J., Ferrence, R., Bull, S., Bondy, S., Poland, B., et al. (1998). Smoking in the home: Changing attitudes and current practices. *American Journal of Public Health, 88*, 797–800.
- Balfour, D. J. (2000). The effects of nicotine on neural pathways implicated in depression: A factor in nicotine addiction? *Pharmacology, Biochemistry and Behavior, 66*, 79–85.
- BC Ministry of Education & BC Ministry of Health. (2000). *bc.tobaccofacts: A tobacco prevention resource for teachers*. Retrieved January 20, 2004, from <http://www.prevention.alphabet.ca>
- Benowitz, N. L. (1999). Nicotine addiction. *Primary Care, 26*, 611–631.
- Benowitz, N. L., & Hatsukami, D. (1998). Gender differences in the pharmacology of nicotine addiction. *Addiction Biology, 3*, 383–404.
- Colby, S. M., Tiffany, S. T., Shiffman, S., & Niaura, R. S. (2000a). Are adolescent smokers dependent on nicotine? A review of the evidence. *Drug and Alcohol Dependence, 59*, S83–S95.
- Colby, S. M., Tiffany, S. T., Shiffman, S., & Niaura, R. S. (2000b). Measuring nicotine dependence among youth: A review of available approaches and instruments. *Drug and Alcohol Dependence, 59*, S23–S39.

- Daughton, J. M., Daughton, D. M., & Patil, K. D. (1997). Self-recognition of alcohol and cigarette dependency among high school seniors. *Perceptual and Motor Skills*, 85, 115–120.
- DiFranza, J. R., Savageau, J. A., Fletcher, K., Ockene, J. K., Rigotti, N. A., McNeill, A. D., et al. (2002). Measuring the loss of autonomy over nicotine use in adolescents: The DANDY (Development and Assessment of Nicotine Dependence in Youths) study. *Archives of Pediatrics and Adolescent Medicine*, 156, 397–403.
- DiFranza, J. R., Savageau, J. A., Rigotti, N. A., Fletcher, K., Ockene, J. K., McNeill, A. D., et al. (2002). Development of symptoms of tobacco dependence in youths: 30-month follow-up data from the DANDY study. *Tobacco Control*, 11, 228–235.
- Eiser, J. R. (1985). Smoking: The social learning of an addiction. *Journal of Social and Clinical Psychology*, 3, 446–457.
- Gilbert, D. G., & Gilbert, B. O. (1995). Personality, psychopathology, and nicotine response as mediators of the genetics of smoking. *Behavior Genetics*, 25, 133–147.
- Guba, E. G. (1990). The alternative paradigm dialogue. In E. G. Guba (Ed.), *The paradigm dialogue* (pp. 17–27). Newbury Park, CA: Sage.
- Heim, D., Davies, J., Cheyne, B., & Smallwood, J. (2001). Addiction as a functional representation. *Journal of Community and Applied Social Psychology*, 11, 57–62.
- Johnson, J. L., Bottorff, J. L., Moffat, B., Ratner, P. A., Shoveller, J. A., & Lovato, C. Y. (2002). Tobacco dependence: Adolescents' perspectives on the need to smoke. *Social Science and Medicine*, 56, 1481–1492.
- Johnson, J. L., Lovato, C. Y., Maggi S., Ratner, P. A., Shoveller, J. A., Baillie, L., et al. (2003). Smoking and adolescence: Narratives of identity. *Research in Nursing and Health*, 26, 387–397.
- Kassel, J. D. (2000). Are adolescent smokers addicted to nicotine? The suitability of the nicotine dependence construct as applied to adolescents. *Journal of Child and Adolescent Substance Abuse*, 9, 27–49.
- Koopmans, J. R., Slutske, W. S., Heath, A. C., Neale, M. C., & Boomsma, D. I. (1999). The genetics of smoking initiation and quantity smoked in Dutch adolescent and young adult twins. *Behavior Genetics*, 29, 383–393.
- Kvale, S. (1996). *InterViews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Li, M. D. (2003). The genetics of smoking related behavior: A brief review. *American Journal of Medical Science*, 326, 168–173.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Lueders, K. K., Elliott, R. W., Marenholz, I., Mischke, D., DuPree, M., & Hamer, D. (1999). Genomic organization and mapping of the human and mouse neuronal beta₂-nicotinic acetylcholine receptor genes. *Mammalian Genome*, 10, 900–905.
- Mah, S. J., Tang, Y., Liauw, P. E., Nagel, J. E., & Schneider, A. S. (1998). Ibogaine acts at the nicotinic acetylcholine receptor to inhibit catecholamine release. *Brain Research*, 797, 173–180.

- Marubio, L. M., & Changeux, J. (2000). Nicotinic acetylcholine receptor knockout mice as animal models for studying receptor function. *European Journal of Pharmacology*, *393*, 113–121.
- Millstein, S., & Halpern-Felsher, B. (2002). Judgments about risk and perceived invulnerability in adolescents and young adults. *Journal of Research on Adolescence*, *12*, 399–422.
- Moffat, B. M., & Johnson, J. L. (2001). Through the haze of cigarettes: Teenage girls' stories about cigarette addiction. *Qualitative Health Research*, *11*, 668–681.
- Montano, D. E., Kasprzyk, D., & Taplin, S. H. (1997). The theory of reasoned action and the theory of planned behavior. In K. Glanz, F. Marcus Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory, research and practice* (pp. 85–112). San Francisco: Jossey-Bass.
- Nichter, M. (2003). Smoking: What does culture have to do with it? *Addiction*, *98*, 139–145.
- Northrup, D. A., Ashley, M. J., & Ferrence, R. (1998). The Ontario ban on smoking on school property: Perceived impact on smoking. *Canadian Journal of Public Health*, *89*, 224–228.
- Peele, S. (1985). *The meaning of addiction – Compulsive experience and its interpretation*. Toronto: Lexington.
- Pickett, W., Northrup, D. A., & Ashley, M. J. (1999). Factors influencing implementation of the legislated smoking ban on school property in Ontario. *Preventive Medicine*, *29*, 157–164.
- Pomerleau, O. F. (1995). Individual differences in sensitivity to nicotine: Implications for genetic research on nicotine dependence. *Behavior Genetics*, *25*, 161–177.
- Pomerleau, O. F., Collins, A. C., Shiffman, S., & Pomerleau, C. S. (1993). Why some people smoke and others do not: New perspectives. *Journal of Consulting and Clinical Psychology*, *61*, 723–731.
- Popay, J., & Williams, G. (1996). Public health research and lay knowledge. *Social Science and Medicine*, *42*, 759–768.
- Rosecrans, J. A. (1989). Nicotine as a discriminative stimulus: A neurobehavioral approach to studying central cholinergic mechanisms. *Journal of Substance Abuse*, *1*, 287–300.
- Rugkasa, J., Kennedy, O., Barton, M., Abaunza, P. S., Treacy, M. P., & Knox, B. (2001). Smoking and symbolism: Children, communication and cigarettes. *Health Education Research*, *16*, 131–142.
- Rugkasa, J., Knox, B., Sittlington, J., Kennedy, O., Treacy, M. P., & Abaunza, P. S. (2001). Anxious adults vs. cool children: Children's views on smoking and addiction. *Social Science and Medicine*, *53*, 593–602.
- Sarason, I. G., Mankowski, E. S., Peterson, A. J., & Dinh, K. T. (1992). Adolescents' reasons for smoking. *Journal of School Health*, *62*, 185–190.
- Shadel, W. G., Shiffman, S., Niaura, R., Nichter, M., & Abrams, D. B. (2000). Current models of nicotine dependence: What is known and what is needed to advance understanding of tobacco etiology among youth. *Drug and Alcohol Dependence*, *59*, S9–S22.

- Stein, K. F., Roeser, R., & Markus, H. R. (1998). Self-schemas and possible selves as predictors and outcomes of risky behaviors in adolescents. *Nursing Research, 47*, 96–106.
- Strecher, V. J., & Rosenstock, I. M. (1997). The health belief model. In K. Glanz, F. Marcus Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory, research and practice* (pp. 41–59). San Francisco: Jossey-Bass.
- True, W. R., Heath, A. C., Scherrer, J. F., Waterman, B., Goldberg, J., Lin, N., et al. (1997). Genetic and environmental contributions to smoking. *Addiction, 92*, 1277–1287.
- Virgili, M., Owen, N., & Sverson, H. H. (1991). Adolescents' smoking behavior and risk perceptions. *Journal of Substance Abuse, 3*, 315–324.
- Yoshimasu, K., & Kiyohara, C. (2003). Genetic influences on smoking behavior and nicotine dependence: A review. *Journal of Epidemiology, 13*, 183–192.

Authors' Note

This research was supported by grants from the British Columbia Medical Services Foundation and the National Cancer Institute of Canada, and through career awards from the Canadian Institutes of Health Research (CIHR) to Drs. Bottorff, Johnson, and Ratner.

Comments or inquiries may be directed to Dr. Joan L. Bottorff, Nursing and Health Behaviour Research Unit, School of Nursing, T201-2211 Wesbrook Mall, Vancouver, British Columbia V6T 2B5 Canada. Telephone: 604-822-7438. Fax: 604-822-7466. E-mail: bottorff@nursing.ubc.ca

The authors are members of the Nursing and Health Behaviour Research Unit, School of Nursing, University of British Columbia, Vancouver, Canada. Joan L. Bottorff, PhD, RN, is Professor, Distinguished University Scholar, and CIHR Investigator. Joy L. Johnson, PhD, RN, is Professor and CIHR Investigator. Barbara Moffat, MSN, RN, is Project Coordinator. Jeevan Grewal, BSc, is Research Assistant. Pamela A. Ratner, PhD, RN, is Associate Professor and CIHR Health Research Scholar. Cecilia Kalaw, MA, is Project Coordinator.

Résumé

**Les programmes de recherche
sur les interventions multiples
en santé communautaire**

Nancy Edwards, Judy Mill et Anita R. Kothari

Les auteures présentent un cadre organisationnel destiné aux interventions multiples en santé communautaire et à servir de fondement aux programmes de recherche sur les interventions multiples. Ce cadre soulève certaines questions critiques qui devront être examinées au cours de recherches futures. Les programmes de ce type se caractérisent par le recours à des stratégies multiples, axées vers plusieurs niveaux du système socioécologique et des publics-cibles variés. De ce fait, ils complètent les études de plus en plus nombreuses sur les facteurs globaux influant sur la santé et la promotion de celle-ci. Les auteures décrivent un cadre en quatre étapes et cernent les lacunes et les difficultés caractérisant ce domaine de recherche. Elles cernent aussi cinq aspects déterminants exigeant une action concertée en recherche : les chercheuses et les chercheurs doivent étudier les déterminants nichés, élaborer des cadres conceptuels intégrés, étudier les moyens à prendre pour maximiser la synergie entre les interventions, décrire les retombées des programmes d'interventions multiples et étudier leur durabilité.

Mots clés : programmes de recherche sur les interventions multiples, santé communautaire

Multiple Intervention Research Programs in Community Health

Nancy Edwards, Judy Mill, and Anita R. Kothari

The authors describe an organizing framework for multiple interventions in community health. The framework provides a foundation for programmatic research on multiple interventions and poses critical questions that need to be addressed in the next generation of research in this field. Multiple intervention programs are characterized by the use of multiple strategies targeted at multiple levels of the socio-ecological system and delivered to multiple target audiences. Consequently, they complement the growing literature on the broad determinants of health and health promotion. The authors describe a 4-stage framework and identify gaps and challenges in this field of research. There are 5 key research areas requiring concerted action; researchers must: examine nested determinants, develop integrated conceptual frameworks, examine ways to optimize synergies among interventions, describe spin-offs from multiple intervention programs, and monitor the sustainability of their impact.

Keywords: multiple intervention research programs, community health promotion, comprehensive programs

Introduction

The Ottawa Charter for Health Promotion (World Health Organization, 1986) marks the beginning of a significant shift in the way that health issues are conceptualized. This re-conceptualization of well-being and the causes of poor health is predicated on the knowledge that health is influenced by social, economic, political, and cultural factors, often beyond the control of the individual. Health promotion research has contributed to a better understanding of complex health determinants and examined the effectiveness of a broad range of interventions.

The realization that health has interrelated determinants has necessitated the design of more complex health promotion programs. New terminology has emerged to capture a shift in focus from single to multiple interventions, from simple to complex health programs, and from programs that focus on risk factors to those that attempt to shape contextual influences on health (Sampson & Morenoff, 2000). Various called comprehensive programs (Alberta Health, 1994), coordinated programs (Centers for Disease Control and Prevention, 2001), contextualist paradigms (Sampson & Morenoff), macrointerventions (Green, Richard, & Potvin, 1996), and multiple intervention programs (Edwards, 1999, 2001;

Merzel & D’Afflitti, 2003; Riegelman, Verme, Rochon, & El-Mohandes, 2002), these approaches are all rooted in socio-ecological frameworks. In this paper, we use the term multiple intervention programs.

Multiple intervention programs consist of multiple components and interconnected intervention strategies. A combination of interventions is used to target multiple levels (e.g., individual, community, political) and multiple sectors (e.g., health, education, transportation, housing, business) of a socio-ecological system (Green et al., 1996). They are delivered through various channels (e.g., non-governmental organizations, professional associations, coalitions, advocacy groups, media) and settings (e.g., home, school, workplace). In addition to tackling the underlying determinants of a problem, multiple interventions are likely to have a lasting and sustained impact because they target more than one level of the system (Smedley & Syme, 2000). Congruent with the principles of health promotion, the community is often an active participant in the design and evaluation of these complex programs.

The goal of this article is to describe an organizing framework for evaluating multiple interventions in community health. The framework has been developed through a review of both existing health promotion planning models (e.g., RE-AIM PRECEDE-PROCEED, Planned Approach to Community Health) and literature critiquing multiple intervention effectiveness studies in the fields of heart health, tobacco cessation, injury prevention, and prevention of low birthweight (Bauman, Suchindran, & Murray, 1999; Eaton et al, 1999; Leupker et al., 1996; Merzel & D’Afflitti, 2003; Mittlemark, Hunt, Heath, & Schmid, 1993; Pelletier, 1997; Schooler, Farquhar, & Flora, 1997; Sorensen, Emmons, Hunt, & Johnston, 1998; Stevens-Simon & Orleans, 1999; Susser, 1995; Zanna et al., 1994). The framework provides a foundation for programmatic research in the field of multiple interventions and poses critical questions that need to be addressed by the next generation of research on multiple interventions. Stages of the framework are described, key gaps and challenges in this field of research are highlighted, and illustrative research questions are posed.

Before describing the framework, it is instructive to briefly review what has been learned from prior studies examining the effectiveness of multiple interventions in community health. Two sources of information are considered here: review articles that provide insights from a retrospective analysis of multiple intervention studies that failed to demonstrate expected outcomes, and systematic reviews of the effectiveness of multiple interventions from both the Cochrane database and the Effective Public Health Practice Project.

A number of well-designed and well-funded community health studies have failed to demonstrate the expected impact of multiple inter-

vention programs on outcomes (Merzel & D’Afflitti, 2003). These include the COMMIT trial (COMMIT Research Group, 1995a, 1995b), the Minnesota Heart Health initiative (Luepker et al., 1996), and the Pawtucket Heart Health program (Eaton et al., 1999). Purported reasons for these intervention failures include: (1) intervention protocols that were not tailored to the characteristics of population subgroups; (2) the use of standardized protocols¹ that have restricted changes in interventions even when contextual realities have shifted during the study period; (3) study timelines that were too short to achieve the desired effects due to the complexity of the intervention strategies, the multiple levels of the system involved, and the time required for interventions at each level to take hold and then synergistically interact; (4) interventions that had a predominant focus on individual behaviour change with only limited attention given to the social, policy, and organizational environments; (5) use of a full arsenal of intervention strategies rather than only those with the more potent “active ingredients,” thus diluting the overall effect of the multiple intervention program; and (6) the use of intervention strategies that, on a population-wide basis, were too weak or diffuse to produce systems change (Edwards, 2001; Merzel & D’Afflitti; Pelletier, 1997; Stevens-Simon & Orleans, 1999). These explanations yield an underlying theme: there has been a tendency for researchers to model the design of multiple intervention effectiveness studies on single intervention effectiveness prototypes.

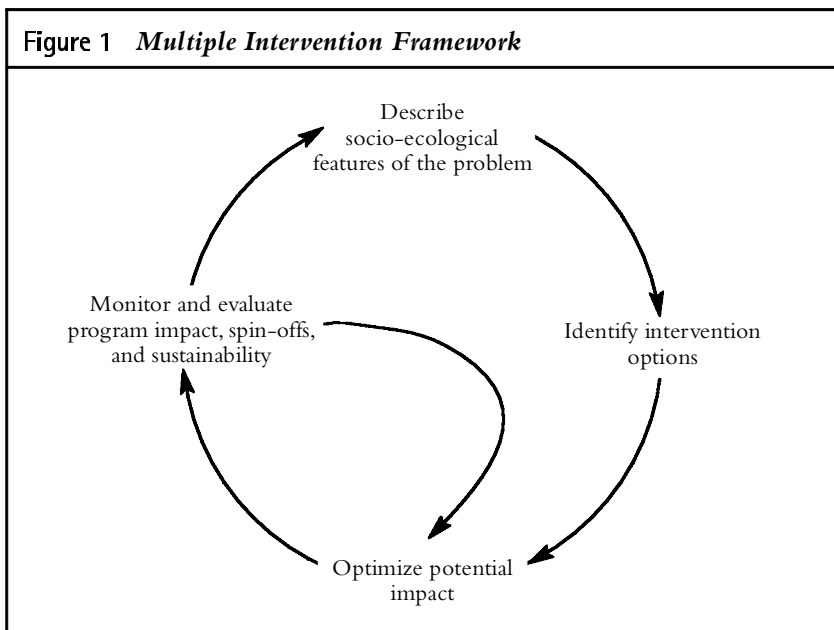
The two sources of systematic reviews that were tapped for this critique offer somewhat different conclusions about the potential impact of multiple interventions. A limited number of reviews in the Cochrane database address community health or health promotion topics with multiple interventions. Reviewers generally conclude that there is either a lack of high-quality evidence on the effectiveness of multiple interventions (Ebrahim & Davey Smith, 2003; Thomas, 2003) or a lack of evidence that such interventions are effective “despite the strong theoretical rationale for their use” (Moher, Hey, & Lancaster, 2003, p. 2; Secker-Walker, Gnich, Platt, & Lancaster, 2003). In contrast, the systematic reviews of multiple intervention programs undertaken by the Effective Public Health Practice Project in Ontario generally conclude that multiple interventions are more effective than uni-component or single interventions (Dobbins & Beyers, 1999; Edwards, Aubin, & Morrison, 2000), or observe that single interventions are more effective when embedded

¹ Standardized protocols are intervention guides that detail all critical elements of the intervention, including their sequence and timing. In some areas of the literature, standardized protocols are referred to as “manualized treatments” (Korfmacher, Kitzman, & Olds, 1998).

in a multifaceted intervention (Micucci, Thomas, & Vohar, 2002; Wade et al., 1999). Features of multiple intervention programs that are described as critical include: long duration (Beyers, 2000; DiCenso, Guyatt, & Willan, 1999; Dobbins & Beyers), theory-based (Dobbins & Beyers; Edwards et al.), diverse and tailored to subgroups (Dobbins & Beyers), multi-pronged and multisectoral in scope (Dobbins & Beyers), and supported by implementing organization(s) (Beyers). The seemingly contradictory conclusions of these two sets of systematic reviews may be due to differences in inclusion criteria, differences in the types of effectiveness questions posed, and the fact that the Effective Public Health Practice Project gave more attention to features of the intervention and the implementation process. These systematic reviews highlight some of the challenges of research on multiple interventions and point to the need for a framework to guide programmatic research in this field.

The Multiple Intervention Program Framework for Researchers

The framework presented in Figure 1 has four stages: (1) describe the socio-ecological features of the problem; (2) identify intervention options; (3) optimize potential impact; and (4) monitor and evaluate program impact, spin-offs, and sustainability. Each stage is described below.



Describe Socio-ecological Features of the Problem

The design of multiple intervention programs is grounded in a socio-ecological perspective of health. Social ecology provides a framework for understanding the diverse personal and environmental factors and the interrelationships among these factors that influence a given health problem (Stokols, 1996). Implicit in the socio-ecological perspective on health is the idea that the relationship between humans and their environment is reciprocal (Green et al., 1996; Sallis & Owen, 1997). Many concepts from systems theory are incorporated into this approach in order to elucidate the dynamic relationship between humans and their environment (Koopman & Lynch, 1999; Stokols). Systems include both negative and positive feedback loops. Negative feedback loops keep the system in balance or in equilibrium while positive feedback loops amplify change (either positive or negative). Since systems function to maintain their internal organization in relation to the environment (Flood, 2001; Maturana & Varela, 1992), an understanding of feedback loops may guide the researcher in identifying levers for change and selecting novel intervention strategies.

Another premise of an ecological perspective is that humans in environments can be described at several levels of aggregation: individual, family, organization, community, and population (Sallis & Owen, 1997). Following from this premise is the necessity of both describing the multiple levels of determinants of a problem and identifying opportunities for integrated action across these levels. The effectiveness of interventions may be increased when they are coordinated across levels of aggregation. In other words, an ecological approach integrates interventions to address “mainstream” (e.g., population-based) phenomena and “upstream” societal-level phenomena (e.g., public policies), in addition to “downstream” individual-level phenomena (Smedley & Syme, 2000).

When assessing the socio-ecological features of a health problem of interest, the researcher must consider the interconnections among determinants of health (Krieger, 2001). Determinants may be “nested,” so that the strength of determinants at one level of the socio-ecological system will enhance or suppress how determinants interact at another level. Therefore, it is essential to consider not only the “layers” of determinants but also their interactions. For example, lifestyle choices are influenced by one’s social environment (social norms, regulations). However, the relationship among lifestyle choices, one’s social environment, and one’s exposure to the mass media is nested within a larger political environment. Furthermore, individual lifestyle choices are influenced by public opinion, which also shapes political choices, and the media influences both public opinion and political choices. The way in which determi-

nants are nested provides important information regarding the links among them and hints at the possibility of a differential distribution of outcomes among selected sub-populations.

Exploring how different levels of determinants are nested and how they interact is a promising area of research. The dominant health promotion literature on determinants describes more proximal determinants. Perhaps this reflects the challenge of attribution when more distal determinants are examined. However, conceptual models that integrate proximal and distal determinants and consider potential interactions among them provide an important basis for the generation of new research questions. Similarly, hypotheses regarding potential sources of feedback (both positive and negative) and their impact on determinants at different levels would provide a basis for the generation of novel research questions (Sorensen et al., 2003).

Identify Intervention Options

The design of a multiple intervention program requires the use of appropriate theory and empirical evidence. Although a socio-ecological framework provides an overarching conceptual model, it gives limited direction for specific intervention strategies. In the design of interventions, one must integrate relevant mid-range theories and consider the interconnections among conceptual elements. For example, if one is planning to examine interventions that address behavioural, organizational, and policy change, relevant theories from each of these domains will need to be selected. Integrating mid-range theories requires an understanding of the assumptions, views, and presuppositions of the theories. In particular, the theories chosen should be compatible with a socio-ecological perspective (i.e., addressing more than one level of the system, identifying the relationships between humans and their environment, and describing feedback loops). However, the “added value” of integrating theories lies in their complementarity rather than in their similarity. For one theory the relative emphasis may be on structure (e.g., organizational theory) while for another it may be on process (e.g., community action theory). Thus, researchers need to move beyond use of a single theory as the basis for evaluating health promotion programs.

Integrating complementary theories into an overarching conceptual framework for an intervention can provide a clearer picture of the pathways (i.e., relationships between concepts or the means by which program inputs can be expected to achieve program outputs) that need to be targeted in intervention and evaluation design. Studies are required to explore the complex pathways that influence relationships between program inputs and outputs (Sorensen et al., 2003).

The effectiveness of each intervention strategy should be supported by previous empirical work. Ideally, there will be adequate information about the necessary “reach” of the intervention for a target population (e.g., the proportion of targeted recipients who must have access to and/or receive the intervention in order for the effectiveness of the intervention to be achieved).

Following identification of the most appropriate interventions, and the targets for the intervention, the researcher must consider the issue of specification. The dose or intensity of the intervention required to achieve the desired health outcome must be assessed (Glasgow, Vogt, & Boles, 1999; Green et al., 1996). In other words, what are the minimum frequency and duration and critical timing of the intervention strategies required to produce an initial change and sustain the desired outcomes? Given the dose and intensity of other competing interventions, what is the likelihood that the proposed dose and intensity of the strategy of interest will “take hold” and penetrate to harder-to-reach groups? Is a uniform dose of the intervention required, or would certain population subgroups benefit from different levels of intensity? While practical issues such as the level of funding available for the research may ultimately guide decisions regarding dose and intensity, initial estimates of the required dose should not be constrained by them.

Optimize Potential Impact

Multiple intervention programs represent more than a basket of effective interventions. The use of multiple interventions across levels suggests that recipients might benefit from the way in which interventions are combined. In other words, there is the potential for synergies to occur, making the combination of interventions more effective than individual interventions (e.g., the whole is greater than the sum of its parts). From an effectiveness point of view, the interventions can be optimized if synergies between interventions at different levels of the system, or synergies between the interventions and the contextual influences, can be enhanced. Optimization may also be achieved by reducing antagonistic interactions among interventions or between interventions and the context. Examples of research questions that emerge from a consideration of synergistic effects include the following: Does the presence of a lively and prolonged provincial political debate on environmental tobacco-smoking policies increase the effectiveness of public health nurses’ advice to new parents regarding household tobacco smoke? What sequence of public service announcements, messages from health-care providers, and workplace reminders has the greatest impact on the uptake of flu immunization?

The contextual environment is a changing entity. Therefore, it is important to track the impact of the contextual environment during a multiple intervention study to assist with interpretation of findings. Theory can provide direction in this regard. Multiple intervention research requires theory that offers a longitudinal and iterative view rather than a cross-sectional view of the change process. Life-course theory and diffusion theory are examples of theories that provide explicit guidance on the process of change (one following developmental trajectories, the other following behaviour and societal change trajectories). Systematic reviews may offer useful, albeit limited, insights into ways of optimizing synergies among multiple intervention strategies. In particular, reviews may provide observations regarding what types of contextual factors enhanced the potency of intervention strategies, thus producing differential effects across population subgroups or study settings. Systematic reviews may also describe synergies among intervention strategies, particularly when contrasting the findings of studies examining the impact of single versus multiple intervention strategies.

For researchers who are conducting systematic reviews, the challenges of multiple intervention program design point to a number of factors that need to be emphasized at the outset. First, the dose and intensity of intervention strategies that are necessary to achieve the desired effects require more thorough documentation. Second, differential effects of interventions across studies (and contexts) warrant careful analysis. Third, reviewers should attend to evidence of interactions among intervention strategies and provide conclusions regarding the optimal sequencing of these strategies. In summary, optimization strategies may be identified in a number of ways. Integrated conceptual frameworks (as described previously) may provide direction for the selection of an optimal combination of strategies. Evidence from previous studies (e.g., systematic reviews) may also provide guidance on optimal combinations of interventions. Finally, analyses of the differential impact of intervention strategies across settings and populations may highlight contextual factors that determine readiness or create conditions for an intervention to take hold with population subgroups.

Monitor and Evaluate Program Impact, Spin-offs, and Sustainability

The nature of effective multiple intervention programs dictates that managers use an iterative approach to program implementation, adapting to unanticipated changes in the contextual environment. These contextual changes could include a shift in public opinion, a crisis that creates a new “window of opportunity,” or a major change in governance structures among implementing organizations. They may provide opportunities for the researcher to modify the intervention proactively. Thus, multiple

intervention research needs to be constantly informed by “on-the-ground” program insights, and vice versa. The feedback loop in Figure 1 illustrates the need for an iterative approach to intervention design in this field of research.

For the researcher, this iterative approach presents an interesting dilemma. Should standardized intervention protocols be used to evaluate the impact of multiple intervention programs? Standardized protocols are widely accepted as a means of ensuring comparable interventions. However, rigid adherence to protocols eliminates the possibility of tailoring interventions to fit contextual realities. Since standardized intervention protocols may “lock” one into a particular sequence and combination of intervention strategies that do not take into account changes in the contextual environment, alternatives should be considered. For example, different levels of standardization might be an option. Intervention protocols could be standardized (from less rigid to more rigid) on the basis of the integrated conceptual framework, the process for implementation (e.g., working with community partners), or the specific content (e.g., of training modules, assessment tools). Researchers should carefully consider the rationale for standardizing various aspects of their intervention protocol. The pros and cons of using a rigidly standardized intervention approach should be weighed with respect to both methodological rigour and the quality of the intervention. It is essential that procedures be established for documenting both the implementation of intervention processes and the rationale for changing the initial intervention protocol. This type of documentation can be a source of fruitful learning about multiple intervention design.

Although it is important for research teams to establish a priori hypotheses concerning both the intended effects of a multiple intervention program and potential synergistic effects, they should adopt documentation procedures that make it easy for frontline staff and managers to describe unintended spin-offs, unexpected synergistic effects due to the combination of intervention strategies, and unanticipated contextual influences on the program arising from the policy, social, or economic environment. With this in mind, it is not surprising that diverse research methodologies, including qualitative and quantitative approaches, are required when evaluating the impact of multiple intervention programs (Stokols, 1996).

Systematic documentation of spin-offs needs to be planned in advance, with study timelines allowing for a longer follow-up period to capture both spin-offs and the sustainability of intervention implementation. Interviews with those both directly and peripherally involved in the implementation of a multiple intervention program may yield insights concerning spin-offs from a core program (e.g., development of

similar programs in other agencies, wider uptake as evidenced by change at other levels of the system, or a shift in organizational approaches to delivering related services).

The question of how multiple intervention programs can sustain healthy behaviours and environments is a critical one with many facets: Does one need the entire multiple intervention program to bring about sustained change? Are “booster” doses of the multiple intervention program required, and, if so, at what time intervals and for which population subgroups? What is required to ratchet change up to the systems level (Edwards, 2003)? Researchers integrating a socio-ecological perspective within their programs of research should consider these questions.

Unfortunately, funding levels for community health often do not allow for the mounting and evaluation of complex programs. Current funding mechanisms for research and training grants frequently reinforce an individual focus on health and disease (Syme, 2003). Identifying and describing spin-offs that arise from an intervention often require more time than that allotted within current research funding mechanisms. While attributing spin-offs to the original intervention may be tenuous, there is much to be learned from the “ripples,” both positive and negative, following an intervention. Unfortunately, few research projects address these longer-term results. Furthermore, the current climate of restructuring and regionalization in the health sector hinders the maintenance of the external partnerships necessary for longer-term intersectoral programmatic approaches to the problem.

Summary

This framework highlights a number of issues that researchers must consider when designing multiple intervention projects. The combination of interventions requires explicit attention to both the levels of intervention and the intervention strategies. The multilevel combination, however, must make overall “sense,” reflecting a type of face validity. Therefore, the researcher might have to combine effectiveness studies from several areas (e.g., social marketing approaches, advocacy and policy change, continuing education strategies) with conceptual frameworks from various disciplines (e.g., diffusion, behaviour change, organizational change and community action theories). Combinations of active (e.g., behaviour change) and passive (e.g., policy change) interventions are emphasized with this approach (Stokols, 1996). As well, the interaction between levels of interventions must be considered, measured, and incorporated into the research design (Sallis & Owen, 1997). Not to be forgotten are spin-offs and sustainability issues, which must be given time to surface.

Concluding Remarks

A programmatic approach is essential as we tackle the next generation of research on multiple interventions. The framework described in this article highlights five key issues that require the concerted attention of researchers: (1) examining nested determinants, (2) developing integrated conceptual frameworks that guide the development of intervention strategies with a socio-ecological orientation, (3) examining ways to optimize synergies among interventions, (4) describing spin-offs from multiple intervention programs, and (5) monitoring the sustainability of their impact. Taking on these issues presents some important challenges. Those delivering health promotion programs are embracing the complexity of multiple intervention program design. It is time for researchers to do the same.

References

- Alberta Health. (1994). *Adolescent sexuality education: A resource kit compiled to demonstrate the efficacy of comprehensive sexuality education programs*. Developed by J. Hopkinson, P. Cuddy, G. Vivone-Vernon, and S. Price for Alberta Health. Edmonton: Author.
- Bauman, K. E., Suchindran, C. M., & Murray, D. M. (1999). The paucity of effects in community trials: Is secular trend the culprit? *Preventive Medicine*, 28, 426–429.
- Beyers, J. (2000). The effectiveness of workplace-based health risk appraisal in improving knowledge, attitudes or behaviours. *Effective Public Health Practice Project*, 1–3.
- Centers for Disease Control and Prevention. (2001). Coordinated school health programs make a difference. *Chronic Disease Notes and Reports*, 14(1), 6–9.
- COMMIT Research Group. (1995a). Community Intervention Trial for Smoking Cessation (COMMIT). I: Cohort results from a four-year community intervention. *American Journal of Public Health*, 85, 183–192.
- COMMIT Research Group. (1995b). Community Intervention Trial for Smoking Cessation (COMMIT). II: Changes in adult cigarette smoking prevalence. *American Journal of Public Health*, 85, 193–200.
- DiCenso, A., Guyatt, G. H., & Willan, A. (1999). A systematic review of the effectiveness of adolescent pregnancy primary prevention programs. *Effective Public Health Practice Project*, 1–55.
- Dobbins, M., & Beyers, J. (1999). The effectiveness of community-based heart health programs: A systematic overview update. *Effective Public Health Practice Project*, 1–86.
- Eaton, C. B., Lapane, K. L., Garber, C. E., Gans, K. M., Lasater, T. M., & Carleton, R. A. (1999). Effects of a community-based intervention on physical activity: The Pawtucket Heart Health Program. *American Journal of Public Health*, 89, 1741–1744.

- Ebrahim, S., & Davey Smith, G. (2003). Multiple risk factor interventions for primary prevention of coronary heart disease. *Cochrane Database of Systematic Reviews*, 3.
- Edwards, N. (1999). Population health: Determinants and interventions. *Canadian Journal of Public Health*, 90(1), 10–12.
- Edwards, N. (2001, March 15). *Evaluating multiple interventions in community health: An epidemiological conundrum*. Distinguished Alumni Lecture, McMaster University, Hamilton, Ontario.
- Edwards, N. (2003). Ratcheting up research efforts for systems change. *Canadian Journal of Nursing Leadership*, 16(2), 27–31.
- Edwards, N., Aubin, P., & Morrison, M. (2000). The effectiveness of postpartum smoking relapse prevention strategies: A systematic review of the evidence 1992–1999. *Effective Public Health Practice Project*, March, 1–59.
- Flood, R. L. (2001). The relationship of “systems thinking” to action research. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice* (pp. 133–144). Thousand Oaks, CA: Sage.
- Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health*, 89(9), 1322–1327.
- Green, L. W., Richard, L., & Potvin, L. (1996). Ecological foundations of health promotion. *American Journal of Health Promotion*, 10(4), 270–281.
- Koopman, J. S., & Lynch, J. W. (1999). Individual causal models and population system models in epidemiology. *American Journal of Public Health*, 89(8), 1170–1174.
- Korfmacher, J., Kitzman, H., & Olds, D. (1998). Intervention processes as predictors of outcomes in a preventive home-visitation program. *Journal of Community Psychology*, 26(1), 49–64.
- Krieger, N. (2001). Theories for social epidemiology in the 21st century: An ecosocial perspective. *International Journal of Epidemiology*, 30, 668–677.
- Luepker, R. V., Rastam, L., Hannan, P. J., Murray, D. M., Gray, C., Baker, W. L., et al. (1996). Community education for cardiovascular disease prevention: Morbidity and mortality results from the Minnesota Heart Health Program. *American Journal of Epidemiology*, 144, 351–362.
- Maturana, H. R., & Varela, F. J. (1992). *The tree of knowledge: The biological roots of human understanding* (rev. ed.). Boston: Shambhala.
- Merzel, D., & D’Afflitti, J. (2003). Reconsidering community-based health promotion: Promise, performance, and potential. *American Journal of Public Health*, 93(4), 557–574.
- Micucci, S., Thomas, H., & Vohar, J. (2002). The effectiveness of school-based strategies for the primary prevention of obesity and for promoting physical activity and/or nutrition, the major modifiable risk factors for type 2 diabetes: A review of reviews. *Effective Public Health Practice Project*, 1–55.
- Mittelmark, M. B., Hunt, M. K., Heath, G., & Schmid, T. L. (1993). Realistic outcomes: Lessons from community-based research and demonstration programs and the prevention of cardiovascular diseases. *Journal of Public Health Policy*, 14, 437–462.

- Moher, M., Hey, K., & Lancaster, T. (2003). Workplace interventions for smoking cessation. *Cochrane Database of Systematic Reviews*, 3.
- Pelletier, K. R. (1997). Clinical and cost outcomes of multifactorial cardiovascular risk management interventions in worksites: A comprehensive review and analysis. *Journal of Occupational and Environmental Medicine*, 39(12), 1154–1169.
- Riegelman, R., Verme, D., Rochon, J., & El-Mohandes, A. (2002). Interaction and intervention modeling: Predicting and extrapolating the impact of multiple interventions. *Annals of Epidemiology*, 12(3), 151–156.
- Sallis, J. F., & Owen, N. (1997). Ecological models. In K. Glanz, F. M. Lewis, & R. K. Rimer (Eds.), *Health behaviour and health education: Theory, research, and practice* (2nd ed.) (pp. 403–424). San Francisco: Jossey-Bass.
- Sampson, R. J., & Morenoff, J. D. (2000). Public health and safety in context: Lessons from community-level theory on social capital. In B. D. Smedley & S. L. Syme (Eds.), *Promoting health: Intervention strategies from social and behavioural research* (pp. 366–389). Washington: National Academy Press.
- Schooler, C., Farquhar, J. W., & Flora, J. A. (1997). Synthesis of findings and issues from community preventive trials. *Annals of Epidemiology*, 7(suppl 7), S54–S68.
- Secker-Walker, R. H., Gnich, W., Platt, S., & Lancaster, T. (2003). Community interventions for reducing smoking among adults. *Cochrane Database of Systematic Reviews*, 3.
- Smedley, B. D., & Syme, S. L. (2000). Promoting health: Intervention strategies from social and behavioural research. In B. D. Smedley & S. L. Syme (Eds.), *Promoting health: Intervention strategies from social and behavioural research* (pp. 1–36). Washington: National Academy Press.
- Sorensen, G., Emmons, K., Hunt, M. K., Barbeau, E., Goldman, R., Peterson, K., et al. (2003). Model for incorporating social context in health behaviour interventions: Applications for cancer prevention for working-class multi-ethnic populations. *Preventive Medicine*, 37, 188–197.
- Sorensen, G., Emmons, K., Hunt, J. K., & Johnston, D. (1998). Implications of the results of community intervention trials. *Annual Review of Public Health*, 19, 379–416.
- Stevens-Simon, C., & Orleans, M. (1999). Low-birthweight prevention programs: The enigma of failure. *Birth*, 26(3), 184–191.
- Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion*, 10(4), 282–298.
- Susser, M. (1995). Editorial: The tribulations of trials-intervention in communities. *American Journal of Public Health*, 85, 156–158.
- Syme, L. S. (2003, February 19–21). *Social determinants of health: The community as an empowered partner*. Paper presented at the 17th National Conference on Chronic Disease Prevention and Control, St. Louis, Missouri.
- Thomas, R. (2003). School-based programmes for preventing smoking. *Cochrane Database of Systematic Reviews*, 3.
- Wade, K., Cava, M., Douglas, C., Feldman, L., Irving, H., O'Brien, M.A., et al. (1999). A systematic review of the effectiveness of peer-/paraprofessional 1:1

interventions targeted towards mothers (parents) of 0–6 year old children in promoting positive maternal (parental) and/or child health/developmental outcomes. *Effective Public Health Practice Project*, 1–85.

World Health Organization. (1986). *Ottawa Charter for Health Promotion*. First International Conference on Health Promotion. Ottawa and Geneva: Author.

Zanna, M., Cameron, R., Goldsmith, C. H., Poland, B., Lindsay, E., & Walker, R. (1994). Critique of the COMMIT study based on the Brantford experience. *Health and Canadian Society*, 2(2), 319–336.

Authors' Note

We would like to thank the 2003 Nursing Research Internship class at the University of Ottawa for their helpful comments on the framework.

Drs. Mill and Kothari would like to acknowledge the financial support they received as postdoctoral fellows with the Canadian Health Services Research Foundation during the time this manuscript was written. Dr. Edwards would like to acknowledge the funding of her Community Health Nursing Chair by the Canadian Health Services Research Foundation, the Canadian Institutes of Health Research, and the Ontario Ministry of Health and Long-Term Care.

Finally, we would like to thank the reviewers for their very helpful comments on an earlier draft of this manuscript.

Comments or inquiries may be directed to Nancy Edwards, School of Nursing, University of Ottawa, 451 Smyth Road, Room 1118, Ottawa, Ontario K1H 8M5 Canada.

Nancy Edwards, RN, PhD, is Professor, School of Nursing, University of Ottawa, Ontario, Canada. Judy Mill, RN, PhD, is Assistant Professor, Faculty of Nursing, University of Alberta, Edmonton, Canada. Anita R. Kothari, PhD, is Postdoctoral Fellow, Community Health Research Unit, University of Ottawa.

Considérations d'ordre conceptuel et analytique relatives à la recherche multiniveaux en promotion de la santé

Anita R. Kothari et Stephen Birch

La recherche en promotion de la santé fait souvent appel à un modèle socio-écologique pour élaborer ses concepts. Celui-ci produit des données ou des variables associées à plusieurs niveaux, tels que le niveau individuel, le niveau correspondant au milieu de vie et le niveau provincial. Ces données sont ensuite regroupées par niches ou par grappes. En d'autres termes, la recherche multiniveaux en promotion de la santé se fonde sur l'idée que le milieu influe sur la santé, transcendant les caractéristiques et comportements individuels. On peut faire une analyse rigoureuse de ces effets de contexte à l'aide de la modélisation multiniveaux, dans le but de déterminer s'ils découlent véritablement du milieu ou sont le produit du profil social des résidents. Cette méthode facilite également l'analyse des effets de l'interaction transversale. Les auteurs abordent les questions conceptuelles et méthodologiques soulevées par la recherche multiniveaux. Bien que les modèles conceptuels permettent de proposer des trajectoires multiniveaux vers des résultats de santé, les analyses techniques ne révélant que des effets globaux moyens ne permettent pas de mettre en évidence les autres facteurs influençant les comportements de santé.

Mots clés : modélisation multiniveaux, effets de contexte, contexte

Multilevel Health Promotion Research: Conceptual and Analytical Considerations

Anita R. Kothari and Stephen Birch

Health promotion research is often conceptualized through the use of socio-ecological frameworks. This results in data or variables associated with multiple levels such as individual, community, and provincial. These data are nested, or clustered. In other words, multilevel health promotion research is based on the idea that community influences health, above and beyond one's individual characteristics or behaviours. These contextual effects can be analyzed rigorously using multilevel modelling (MLM), thus determining whether contextual effects are truly derived from context or are the result of residents' social profile. MLM also facilitates examination of cross-level interaction effects. The authors discuss conceptual and methodological issues related to multilevel research. While multilevel pathways to health outcomes have been suggested at the conceptual level, analytical techniques that produce only average overall effects fail to reveal the various other influences on health behaviour.

Keywords: multilevel modelling, hierarchical multilevel modelling, contextual effects, public health research, context

Various conceptual frameworks for explaining the production of health in populations have included explicit consideration of the role of context (i.e., factors beyond personal characteristics) in determining the health of individuals (Evans & Stoddart, 1990; Hancock 1986; Stokols, 1996). For example, while an individual's health may be influenced by his own employment status, it may also be influenced by the level of employment in the community in which he lives, independent of his own employment status. These frameworks reflect the fact that individuals are not independent of their communities but are influenced by them. This consideration has extended the range of health determinants to include contexts (e.g., families, workplaces, residential communities) and specific variables or characteristics of those contexts (e.g., environment, employment levels and types, socio-economic status) and the associations among them.

A parallel approach has been the development of empirical models to estimate the direction and size of these complex relationships underlying the production of health. Hierarchical multilevel modelling, for example, is a statistical technique that handles data with a specific structure — units that are nested into groups or clusters, like individuals within fam-

ilies and families within communities. Many health promotion strategies exhibit this type of structure since they include community-level policies as an approach to influencing individual health or health-related behaviours.

The purpose of this paper is to discuss conceptual and methodological issues related to multilevel research problems and explain how multilevel models can be used to help identify separate individual and contextual influences on health and the interactions among these influences. Traditional analytical techniques such as simple regression modelling produce average effects that can mask the ways in which health or health-related behaviour is influenced. In particular, observed poor health of a community might arise from particular characteristics of the community (e.g., level of air pollution), the composition of the community (e.g., clustering of heavy smokers), or the interaction among people and contextual characteristics (e.g., the level of air pollution exacerbates the harmful health effects of smoking) (Jones, Moon, & Clegg, 1991). Only through the use of appropriate techniques can each of these influences be detected.

The first section of the paper highlights conceptual issues associated with multilevel research problems. In keeping with much of the literature, we use the terms “context” and “community” in reference to geographic areas, although the notion of context is not confined to geographical considerations but can apply to any factor beyond the personal circumstances and characteristics of the individual. The second section deals with technical approaches to analyzing multilevel data. Our exploration of multilevel research issues leads us to conclude that multilevel modelling (or MLM) is the most robust method by which to treat the levels of data. MLM supports the incorporation of various levels of data (e.g., individual, family, workplace) as well as particular variables measured at each level (e.g., individual education, family income, workplace smoking policies) to provide estimates of the relationships *within* each level (e.g., what are the associations between individual education and individual health and family income?) and *among* levels (how does smoking policy at the workplace affect the association between individual smoking and individual health?). From a conceptual standpoint, MLM more closely resembles the multiple and interacting pathways influencing health than does a single-level regression model.

Researchers have used the MLM technique to examine the determinants of a range of health-related factors (see Table 1). These include health status (Beland, Birch, & Stoddart, 2002; Duncan, Jones, & Moon, 1996; Humphreys & Carr-Hill, 1991; Mitchell, Gleave, Bartley, Wiggins, & Joshi, 2000), risk factors for disease (Diez-Roux, Link, & Northridge, 2000; Diez-Roux et al., 1997), health-related behaviours such as smoking

Table 1 *Some Multilevel Health Studies*

Study	Independent Variables		Dependent Variables	Findings
	Contextual level	Individual level		
Beland et al., 2002	<p>Clusters:</p> <ul style="list-style-type: none"> - level of unemployment - gender distribution - age-group distribution - education - proportion of population that consists of immigrants - family structure - income - employment status - occupational status 	<ul style="list-style-type: none"> - employment status - sources of stress - socio-economic status - social support - psychological factors 	<ul style="list-style-type: none"> - perceived health status 	<ul style="list-style-type: none"> - level of unemployment and health relationship did not vary among contexts - stress and health relationship did vary among contexts, and this relationship was influenced by area-level economic well-being
Carr-Hill et al., 1996	<p>Ward:</p> <ul style="list-style-type: none"> - housing tenure - social class - unemployment status - permanent sickness - student status - car ownership - single-career households - dependent children - elderly living alone - overcrowding - education - longstanding illness - rural/urban - access to health care 	<ul style="list-style-type: none"> - change in employment status - health status - sociodemographic 	<ul style="list-style-type: none"> - consultation rates in general practice 	<ul style="list-style-type: none"> - small contextual effect found - individual effects stronger

Table 1 (cont'd)				
Study	Independent Variables		Dependent Variables	Findings
	Contextual level	Individual level		
Diez-Roux et al., 1997	<p>Census-block groups:</p> <ul style="list-style-type: none"> - education - income - house value - occupation 	<ul style="list-style-type: none"> - social class 	<ul style="list-style-type: none"> - prevalence and risk factors for coronary heart disease 	<ul style="list-style-type: none"> - small neighbourhood effects, sometimes not significant but consistent across various dependent variables - interaction effect demonstrated only for one neighbourhood (men only)
Diez-Roux et al., 2000	<p>State level:</p> <ul style="list-style-type: none"> - three indices of income inequality 	<ul style="list-style-type: none"> - income 	<ul style="list-style-type: none"> - cardiovascular disease risk factors: BMI, hypertension, sedentarism, smoking 	<ul style="list-style-type: none"> - contextual income inequality associated with three of four dependent variables, especially at low levels of individual income - the remaining variable, smoking, demonstrated an association with income inequality at higher levels of individual income - significant effect found only in women
Duncan et al., 1999	<p>Region</p> <p>Ward</p>	<ul style="list-style-type: none"> - demographic - socio-economic 	<ul style="list-style-type: none"> - smoking behaviour - alcohol consumption 	<ul style="list-style-type: none"> - very small effects for smoking, a little higher for drinking - contextual effects were mostly compositional

Duncan et al., 1996	Ward Individual	<ul style="list-style-type: none"> - demographic - social class 	<ul style="list-style-type: none"> - smoking status - smoking behaviour (consumption rates) 	<ul style="list-style-type: none"> - most variation in consumption due to individuals - after considering composition, smoking status varied by ward - wards with high number of smokers also demonstrated high levels of average consumption
Duncan et al., 1999	Region Electoral ward: - index of deprivation	<ul style="list-style-type: none"> - demographic - social class - housing tenure - employment status - education status - marital status 	<ul style="list-style-type: none"> - smoking status - smoking behaviour (consumption rates) 	<ul style="list-style-type: none"> - ward deprivation had an independent effect on individual smoking status and behaviour; model suggested a uniform effect across all regions - variation among wards could not be fully accounted for by ward-level deprivation or composition
Ecob & Macintyre, 2000	Postal code sector: - area deprivation	<ul style="list-style-type: none"> - good exercise habits - bad exercise habits - good diet habits - bad diet habits - occupational / social class - education - household material deprivation - marital status - moved in last five years 	<ul style="list-style-type: none"> - smoking status - smoking behaviour (consumption rates) - drinking status - drinking behaviour 	<ul style="list-style-type: none"> - bad diet demonstrated variations by area, even after controlling for area deprivation - good and bad diet demonstrated independent relationship with area deprivation - bad exercise habits demonstrated independent relationship with area deprivation - smoking status demonstrated independent relationship with area deprivation - many cross-level interaction effects identified

Table 1 (cont'd)		Independent Variables		Dependent Variables	Findings
Study	Contextual level	Individual level			
Humphreys & Carr-Hill, 1991	Five clusters derived from ward-level information to differentiate rich from poor areas	<ul style="list-style-type: none"> - socio-economic - health-related behaviours 	<ul style="list-style-type: none"> - self-assessment of health - reporting of long-standing illness - score from a symptom list - respiratory function 	<ul style="list-style-type: none"> - contextual effect demonstrated, but most of the effect due to individual characteristics - composition effects not examined 	
Jones & Moon, 1999	General medical practices	<ul style="list-style-type: none"> - previous death of an infant - smoking mother - housing tenure - stability of family - employment status - mother's age 	<ul style="list-style-type: none"> - childhood immunization 	<ul style="list-style-type: none"> - results demonstrated differences in the ranking of practice rates of immunization when using MLM versus using crude aggregate rates - ranking of practice rates of immunization changed for some practices when patient composition was taken into account 	
Jones et al., 1991	General medical practices: - type of practice	<ul style="list-style-type: none"> - previous infant death in family - smoking mother - tenure - stability of parental relations - employment sector - mother's age 	<ul style="list-style-type: none"> - childhood immunization 	<ul style="list-style-type: none"> - most variation in the outcome attributed to individual-level variables - a small amount of variation attributed to type of practice 	

<p>Jones & Duncan, 1995</p>	<p>Ward: – deprivation index – urban/rural Constituency: – household weekly income</p>	<p>– demographic – socio-economic – health behaviour</p>	<p>– self-assessment of health – reported symptoms of heart disease, hypertension and stroke – forced expiratory volume – smoking behaviour</p>	<p>– after controlling for individual-level factors, places with high deprivation were associated with poorer health outcomes – after controlling for individual-level factors, places with low income were associated with poorer health outcomes – strong significant association between smoking deprivation of ward – cross-level interaction relationships not detected</p>
<p>Kleinschmidt et al., 1995</p>	<p>Ward: – deprivation index</p>	<p>– demographic</p>	<p>– index of health derived from perceived symptoms</p>	<p>– deindustrialization had an independent effect on health – attitude to community had an independent effect on health – no interaction between the two</p>
<p>Mitchell et al., 2000</p>	<p>Ward: – level of deindustrialization</p>	<p>– demographic – social class – work status – attitude to the community</p>	<p>– perceived health</p>	<p>– when county level was used as the level of aggregation, contextual effect found – reduced effect found when tract level was used as the level of aggregation (individual level was dominant)</p>
<p>Soobader & Leclere, 1999</p>	<p>Census county: – income inequality – median household income – percentage in poverty Census tract: – income inequality – median household income – percentage in poverty</p>	<p>– income-to-needs ratio – education – occupation</p>	<p>– perceived health</p>	<p>– when county level was used as the level of aggregation, contextual effect found – reduced effect found when tract level was used as the level of aggregation (individual level was dominant)</p>

(Diez-Roux et al., 2000; Diez-Roux et al., 1997; Duncan, Jones, & Moon, 1993, 1999; Kleinschmidt, Hills, & Elliott, 1995) and alcohol consumption (Duncan et al., 1993; Ecob & Macintyre, 2000), disease-prevention practices such as immunization (Jones & Moon, 1999; Jones et al., 1991), and health service utilization (Carr-Hill, Rice, & Roland, 1996).

Conceptual Issues Associated with Multilevel Research Problems

Contextual Effects Versus Contextual Variations

When faced with data showing strong regional patterns in individual health, one is tempted to immediately explain these in terms of contextual variables. For example, we might explain observed differences in health among individuals in rural and urban communities in terms of rural-urban differences in access to health care, industrial pollution, and so forth. However, this search for contextual explanations can be misleading since observation of regional patterns in health does not mean that contextual factors are at play. Researchers using MLM often set out to first establish that regional patterns are not explained by different types of individuals in the different regions (Birch, Stoddart, & Beland, 1998; Diehr et al., 1993; Hayward, Pienta, & McLaughlin, 1997). For example, Diehr et al. first determined whether there were significant differences in average levels of health behaviours between communities, and then continued to analyze community-level differences in health after allowing for this between-community difference in behaviours.

This highlights the difference between *variations* by community and *effects* of the community. The presence of contextual variations per se does not in itself establish the presence of contextual effects. Variations in outcomes among communities might depend less on the nature of a given community and more on the concentration of people in that community.

The Issue of Composition

An analysis may initially reveal an association between contextual characteristics and the outcome under study. This association, however, could be due to different communities being composed of different types of individual rather than an independent effect derived from the community itself. Compositional effects, as they are known, are related to individuals, and if not considered may artificially inflate or deflate the importance of contextual characteristics.

Often, studies fail to consider composition, in some cases because available data are restricted to the level of community (Kleinschmidt et al., 1995; Turner, 1995). Robert (1998) sought to determine whether

community socio-economic status influenced three health measures, after controlling for individual and family socio-economic status. Various combinations of the three health measures (chronic conditions, self-rated health, functional limitations) and the four measures of community socio-economic status demonstrated an association with each other. These effects were small, however, and might still have been due to the social profile of community members, as only age, sex, and race were included in the analysis. Other determinants could have been marital status, residence type (urban or rural), or a lifestyle variable such as proportion of smokers. Similarly, Diehr et al. (1993) took account of the communities' social profile explicitly when estimating community influences on health behaviours. Although the researchers detected significant community effects after adjusting for individual characteristics, most of the observed community variation was attributed to variations in composition. Other studies also found small associations between contextual variables and outcomes after considering composition (Brooks-Gunn, Duncan, Klebanov, & Sealander, 1993; Fox, Jones, & Goldblatt, 1984; LeClere, Rogers, & Peters, 1997; Sloggert & Joshi, 1994).

Compositional effects might be considered a nuisance in multilevel research, as they require additional consideration in the analysis. Failure to take composition into account can inflate or deflate the relationship between community-based effects and outcomes.

From a policy perspective, however, the detection of compositional effects is just as important as the detection of effects due to contextual characteristics. Such information might be helpful for decision-makers having to allocate resources between individuals and communities. When resources are allocated among communities, the influence of composition may actually hide need, or performance. For example, Jones and Moon (1999) compared crude aggregate rates of immunization uptake by general practices with those following adjustment for composition using MLM. They displayed their results by ranking the various practices, thereby demonstrating that the type of people in the catchment area of a practice influences immunization rates. They argue that many practices might be performing well, given their catchment area, despite their seemingly low levels of achievement as shown by the crude rates. Thus, by adjusting for differences due to populations, MLM offers a more comparable measure of performance.

Detecting Contextual and Individual-Level Effects

When a contextual effect is identified, the next challenge is to determine what specific community characteristics explain the effect. Waitzman and Smith (1998) used the income status of the area (poverty versus non-

poverty) as a community variable. However, this implies that the nature of the community effect being explored is confined to the extreme end of the area income scale, as opposed to being a more general effect associated with differences in area levels of income (Haan, Kaplan, & Camacho, 1987; Sloggert & Joshi, 1994). Ecob and Macintyre (2000) investigated whether extreme ends of measures produced different results; they analyzed diet as *good* or *bad* and physical activity as *good* or *bad* when examining area deprivation and health behaviours. Using MLM, they demonstrated that significant results in terms of overall relationships and area variations differed according to the measure being used. For example, *bad* exercise patterns, but not *good* exercise patterns, were related to area deprivation.

Often, attempts to determine the effects of context are driven by data availability rather than by theoretical considerations, leading to the testing of numerous variables, often without any discussion of implications for Type I errors or the false conclusion that associations exist (Brooks-Gunn et al., 1993; Colby, Linksy, & Straus, 1994). Excessive data manipulation with minimal regard for theory may uncover artefactual associations between variables due simply to large sample sizes.

Analytical Approaches to Multilevel Research Problems

In addition to providing a more comprehensive understanding of a research problem, MLM offers significant technical advantages for inference-making based on the study findings.

These advantages include guarding against the “ecological fallacy” (associations observed in studies performed at the contextual, or ecological, level are interpreted as representing relationships at the individual level) and the “atomistic fallacy” (associations observed in studies performed at the individual level are interpreted as representing relationships at the contextual level) (Jones & Duncan, 1995). Such approaches ignore the effect of individual characteristics on context by assuming homogeneity among individuals (i.e., only contextual variables vary) (Sloggert & Joshi, 1994), or ignore the effect of contextual characteristics on individuals by assuming homogeneity among contexts (i.e., only individual-level variables vary) (Diez-Roux, 1998).

In addition to the empirical issue of misinterpreting observed associations, it has been argued that measurement at the individual level is conceptually different from that at the aggregate level (Firebaugh, 1978). The researcher can avoid committing these fallacies by incorporating multiple levels of data in the study. The advantages and disadvantages of various approaches to analyzing multilevel data will now be discussed.

Stratification of Data

Stratification of data has been used to explore multilevel relationships (Birch, Jerret, & Eyles, 2000; Blaxter, 1990; Hayward et al., 1997). In this method, the researcher conducts separate analyses (e.g., individual-level regression models) for each community and then compares results across communities. It can be used as a preliminary technique for understanding one's data set and as a way of establishing variations by context. Handling the levels of data in this way helps guard against committing the ecological and atomistic fallacies.

Blaxter (1990), for example, used a national survey to compare standardized ratios of various health conditions (i.e., illness, psychosocial health, fitness, disease/disability) for different groups of social classes across Britain. She found that those in lower social classes experienced poorer health. In addition, Blaxter took a contextual approach to understanding health by comparing the ratios across standard regions and electoral wards. She found that healthy lifestyle made less difference to health in some geographic areas than in others.

Context can be defined on the basis of natural geographical boundaries. However, this approach can miss heterogeneities associated with people (e.g., composition), context, and health. Blaxter's study was criticized because it did not take into account the social composition of the regions. Furthermore, to achieve reliable cell sizes, she analyzed the data using (large) standard reporting regions. To maximize sensitivity using stratification techniques, researchers need to redefine context to represent types of context (e.g., upper class racially mixed area versus upper class racially homogeneous area). Fox et al. (1984) were interested in the influence of socio-economic characteristics of areas as well as individual characteristics on mortality. They derived 36 clusters of wards based on 40 socio-economic indicators such as age of settlement and number of rooming houses. Because it included more meaningful contextual areas, their stratification provided a more detailed description of contextual differences and mortality.

As a rule, the stratification approach is feasible only when there is a manageable number of communities so that they can be compared one by one (it would be difficult to compare findings from, say, 50 different communities). This approach can detect differences among contexts, and then the significance of these differences can be tested empirically. The stratification approach does not reveal whether an effect *due* to context is present. It also ignores the hierarchical nature of the data.

Despite these problems, establishing variations by context is a useful first step in analyzing multilevel data. It can provide the impetus for the researcher to seek explanations for any observed variations in outcomes.

Also, it offers some insight regarding the appropriate specification of level of context. For example, individual smoking patterns that differ by province may not be as important as those that differ by community. Context may be acting on health, but poor outcomes might be seemingly negated when aggregated to broader contextual levels.

Single-Level Regression Models

Single-level empirical approaches in the form of regression models are the most common technique for analyzing multilevel data. The researcher runs a series of models and compares the results. Usually the first model considers individual-level variables; some are included as controls (e.g., age, sex), others as variables of interest. Subsequent models may include dummy variables to represent various communities (Diehr et al., 1993), or may include variables that measure specific features of the community.

The Alameda County study (Haan et al., 1987) was one of the earliest studies to incorporate data from individual and contextual levels. The researchers examined effects on mortality after considering age, sex, race, physical health status, socio-economic factors, health practices, social networks, and psychological factors. The contextual variable was a dichotomous measure reflecting whether the area qualified as a "poverty area residence." Poverty areas were identified based on federal criteria, which included social and environmental characteristics. Hann et al. ruled out possible confounding or misspecified effects arising from individual-level factors after comparing results among different regression models (e.g., those with and without the individual-level factors). They found a higher risk of mortality associated with living in a poverty area than living in a non-poverty area.

Researchers may also seek to determine whether contextual variables modify the influence of individual-level variables on outcomes (interaction effects) using single-level regression models (Brooks-Gunn et al., 1993; Turner, 1995). One might ask, for example, whether the relationship between level of physical activity and age is dependent on the community's socio-economic status. Turner did so when studying the effects of employment status, education, and community level of unemployment on depression and physical health. He found evidence of interaction effects between level of area unemployment and personal employment status on health outcomes.

A limitation of the single-level regression model with multilevel data is the clustering effect. Residents of a given community are more likely than their counterparts in another community to demonstrate similar outcomes. This clustering effect results in a loss of independence among measurements, thereby violating an assumption of regression modelling. If ignored, variance calculations can be underestimated, possibly leading

to a Type I error (incorrectly rejecting the null hypothesis) when the regression results are examined.

Some researchers using single-level regression models address the clustering problem explicitly (Anderson, Sorlie, Backlund, Johnson, & Kaplan, 1996; O'Campo et al., 1995). Researchers have used statistical programs like SUDAAN to adjust for clustering in their data (Robert, 1998; Soobader & LeClere, 1999). Such programs estimate the amount of correlation within each community and adjust the variances accordingly. Another way to address the clustering issue is to examine the (intra-class) correlation post-hoc (Kleinschmidt et al., 1995); the extent of within-cluster homogeneity or similarity, and its possible effect on the results, can then be assessed.

O'Campo et al. (1995) used both a standard logistic regression model and a model based on the generalized estimating equation to examine the determinants of male-initiated domestic violence. Use of the latter model was intended to compensate for clustering. Differences between the two models lend further support to the use of a more robust technique.

In addition to clustering, combining contextual and individual-level information in a single regression model can lead to multicollinearity among variables, resulting in inflated variances. The researcher can avoid this problem by using an index (e.g., a social deprivation index) based on a combination of deprivation indicators (e.g., low income, poor accommodation, poor access to cultural facilities) to measure deprivation at the contextual level (Haan et al., 1987; Sloggert & Joshi, 1994; Waitzman & Smith, 1998). However, estimated relationships are then less easily translated into policy recommendations since it is difficult to isolate the effect of specific mechanisms on outcomes.

Two-Level Regression Models

Other researchers have used two-step regression models to examine individual- and community-level data (O'Campo, Xue, Wang, & O'Brien Caughy, 1997). In the first step an individual-level model for each context is produced, and in the second step the intercepts and coefficients from this step are regressed on contextual variables. This technique allows the researcher to determine the overall significance of the two levels and to consider individual and contextual characteristics in the analysis.

For example, O'Campo et al. (1997) studied the influence of individual and community factors on low birthweight. They found that all of the observed relationships between individual-level variables and low birth weight varied between communities (e.g., cross-level interactions). In this type of situation, the benefits of individually focused interventions

might be overstated unless communities are taken into account. For instance, the association between nutrition and birthweight might matter more in some communities than in others.

With this approach the assumptions required for the first analytical step are invalid (Hox & Kreft, 1994). The estimated coefficients are considered fixed, which means that inferences can be made only for the communities included in each analysis. In the second step, however, the same coefficients are considered to be random variables. This means that the communities form a sample from the population of communities and inferences are made for this population. The assumption in each step is different, theoretically leading to different error structures in each case. Consequently, results from significance testing based on these standard errors can be upwardly biased (Hox & Kreft).

Hierarchical Multilevel Modelling

Hierarchical MLM offers several features with which to investigate grouped data. This approach is an extension of regression modelling, in which two or more levels of data are modelled simultaneously but separately. In this way the health influences at both levels — individual and contextual — can be compared. In addition, making inferences using a multilevel model avoids the ecological and atomistic fallacies.

The treatment of the residuals, or error terms, in MLM provides researchers with additional information. MLM supports detailed analysis of the heterogeneity or variation among contexts, while traditional regression techniques rely for information on an average measure of the remaining variation. For example, MLM allows one to ask if the relationship between age and level of physical activity differs significantly among communities. MLM is similar to the two-step regression technique described above. Computationally, however, it is statistically more efficient in determining regression coefficients. Details about the derivation of MLM equations can be found elsewhere (Goldstein et al., 1998).

The majority of published MLM studies employ two-level models — individuals at level one and the contexts or communities to which they belong at level two. Some explore three levels, whereby individuals belong to communities that are nested into larger regions (Duncan et al., 1993, 1996, 1999; Jones & Duncan, 1995). The literature also includes more complex designs such as cross-classified designs (in which individuals belong to more than one context, such as school and place of worship, and the contexts are not nested), but their empirical application is less common.

To begin, one might ask whether MLM is required for all cases of clustered data. Kleinschmidt et al. (1995) compared the results of smoking behaviour obtained using a single-level regression model and two-level

hierarchical MLM. The results were similar for the two models. They concluded that the single-level model was acceptable for their analysis, which employed census tracts. Smaller geographic areas may feature greater homogeneity, however, thus necessitating the use of MLM due to clustering effects.

MLM allows for the modelling of separate and joint effects of individual and contextual pathways. Although the latest software was developed to address multilevel problems (Goldstein et al., 1998), its capabilities have also advanced the conceptualization of the problem. Variations in outcomes using traditional analyses suggest that the effects of context differ according to population, but MLM also allows the researcher to determine whether contextual effects are different *within* a population in terms of health outcomes. For example, in a rich community do the very wealthy have a health advantage over the less affluent? Do opportunities and resource use differ within a given community? In turn, these questions encourage discussion about appropriate policy goals and interventions. The elimination of regional differences might be achieved at a cost — for example, within a region only some members might benefit.

MLM researchers have given some attention to measurement of the dependent variable. Specifically, they have explored whether behaviours measured in a dichotomous fashion — present or absent — demonstrate different empirical relationships from those measured in terms of a continuous variable representing intensity or exposure. MLM allows for the use of these two effects separately. To illustrate, Duncan et al. (1996) labelled individuals as either smokers (1) or non-smokers (0) and then assigned each smoker a continuous measure of number of cigarettes per week. Thus, intensity was nested within the presence or absence of a behaviour. After controlling for individual characteristics, they found variation within the community with respect to behaviour but not with respect to intensity. Ecob and Macintyre (2000) found similar results in the relationship between smoking and area deprivation. On the other hand, they found no area variation or relationship with deprivation in either alcohol consumption or amount of consumption. These studies demonstrate that MLM facilitates the modelling of different *dimensions* of behaviour.

MLM software (Mln) is in a state of active development. Consequently, readers of the literature may need to determine whether results of studies are comparable or generalizable on technical grounds. For example, improved estimation procedures for multilevel logistic models became available as part of the standard software around 1995. Even at that point, some researchers hesitated to identify particular communities as “high” or “low” because it was demonstrated that higher-level random terms could be seriously underestimated (e.g., see Duncan et al., 1999);

they preferred to confirm between-context variability without naming the most successful or problematic community. Updated versions of the software have been released periodically and estimation procedures have become more precise and more stable. The most recent versions of MLWin (the Windows version of Mln) incorporate bootstrapping approaches to deal with large variance estimates.

Some Limitations of Multilevel Data Analysis

MLM software has recently become available due to the increased processing capabilities of modern personal computers. Thus, studies published over the last 10 years can be considered initial attempts to match research problems involving multilevel data with the advantages of MLM software. Interestingly, the availability of the software has also advanced our understanding of the nature of the problem. In particular, the idea that interactions between variables might occur at one contextual level (e.g., a joint effect between a municipal by-law and a media campaign on smoking behaviour) is receiving more attention, as is the idea that interactions might occur across levels (e.g., a joint effect between the municipal by-law and family attitude to smoking behaviour).

One limitation of most MLM studies is the use of convenient geographical boundaries based on national surveys or databases. Such boundaries are not theoretically defined — there is little reason to expect that contextual influences on health will derive from census divisions, for example. Another limitation is that most empirical works and discussions about the role of context tend to concentrate on one mechanism: from the community to the individual. Individuals can also shape communities, by setting social norms, supporting particular political structures, or establishing resources. While researchers have started to understand the ways in which health can be influenced by community-level factors, they have paid little attention to the ways in which individuals interpret or give meaning to local structures and norms.

Although the studies presented in Table 1 vary in terms of subject matter, they offer tentative generalizations about the effects of context on health behaviour. These generalizations are based on studies using hierarchical MLM techniques, which offer significant advances over traditional approaches. This set of studies demonstrates that most contextual effects can be explained by the social profile of individuals. In cases where significant contextual effects remained after considering composition, these were small in magnitude (i.e., accounting for less than approximately 10% of the total variation in the dependent variable).

MLM can provide a detailed description of the influences on health. Unlike most other quantitative techniques, it is capable of generating

information about the heterogeneity of empirical relationships among and within contexts. MLM remains a descriptive technique, however, which means that other methods must still be used to obtain *explanations* for social behaviours and structures.

References

- Anderson, R. T., Sorlie, P., Backlund, E., Johnson, N., & Kaplan, G. A. (1996). Mortality effects of community socioeconomic status. *Epidemiology*, 8(1), 42–47.
- Beland, F., Birch, S., & Stoddart, G. (2002). Unemployment and health: Contextual level influences on the production of health in populations. *Social Science and Medicine*, 55(11), 2033–2052.
- Birch, S., Jerrett, M., & Eyles, J. (2000). Heterogeneity in the determinants of health and illness: The examples of socio-economic status and smoking. *Social Science and Medicine*, 51(2), 307–317.
- Birch, S., Stoddart, G., & Beland, F. (1998). Modelling the community as a determinant of health. *Canadian Journal of Public Health*, 89(6), 402–405.
- Blaxter, M. (1990). *Health and lifestyles*. London: Tavistock and Routledge.
- Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K., & Sealander, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology*, 99(2), 353–395.
- Carr-Hill, R., Rice, N., & Roland, M. (1996). Socioeconomic determinants of rates of consultation in general practice based on Fourth National Morbidity Survey of General Practices. *British Medical Journal*, 312, 1008–1013.
- Colby, J. P. Jr., Linky, A. S., & Straus, M. A. (1994). Social stress and state-to-state differences in smoking and smoking related mortality in the United States. *Social Science and Medicine*, 38(2), 373–381.
- Diehr, P., Koepsell, T., Cheadle, A., Psaty, B. M., Wagner, E., & Curry, S. (1993). Do communities differ in health behaviors? *Journal of Clinical Epidemiology*, 46(10), 1141–1149.
- Diez-Roux, A.V. (1998). Bringing context back into epidemiology: Variables and fallacies in multilevel analysis. *American Journal of Public Health*, 88, 216–222.
- Diez-Roux, A.V., Link, B. G., & Northridge, M. E. (2000). A multilevel analysis of income inequality and cardiovascular disease risk factors. *Social Science and Medicine*, 50, 673–687.
- Diez-Roux, A.V., Nieto, F.J., Muntaner, C., Tyroler, H.A., Cornstock, G.W., Shahar, E., et al. (1997). Neighborhood environments and coronary heart disease: A multilevel analysis. *American Journal of Epidemiology*, 146(1), 48–63.
- Duncan, C., Jones, K., & Moon, G. (1993). Do places matter? A multi-level analysis of regional variations in health-related behaviour in Britain. *Social Science and Medicine*, 37(6), 725–733.
- Duncan, C., Jones, K., & Moon, G. (1996). Health-related behaviors in context: A multilevel modelling approach. *Social Science and Medicine*, 42(6), 817–830.
- Duncan, C., Jones, K., & Moon, G. (1999). Smoking and deprivation: Are there neighbourhood effects? *Social Science and Medicine*, 48, 497–505.

- Ecob, R., & Macintyre, S. (2000). Small area variations in health related behaviours: Do these depend on the behaviour itself, its measurement, or on personal characteristics? *Health and Place*, 6, 261–274.
- Evans, R., & Stoddart, G. (1990). Producing health, consuming health care. *Social Science and Medicine*, 31, 1347–1363.
- Firebaugh, G. (1978). A rule for inferring individual-level relationships from aggregate data. *American Sociological Review*, 43, 557–572.
- Fox, A. J., Jones, D. R., & Goldblatt, P. O. (1984). Approaches to studying the effects of socio-economic circumstances on geographic differences in mortality in England and Wales. *Medical Bulletin*, 40(4), 309–314.
- Goldstein, H., Rasbash, J., Plewis, I., Draper, D., Browne, W., Yang, M., et al. (1998). *A user's guide to MLWin*. London: Multilevels Model Project, Institute of Education, University of London.
- Haan, M., Kaplan, G. A., & Camacho, T. (1987). Poverty and health: Prospective evidence from the Alameda County study. *American Journal of Epidemiology*, 125(6), 989–998.
- Hancock, T. (1986). Lalonde and beyond: Looking back at *A New Perspective on the Health of Canadians*. *Health Promotion*, 1, 93–100.
- Hayward, M. D., Pienta, A. M., & McLaughlin, D. K. (1997). Inequality in men's mortality: The socioeconomic status gradient and geographic context. *Journal of Health and Social Behavior*, 38, 313–330.
- Hox, J. J., & Kreft, I. (1994). Multilevel analysis methods. *Sociological Methods and Research*, 22(3), 283–299.
- Humphreys, K., & Carr-Hill, R. (1991). Area variations in health outcomes: Artefact or ecolog? *International Journal of Epidemiology*, 20(1), 251–258.
- Jones, K., & Duncan, C. (1995). Individuals and their ecologies: Analysing the geography of chronic illness within a multilevel modelling framework. *Health and Place*, 1(1), 27–40.
- Jones, K., & Moon, G. (1999). A multilevel approach to immunisation uptake. *Area*, 22(3), 264–271.
- Jones, K., Moon, G., & Clegg, A. (1991). Ecological and individual effects in childhood immunisation uptake: A multilevel approach. *Social Science and Medicine*, 33(4), 501–508.
- Kleinschmidt, I., Hills, M., & Elliott, P. (1995). Smoking behaviour can be predicted by neighbourhood deprivation measures. *Journal of Epidemiology and Community Health*, 49(Suppl 2), S72–S77.
- LeClere, F. B., Rogers, R. G., & Peters, K. D. (1997). Ethnicity and mortality in the United States: Individual and community correlates. *Social Forces*, 76(1), 169–198.
- Mitchell, R., Gleave, S., Bartley, M., Wiggins, D., & Joshi, H. (2000). Do attitude and area influence health? A multilevel approach to health inequalities. *Health and Place*, 6, 67–79.
- O'Campo, P., Gielen, A. C., Faden, R. R., Xue, X., Kass, N., & Wang, M. (1995). Violence by male partners against women during the childbearing years: A contextual analysis. *American Journal of Public Health*, 85(8), 1092–1097.

- O'Campo, P., Xue, X., Wang, M., & O'Brien Caughy, M. (1997). Neighborhood risk factors for low birthweight in Baltimore: A multilevel analysis. *American Journal of Public Health, 87*(7), 1113–1118.
- Robert, S. A. (1998). Community-level socioeconomic status effects on adult health. *Journal of Health and Social Behavior, 39*, 18–37.
- Sloggert, A., & Joshi, H. (1994). Higher mortality in deprived areas: Community or personal disadvantage? *British Medical Journal, 309*, 1470–1474.
- Soobader, M., & LeClere, F. B. (1999). Aggregation and the measurement of income inequality: Effects on morbidity. *Social Science and Medicine, 48*, 733–744.
- Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion, 10*(4), 282–298.
- Turner, J. B. (1995). Economic context and the health effects of unemployment. *Journal of Health and Social Behavior, 36*, 213–229.
- Waitzman, N. J., & Smith, K. R. (1998). Phantom of the area: Poverty-area residence and mortality in the United States. *American Journal of Public Health, 88*(6), 973–976.

Authors' Note

Comments or inquiries may be directed to Anita R. Kothari, University of Ottawa, 451 Smyth Road, Room 1118, Ottawa, Ontario K1H 8M5 Canada. E-mail: akothari@uwo.ca

Anita R. Kothari, PhD, is Postdoctoral Fellow, Community Health Research Unit, University of Ottawa, Ontario, Canada. Stephen Birch, DPhil, is Professor, Department of Clinical Epidemiology and Biostatistics, Centre for Health Economics and Policy Analysis, McMaster University, Hamilton, Ontario.

Une intervention ponctuelle en vue d'accroître l'activité physique chez les travailleuses sédentaires

**Janet Purath, Arlene Michaels Miller,
George McCabe et JoEllen Wilbur**

Les interventions ponctuelles et ciblées en matière de counseling, lorsqu'elles sont faites sur les lieux de travail, sont-elles un moyen efficace d'encourager l'activité physique chez les femmes sédentaires? C'est ce qu'on a tenté de déterminer dans cette étude aléatoire et prospective, en recourant à une intervention ponctuelle fondée sur le modèle transthéorique. Dans un premier temps, les sujets ont fait l'objet d'un examen de santé et d'une intervention, suivis, deux semaines plus tard, d'un rappel de l'infirmière praticienne par téléphone. Chaque intervention avait été conçue en fonction des habitudes rapportées par chacune des participantes. Dans un deuxième temps, on a comparé les 134 femmes de l'échantillon aléatoire aux 153 femmes du groupe témoin; ces dernières avaient reçu des conseils sans égard à leur comportement individuel en matière d'exercice et n'avaient pas été rappelées. Six semaines plus tard, on a constaté une augmentation significative de l'activité physique chez les participantes du premier groupe; le temps consacré aux exercices physiques pendant le week-end et le temps dédié à la marche (dans le but de faire de l'exercice ou des courses), de même que la distance parcourue, avaient augmenté. Les gains étaient significatifs par rapport au groupe témoin. Ces conclusions démontrant les mérites d'une stratégie ponctuelle et ciblée constituent un apport essentiel à la recherche de méthodes efficaces de promotion de la santé en milieu de travail.

Mots clés : activité physique, intervention ponctuelle, modèle transthéorique

A Brief Intervention to Increase Physical Activity in Sedentary Working Women

**Janet Purath, Arlene Michaels Miller,
George McCabe, and JoEllen Wilbur**

The purpose of this study was to determine whether a brief, tailored counselling intervention is effective for increasing physical activity in sedentary women when delivered in the workplace. This prospective randomized trial used a brief intervention based on the Transtheoretical Model. The intervention group received health screening, a brief intervention, and, 2 weeks later, a booster telephone call from a nurse practitioner. The intervention was tailored to each woman's reported exercise behaviour. The 134 women randomized to the intervention were compared with 153 women in a control group who received health counselling not tailored to their exercise behaviour and no telephone call. Six weeks later, the intervention group, when compared to baseline, had significantly improved their physical activity, increasing their amount of weekend physical activity as well as minutes walked for exercise, on errands, total walking, and total daily blocks walked. When compared to controls, they showed significantly greater gains. This test of a brief, tailored strategy provides a critical contribution to the search for efficient, effective ways for nurses to deliver workplace health promotion interventions.

Keywords: physical activity, brief intervention, nursing-managed centre, tailoring, transtheoretical model

Background

The role of physical activity in the prevention and control of chronic disease is well documented. However, nearly 75% of American adults are physically inactive. Of these, 28% engage in no physical activity at all (US Department of Health and Human Services [USDHHS], 2001). Women who are older, less educated, or of lower socio-economic status are less likely than other women to engage in physical activity. The Surgeon General's Report (1996) notes that women in all age groups are more likely than men to report that they engage in no physical activity. Sternfeld, Ainsworth, and Quesenberry (1999) found that older women were less active than younger women in a large ethnically diverse sample. Recent research suggests that very brief, focused behavioural interventions that are tailored to the individual can facilitate change in a variety of health behaviours including cigarette smoking (Glasgow, Whitlock,

Eakin, & Lichtenstein, 2000; Rollnick, Butler, & Stott, 1997) and alcohol consumption (Fleming et al., 2002; Hermansson, Knutsson, Ronnberg, & Brandt, 1998). Brief interventions, which have been studied primarily in physicians' offices, have been effective in initiating physical activity (Bull & Jamrozik, 1998; Calfas et al., 1996).

Focusing interventions in physicians' offices is a useful strategy for increasing physical activity. However, clinics assess physical activity in only 19% of women (USDHHS, Office of Health Promotion and Disease Prevention, 1991). Because of these low levels of assessment and counselling, physical activity advice given at alternative health-care sites should be considered. Use of alternative sites to target inactive populations is important because a large portion of the population use their physician for illness care rather than primary prevention and health counselling. Since 60% of women participate in the labour force (US Department of Labor, 2002), offering brief behavioural interventions at worksites could reach more sedentary women.

Despite the increase in the number of working women and in the number of worksite health promotion programs, there have been few worksite interventions that use contemporary behavioural theories, such as the Transtheoretical Model, with hard-to-reach, sedentary persons.

The central construct of the Transtheoretical Model developed by Prochaska and colleagues (Prochaska & Velicer, 1997) is Stages of Change. The authors posit that people progress through stages when attempting to adopt or change a behaviour. The stages are: (1) *precontemplation* — not thinking about changing; (2) *contemplation* — thinking about changing; (3) *preparation* — deciding and preparing to change but not actually or consistently engaging in the new behaviour; (4) *action* — overt behaviour change; the first 6 months of engaging in a behaviour; and (5) *maintenance* — long-term continuation of a behaviour. When one is making a behaviour change, a move from *contemplation* to the other stages suggests that intention to adopt a behaviour, such as to become physically active, is an important precursor to actual behaviour change (Prochaska, Redding, & Evers, 1997).

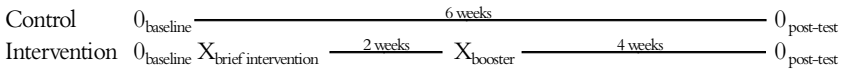
The purpose of this study was to determine whether a brief counselling intervention, tailored to Stage of Change and designed to increase physical activity, is effective for sedentary employed women when delivered in the workplace.

Method

Design

The study was a prospective randomized trial. The experimental and control groups were measured at baseline and after 6 weeks. The inter-

vention group received a brief intervention and a booster telephone call 2 weeks later. The design is described in the schematic below:



Sample and Setting

Sample. Participants were recruited from among 603 female employees aged 18 to 65 who voluntarily attended a university-provided health screening as a part of a wellness program. The employee wellness program screens university employees for existing health problems as well as health, behavioural, and family risks. All regular employees of the university are invited to participate in the wellness program each year. The screenings are offered at regular intervals. Persons are screened at an academic nursing centre as well as at other conveniently located university sites. All women who attended the screening during the study period were invited to participate. They were recruited at the screening site.

Site randomization procedure. Prior to recruitment, all buildings at the university were randomly assigned to treatment and control groups. This strategy lacked the purity of simple randomization by participant but protected against contamination of the intervention and control groups through the sharing of information among co-workers. Sixty-one buildings were represented in the sample, with a range of one to 15 women in each building.

Participant inclusion/exclusion. Ninety-six (25%) of those screened did not meet the inclusion criteria. Eighty-seven of these women were excluded because they reported engaging in moderate physical activity for more than 30 minutes per day 5 days a week or vigorous activity for more than 20 minutes per day 3 days a week. Nine women were excluded based on the Physical Activity Readiness Questionnaire (PAR-Q). The PAR-Q identifies those with diagnosed heart conditions, coronary vascular disease, chest pain, unexplained changes in level of consciousness, myocardial infarction, bypass, percutaneous transluminal angioplasty, uncontrolled hypertension, and conditions that would worsen with activity (Shepherd, Cox, & Simper, 1981; Thomas, Reading, & Shepherd, 1992). A total of 287 women (75% of those who signed their consent) were enrolled in the study.

Attrition. Sixteen participants withdrew or were lost to follow-up and did not complete the final data-collection session. Fourteen of the noncompleters were in the intervention group and two in the control group, leaving 120 in the intervention group and 151 in the control group to complete the study protocol. The noncompleters were signifi-

cantly less educated than the completers ($p < .01$). Their mean education was 12.6 (*s.d.* 3.7) years, compared to a mean of 14.3 (*s.d.* 3.0) years for the completers. There were no other differences between the two groups.

Sample characteristics. The baseline physical activity levels and demographic characteristics of the control and intervention groups are presented in Table 1. The mean years of education for the total sample was 14.3; however, the 118 participants (41%) with an education of high school or less formed the largest group. One hundred and seventy-nine participants (62.4%) identified themselves as administrative/professional, which includes clerical, administrative, and teaching personnel; 66% (23%) as food-service workers; and 33 (11.5%) as cleaning-service workers. The majority (81.2%) of the participants described themselves as White. Thirty (10.5%) identified themselves as Asian or Pacific Islander. The only racial difference between the two groups at baseline was that the control group contained significantly more minorities ($p = .01$).

Intervention

Participants in the intervention group were offered a brief intervention after completion of their screening and usual-care follow-up. The intervention was based on the Patient-Centered Assessment and Counseling for Exercise (PACE[®]) protocol (Caparosa & Thompson, 1999). The PACE[®] intervention is based on the Stages of Change from the Transtheoretical Model. The stage-based discussion was brief, lasting 3 to 5 minutes. Participants in *precontemplation* discussed their views of the benefits of physical activity and were encouraged to increase their physical activity.

Table 1 *Characteristics of Control and Intervention Groups at Baseline (N = 287)*

Participant Characteristics at Baseline	Control N = 151	Intervention N = 120	<i>p</i>
Age (years)	43.3 (10.7)	44.6 (9.9)	0.30
Education (years)	14.4 (3.0)	14.1 (2.6)	0.49
% Married	71	65	0.25
% Administrative/professional positions	64	60	0.47
% White	75	88	0.01
% Tobacco users	5	11	0.17
Body mass index	30.5 (7.8)	30.5 (6.9)	0.95
Systolic blood pressure	120.3 (13.1)	119.7 (13.3)	0.93
Diastolic blood pressure	77.0 (8.9)	77.1 (8.1)	0.95
Total cholesterol	191.2 (33.8)	195.0 (30.1)	0.38
HDL cholesterol	55.3 (17.0)	53.4 (16.7)	0.37

Participants in *contemplation* and *preparation* set a physical activity goal for the following 2 weeks and were given a prescription-style note with the goal written on it. They also signed a contract to achieve the goal. Some participants set a goal of 30 minutes of moderate physical activity most days of the week or 20 minutes of vigorous activity 3 or more days a week. Others chose a goal that they thought would be more realistic for them. Two weeks later, a nurse practitioner telephoned the participant to inquire about her progress. Any identified problems or pitfalls were discussed. If questions arose during the phone call, appropriate information was given by telephone or pamphlets were mailed. If the participant was not reached on the first attempt, two additional attempts were made.

Those in the control group received usual care: health promotion counselling by nursing and health promotion students. Counselling included advice and teaching focused on the participant's identified goals, such as weight reduction, tobacco cessation, or improved nutrition. If the counselling included a discussion of physical activity, any advice offered was non-stage-based and did not include a booster call or any additional contact with the nurse or nurse practitioner. All participants who completed the second data collection received \$5 for their time.

Dependent Measures

The dependent physical activity measures were: Stage of Change in physical activity, questions from the Paffenbarger Physical Activity Questionnaire, and PACE[®] walking questions from the National Health Interview Survey. Change scores for these variables were calculated and are reported below.

Stage of Change. The PACE[®] score used by Calfas et al. (1996) was used to classify participants according to their Stage of Change of Physical Activity. The Stage of Change score was determined by asking the women to circle the one item that best described their level of physical activity. This item classified participants into a stage. Higher scores indicate increased readiness to change. The measure is outlined in Table 2. Women in stage 5 or higher were considered physically active and excluded from the study. Change was defined as the difference in stage from baseline to follow-up. The PACE[®] score has a test-retest reliability of 0.80. Construct validity is evidenced by correlations with self-efficacy and previously validated measures of physical activity (Isrow-Cohen et al., as cited in Armstrong, 1990).

Paffenbarger physical activity questions. This is a self-administered measure designed to identify leisure-time and other physical activity among college alumni (Paffenbarger, Blair, Lee, & Hyde, 1993). This study used variables from the Paffenbarger Physical Activity Questionnaire: (1) number of flights of stairs climbed per day, (2) number of blocks

Table 2 *Physical Activity Status and Stage of Change*

PACE[®] Score	State of Change
1 I don't do regular vigorous or moderate exercise now, and I don't intend to start in the next 6 months.	precontemplation
2 I don't do regular vigorous or moderate exercise now, but I have been thinking of starting in the next 6 months.	contemplation
3 I'm trying to start doing vigorous or moderate exercise, but I don't do it regularly.	preparation
4 I'm doing vigorous exercise less than 3 times per week (or) moderate exercise less than 5 times per week.	preparation
5 I've been doing 30 minutes a day of moderate exercise 5 or more days per week for the last 1–5 months.	action
6 I've been doing 30 minutes a day of moderate exercise 5 or more days per week for the last 6 months or more.	action
7 I've been doing vigorous exercise 3 or more days per week for the last 1–5 months.	maintenance
8 I've been doing vigorous exercise 3 or more days per week for the last 6 months or more.	maintenance

walked per day, (3) hours of vigorous and moderate physical activity per day during the week, and (4) hours of vigorous and moderate physical activity per day on weekends. Test-retest reliability correlations of the Paffenbarger are reported as 0.72 at 1 month with 59 adult men and women (Ainsworth, Leon, Richardson, Jacobs, & Paffenbarger, 1993).

PACE[®] walking questions. Four questions from the original PACE[®] study were adapted from the National Health Interview Survey (Adams & Benson, 1991; K. J. Calfas, personal communication, December 12, 2000). The questions are reported as minutes walked per week: for exercise, on errands, during breaks or lunch, and to work or school. A fifth walking variable, total walking, summed the four walking variables. The NHIS measure is considered reliable and valid for the assessment of self-reported walking (Rauh, Hovell, Hofstetter, Sallis, & Gleghorn, 1992).

Demographic and Lifestyle Measures

The demographic and lifestyle variables of self-reported age, race, ethnicity, marital status, level of education, job task, and tobacco use were collected at baseline.

Protection of Human Subjects

Approval for the study was obtained from the Institutional Review boards at the University of Illinois at Chicago and Purdue University.

Analyses

Baseline differences in demographic variables between the control and intervention groups were analyzed using chi square for categorical and *t*-tests for continuous variables. To protect against inflating the Type I error rate, preliminary multivariate analyses of variance, with group assignment and building worked in as factors, were performed to examine group effects on changes in the different domains of physical activity. The first analysis included the four dependent variables from the Paffenbarger scale; the second included the four walking measures from the original PACE[®] study. In both cases, the assignment to the intervention group was highly significant ($p = 0.012$ and 0.001 , respectively). The primary analysis, using buildings rather than individuals, was then performed using an ANOVA with group assignment as a fixed effect and building as a random effect. Since there were 61 buildings with one to 15 participants per building, the degree of freedom for the distribution of the *F*-statistics varied. All analyses were performed using SPSS for Windows. Statistical significance was accepted at $p < 0.05$.

Results

Baseline Physical Activity Measures

The participants' baseline physical activity measures are described in Table 3.

Stage of Change. The mean Stage of Change score was 2.8 (*SD* 0.9), indicating that the average participant was between the point of *contemplation* (starting physical activity in the next 6 months) and *preparation* ("trying to start to do vigorous or moderate exercise, but not...regularly").

Paffenbarger physical activity questions. Participants reported climbing a mean of less than five flights of stairs per day, with the majority reporting two flights per day. Participants walked 7.2 (*SD* 7.4) blocks per day — approximately two thirds of a mile (or just over 1 kilometre). They reported nearly 4 hours per day of vigorous and moderate physical activity during the week and slightly more than 5 hours per day on weekends.

PACE[®] walking questions. Participants walked for exercise a mean of 17.8 (*SD* 37.2) minutes per week at baseline. More than 200 (72%) reported no walking for exercise. The women reported an average of 86.6 (*SD* 90.8) minutes per week of total baseline walking. The distributions of walking for exercise and total walking were skewed to the right and had a wider standard deviation than expected because of the high number of women who reported no baseline walking. There were no significant differences between the experimental and control groups on any of the baseline physical activity variables.

Table 3 *Description of Participants' Baseline Physical Activity Measures*

Variables (Total N = 257)	Control	Intervention	p value
	Mean (SD)	Mean (SD)	
Cognitive variables			
Self-efficacy	27.1 (8.3)	29.1 (8.9)	.097
Decisional balance—pro	40.6 (6.5)	41.2 (6.0)	.557
Decisional balance—con	15.7 (3.1)	15.1 (3.7)	.391
Decisional balance index	24.8 (7.8)	26.2 (8.0)	.314
Physical activity measures			
<i>Stage of Change</i>	2.9 (0.9)	2.7 (0.8)	.077
<i>Paffenbarger physical activity questions</i>			
Flights of stairs/day	4.4 (3.8)	5.3 (6.4)	.246
Blocks walked/day	7.0 (7.4)	7.7 (7.9)	.540
Hours of vigorous and moderate weekday physical activity	3.6 (3.2)	3.8 (3.4)	.252
Hours of vigorous and moderate weekend physical activity	5.2 (2.9)	4.9 (2.4)	.478
<i>Walking questions</i>			
Minutes walked to work/week	23.3 (31.7)	20.1 (25.1)	.531
Minutes walked on errands/week	26.9 (39.1)	31.7 (46.5)	.192
Minutes walked during lunch or breaks/week	16.7 (27.9)	19.7 (33.9)	.747
Minutes walked for exercise/week	17.8 (36.9)	18.6 (38.6)	.699
Total minutes walked/week	86.1 (89.0)	87.7 (93.8)	.861

Intervention Results

When compared to controls at 6 weeks follow-up, the intervention group showed significantly greater improvement in five of the 10 physical activity outcome measures: Stage of Change, blocks walked per day, vigorous and moderate weekend activity, minutes walked for exercise, and total minutes walked per week (Table 4).

The control group increased their Stage of Change by 0.72, whereas the intervention group increased it by 1.34 stages ($p < .001$). When the Stage of Change scores are broken down into individual stages, a clearer evaluation of differences between control and intervention changes can be made. In the intervention group, one participant decreased one stage or more (.08%), while the intervention group showed a 6.9% decrease.

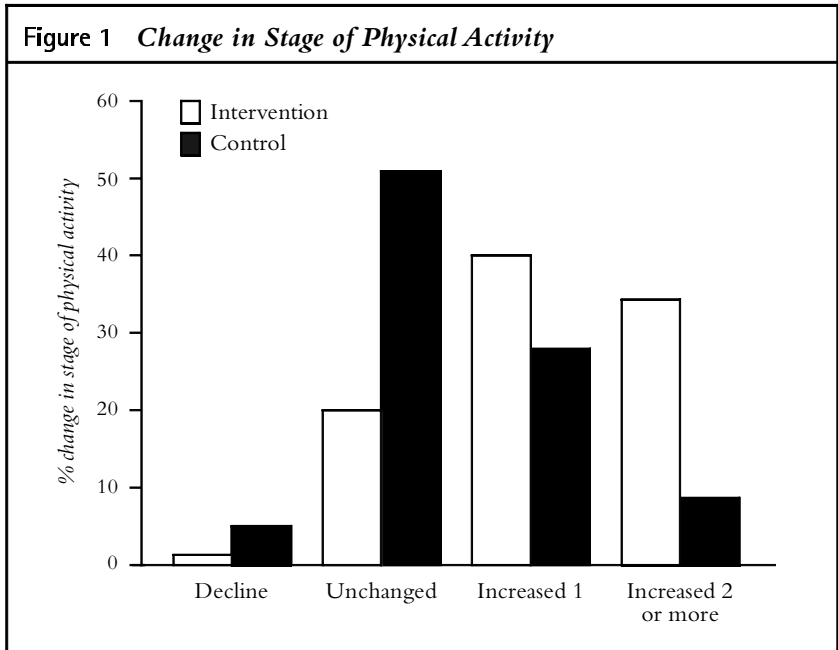
Table 4 *Change in Physical Activity: Comparison of Control and Intervention Groups*

Variables	Change Score		Df	F	p
	Control	Intervention			
<i>Stage of Change</i>	+ .72	+1.34	1,37	38.27	.001
<i>Paffenbarger physical activity questions</i>					
Blocks walked/day	+1.54	+7.31	1,33	4.98	.033
Flights of stairs up/day	+ .81	+1.21	1,32	0.38	ns
Hours of weekday vigorous and moderate physical activity	+ .06	+ .35	1,38	1.46	ns
Hours of weekend vigorous and moderate physical activity	+ .36	+ .77	1,33	7.94	.008
<i>Walking variables</i>					
Minutes walked to work/week	+3.54	+3.1	1,38	1.19	ns
Minutes walked on errands/week	+15.7	+23.6	1,19	3.43	ns
Minutes walked during lunch or breaks/week	+22.4	+25.8	1,31	0.51	ns
Minutes walked for exercise/week	+32.9	+77.9	1,24	28.35	.001
Total minutes walked/week	+76.2	+103.1	1,27	13.31	.001

Twenty-one percent of the intervention group and 53.1% of the controls remained the same. More than 41% of the intervention group increased one stage, compared to 29.6% of the controls. The percentage of intervention participants who increased two or more stages was 35.5, compared to 10.3 for the controls. Figure 1 graphs percentage change in Stage of Physical Activity.

Because the two preliminary MANOVAs were significant, the differences on the individual Paffenbarger and walking variables were examined. Increase in blocks walked per day was higher ($p < .05$) for the intervention group (7.31) than for the controls (1.54). Hours of weekend vigorous and moderate physical activity increased by .77 for the intervention group compared to .36 for the controls ($p = .008$). Change in minutes walked for exercise was also greater ($p < .001$) for the intervention group than for the controls, the former increasing their walking for exercise by 77.9 minutes per week and the latter by 33.9 minutes per week. The increase in total minutes walked per week was significantly higher ($p < .0001$) for the intervention group (103.1) than for the controls (76.2).

The findings for the intervention group were examined to determine change over time as a result of the brief intervention. This group signifi-



cantly improved on seven of the 10 physical activity outcome measures at 6 weeks. Their mean Stage of Change was significantly increased, from 2.7 to 4.0 ($p < .001$). Significant increases were also seen in their mean weekend vigorous and moderate physical activity, from 4.9 to 5.3 hours per day ($p < .01$); self-reported number of blocks walked per day, from 7.7 to 12.9 ($p < .05$); minutes walked per week for exercise, from 18.6 to 91.6 ($p < .0001$); and total minutes walked per week, from 87.7 to 209.5 ($p < .0001$).

It is noteworthy that, when compared to baseline, both the control group and the intervention group increased nine out of 10 physical activity variables. Improvement for both groups was seen in all variables except number of hours of vigorous and moderate weekend physical activity, on which only the intervention group improved. Even though both groups showed improvement, the intervention group improved significantly more than the controls on seven of the 10 variables.

Discussion

This study examined the effect of a brief, tailored intervention on the physical activity levels of sedentary working women. The controlled trial demonstrated that a brief intervention matched to the participant's stage of physical activity can result in sedentary women becoming physically

active. The use of nurse practitioners to provide the intervention at a workplace health promotion site extends the body of published research, since previous interventions have been administered to clinic patients in physicians' offices. The fact that participants who received the brief, tailored intervention in a busy workplace setting were more likely to adopt physical activity than control participants lends support to the use of the PACE[®] intervention with sedentary women. The consistency of the results across various measures strengthens confidence in the efficacy of the intervention. Women who received the intervention showed greater improvement than controls on types of physical activity associated with leisure time rather than work time (i.e., weekend physical activity and walking for exercise).

The findings from this study are novel. It represents the first documentation of a nurse practitioner-led program that improved women's physical activity levels using the PACE[®] intervention. The beneficial effects of the brief intervention, as reported above, are similar to or greater than those reported for the PACE[®] intervention administered by primary-care physicians. Calfas et al. (1996) found that participants receiving a brief intervention and follow-up telephone call significantly increased their walking when compared to controls. They report an increase of 34 minutes per week (total walking) for the intervention group, compared to 21 minutes for controls. In the present study, the intervention group increased their total walking by 128 minutes per week and the controls by 72 minutes per week. The greater improvement in walking found in this study may be due to the inclusion of a larger proportion of women in the intervention, as women generally prefer walking to other types of physical activity (Ainsworth, Irwin, Addy, Whitt, & Stolarczyk, 1999; Brownson et al., 2000; Laffrey, 2000).

As discussed, both the intervention group and the control group showed an increase in many of the physical activity variables at 6 weeks. This improvement may be related to several factors: the fact that participants were enrolled in a study around physical activity, questionnaire completed at baseline, non-staged-based counselling, and seasonal effects. Two factors in particular were likely contributors: student counselling, and the seasonal effects of exercise. All women at the screening received follow-up counselling by students, which may well have affected their behaviour and caused some of them to increase their level of physical activity. With regard to seasonal effects, enrolment began in late January and ended in May; the second data collection took place 6 weeks after enrolment — at a time when Midwestern weather had most likely grown mild, and this could explain some of the improvement in physical activity seen in both groups. Future research spaced throughout the year could control for this artifact.

Strengths and Limitations

The results demonstrate the effectiveness of a brief intervention in raising levels of physical activity. The use of a randomized prospective design adds to confidence in the findings. Utilization of a usual-care control group provides convincing evidence of the efficacy of the intervention.

One limitation of this study was its use of self-report measures for physical activity. Self-report, especially of moderate forms of physical activity, is a less reliable technique than objective measurement (Ainsworth, Montoye, & Leon, 1994; Sallis & Saelens, 2000). Social desirability bias can inflate self-reported levels of physical activity (Warnecke et al., 1997). Objective measurement of physical activity would strengthen the self-reported outcomes and augment the applicability of a brief intervention strategy for the adoption of physical activity. However, self-report allows for data collection from large numbers of people at low cost and does not alter the behaviour under study (Sallis & Saelens).

A second limitation is the potential for a biased sample. Persons who are concerned about and conscious of their health are more likely than others to register for health screening. Hence, persons attending the screening likely were not typical of the university population. Further, the sample comprised working women. Because the sample was self-selected, generalizability is limited to women attending worksite health screenings.

Implications and Recommendations

This study broadens the boundaries of what is known about the effect of brief, tailored, theory-based behaviour change strategies. It extends previous research done in primary care and offers practitioners a successful program for encouraging women to initiate physical activity. The findings support the efficacy of a brief, tailored intervention delivered by nurse practitioners to increase the physical activity levels of sedentary women. The application and testing of this intervention at a worksite is a practical and efficient approach to exercise counselling for women. Behavioural science would benefit from further research into which parts of a tailored intervention — contracting, goal setting, or telephone prompting — are most beneficial. Benefits could be derived from testing the effects of different types of prompting, such as e-mail and computerized telephone calls. Further longitudinal work is needed to compare the effectiveness of brief interventions with that of other behaviour change strategies in order to determine which approaches lead to optimal long-term adherence. In addition, there is a need for further study to evaluate the effectiveness of interventions with women who are unemployed and women of low income and educational status.

In summary, nurses and nurse practitioners are in a key position to help women become physically active or to raise their physical activity to desirable levels. This test of a brief, tailored strategy contributes significantly to the search for efficient, effective ways for nurses to deliver community-based health promotion interventions. By routinely providing brief interventions to increase levels of physical activity, nurses and nurse practitioners can make a substantial contribution to the promotion of health and prevention of disease.

References

- Adams, P., & Benson, V. (1991). Current estimates from the National Health Interview Survey, 1990. *Vital Health Statistics, 10*(181), 1–212.
- Ainsworth, B. E., Irwin, M. L., Addy, C. L., Whitt, M. C., & Stolarczyk, L. M. (1999). Moderate physical activity patterns of minority women: The Cross-Cultural Activity Participation Study. *Journal of Women's Health and Gender-Based Medicine, 8*(6), 805–813.
- Ainsworth, B., Leon, M., Richardson, D., Jacobs, D., & Paffenbarger, R. (1993). Accuracy of the College Alumnus Physical Activity Questionnaire. *Journal of Clinical Epidemiology, 46*(12), 1403–1411.
- Ainsworth, B. E., Montoye, H. J., & Leon, A. S. (1994). Methods of assessing physical activity during leisure and work. In C. Bouchard, R. Shepherd, & T. Stephens (Eds.), *Physical activity, fitness, and health: International proceedings and consensus statement* (pp. 146–159). Champaign, IL: Human Kinetics.
- Armstrong, C. (1990). The Stages of Change in exercise adoption and adherence: Evaluation of measures with self-report and objective data (Thomas). *Dissertation Abstracts International, 59*(8-B), 4453.
- Brownson, R. C., Eyster, A. A., King, A. C., Brown, D. R., Shyu, Y. L., & Sallis, J. F. (2000). Patterns and correlates of physical activity among US women 40 years and older. *American Journal of Public Health, 90*(2), 264–270.
- Bull, F. C., & Jamrozik, K. (1998). Advice on exercise from a family physician can help sedentary patient to become active. *American Journal of Preventive Medicine, 15*(2), 85–94.
- Calfas, K. J., Long, B., Sallis, J., Wooten, W. J., Pratt, M., & Patrick, K. (1996). A controlled trial of physician counseling to promote the adoption of physical activity. *Preventive Medicine, 25*(3), 225–233.
- Caparosa, S., & Thompson, S. (Eds.). (1999). *Patient-centered assessment and counseling for exercise and nutrition*. San Diego, CA: San Diego State University Foundation and San Diego Center for Health Interventions.
- Fleming, M. F., Mundt, M. P., French, M. T., Manwell, L. B., Stauffacher, E. A., & Barry, K. L. (2002). Brief physician advice for problem alcohol drinkers: Long-term efficacy and benefit-cost analysis. *Alcoholism: Clinical and Experimental Research, 26*(1), 36–43.

- Glasgow, R. E., Whitlock, E. P., Eakin, E. G., & Lichtenstein, E. (2000). A brief smoking cessation intervention for women in low-income Planned Parenthood clinics. *American Journal of Public Health, 90*(5), 786–789.
- Hermansson, U., Knutsson, A., Ronnberg, S., & Brandt, L. (1998). Feasibility of brief intervention in the workplace for the detection and treatment of excessive alcohol consumption. *International Journal of Occupational and Environmental Health, 4*, 71–78.
- Laffrey, S. C. (2000). Physical activity among older Mexican American women. *Research in Nursing and Health, 23*(5), 383–392.
- Paffenbarger, R., Blair, S., Lee, I., & Hyde, R. (1993). Measurement of physical activity to assess health effects in free-living populations. *Medicine and Science in Sports and Exercise, 25*, 60–70.
- Prochaska, J., Redding, C., & Evers, K. (1997). The transtheoretical model and Stages of Change. In K. Glanz, F. Lewis, & B. Rimer (Eds.), *Health behavior and health education* (2nd ed.). San Francisco: Jossey-Bass.
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model. *American Journal of Health Promotion, 12*(1), 6–7.
- Rauh, M., Hovell, M., Hofstetter, C., Sallis, J., & Gleghorn, A. (1992). Reliability and validity of self-reported physical activity in Latinos. *International Journal of Epidemiology, 21*, 966–971.
- Rollnick, S., Butler, C., & Stott, N. (1997). Helping smokers make decisions: The enhancement of brief intervention for general medical practice. *Patient Education and Counseling, 31*(3), 191–203.
- Sallis, J. F., & Saelens, B. E. (2000). Assessment of physical activity by self-report: Status, limitations, and future directions. *Research Quarterly for Exercise and Sport, 71*(2), 1–14.
- Shepherd, R., Cox, M., & Simper, K. (1981). An analysis of “PAR-Q” responses in an office population. *Canadian Journal of Public Health, 72*, 37–40.
- Sternfeld, B., Ainsworth, B. E., & Quesenberry, C. P. (1999). Physical activity patterns in a diverse population of women. *Preventive Medicine, 28*(3), 313–323.
- Thomas, S., Reading, J., & Shepherd, R. (1992). Revision of the Physical Activity Readiness Questionnaire (PAR-Q). *Canadian Journal of Sport Science, 17*, 338–345.
- US Department of Health and Human Services. (2001). *Behavioral Risk Factor Surveillance System*. Atlanta: Centers for Disease Control. Retrieved March 2, 2002, from <http://www.cdc.gov>.
- US Department of Health and Human Services, Office of Health Promotion and Disease Prevention. (1991). *Healthy people 2000: National health promotion and disease prevention objectives*. Washington: US Government Printing Office.
- US Department of Labor. (2002). *Labor force statistics from the current population survey*. Retrieved July 16, 2002, from <http://data.bls.gov/cgi-bin/surveymost>
- Warnecke, R. B., Johnson, T. P., Chavez, N., Sudman, S., O'Rourke, D. P., Lacey, L., et al. (1997). Improving question wording in surveys of culturally diverse populations. *Annals of Epidemiology, 7*, 334–342.

Authors' Note

This research was supported by NINR Predoctoral Fellowship #F31 NR07566-01; Kinley Trust, Purdue University; and the Seth Rosen Research Award, University of Illinois at Chicago.

Janet Purath, RN, PhD, is Associate Professor of Nursing, Purdue University, West Lafayette, Indiana, USA. Arlene Michaels Miller, RN, PhD, is Associate Professor of Nursing, University of Illinois at Chicago, USA. George McCabe, PhD, is Professor of Statistics, Purdue University. JoEllen Wilbur, RN, PhD, FAAN, is Professor of Nursing, University of Illinois at Chicago.

Les infirmières agissant comme soignantes auprès d'un proche âgé ou comment négocier la frontière entre vie personnelle et professionnelle

Catherine Ward-Griffin

L'évolution récente en matière de soins aux personnes âgées se traduit par une dépendance accrue sur la famille. Il a été démontré que donner des soins est une dimension centrale et courante de la vie personnelle et professionnelle de nombreuses femmes; le présent article aborde les difficultés que vivent les femmes chargées de dispenser des soins dans ces deux sphères à la fois (les «soignantes chargées d'une double tâche»). L'auteure avance que la distinction entre soins rémunérés et soins non rémunérés à la base de notre conception des soins aux personnes âgées pose problème, tout particulièrement pour les professionnelles de la santé. Selon les conclusions d'une étude qualitative menée auprès d'un groupe d'infirmières autorisées chargées de dispenser des soins à un proche âgé, ces dernières chevauchent les sphères publique et privée et, par conséquent, doivent sans cesse négocier la ligne de démarcation entre rôle professionnel et rôle familial. Ces résultats mettent en lumière la nécessité d'explorer l'interface entre vie de famille et vie au travail et de définir des politiques visant à protéger l'état de santé des intervenantes.

Mots clés : infirmières, soins aux personnes âgées

Nurses as Caregivers of Elderly Relatives: Negotiating Personal and Professional Boundaries

Catherine Ward-Griffin

Recent changes in patterns of care provision for the elderly have led to an increasing reliance on family care. Although caring has been found to be a central and common feature of the personal and professional lives of many women, this paper discusses the challenges faced by women who provide care in both their work and their family lives (“double-duty caregivers”). The author argues that the separation of paid caregiving and unpaid family caregiving in the conceptualization of elder care is problematic, particularly for health-care professionals. Findings from a qualitative study with registered nurses providing care to elderly relatives revealed that these women are located at the juncture of public and private domains of caregiving, where they must constantly negotiate the boundaries between their professional and personal caregiving roles. The findings highlight the need to explore the interface between women’s family and work lives and the need for policies that promote the health of double-duty caregivers.

Keywords: family caregiving, nursing, elder care, health promotion, narratives, feminist inquiry

Introduction

Caregiving of frail elderly people is being acknowledged as one of the major challenges facing Western societies (Jutras, 1990). A number of factors account for this situation. In Canada, recent changes in patterns of care provision for the elderly, including health-care restructuring, closure of long-term-care facilities, under-funding of home care (Canada’s Association for the Fifty-Plus, 1999; Chappell, 1999; Kosny, 1999), and early hospital discharge (Armstrong et al., 2003), have led to an increasing reliance on family members; health-care reforms are sending more care, and more complex care, home (Armstrong, 2002). Although there may be a group of kin that provides assistance to an older individual, the literature suggests that there is generally one person who provides most of this care, and that person is most often a woman (Armstrong & Armstrong, 2001; Chappell, 1993). Female family members provide the majority of caregiving support to elders (Aronson, 1991; Medjuck, O’Brien, & Tozer, 1992), with wives and daughters pre-

dominating (Keefe & Fancey, 2002). Daughters are three times more likely than sons to be primary caregivers to their elderly parents (Kosny). However, the availability of female family members to provide this care may be decreasing as a result of the substantial rise in the labour-force participation of women. The percentage of Canadian women in the paid labour force has increased from 46.7% in 1977 to 57% in 1997 (Statistics Canada, 1999).

Women also account for over 80% of those providing paid care (Armstrong et al., 2003). Vertical and horizontal gender segregation in employment is reflected in the caring professions (Hugman, 1991; Jackson, 2003). For example, nursing continues to be dominated by women. In Canada, approximately 95% of all nurses are women (Statistics Canada, 1996). Moreover, female nurses are more likely than male nurses to work with elderly people (Hugman). The relative absence of men from nursing practice, particularly in elder care, highlights the gendered nature of caregiving. This persistent gender differential in both paid and unpaid caregiving means that shifts in the delivery of health care from institutions to the household tend to affect women more than men (Gregor, 1997; McKeever, 1994). Consequently, in times of economic constraints, when public expenditures on formal services for the elderly are either reduced or frozen, it is usually women who shoulder the physical, social, emotional, and financial costs of family caregiving (Armstrong & Armstrong, 1994; Aronson, 1992; Hooyman, 1990; McKeever; Neysmith, 1991). Even without these constraints, women feel responsible and are held responsible for delivering quality care, often at risk to their own health (Armstrong et al.).

Although it has been well documented that employed family caregivers of the elderly experience a number of adverse health effects such as increased mental and physical strain and family-work conflict (George & Gwyther, 1986; Pavalko & Woodbury, 2000; Scharlarch & Boyd, 1989), we know very little about the impact of the type of employment on women's caring work within the family. There is still much to be learned about how employed health professionals negotiate their professional and family caregiving roles. For instance, what are nurses' experiences in providing care to elderly relatives? What are the health effects of "double-duty caregiving"? How do nurses manage their double-duty caregiving role? These are the questions that are central to this paper.

Literature Review

Contemporary Theoretical Models

Much of the theoretical literature addressing the interface between work and family life conceptualizes the two spheres as either distinct or inte-

grated. However, this separation of public and private worlds in the conceptualization of elder care is problematic. Conventional theoretical models such as segmentation, compensation, and spillover (Loscocco & Rochelle, 1991) tend to assume that what one does at work is dissimilar to what one does in the family. The segmentation model proposes that work and “non-work” lives are totally disconnected in time, space, and function; the workplace is typically separate from the family home, the former being for production and the latter for consumption, and individuals are in each location at a different time (Andrews & Bailyn, 1993). The compensation model suggests that individuals will seek positive experiences in one domain to compensate for their negative experiences in the other (Loscocco & Rochelle). In the spillover model, work and family are separate but what happens in one sphere has an impact on the other. This last model is the most common conceptualization of the interface between work and family (Loscocco & Rochelle).

The main limitation of these three models is that they tend to downplay or ignore the gendered underpinnings of “family care” and the organization of care systems as gendered (Acker, 1990). Close examination of each model reveals the pervasive ideology of familism in which caregiving is seen as women’s “natural” role. While some researchers discuss the effects of gender on the permeability of the boundaries between work and family (Guberman & Matheu, 1999), others acknowledge the impact of gender, such as women having primary responsibility for the family (Greenhaus, 1989). Although women’s paid and unpaid caring work have been considered separately, their similar purposes and outcomes, as well as their combined impact on women’s health, have only recently been recognized (Angus, 1994; Walters, Beardwood, Eyles, & French, 1995).

Existing Empirical Knowledge

There are only a few published studies on women who care for individuals in both their professional and their personal lives (double-duty caregivers) (Denton, Zeytinoglu, Webb, & Lian, 1999; Guberman & Maheu, 1999; Phillips, Bernard, & Chittenden, 2002; Ross, Rideout, & Carson, 1996; Rutman, 1996). Part of our difficulty in understanding the interface between work and family domains is that the majority of studies have looked at women either as unpaid family caregivers *or* as paid health-care providers, not as both. However, care work in the formal system cannot be fully understood unless one recognizes that it is women who perform the bulk of the work and that this is integral to women’s unpaid caregiving (Armstrong et al., 2003).

Most of the research on employment and family care has focused on the effects of caregiving on paid work. The impact of caring on workplace participation includes absenteeism, reduced productivity, missed

opportunities, and early withdrawal from the labour market (Neal, Chapman, Ingersoll-Dayton, & Emlen, 1993; Scharlarch, Sobel, & Roberts, 1991; Stone & Short, 1991). Neal et al. found that personal characteristics (e.g., age and occupation) and conditions (e.g., number of caring roles and number of hours worked) consistently predicted higher rates of absenteeism and stress among employees caring for children or elders. Employees with responsibility for elder care have reported negative effects on mental health and social participation (George & Gwyther, 1986), strain on relationships within the family (Scharlarch & Boyd, 1989), and more job/family conflict than their non-caregiving co-workers (Scharlarch & Boyd). However, employment has also been found to have positive effects on stress and mental health for employed caregivers of elders (Brody, Kleban, Johnsen, Hoffman, & Schoonover, 1987) and to have no effect on caregiver stress (Miller, 1989). One of the issues limiting the interpretation of the research regarding the effects of multiple roles is that the meaning and content of these roles are rarely elaborated.

Because most previous studies have treated employment as a unitary construct, little is known regarding the health effects of double-duty caregiving. To date, few researchers have examined the effects of caring both at home and at work. Barnett and Marshall (1992) and MacDonald (1998), in their samples of nurses, found no negative spillover between employment and parenting. In contrast, Gottlieb, Kelloway, and Martin-Matthews (1996) found that hospital-based nurses who also provided child care were more likely to experience mental and emotional spillover from the family domain to the work domain. In a study with women employed as social workers or as licensed practical nurses, Marshall, Barnett, Baruch, and Pleck (1990) also found that the high costs of caring at work or at home included high levels of psychological distress.

In a survey of 892 office and visiting employees of three home-care agencies, Denton et al. (1999) found that work-related stress was experienced most acutely by nurses, therapists, and those in managerial positions. Similarly, Ross et al. (1996) found that most nurses experienced high levels of stress in both their professional lives and their personal lives caring for relatives of all ages. In a study with male and female nurses caring for an elderly relative, Walters et al. (1996) report a positive association with health problems for the women only, indicating that women may be particularly affected by the increasing reliance on family care of elders. These findings point to the potential negative effects for women of the "double day" or "second shift" of caregiving (Hochschild, 1989).

In a qualitative study with five women who were both paid health-care workers (home-support workers, long-term-care managers, nurses) and unpaid caregivers of elderly relatives, Rutman (1996) found a sense

of powerlessness and distress that cut across the paid/unpaid caregiver distinction. In a qualitative study with 25 employed women, eight of whom were professionals (nurses, lawyers, researchers), Guberman and Maheu (1999) examined the complex process of juggling work and elder-care responsibilities. They found the impact of caregiving on employment to be an end product of making adjustments and accommodations in order to achieve equilibrium among the various demands placed on them.

Despite many contributions to our understanding of combined employment and family caregiving, we have not examined the content and meaning of women's caregiving activities in both their work and their family lives. Research that draws links between paid and unpaid caregiving is sorely needed (Morris, 2001). Only when the results of such research are known can we fully understand the health effects of simultaneous participation in the private and public domains of caregiving.

Theoretical Perspective

The current study was informed by a socialist-feminist perspective, most notably the writings of Ungerson (1990). One of Ungerson's major contributions to the debate concerning the public and private spheres of caring is the development of a typology that encompasses caring in both domains. She argues, along with others (Waerness, 1984), that the conceptual splitting of formal and informal care poses a false dichotomy by assuming that the nature of the relationship in each of these spheres is unique. Accordingly, Ungerson suggests that it would be more fruitful to determine

the exact circumstances — formal or informal — under which caring labour is exploited labour, the exact circumstances — formal or informal — where it is labour willingly and/or lovingly given, and the exact circumstances — formal or informal — under which the best possible standard of care, combining continuity, consistency, and respect between carer and cared-for, can be provided. (p. 13)

Application of a socialist-feminist perspective has a number of advantages. First, research grounded in socialist-feminist thought provides a set of sensitive and complex analytical tools for understanding double-duty caregiving. It explicitly recognizes caring as both "labour and love" that crosses the boundaries between public and private. In other words, *caring for* and *caring about* occur in both the public and private spheres and these spheres are interwoven. Second, this perspective is based on the premise that work and family are interdependent through reproduction and production (Pascall, 1986). The construct of reproduction-production with its emphasis on unpaid and paid work highlights the artificial boundaries between work and family. Finally, socialist-feminist inquiry focuses on the

gendered interface of the market, the family, and the state — that is, the capitalist state has a direct interest and role in reinforcing the separation of the public and private spheres and supporting gendered patterns of caring (Walby, 1994). According to Baines, Evans, and Neysmith (1991), a socialist-feminist approach to caregiving “helps to bring women’s labour out of the household closet, explores its connections to other forms of work, and begins to integrate domestic labour into a feminist analysis of the family, the economy, and the state” (p. 20). Thus, a socialist-feminist approach promises to address some of the aforementioned limitations, in conventional theoretical frameworks, to studying the interface of professional and personal caregiving.

The underlying principles and assumptions of feminist methodologies situate them within a critical approach to research (Neysmith, 1995). The critical tradition posits that knowledge transformation entails going beyond understanding why things are the way they are, to studying how they are maintained that way, and thus suggests alternative images as to what could be (Fine, 1994; Neysmith, 1995). This reflexivity is grounded in the belief that there is something better, and that knowledge helps us to achieve it (Denzin & Lincoln, 1994). Consequently feminist research offers us an opportunity to engage in the development and implementation of progressive social policies that promote the health of women and men.

Method

Purpose and Design

Caring has been identified as the essence of nursing (Leininger, 1981; Watson, 1988), which is essential to professional practice (Benner & Wrubel, 1989; Clayton, Murray, Horner, & Greene, 1991; Green-Hernandez, 1991). Yet little is known about the relationship between *caring for* and *caring about*, nor do we fully understand the multidimensional aspects of caring in the personal lives of nurses. Thus, an exploratory qualitative approach was chosen. This is an appropriate method for examining the dimensions, strategies, and consequences of a particular phenomenon (Lofland & Lofland, 1995; Morse, 1994). The primary aim of this feminist narrative study was to critically examine nurses’ experiences in providing care to elderly relatives.

Sample

Participants were recruited from two community health-care agencies in southwestern Ontario, Canada, over a 6-month period (January–June 1999). All registered nurses received a letter in their workplace mailboxes inviting them to participate in the study ($n = 72$). To be eligible, they had

to speak and understand English, provide at least 1 hour of care per week to an elderly relative or friend, and be employed full-time or part-time at one of the two agencies. Fifty-nine responses were received (65% response rate). Most of the respondents indicated that they were ineligible to participate (40 responses), while four indicated a lack of interest. Ultimately, 15 nurses were enrolled in the study.

The participants ranged in age from 23 to 64 years, with a mean age of 44 years. The majority were married (66%), held a diploma in nursing (83%), and were employed part-time as community nurses (66%). Participants provided care to their parents (66%), parents-in-law (13%), grandparents (7%), sister (7%), or spouse (7%). One third of the sample provided care to two or more elderly relatives. The majority of the elders had been receiving weekly care within their own homes from 3 months to 11 years, with a mean of 5 years. At the time of the interview, 13 of the 15 participants were providing care to an elderly family member. Two participants had recently experienced the death of their fathers.

Data Collection and Analysis

Narrative inquiry was used for this study, specifically as a framework for conceptualizing the interview and interpreting the interview data. According to Sandelowski (1991), narratives are “stories that include a temporal ordering of events and an effort to make something of those events: to render, or to signify the experiences of persons-in-flux in a personally and culturally coherent, plausible manner” (p. 162). Moreover, narratives constitute a type of causal thinking in that each story explores questions of human agency and explains lives. They offer insight into the way in which individuals view their lives and into the connections between past and present and self and society (Riessman, 1993). Thus, narrative inquiry in this study served to explore new understandings of the interface of women’s paid and unpaid caring work and identify possibilities for positive action and change among participants and society.

The main sources of data were 15 in-depth audiotaped interviews and their corresponding field notes. Demographic data were collected from the participants at the end of each interview and analyzed using descriptive statistics. Interviews were scheduled at a mutually convenient time and place and an in-depth focused interviewing approach was used (Merton, Fiske, & Kendall, 1990). Twelve of the interviews were conducted in the participant’s home or office. In three cases, at the request of the participant, the interview was carried out in the researcher’s home or office.

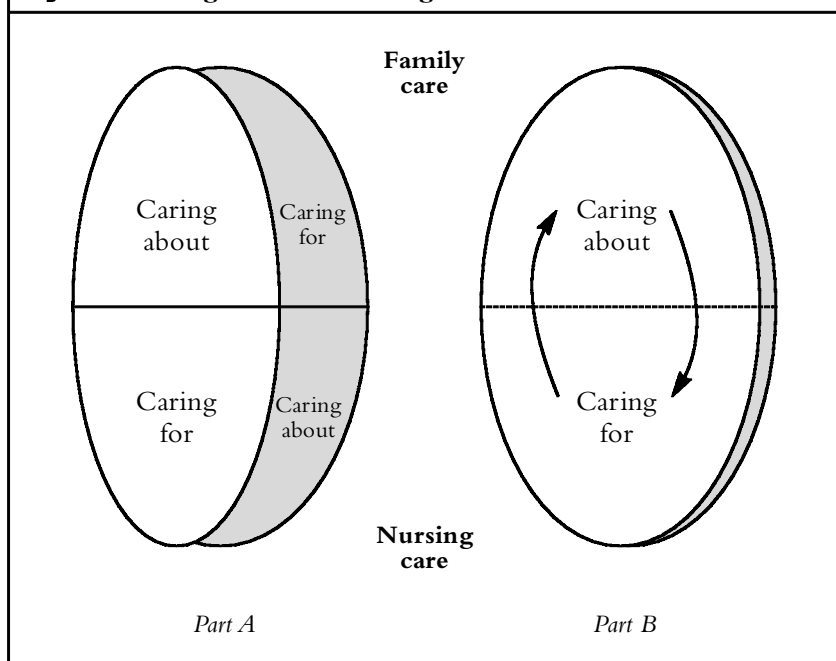
In keeping with the narrative approach, participants were asked non-directive questions designed to trigger dialogue about their caregiving as a nurse and as a family member. This approach served to encourage the

participant to discuss what she thought was important. It also provided an opportunity for the participant to “story” her experience (Riessman, 1993). In response to open-ended questions (e.g., What is it like to care for a family member? What are the advantages/disadvantages of engaging in both personal and professional caregiving?), most participants discussed their double-duty caregiving experiences without further prompting. At times, probes and questions were used to clarify or ensure accurate interpretation of the story. The interviews lasted from 60 to 120 minutes, with an average of 90 minutes. Participants were also given the opportunity to attend one of two follow-up focus group meetings in order to respond to emerging interpretations of their experience, as well as to clarify or elaborate on their ideas; 13 of the 15 participants attended one of these meetings, which served as a means for the researcher to check the key findings from the individual interviews.

As soon as possible after each interview, data were transcribed and analyzed. Following the guidelines of Lofland and Lofland (1995), early analysis focused on key phrases and themes that emerged from the data. As themes emerged (e.g., “feelings of affection”; “feeling torn”), an initial coding system also emerged, which produced numerous and various codes. These codes were inserted into the text by hand and then entered into NUD*IST, a computer program used to facilitate qualitative analysis (Richards & Richards, 1994). While this analytic strategy was helpful in identifying specific coding categories across many cases, the participants’ stories were not completely revealed. As a means of capturing the complexity of their double-duty experiences, the 15 transcripts were examined as a whole. As suggested by Riessman (1993), attention was paid to the sequence of events, the type of language used, the meaning of the action, and any resolution of conflict. During the final stage of analysis a conceptual model was developed (see Figure 1). This was refined through re-examination of the themes from the initial stage of analysis.

Results

The goal of this study was to examine the interface between personal and professional caregiving amongst nurses. Participants made visible the different and sometimes competing discourses that are available for analyzing their experiences of double-duty caregiving. A discourse is a set of beliefs, values, and assumptions that is socially shared and often unconsciously reflected in language (Ristock & Pennel, 1996). Significantly, not all available discourses will have the same weight and value in a particular situation (O’Connor, 1999). For instance, discourses that represent dominant assumptions and ideologies are particularly powerful. This means

Figure 1 *Caring About and Caring For*

that people have multiple discourses exerting varying degrees of influence on how they view their experiences.

Dimensions of Double-Duty Caregiving

In this study, the two dimensions of caring, *caring about* and *caring for*, were inextricably linked for the double-duty caregivers. While *caring about* involves feelings of affection and love, *caring for* has to do with tending to physical, mental, and emotional needs (Ungerson, 1990). In the dominant discourse, family care and nursing care are conceptualized as two distinct types of caregiving, delineated along the lines of *caring about* and *caring for*, respectively. However, in the current study there was evidence of *caring about* and *caring for* in both family care and nursing care, though in varying degrees (see Figure 1, Part A). Thus, four story lines associated with the two dimensions of caregiving emerged: (1) *caring about in family care*, (2) *caring about in nursing care*, (3) *caring for in family care*, and (4) *caring for in nursing care*. These story lines competed to provide the framework for the participants' double-duty caregiving experiences.

Caring about. The first set of story lines that emerged related to *caring about* elderly family members and elderly patients, respectively. Not sur-

prisingly, most participants revealed strong feelings of affection for their elderly relatives, particularly daughters caring for their mothers. It is interesting to note, however, that the women did not speak about their emotional involvement with their relatives unless it prevented them from fulfilling their caregiving duties. According to many of the participants, emotional attachment to a family member during care caused a number of problems. Natalie said:

All of sudden my mother was disabled, and when her health status changed I panicked. I think it's because of the emotional factor. You're subjective. You're not objective. And we had such a close relationship as a mother and daughter that all of a sudden I saw her changing. She became an elderly lady and I didn't like it... It is very difficult to look after her when you're so emotionally attached.

On reflection, the participants frequently compared the care of their relatives to the care of their clients. Heather described how her feelings for her relatives differed from those for her clients and how this influenced the caregiving experience:

When I saw my parents suffering, I suffered. I think that's the difference. I find with my clients that I'm able to step back and be more of a tour guide with whatever their problem is.... I'd be more desperate for them [parents] to be safe and alive. When you're at work, you're able to separate the respective boundary of any individual and you become more of a professional, helping or guiding. When it's your parent and someone you love so intensely, you just want more for them to be safe and healthy.

With respect to their nursing care, all of the participants reported that they experienced some degree of attachment to their clients. Although they were careful not to get "too attached," they formed family-like emotional ties with certain clients. Monique said:

If I go in and only see them a couple of times, it's hard for me to care...I do care...but it takes time. I mean, there are families...I've been visiting for 5 months almost every night, doing something for them, and...as much as you try not to get involved emotionally and personally, you do. I do, anyway. And you really do care about them.

Echoing their beliefs about family caregiving and emotional attachment, the participants claimed that they could not care for clients adequately if these feelings were too strong. One nurse, Millie, had severed her nursing relationship with an 82-year-old woman who lived alone:

I visited her as her nurse for about a year or so...it kind of grew into a friendship and I knew then that I couldn't do both...I either had to be her nurse and cut it off at that, or not be her nurse and then I could do the friend thing. I made arrangements not to be her nurse after that...but I think I play the role interchangeably. I remain her friend, but then sometimes, as a nurse, I give her advice about improving her health or the importance of taking medications.

Although the participants considered it “natural” to be emotionally close to family members and “unnatural” to develop close ties to clients, there were remarkable similarities between the two kinds of care. They had gradually become attached to many clients, particularly those who were very old or who had no family. Although provision of care without emotional ties is highly valued in professional caregiving, many participants inevitably formed family-like nurse-client relationships. They also acknowledged that emotional involvement would jeopardize the care they provided to both family members and clients. In other words, they believed that they could not *care about* individuals and at the same time *care for* them. This dominant discourse caused tension as the women assumed their personal and professional caregiving responsibilities.

Caring for. The second set of story lines that emerged was associated with *caring for*: *caring for* as a nurse and *caring for* as a family member. Professional caregiving was a paid function that occurred in the public arena of the community, whereas unpaid family caregiving usually occurred within the private domain of the home. As nurses, the participants were expected to use their knowledge and skills in order to provide competent care to clients and their families. While some nurses were generalists, others specialized in acupuncture, palliative care, or geriatrics. However, regardless of their nursing specialty, a typical work day encompassed physical, emotional, and intellectual care, as described by Tina:

It can go from very clinical — you know, the technical provision of care when I'm running IVs — but even in wound treatment you're sometimes providing a lot of emotional care. I have a man now — and it's only been for a month and a half — but he's in tears because he doesn't think that it [the wound] is healing... So you just try to encourage them along at the same time...plus a lot of knowing what's out there in the way of services: the people and the liaison with the doctor.

It is interesting to note that all of the participants viewed their family caregiving as a natural extension of their nursing duties. They felt obliged to use their nursing knowledge in the care of their relatives. Most participants declared that they were “the nurse in the family” and had little or

no choice but to assume this role given their high expectations of themselves as well as the expectations of others, including health-care providers. Crystal, who had cared for her 80-year-old mother diagnosed with Alzheimer disease, explained:

I was expected to care [for my mother] because, one, I am a nurse, two, I am a daughter, and probably three, I am a mother. Also, you are supposed to know these things [as a nurse], so I did have an expectation of myself.

Due to their nursing backgrounds, the participants were frequently expected to offer their caregiving services readily. Monique recalled that her mother chastised her for not seeing her ailing grandmother more often:

I find that because I work in palliative care, and I work as a nurse in my job...I hear my mom say: "You do it all the time. You care for other people. You could at least go and visit your grandmother."

Although the participants felt an obligation to care for their elderly relatives, they found it particularly difficult to be the "nurse" for ill or frail family members. Annie's personal narrative reflects a common concern amongst participants, the expectation that they be daughter and nurse simultaneously:

In my family, I'm the only nurse and I'm the eldest and single...and because my brother and sister aren't in the health-care field I took care of Dad... I also tended to take on that job because I wanted my dad to have the best care that he could get, especially now when there have been so many [hospital] cutbacks... But the nurses actually expected a lot of me. I don't mind giving mouth care and I would help them lift him up in bed, but one time the nurse went to pull up my dad's hospital gown to fix his [urinary] catheter and I quickly turned my head and said, "I don't want to see the family jewels." Their expectation of me as a daughter being there... I mean, I'll help with back rubs and positioning but it was almost as if I did become unpaid help.

Hazel spoke about a similar incident with her mother, who had dementia. She found it extremely awkward to be her mother's nurse, even though the situation called for her clinical expertise:

With my mother, I knew that her pill dispenser had been played with but it wasn't as easy to say to my mother, "These pills are mixed up in here. How did this happen?" because here I was a daughter telling my mother that things weren't right. So I felt that difficult. In the community [as a nurse], it's not.

Other participants talked about a variety of instances when it was uncomfortable to be both nurse and daughter. Crystal commented:

They [health-care providers] were talking to me as a nurse, but how can I be clinical when this is my mother? I had difficulty with that because I felt that I wasn't allowed to be emotional, because I felt that I wasn't the nurse in this situation. I was the daughter, and I found that hard.

However, as her mother's condition worsened, Crystal needed to make difficult decisions that required her nursing judgement:

My mother told me: "I am so mad at you. I thought you loved me but you don't love me if you put me in that [nursing] home." ... But I knew that I was doing the right thing. As a nurse, I knew in my head that I was doing the right thing. I wish in my heart I could have done things differently but there was no choice at the time.

Many participants expressed concern that they were expected to assume too much responsibility for the care of their family member, particularly in situations where they lacked the necessary knowledge and skills. This caused tremendous guilt, especially if the person's health deteriorated under their care. Delila expressed tremendous guilt for missing key signs and symptoms of a bowel infection:

My biggest fear was that I would miss something... It was very exhausting, all that running around... I was beside myself. And then I think back. I wonder if I was so tired that I missed my dad's complaint about the abdominal pain. Like, why didn't I know that his sigmoid was going to blow? ... I will take that guilt with me to the day I die.

Examination of the discourse of *caring for* in the women's professional and personal lives reveals two conflicting story lines. On one hand, they saw themselves as competent nurses, providing care for a variety of clients. On the other hand, they considered the care they provided to their relatives as inadequate. Even though they were seen, by themselves and others, as the most knowledgeable person when it came to family care, the intimacy of the relationship and a sense of powerlessness prevented them from providing full care within the family. Nonetheless, the participants felt accountable for the nursing care of their relative. Thus, the meanings associated with *caring for* were derived primarily from their professional frame of reference, which usually created stressful family-care situations. A strong sense of inadequacy is embedded in their stories. Further, they felt extremely guilty about making poor clinical decisions given their profession of nurse.

Strategies for Managing Family Caregiving Responsibilities: Choices Within Constraints

The nurses engaged in the following personal strategies to manage their family caregiving responsibilities: setting limits; coordinating, delegating and supervising care; and assuming complete caregiving responsibilities. Strategies ranged from refusing to provide specific types of care to doing it all without any assistance from other family members or health professionals.

Those individuals whose personal narratives were more firmly grounded within the discourse of *caring about in family care* tended to set specific limits on the care they provided. Monique, a new nursing graduate, described a tendency to separate the role of family member from that of nurse:

I think that when emotions are involved, sometimes we forget about what each person is in our professional life... When my dad had surgery, and it was quite serious surgery, I wasn't thinking about being a nurse; I was thinking about my dad. My dad was going to be at my wedding and be able to walk me down the aisle. I was worrying. When he came out of the surgery, I wasn't thinking about his vital [signs] and I wasn't assessing — I guess you always assess, you don't lose that — but I was just hoping that everyone else was doing their job and I would do my job. I would just be my dad's daughter and be there for him. I didn't want to be the nurse in charge of his care.

To safeguard their own health, some participants also tended to set limits on the care provided if the situation was not considered life-threatening. Delila had refused to provide care to her mother-in-law:

She was very demanding for hands-on care when she thought she needed some attention. I can recall one incident where she was suffering a lot with heartburn and wanted me to run to the store to get her something over-the-counter, and I said no. I felt that if the heartburn was as severe as she had said it was, she needed to be seen and assessed by the physician.

It is interesting to note that in these situations the participants tended to be in the early stages of family caregiving, when the need for formal nursing care was limited.

In direct contrast, women whose personal narratives were situated more within the *caring for* dimension of family care tended to take on major elder-care responsibilities. In fact, they assumed other caregiving roles within the family, such as coordinator, and delegated certain tasks, especially during times of crisis or to avert a crisis. Since many participants were the most qualified health-care person within the family unit,

they believed they had no choice but to assume the bulk of care for their relative, in spite of the consequences. Paula drew on her extensive nursing knowledge while caring for her mother post-surgery:

When my mom had some surgery we all said we would take turns staying with her, and I tried to work my days off so I would have the first night or two, thinking if she came home from surgery she should have a nurse... It would be hard not to use some of your nursing knowledge, to make sure they are getting the best care they can, but it was emotionally and physically exhausting at times.

Those who had workplace supports, such as an understanding manager or flex time, considered themselves fortunate. A few others worked only part-time in order to be available for their unpaid family caregiving responsibilities. For Annie, the boundaries between family care and nursing care became blurred as she was required to provide more and more care for her father-in-law in hospital:

[His] nephrostomy would be leaking from his site. He needed a bed change. Well, they were so busy, run off their feet. I would say, "That's something I can help you with..." Sometimes we're not even conscious of when we're being the nurse or when we are the daughter, or the daughter-in-law in my case... I don't think that it is separate.

In summary, the participants engaged in a variety of personal strategies to contain the stress they experienced as double-duty caregivers. The *caring about in family care* discourse supported the idea of setting limits — that is, if one cares about an individual, one cannot, and should not, provide professional care for them. The belief that one should separate family care from nursing care was clearly evident in some of the narratives. For other participants, however, the alternative story line, *caring for in family care*, supported the idea of assuming the bulk of care because they possessed the necessary nursing skills. For those who were grounded in this discourse, the boundaries between family caregiving and nursing care virtually disappeared.

Discussion

Examination of the interface between personal and professional caregiving amongst nurses revealed four story lines associated with *caring about* and *caring for* (see Figure 1, Part A). Two of these provided congruent frameworks for interpreting the nurses' experiences as double-duty caregivers: *caring about in family care* and *caring for in nursing care*. Both story lines upheld the dominant belief that emotional attachment clouds clinical judgement, hence one should not *care about* clients nor *care for* family

members. However, two other story lines, *caring about in nursing care* and *caring for in family care*, offered an alternative set of assumptions, values, and beliefs with which to interpret their experiences. Participants provided examples of nursing care and family care situations that supported their claim that it is possible, and sometimes preferable, to *care about* someone while *caring for* them. This alternative discourse suggests that the boundaries between *caring about* and *caring for* in family care and nursing care are permeable. Thus, not only do individuals who are both health professionals and family caregivers use multiple, sometimes contradictory, story lines to interpret their caregiving experiences, but for them the boundaries between *caring about* and *caring for* cease to exist (see Figure 1, Part B).

Although preliminary, the results of this research afford several insights concerning family caregiving. First, they suggest that the dynamics of care are extremely complex when the family caregiver is a health professional. Since any two or more of the four story lines may be used simultaneously, the complexity of double-duty caregiving issues is clear. Because of personal and familial expectations, the nurses struggled with the challenges of family caregiving, yet because of their knowledge and ability to “work the system” they could access information and services not normally available to family caregivers. Thus, the findings reveal how the professional occupation of the caregiver affects the caregiving experience, as well as how the presence or absence of suitable workplace supports influences caregivers’ appraisal of and response to their situation. It is important that future studies on professional caregiving pay particular attention to the type and extent of the caregivers’ employment, and examine how this may, over time, be advantageous or disadvantageous to the caregiver.

Second, the socialist-feminist perspective used in this study differs from the approach taken generally in examinations of caregiving by employed family members. What distinguishes this research is its focus on the connection between the occupational and domestic spheres, and particularly its questioning of the traditional dichotomy between paid nursing care and unpaid family care. As well, a feminist lens helps to shed light on the difference between feeling affection and providing emotional support. The findings suggest that both elements are present in nursing care and family care but tend to be linked only in family care. Future investigators might consider using a feminist framework since this perspective has the potential to encourage health-promoting critical reflection among research participants. In the present study, nurses had the opportunity to identify specific areas requiring change (workplace support) and, during the focus group session, to offer mutual support.

Third, the recognition that caregiving is a fluid activity that crosses the public-private divide is critical to our understanding of women's family and work lives and the impact of their dual role on health and well-being (Armstrong et al., 2003; Hooyman & Gonyea, 1995; Long & Kahn, 1993; Walters et al., 1996). The findings are consistent with previous observations regarding the difficulty of juggling work and family responsibilities (Guberman & Maheu, 1999; Phillips et al., 2002). However, the findings of this study and others (O'Connor, 1999) indicate that the caregiving role is not experienced uniformly. The double-duty caregivers interviewed in the present study appeared to experience challenges not faced by other employed caregivers. The expectation that they provide competent nursing care while functioning in the role of family caregiver frequently placed them in a no-win situation. The participants felt obliged to apply their nursing knowledge yet their expertise was rarely acknowledged. Consequently, many expressed feelings of helplessness, inadequacy, and guilt, which had a negative impact on their health. Although they used personal strategies to alleviate stress, the findings suggest that we need to go beyond short-term recommendations designed to help women cope with their caregiving roles, to long-term policy recommendations that challenge the gendered nature of caregiving (Morris, 2001).

Fourth, the findings lend support to the growing body of research on the macro-micro linkages between individuals and society. Although personal values and beliefs are used in constructing the meaning of caregiving at the individual level, these values and beliefs are constructed within a socio-political context (O'Connor, 1999). The comments of the participants in the present study reflect traditional values. For instance, the nurses' notions of who should provide care were shaped by a gender ideology in which female family members are regarded as "natural" caregivers. Moreover, the onus on them to provide care was strengthened by their position as "the nurse in the family" and the current climate of fiscal restraint in health care. Consistent with other aspects of our gendered world, these women rarely questioned their obligation to provide care to elderly relatives. However, a limitation of this study is that it focused on a small number of female nurses. It would be worthwhile for future investigations with employed caregivers to examine and compare the double-duty experiences of male and female health professionals over time. Given the structural basis of gender inequities and the magnitude of the changes required, there is a clear need for a broad policy shift.

The results of this study point to the need for a critical examination of policies and programs that address the paid work and family life of double-duty caregivers. There is an urgent need for health-care institutions to consider the special needs of double-duty caregivers and to insti-

tute flexible work arrangements. In addition, managers' attitudes and behaviours are key to the implementation of workplace policies (Phillips et al., 2002). However, as noted by Hooyman (1990), the overriding issue is not how to relieve caregiver stress but how to organize society to achieve social justice for all — both men and women — so that the care of frail elders is more equitable for both providers and recipients. Recognition of the broad political context of caregiving can foster a new discourse that encourages a health-promoting approach to care.

Conclusion

This exploratory study examined the ways in which nurses manage their dual role when providing care in both their professional and their personal lives. The findings reveal that nurses providing care to elderly relatives must constantly negotiate the boundaries between their professional and personal caregiving roles. Located at the juncture of private and public domains of care, the participants used multiple, sometimes contradictory, story lines to analyze their caregiving experiences. Gender ideologies about caregiving, both professional and personal, had a direct impact on the women's lives.

A feminist perspective on caregiving allowed this study to move beyond the dichotomies of work and family and to recognize the interconnections between the public and private spheres and the health effects of double-duty caregiving. Health promotion strategies, such as supportive practices and policies in the workplace and in society, are essential. Only when such practices and policies are in place will we be assured that the health of caregivers and those who rely on their care is not compromised.

References

- Acker, J. (1990). Hierarchies, jobs, bodies: A theory of gendered organizations. *Gender and Society*, 4(2), 139–158.
- Andrews, A., & Bailyn, L. (1993). Segmentation and synergy: Two models of linking work and family. In J. C. Hood (Ed.), *Men, work and family*. Newbury Park, CA: Sage.
- Angus, J. (1994). Women's paid/unpaid work and health: Exploring the social context of everyday life. *Canadian Journal of Nursing Research*, 26(4), 23–42.
- Armstrong, P. (2002). Health care privatization: Women are paying the price. *Canadian Women's Health Network*, 5(2/3), 7–8.
- Armstrong, P., & Armstrong, H. (1994). *The double ghetto: Canadian women and their segregated work* (3rd ed.). Toronto: McClelland & Stewart.
- Armstrong, P., & Armstrong, H. (2001). *Thinking it through: Women, care and caring in the new millennium*. Halifax: Maritime Centre of Excellence for Women's Health.

- Armstrong, P., Boscoe, M., Clow, B., Grant, K., Pederson, A., & Willson, K. (2003). *Reading Romanow: The implications of the Final Report of the Commission on the Future of Health Care in Canada for women*. Toronto: Canadian Women's Health Network.
- Aronson, J. (1991). Dutiful daughters and undemanding mothers: Constraining images of giving and receiving care in middle and later life. In C. Baines, P. Evans, & S. Neysmith (Eds.), *Women's caring: Feminist perspectives on social welfare* (pp. 138–168). Toronto: McClelland & Stewart.
- Aronson, J. (1992). Women's sense of responsibility for the care of old people: "But who else is going to do it?" *Gender and Society*, 6(1), 175–194.
- Baines, C., Evans, P., & Neysmith, S. (Eds.). (1991). *Women's caring: Feminist perspectives on social welfare*. Toronto: McClelland & Stewart.
- Barnett, R., & Marshall, N. (1992). Worker and mother roles, spillover effects, and psychological distress. *Women and Health*, 18(2), 9–36.
- Benner, P., & Wrubel, J. (1989). *The primacy of caring: Stress and coping in health and illness*. Menlo Park, CA: Addison-Wesley.
- Brody, E., Kleban, M., Johnsen, P., Hoffman, C., & Schoonover, C. (1987). Work status and parent care: A comparison of four groups of women. *Gerontologist*, 27(2), 201–208.
- Canada's Association for the Fifty-Plus. (1999). Putting a face on home care: Executive summary. *CARP's report on home care in Canada 1999*. Toronto: Author.
- Chappell, N. (1993). Implications of shifting health care policy for caregiving in Canada. *Journal of Aging and Social Policy*, 5(1/2), 39–55.
- Chappell, N. (1999). Editorial: Canadian Association on Gerontology policy statement on home care in Canada. *Canadian Journal on Aging*, 18(3), i–iii.
- Clayton, G. M., Murray, J. P., Horner, S. D., & Greene, P. E. (1991). Connecting: A catalyst for caring. In P. L. Chinn (Ed.), *Anthology on caring* (pp. 155–168). New York: National League for Nursing Press.
- Denton, M. A., Zeytinoglu, I. O., Webb, S., & Lian, J. (1999). Occupational health issues among employees of home care agencies. *Canadian Journal on Aging*, 18(2), 154–181.
- Denzin, N., & Lincoln, Y. (Eds.). (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Fine, M. (1994). Distance and other stances: Negotiations of power inside feminist research. In A. Giltin (Ed.), *Power and method: Political activism and educational research* (pp. 13–35). London: Routledge.
- George, L., & Gwyther, L. (1986). Caregiver well-being: A multidimensional examination of family caregivers of demented adults. *Gerontologist*, 26, 253–259.
- Gottlieb, B. H., Kelloway, E. K., & Martin-Matthews, A. (1996). Predictors of work-family conflict, stress, and job satisfaction among nurses. *Canadian Journal of Nursing Research*, 28(2), 99–117.
- Greenhaus, J. H. (1989). The intersection of work and family roles: Individual, interpersonal, and organizational issues. In E. Goldsmith (Ed.), *Work and family*. Newbury Park, CA: Sage.

- Green-Hernandez, C. L. (1991). A phenomenological investigation of caring as a lived experience in nurses. In P. L. Chinn (Ed.), *Anthology on caring* (pp. 111–132). New York: National League for Nursing Press.
- Gregor, F. (1997). From women to women: Nurses, informal caregivers and the gender dimension of health care reform in Canada. *Health and Social Care in the Community*, 5(1), 30–36.
- Guberman, N., & Maheu, P. (1999). Combining employment and caregiving: An intricate juggling act. *Canadian Journal on Aging*, 18(1), 84–106.
- Hochschild, A. (1989). *The second shift: Working parents and the revolution at home*. New York: Viking.
- Hooyman, N. (1990). Women as caregivers for the elderly. In D. Biegel & A. Blum (Eds.), *Aging and caregiving* (pp. 221–241). Newbury Park, CA: Sage.
- Hooyman, N., & Gonyea, J. (1995). *Feminist perspectives on family care: Policies for gender justice*. Thousand Oaks, CA: Sage.
- Hugman, R. (1991). *Power in caring professions*. London: Macmillan.
- Jackson, A. (2003). *Is work working for women?* Research paper #22, Canadian Labour Congress. Retrieved July 12, 2003, from <http://www.clc-ctc.ca>
- Jutras, S. (1990). Caring for the elderly: The partnership issue. *Social Science and Medicine*, 31(9), 763–771.
- Keefe, J., & Fancey, P. (2002). Work and eldercare: Reciprocity between older mothers and their employed daughters. *Canadian Journal on Aging*, 21(2), 229–241.
- Kosny, A. (1999). *The social determinants of health: Equity across the lifespan*. Halifax: Maritime Centre of Excellence for Women's Health.
- Leininger, M. (1981). *Caring: An essential human need*. New York: Slack.
- Lofland, J., & Lofland, L. (1995). *Analyzing social settings: A guide to qualitative observation and analysis* (3rd ed.). Belmont, CA: Wadsworth.
- Long, B. C., & Kahn, S. E. (1993). *Women, work, and coping*. Montreal: McGill-Queen's University Press.
- Loscocco, K., & Rochelle, A. (1991). Influences on the quality of work and nonwork life: Two decades in review. *Journal of Vocational Behaviour*, 38, 182–261.
- MacDonald, J. (1998). Patterns of renewal in mothers who are nurses. *Canadian Nurse*, 94(19), 24–28.
- Marshall, N., Barnett, R., Baruch, G., & Pleck, J. (1990). Double jeopardy: The cost of caring at work and at home. In E. Abel & M. Nelson (Eds.), *Circles of care: Work and identity in women's lives* (pp. 266–277). Albany: State University of New York Press.
- McKeever, P. (1994). Between women: Nurses and family caregivers. *Canadian Journal of Nursing Research*, 26(4), 15–21.
- Medjuck, S., O'Brien, M., & Tozer, C. (1992). From private responsibility to public policy: Women and the cost of caregiving to elderly kin. *Atlantis*, 17(2), 44–58.
- Merton, R. K., Fiske, M., & Kendall, P. L. (1990). *The focus interview: A manual of problems and procedures* (2nd ed.). New York: Free Press.
- Miller, B. (1989). Adult children's perceptions of caregiver stress and satisfaction. *Journal of Applied Gerontology*, 8, 275–293.

- Morris, M. (2001). *Gender-sensitive home and community care and caregiving research: A synthesis paper*. Ottawa: Women's Health Bureau, Health Canada.
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 220–235). Thousand Oaks, CA: Sage.
- Neal, M. B., Chapman, N. J., Ingersoll-Dayton, B., & Emlen, A. C. (1993). *Balancing work and caregiving for children, adults, and elders*. Newbury Park, CA: Sage.
- Neysmith, S. (1991). From community care to a social model of care. In C. Baines, P. Evans, & S. Neysmith (Eds.), *Women's caring: Feminist perspectives on social welfare* (pp. 272–299). Toronto: McClelland & Stewart.
- Neysmith, S. (1995). Feminist methodologies: A consideration of principles and practice for research in gerontology. *Canadian Journal on Aging*, 14(1), 100–118.
- O'Connor, D. (1999). Living with a memory-impaired spouse: Recognizing the experience. *Canadian Journal on Aging*, 18(2), 211–235.
- Pascall, G. (1986). *Social policy: A feminist analysis*. New York: Tavistock.
- Pavalko, E., & Woodbury, S. (2000). Social roles as process: Caregiving careers and women's health. *Journal of Health and Social Behaviour*, 41, 91–105.
- Phillips, J., Bernard, M., & Chittenden, M. (2002). *Juggling work and care: The experiences of working carers of older adults*. Bristol: Polity Press.
- Richards, T. J., & Richards, L. (1994). Using computers in qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 445–462). Thousand Oaks, CA: Sage.
- Riessman, C. (1993). *Narrative analysis*. Newbury Park, CA: Sage.
- Ristock, J., & Pennel, J. (1996). *Community research as empowerment: Feminist links, post-modern interruptions*. Toronto: Oxford University Press.
- Ross, M. M., Rideout, E., & Carson, M. (1996). Nurses' work: Balancing personal and professional caregiving careers. *Canadian Journal of Nursing Research*, 26(4), 43–59.
- Rutman, D. (1996). Caregiving as women's work: Women's experiences of powerfulness and powerlessness as caregivers. *Qualitative Health Research*, 6(1), 90–111.
- Sandelowski, M. (1991). Telling stories: Narrative approaches in qualitative research. *Image: Journal of Nursing Scholarship*, 23(3), 161–166.
- Scharlarch, A., & Boyd, S. (1989). Caregiving and employment: Results of an employee survey. *Gerontologist*, 29, 382–387.
- Scharlarch, A. E., Sobel, E. L., & Roberts, R. E. L. (1991). Employment and caregiver strain: An integrative model. *Gerontologist*, 31(6), 778–787.
- Statistics Canada. (1996). *Nursing in Canada, 1995*. Catalogue 83-243. Ottawa: Minister of Industry.
- Statistics Canada. (1999). *Participation rates and unemployment rates by age and sex*. Ottawa: Author. Available: <http://www.statcan.ca/english/Pgdb/labour/23a.htm>
- Stone, R., & Short, P. (1991). The competing demands of employment and informal care to disabled elders. *Medical Care*, 28, 513–526.

- Ungerson, C. (1990). The language of care: Crossing the boundaries. In C. Ungerson (Ed.), *Gender and caring: Work and welfare in Britain and Scandinavia* (pp. 8–33). New York: Harvester.
- Waerness, N. (1984). Caring as women's work in the welfare state. In H. Holter (Ed.), *Patriarchy in a welfare state* (pp. 67–86). Oslo: Universitetsforlaget.
- Walby, S. (1994). Towards a theory of patriarchy. In *The polity reader in gender studies* (pp. 22–28). Cambridge: Blackwell.
- Walters, V., Beardwood, B., Eyles, J., & French, S. (1995). Paid and unpaid work roles of male and female nurses. In K. Messing, B. Neis, & L. Dumais (Eds.), *Invisible: Issues in women's occupational health* (pp. 125–149). New York: Gynergy.
- Walters, V., Lenton, R., French, S., Eyles, J., Mayr, J., & Newbold, B. (1996). Paid work, unpaid work and social support: A study of the health of male and female nurses. *Social Science and Medicine*, 43(11), 1627–1636.
- Watson, J. (1988). *Nursing: Human science and human care. A theory of nursing*. New York: National League for Nursing.

Author's Note

Comments or inquiries may be directed to Catherine Ward-Griffin, School of Nursing, Faculty of Health Sciences, University of Western Ontario, London, Ontario N6A 5C1 Canada. Telephone: 519-661-2111, ext. 86584. Fax: 519-661-3928. E-mail: cwg@uwo.ca

Catherine Ward-Griffin, RN, PhD, is Associate Professor, Faculty of Health Sciences, University of Western Ontario, London, Ontario, Canada.

Designer's Corner

Conceiving Action, Tracking Practice, and Locating Expertise for Health Promotion Research

Jane Drummond

Background

Health promotion is the process of enabling persons, families, neighbourhoods, communities, sectors, and societies to take action around the development and implementation of health determinants. The goal is to put health determinants in the control of individuals through programming that enhances health promotion action at many levels. The following actions are health promotional: building healthy public policy, reorienting health services, strengthening community action, creating supportive environments, and developing personal skills. A health promotion program that is based on the following principles has a good likelihood of succeeding: comprehensive cross-action programming that contextualizes efforts; participation by all stakeholders in all stages of development, implementation, and evaluation; and capacity building that includes advocacy, enabling, and mediating approaches (Stewart, 1999; Wass, 2000). In order to contribute to the health of Canadians, health promotion programming and research must take into account these actions and principles and the relationship among them.

The evaluation of health promotion programming is based on several factors. First, the model selected must facilitate the conceptualization and implementation of both health promotion action, at all levels, and health promotion principles. Second, the practices associated with health promotion must be documented rigorously at all levels of action. Third, effective means of measuring the desired outcome — enhanced control over the determinants of health — must be developed and used.

Conceptualizing Health Promotion Action

Health promotion action takes place in many ways and in many systems. For this reason the practices associated with health promotion action and

outcomes are difficult to apprehend and describe. The task is made all the more challenging by the dearth of simple but comprehensive models that capture the complexity of health promotion actions and principles. In my research program, the individuals whose health promotion is of most concern are children, and the health promotion outcome or health determinant of most interest is healthy child development.

The model that best illustrates the complex transactional nature of the supports required for healthy child development is Bronfenbrenner's (1979) ecological systems model of child development. I will use this model to offer a practical description of health promotion action and the research required to document the effects of programming on health promotion practices at various levels. The model consists of a series of nested circles that represent various influences on society's ability to put the determinants of health under the control of children and their families. Each layer has a direct influence on the health promotion action of the system immediately adjacent to it and an indirect influence, through that adjacent system, on the actions of all other systems. Table 1 summarizes the subsystems of the ecological model of child development and catalogues the health promotion action predominant in that subsystem.

Clearly, health promotion action occurs in all subsystems and health promotion researchers need to have more than one focus. For instance,

Table 1 Ecological Model of Human Development and Associated Health Promotion Actions	
Ecological Systems Model / Brief description	Health Promotion Action
<i>Microsystem</i> The individual and her immediate setting (family, school, workplace, neighbourhood, etc.)	Developing personal skill Creating supportive environments
<i>Mesosystem</i> Relations among the various immediate settings of the individual	Strengthening community action
<i>Exosystem</i> Relations among structures/sectors/ services and policies	Reorienting health services Building healthy public policy
<i>Macrosystem</i> Societal values	Committing to put the determinants of health under the control of individuals

the primary focus of my research is the microsystem in which child behaviours that lead to healthy developmental outcomes are encouraged within the family environment. The interventions tested in my work are intended to enhance family support for appropriate intellectual, social, and psycho-motor development. My secondary research focus then becomes the mesosystem and perhaps the exosystem. For this reason I am interested in describing how the development and implementation of health promotion programming for children and their families influence, and are influenced by, the relationships within and among other systems such as the school, the workplace, and the social and health sectors. The reverse emphasis is equally suited to health promotion research. In this case the primary focus would be the health promotion programming used to bring about community action and reorient the health system, and the secondary focus would be the effects of that programming on child and family access to the determinants of health.

Tracking Practices Supportive of Action

My colleagues and I (Drummond, Kysela, & Weir, 2002) recently carried out a systematic review of programs that used home visitation to directly enhance the health promotion actions of children and their families, my primary research focus. Home visiting is purported to be health promotional because it embodies the principles of partnering (with parents and between parents and service providers in the community) and uses advocacy, enabling, and mediation to put healthy child development in the control of the child and family. We examined 14 evaluations of nine programs for young at-risk families using four criteria: components of the program, home visiting practices, outcomes of the program, and reliability of the evaluation.

Our analyses showed that progress is being made relative to an earlier systematic review of home visiting practices (Ciliska, et al., 1996) but that there is still room for improvement. First, home visiting programs are beginning to use theoretical models of child development in the design and planning of service delivery. However, the models being used lack sufficient specificity in the areas of early and intermediate developmental mediators of the targeted outcomes. Each model should allow for complex risk conditions and adaptation processes. More complex models would also support the measurement of short-, intermediate-, and long-term positive effects, which were largely ignored in the evaluations reviewed. Second, home visiting practices, including the what, where, with whom, and how of home visiting, were not described. In addition, there was virtually no description of practices supportive of home visit-

ing, including hiring, training, supervision, and retention. The effect of home visiting initiated within the child and family subsystem on community action, on the orientation of health services, and on healthy public policy was completely ignored. Third, measures used to assess child development in healthy children were not sensitive to the short-term developmental gains of the children in the programs. Therefore, there is a need for measures of short- and medium-term mediators of healthy child development, which is the health determinant of interest.

The findings of this review of home visiting programs illustrate the challenges facing health promotion research. Within the primary research focus there was incomplete description of practices and outcomes associated with healthy child development and the supportive family environments linked to that health determinant. The secondary research focus, the effects of home visiting programming on other health promotion levels, namely community action and reorienting of health services, was non-existent. Finally, measurement of child development and the mediators/moderators of this health determinant either were not sensitive to improvement or were not used. This problem is likely rooted in the lack of detail in the models used to conceive of the home visiting programs from the beginning.

Locating the Research Expertise

Nurses are well positioned in each of the ecological subsystems to promote the range of health promotion actions that influence control over healthy child development. Health promotion programming and its accompanying practices arise from and are influenced by all of the subsystems or action layers. The task of describing these influences is beyond the expertise of any one nurse researcher. However, a team of nurse researchers, each with methodological expertise in a given area, can meet the challenges associated with documenting the effect of programming on levels of health promotion action and on control over the determinants of health.

Summary

Table 2 details the research challenges and methodological solutions associated with health promotion programming. The health promotion actions associated with the microsystem (child development and family support), the mesosystem (strengthening of community action), and the exosystem (reorientation of health services) are used to categorize the challenges of health promotion research. Methods for examining home visitation programming are outlined.

Table 2 *Health Promotion Challenges and Methodological Solutions Associated with Research into Home Visitation Programming*

Research Focus / Challenge	Methodological Solutions
<i>Developing healthy child development by creating supportive family environments</i>	
Sufficiently dense model of child development	Document review: linkages between program model and selection of specific home visiting practices and targeted outcomes and mediators/moderators of child development
Description of home visiting practice	Dose calculations (intensity and titration): number and duration of visits Document review: intervention manuals and protocols Participant observation of provider-family interactions Chart audits
Description of practices that support home visiting	Document review: training schedules, supervision model, human resources practices, engagement and retention approaches, case management Participant observation of training and supervision Focus groups/interviews with providers, supervisors, management
Effect on healthy child development	Pre-test/post-test design: using measures that capture short-, medium-, and long-term mediators, moderators, and outcomes associated with healthy child development Retention analysis: using key demographics to compare those who decline to participate, those who participate fully, and those who drop out
<i>Strengthening community action and reorienting health services</i>	
Appropriate service delivery model	Institutional ethnography
Description of practices that support community action and the reorientation of health services	Grounded theory Participatory action

References

- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Ciliska, D., Hayward, S., Thomas, H., Mitchell, A., Dobbins, M., Underwood, J., et al. (1996). A systematic overview of the effectiveness of home visiting as a delivery strategy for public health nursing interventions. *Canadian Journal of Public Health, 87*(3), 193–198.
- Drummond, J., Kysela, G. M., & Weir, A. (2002). Home visitation programs for at-risk young families: A systematic literature review. *Canadian Journal of Public Health, 93*(2), 153–158.
- Stewart, M. J. (1999). *Community nursing: Promoting Canadians' health*. Toronto: W. B. Saunders.
- Wass, A. (2000). *Promoting health: The primary health care approach*. Toronto: Harcourt.

Jane Drummond, PhD, is Professor and Leader of the Child and Family Resilience Research Program, Faculty of Nursing, University of Alberta, Edmonton, Canada.

Résumé

Le traitement des plaintes contre les infirmières, une approche éducative axée sur le consommateur

Barbara A. Beardwood et Susan E. French

Dans cette étude, on s'est fondé sur une méthode d'évaluation participative pour établir l'efficacité des médiations entreprises par l'Ordre des infirmières et infirmiers de l'Ontario. À l'aide de méthodes qualitatives, on a passé en revue 34 cas traités entre 1994 et 1998; sur ce nombre, 23 ont été couronnées de succès et 11 se sont soldées par un échec. Dans le but d'établir des comparaisons, les chercheuses ont mis au point un modèle d'entrevue après avoir consulté le personnel de l'Ordre et les documents, tout en tenant compte de la philosophie de l'association et des attentes à l'égard du processus. On a mené des entrevues semi-structurées auprès de 44 participants à la démarche de médiation. De plus, on a tenu des groupes de discussion réunissant des enquêteurs et des conseillers en matière de pratique. On a analysé les données résultantes à la lumière du modèle et dégagé certains thèmes : il s'agit d'une démarche angoissante pour toutes les parties, mais qui joue un rôle éducatif et sert à traiter les plaintes, atteignant ainsi les objectifs visés. On a en outre constaté que l'Ordre était impuissant à exiger une réforme des systèmes de santé et dépendait de la coopération de chacun des établissements.

Mots clés : plaintes, médiation, éducation, infirmières

Mediating Complaints Against Nurses: A Consumer-Oriented Educational Approach

Barbara A. Beardwood and Susan E. French

A participatory evaluative method was used to assess the effectiveness of mediation as carried out by the College of Nurses of Ontario. Qualitative methods were used to examine 34 cases between 1994 and 1998, of which 23 had been successful and 11 aborted. For purposes of comparison, the researchers developed a template of interviews with College personnel and documents, incorporating the College's philosophy and expectations of the process. Semi-structured interviews were conducted with 44 participants in the mediation process. In addition, focus group sessions were held with Investigators and Practice Consultants. The data were analyzed using the template and themes were generated. The process was found to be stressful for all parties but was also found to be educational, to address system complaints, and to achieve initial goals. The College was found to be powerless to demand system reforms and to be dependent on the cooperation of each facility.

Keywords: complaints, mediation, education, nurses, complainants

In Canada, health-care professionals are regulated through provincial professional colleges or associations, the organization of which varies by province. In the province of Ontario, patients with a grievance against a nurse can file a complaint with the facility or with the College of Nurses of Ontario (CNO) or, alternatively, can pursue the matter in the courts. Failure to achieve satisfaction at the facility may result in the complainant seeking other avenues, although few grievances become malpractice suits and only a minority result in formal complaints (Farber & White, 1994; Mulcahy & Tritter, 1998).

In 1991 a new administrative regime for the regulation of the health professions was instituted with the *Regulated Health Professions Act, Ontario* (RHPA). The RHPA requires that each college have 40% public representation on all its committees, that its Discipline Committee be open to the public, and that the proceedings of the Discipline Committee be published in the College's annual report or another of its publications. Decisions taken by the Discipline Committee can be appealed to the Superior Court of Justice. Complaint proceedings can continue in private, with decisions based on the written evidence. Decisions can be appealed, by the complainant or by the registrant, to the Health Professions Appeal and Review Board, which is composed of lay representatives.

In Ontario, as in other jurisdictions, complaints against nurses are few. CNO annual reports for the years 1983 to 2001 indicate that while the number of complaints escalated between 1983 and 1993, it remained relatively constant in the 1990s, at approximately 0.26% of all registrants. However, in 1999 this figure increased to 0.41%, which may reflect either recent restructuring or increased public awareness of the complaint system. Also, the primary source of complaints has changed from the employer to the public. In 1983, 9% ($n = 21$) of complaints were initiated by members of the public, whereas in 1993 the figure was 78% ($n = 274$). The situation is changing, however, as reports of termination (mandatory under the legislation) have increased, so that, in 2001, 67% of all complaints ($n = 605$) were from the public and 24% were from employers (College of Nurses of Ontario [CNO], 1983–2001).

Under the RHPA, all complaints must be investigated and disposed of by the Complaints Committee. The Complaints Committee can refer a complaint to the Discipline Committee or to the Executive Committee; require the member to appear before it; take no further action; issue a reminder, oral caution, letter of caution, or advice; or order the registrant to undertake certain remedial steps. Cases dealt with at this level are not publicized, but a record of the complaint and the action taken is placed in the member's file. Cases referred to the Discipline Committee are serious and/or a breach of nursing practice or conduct with *prima facie* evidence of misconduct, and are reported in the College's *Communiqué*. These cases are few in number, representing approximately 3.5% of all complaints between 1993 and 1997, 6.7% in 1999, 9% in 2000, and 6% in 2001 (CNO, 1983–2001).

In 1994 the CNO introduced the Participative Resolution Program (PRP) for less serious complaints at the intake point of the disciplinary process. The College controls the process. It chooses cases suitable for the PRP, a College representative acts as the facilitator, and the Complaints Committee must approve the agreement before it becomes binding. Specific goals are to rectify a situation, prevent its recurrence, and avoid assigning blame as in the formal proceedings. The process is flexible and usually takes the form of shuttle diplomacy rather than face-to-face meetings. If an agreement is reached, the formal letter of complaint is withdrawn and the member's file contains no record. If the parties withdraw from the process or an agreement cannot be reached, the complaint proceeds through the formal complaint process.

CNO staff use specific criteria for selecting complaints. There must be some substance to the concerns as well as a reasonable prospect of resolving the complaint consistent with the public interest and within an acceptable period. Also, staff must have screened the complaint according to the type and mitigating or aggravating circumstances. A complaint is

rejected if it can potentially be referred to the Discipline Committee or if it is “not serious” or has mitigating circumstances.

To ascertain whether the PRP was meeting the College's overall objectives of protecting the public's right to quality nursing services and improving nursing practice, the CNO commissioned a study of the program. The specific objectives of the study were to assess the perceived impact of the PRP on complainants, members, the CNO, and other parties such as lawyers and facility representatives; to determine whether the results improved nursing practice; and to assess the extent to which the parties involved understood the process and were satisfied with it. Additional objectives were to assess whether the process should be expanded or modified and to suggest possible changes.

Background

In today's health-care systems, the interpretive structures and values of professionals and their organizations are being challenged (Freidson, 2001). One challenge confronting systems is the contradiction between the goals of the employing institution, such as rationalism and efficiency, and the goals of the profession, such as maintaining professional standards and codes of conduct. Another is the increased demands made by clients that professionals be more accountable and that their organizations be more responsive to their concerns.

Possibly more than other health professionals, nurses are experiencing pressures that can encourage attitudes and actions that conflict with their professional ethics. They face increasing employer demands, client expectations, and demands by their professional organizations that they meet more rigorous standards — all within a context of resource and personnel shortages and an ideology of heightened efficiency. Failure to meet client expectations or professional standards can result in a complaint against one nurse or several, in which case the nurse or nurses enter the disciplinary process.

Most disciplinary systems follow a prosecutory/disciplinary model in which the individual practice of the health practitioner is assessed to determine whether professional standards have been breached. Preliminary assessments are conducted in private and proof of a breach of standards of practice and professional misconduct is required, so that only clear-cut cases are addressed. The onus is on the individual (who is punished if found guilty); no action is taken against the organization (Allsop & Mulcahy, 1996, p. 179). This disciplinary process is reactive — geared to searching out the “bad apple” to protect the profession — and is based on the assumption that individual professionals can control their practice. It cannot address cases in which there is no clear evidence that a

breach has taken place, though complainants who are dissatisfied may appeal. Neither does it address any problems inherent in the work situation, so that an incident that is system-based may recur with another nurse.

The prosecutory/disciplinary model may be appropriate when professionals have control over their working conditions or when they are able to influence policy, managerial practices, and the allocation of resources. It is inappropriate when there is a shortage of resources or personnel or when organizational goals conflict with professional goals. In these circumstances, while a complaint is a symptom of inadequate nursing care, punishment may not rectify the situation and the incident may be repeated with another nurse, especially under conditions of downsizing and re-engineering. Moreover, disciplinary decisions must be based on evidence of professional misconduct, incompetence, or incapacity, which may be vague and difficult to prove. This requirement means that the origins of less serious complaints are not addressed. The 1990s saw an increase in "take no action" decisions by the CNO Complaints Committee, which implies that many complaints were not proven or were deemed not serious.

In today's climate a consumer-oriented/learning type of regulation may be a more appropriate way to address complaints. In this model the complaint system has two goals: to satisfy the complainant and to use the complaint to improve the quality of the organization's services. Responsibility lies not with the individual but with the team or group, and complaints are viewed as a form of consumer feedback — an opportunity to improve practice and prevent a recurrence (Allsop & Mulcahy, 1996).

In the early 1990s the CNO became aware of considerable dissatisfaction with its disciplinary process, as the number of appeals to the Health Professions Board was increasing. There were 33 appeals in 1990, 63 in 1991 (excluding a matter involving 106 registrants), 67 in 1992, 56 in 1993, and then 150 in 1994. Also, it was questionable whether the goal of improving nursing practice was being met, because many complaints were resulting in a "take no action" decision, possibly because the complaint could not be substantiated. In 1993, for example, 61% of Complaint Committee decisions were "take no action." To address these issues, the CNO introduced elements of the consumer-oriented/learning model into the disciplinary process through the PRP, thereby adopting both a prosecutory/disciplinary model and a consumer-oriented/learning model. This represented a leap into unknown territory.

The literature on alternative dispute resolution (ADR) in health care is limited and rarely focuses on nurses. Authors do not examine whether ADR is an effective method for improving professional practice, satisfying the complainant, or preventing a recurrence. Most of the literature

originates in the United States and focuses on whether ADR is a suitable method for avoiding malpractice suits against physicians. It considers whether ADR should be mandatory before litigation proceeds, whether screening for mediation is useful, and why ADR has not been embraced as a malpractice reform (Kinney, 1995; Meschievitz, 1991; Metzloff, Peeples, & Harris, 1997). Less frequently discussed is the use of ADR in response to complaints, although Farber and White (1994) report on a case study in a US hospital and Feld (1995) describes the use of ADR prior to the establishment of the College of Physicians and Surgeons of Ontario's Discipline Committee.

The literature on complaints explores why patients complain or fail to complain and the effects of complaints or malpractice suits on the practice of doctors, nurses, and midwives (Allsop & Mulcahy, 1998; Annandale, 1996; Ennis & Vincent, 1994; Fielding, 1999; Mulcahy & Tritter, 1998). Some authors discuss the relationship between societal influences and systems of regulation and complaints, and suggest that state and societal pressures have forced the medical profession to accept a higher degree of accountability (Salter, 1999). The increase in malpractice claims is related to systemic changes (Fielding, 1999), and the increase in complaints against nurses in Ontario is related to the restructuring of the health-care system combined with increased consumerism (Beardwood, Walters, Eyles, & French, 1999). The literature does not consider whether changes in health systems require a different approach to handling complaints.

The present study addresses this gap. It examines whether the consumer-oriented/learning model can be used alongside the prosecutory/disciplinary model and whether it is a more suitable model for addressing some complaints in the context of downsizing and re-engineering, where managerial goals often supersede professional goals. Furthermore, the study explores whether the consumer-oriented/learning model increases the satisfaction of participants and contributes to improved nursing practice.

Methods

The CNO commissioned a study to examine the PRP from 1994 to 1998. This was a participatory evaluative case study using a parallel process model (Petras & Porpora, 1993). It can be described as action research in that it was context-specific and employed a critical and collaborative approach to investigating a process with the objective of improving it (Bowling, 1997). The methods and the final report were the result of collaboration between the PRP Steering Committee and the research team, which involved meetings to formulate the research objec-

tives, specific tasks, proposed design, and methodologies; to discuss the response rates to the initial contact; and to review the progress of the research.

These meetings resulted in several changes to the methods employed. The researchers' initial suggestion of a mailed survey of all participants followed by interviews with 15 selected respondents was dropped in favour of in-depth telephone interviews with as many respondents as possible. Comparison with the formal complaint system was also discarded; resources dictated that comparison would mean limiting the number of respondents interviewed, and it was felt that soliciting a broad spectrum of opinions was essential.

A participatory approach was maintained throughout the project. It included a meeting at which the initial findings were shared with the Steering Committee and representatives of the CNO's Quality Assurance, External Relations, and Professional Practice departments. At this meeting as well, gaps in information and the parts of the report that should be emphasized were identified and potential recommendations were discussed. In addition, the draft report was submitted for feedback to the College. Following submission of the final report, a workshop was held to review its substance and its recommendations, as well as to identify issues and make recommendations to the Complaints Committee, Executive Committee, and Council. This workshop was attended by members of the PRP Steering Committee; members of the Investigation and Hearings, Professional Practice, External Relations, Quality Assurance, and Research departments; and the research team. The findings were presented and workshop participants formed small groups in order to formulate feedback.

As comparison with the formal procedure had been discarded, a template was developed against which to compare the findings. In developing the template, the researchers reviewed the CNO's written materials, interviewed the Director and the Manager of the Investigations and Hearings Department, and conducted a focus group with the Complaints Committee. The object was to identify the PRP's philosophy, expectations with regard to process and outcomes, the decision-making process with respect to referral and participation, and the experience with the PRP and outcomes.

The final template comprised five goals: (1) to develop a humanistic process as opposed to the impersonal bureaucratic process of the Complaints Committee, and ultimately to improve relations between the public and the nursing profession; (2) to educate complainants about the profession and to help them realize that outcomes can be achieved in different ways; (3) to involve members in the process and to serve the membership by refraining from assigning blame, encouraging reflective

practice, improving access to the College's professional practice resources, and enhancing nursing practice by emphasizing learning as opposed to punishment; (4) to deflect attention away from individual nurses and towards departments and facilities, with the aim of addressing systemic problems through policy changes, educational in-services, and conferences; and (5) to increase the satisfaction of complainants, members, and the College with regard to outcomes.

The study began with focus group sessions attended by the PRP's Investigators — or facilitators — and Practice Consultants, who often have to facilitate the agreements. These sessions, which were audiotaped, took place on the College's premises and lasted from 60 to 80 minutes. The participants discussed their experiences with the PRP, their opinions about the process, and the future of the PRP. Questions posed included the following: What were the aspects that made a PRP case successful or unsuccessful? Did the involvement of legal counsel or the union make a difference to the process? Can common elements in the PRP cases be discerned?

Of the 34 cases handled by the PRP between 1994 and 1998, 23 had been successful in that the complaint was withdrawn and 11 had been aborted and entered the formal complaint process. Each case involved three parties: the member, the complainant, and the CNO. In some cases the employer had participated and the member was represented by legal counsel. Letters were sent to all parties (106 in total, excluding Investigators) involved in the 34 cases, inviting them to participate in the study. Of the 68 people (64%) who responded, 54 were contacted and 52 agreed to be interviewed; 8 of the 52, however, were unavailable at the time scheduled for the interview.

In depth semi-structured interviews with mostly open-ended but some closed questions were conducted with a final sample of 44 people: 18 registrants, 15 complainants, 6 facility representatives, and 5 legal counsellors. Interview guides for each category were developed by drawing on the research questions and the literature on complaints. These were pretested on members of the College not employed by the CNO.

The same interviewer conducted telephone interviews at a time convenient for the respondent. Interviews with members ranged from 56 to 139 minutes in length with a mean of 87 minutes. Interviews with complainants ranged from 43 to 133 minutes with a mean of 92.3. Interviews with facility representatives and legal counsellors were shorter, the former ranging from 28 to 49 minutes with a mean of 38.2 and the latter from 15 to 62 minutes with a mean of 32.4. The interviews were audiotaped with the exception of four of the five defence counsel interviews. All interviews were coded and the master list with contact information was stored in a secure place accessible only to the principal investigator and

the interviewer. The CNO confidential data did not leave the College's premises.

Data were collected on participants' experience with the instrumental and affective aspects of the PRP. All interviewees were asked about their decision to participate, their expectations, their degree of satisfaction, the outcomes, the impact, prior experience with ADR, the nature of the complaint and the resolutions, and ways in which the process might be improved.

Members were asked their main reason for participating in the PRP. Other questions posed specifically to members included: What was your reaction to the notification that a complaint had been made? Would you please describe the process? Would you recommend the PRP to other nurses who had a complaint lodged against them? Has participating in the PRP changed your feelings about nursing or the way nursing and nursing practice are regulated?

Complainants were asked such questions as: What did you hope would happen as a result of the complaint? What was your first reaction when you heard about the PRP? Given your experience, how would you rate your overall satisfaction with the outcome? Would you recommend the PRP to others who have a complaint against a nurse? Has participating in the PRP changed your feelings about nursing or the way nursing and nursing practice are regulated?

Questions posed to facility representatives focused on the strengths and weaknesses of the process, ways in which it might be improved, and how they would compare it with the formal complaint process. They were asked if the experience had affected their perspective of nursing, the College, and the way things are done in their organization, and how they would react to complaints in the future. Additionally, they were asked whether there were problems with resources and whether there was potential for long-term change.

Legal counsellors were asked what they saw as the role of lawyers in the PRP and were asked to describe their experience with the process.

The researchers assessed the information collected during the interviews and the focus group sessions against the template by analyzing it on the basis of the research questions and by developing categories or themes. As noted above, the findings were discussed with representatives of the College and recommendations were drawn up.

Findings

The 34 complaints handled by the PRP were categorized as follows: "nursing practice—nursing care" (36%) (the majority of these cases concerned the nurses' assessment of patients); "unprofessional conduct—

other” (rude behaviour, denying the complainant access to his or her health record, inappropriate comments, inappropriate behaviour, breaching trust in nurse–patient relationship, and taking no action) (18%); “unprofessional conduct–poor communication skills” (16%); “nursing practice–inadequate documentation” (10%); and “other” (behaviour or remarks of a sexual nature, verbal abuse, breach of confidentiality, breach of therapeutic boundaries, and medication errors) (20%). The distribution is comparable to the distribution of complaints addressed in the regular process.

One of the goals of the College was to humanize the PRP process and ultimately improve relations between the public and the profession. This goal was found to have been met to a certain extent, though at some cost to the parties concerned.

Costs to Nurses

All members portrayed the lodging of a complaint as having an immediate and devastating impact on their feelings about nursing and their confidence in their professional skills. They found the process stressful. Members confessed to being “angry,” “bitter,” “frustrated,” “anxious,” “worried,” and “concerned.” They were upset about the fact that the complaint had not been resolved at the facility and unhappy because they were forced to “second guess” and “question” their practice. One member believed that 15 years of nursing had been thrown away and was thinking of leaving the profession. Another described lying awake at night and going over the case again and again. Another said:

We were just angry, frustrated. It was nerve-racking. My family suffered. Mentally, it was exhausting. I could probably go through the whole alphabet and describe my feelings and what it did to us. I still feel that way.

Facility representatives expressed concern about the nurses' work during the process, commenting that they were “unstable,” “stressed out constantly,” and possibly incapable of “efficient and effective and safe practice.” One facility representative stated: “I wonder about their ability...because most of them are absolutely destroyed.”

One source of stress for members was fear that the complainant would abort the process. They waited for the final letter from the Complaints Committee, fearing the complainant would renege on the agreement and force the nurse to endure the formal process anyway, thus wasting endless time and emotional resources. For months one nurse “sat on pins and needles knowing that she [the complainant] could revoke going this route at any time, and I would sit in front of this panel down the road.”

Members suggested that their stress was compounded by a lack of support. They recalled being told not to speak to anyone involved in the incident, which reinforced their feelings of isolation. One member commented: "I don't know about the other nurse [but] I felt quite alone." Others were too embarrassed or ashamed to share the experience with colleagues, friends, or family members. One said, "This is something obviously that you really don't speak to other people about." Another refrained from sharing it with colleagues because work was "my only safe place, because it was the only place I didn't talk about it...it was important that I be happy at work." Still others were employed in organizations administered by non-nurses who failed to understand the implications of a complaint. One nurse stated: "What really upset me was that my immediate manager and her director thought this was a minor thing. They didn't give me the support I needed...shrugging it off as nothing, absolutely nothing." Even when support was forthcoming the nurses found the process stressful. One lawyer commented that her clients were sensitive to the amount of time their supervisor would be giving and that she would be entering into an agreement that would bind her and the hospital in the future.

Members also considered the College to be biased in favour of the complainant. One member described the process as "all very one-sided...they only look at what the complainant has said." Another said, "I still felt that my side wasn't believed, and that's really important when you're telling the truth." They also expressed the opinion that the College bureaucracy did not understand the reality of nursing practice in today's health-care environment and that the College's requirements were unrealistic:

A lot of the policies and standards that they send out — I'm really of the opinion that they do not have a clue what the hell is going on in the workplace. It seems as if you've got a person who sits up there with a PhD who has completely forgotten what got her there and has set up a lot of ideology that is absolutely impractical.

As a result of the complaint and the College's treatment of it, some nurses had lost their self-esteem, questioning their decision to enter nursing. Some took up casual employment or considered early retirement. They were cautious and defensive in their work and expressed feelings of vulnerability.

Costs to Clients

The complainants also found the process stressful. They described it as emotionally draining and were reluctant to recall the incident. One com-

plainant stated that the case involved “emotional turmoil and turning it over in your head at 3 o'clock in the morning.” Another felt that it would have been easier to let someone else decide than be personally involved. Those who were involved in face-to-face meetings with the member found the process even more stressful. One said that during the meeting “I was shaking; I had tremors.”

Some complainants admitted that they found it difficult to abandon their punitive goals and had to be counselled by the Investigators that these goals were unattainable in the informal and formal system. One complainant described the Investigator's role:

She explained what would happen and told me in her honest opinion that basically if I did go the complaint route...probably nothing would happen. I discussed it with her and she said, “If you're looking for her to get fired, it's not going to happen.”

Complainants who were health professionals considered the PRP too daunting for a lay person, explaining that they had the advantage of a knowledge base and understood the requirements of professional practice: “I think that it would be hard for someone who was not nursing or medically oriented to really know what to say and what to ask for.”

A few complainants believed that they had opened up their emotions but this effort was not reciprocated by the nurse, and that the letter of apology was unsatisfactory because it was guarded and constructed with legal help. Others wanted a different outcome, such as the firing of the nurse or a policy change, while some believed that the Investigator was biased. Several of these complainants abandoned the PRP and entered the formal process. The decisions were unanimously “take no action,” with the result that the complainant felt that the process had continued “the abuse” by favouring the nurse. These complainants felt scorned by the College.

Achievement of Goals for Members

Members' involvement in the process varied, with those who had lawyers being the least involved. Some could not even remember what had transpired. Their participation was mediated by their lawyers, who would advise caution and ensure that there was limited contact, either because they believed the Investigators would be intimidating or because they had seen nurses “burned” by the College.

Even among nurses who were considerably involved in their cases, few had face-to-face meetings. There are indications that many were encouraged to reflect on their practice in order to identify areas for improvement and growth. One facility representative put it this way:

I think it was excellent. I mean, it truly allowed reflective practice... It's exactly what we're all about.... I think it's integrating the whole professional practice model into care. And it's so much more positive than the complaints and disciplinary process... In a sense, it begins a modelling of behaviours that can be used again and again in a team relationship.

Several nurses and one facility representative commented that the PRP process had reminded them of the importance of accurate charting. One member admitted that the experience was “an eye opener,” making her realize “how vulnerable we really are in nursing, how it's so important to document.” Another advised her colleagues: “Watch yourself all the time.... If I hadn't charted the way I charted, they would've hung me.” Others also stated that the process had taught them to be more careful about keeping records and communicating with patients and families.

Some members had changed their perception of the College and now regarded it as a source of help, instruction, and mentoring. These nurses had also used the Professional Practice resources and had been provided with tools to help them avoid repeating their mistake. For example, after a session with the Practice Consultant, one member had learned appropriate ways to complain about her superiors, another had learned alternative options, and another had been instructed in how to avoid the incident in question; a further member said she now viewed the College as a resource.

One positive outcome of the PRP process was the CNO goal of improved education. Members stated that the PRP had created a learning opportunity for them. The CNO Practice Consultants offered education sessions, reflective practice, and consultation. Educational pursuits taken up by members independently included reading specific documents, taking refresher courses with an expert in the field, completing specific educational programs, preparing and providing an in-service session, and preparing a document that could be used in-service. For some, even writing a letter of apology was a learning experience:

It was therapeutic... It helped me formulate in my mind and put down in writing how I felt about it...so it was a good exercise for me... It's been a learning experience for sure in lots of ways. We're never too old to say, “Oh, I hadn't thought of it that way.” Just the whole process has been a learning experience. It's self-evaluations, looking at the way I do things. You think, “If I'd done this differently...” ...I think that it has taught me to pick up cues, to work with people. I think if I were to come up against someone, I would be more open and say: “We're having a problem here. Can we talk about it?”

Not all outcomes were those desired by the College. Some members felt blamed and victimized by the process. Instead of viewing the College as a resource, they felt betrayed and abandoned by it:

All I felt was that the College should be representing us. They are our governing body. Why are they not representing us? And then when they turned around and...said, "Well, it's to protect the public" — well, who's protecting us as nurses? We just felt really devastated. Who do we turn to? We didn't have a union.

Some nurses were still bitter about the College's role:

I'm probably going to retire in the next few months. It's left me quite bitter. I've only just been able to put it behind me. I feel that I have given a lot of my life to this profession, and then some ridiculous little thing is in my back pocket all the time. Any time someone can do that, and the College is going to support that, I don't want to do that any more.

Others practised defensive nursing and approached every client as a "potential complainer." Alternatively, they and their colleagues avoided conflict, upsetting patients, or assisting others:

It affects everyone you work with because everyone is looking out for themselves now instead of for each other, because it could happen so quickly and we're absolutely on our own. There's no "I'll help you." In fact you get comments like, "My name's not on that chart." You're basically on your own, and there's no support from the College and you're basically afraid. Everyone's afraid.

Achievement of Goals for Complainants

The majority of complainants viewed the College's role as regulating nursing in the public interest, but some had expanded the role to include continuous improvement in nursing practice so that learning was an alternative to punishment. Interestingly, complainants who were health professionals found the process enlightening as it served to make them aware of the College and assured them that there was indeed a process. Furthermore, it helped them to improve their own practice, to communicate more effectively, and to look at both sides.

When asked if they would participate in the PRP again, 21 of the 23 complainants in successful PRPs said they would. The other two did not know which option they would choose. One complainant expressed satisfaction because the alternatives would not have achieved real change:

I think it is a good process... If I had gone the legal route or the disciplinary route...subjectively I would have had satisfaction [but] objectively it

would not have accomplished anything and it probably would have made the situation worse. It probably would have made the two nurses even more bitter and jaded — the administration might even have fired them. They probably wouldn't have changed their policies anyway. It would have been just "two bad apples, out you go."

Achievement of Goals for the Workplace

The PRP resulted in some workplace changes. Managers stated that they had learned how to prevent the lodging of a formal complaint and had become more aware of the College's requirements. One employer demonstrated greater understanding of nursing standards and the conflicting responsibilities of the member. The member said: "I can pretty well say... 'I think that this compromises me or my relationship; I don't think I should be there,' and they'll listen to that."

The agreements with facilities resulted in changes that would not have otherwise occurred. One facility representative admitted that certain initiatives would not have been taken without a formal agreement with the College. The CNO provided education and counselling sessions for staff. Additionally, by consulting with the complainant, members, and the facility's representatives, the CNO Practice Consultant helped facilities to develop an education session and a document to be used by the facility's Education Department. Facility representatives viewed these actions as favourable. They believed the PRP fostered learning that was not limited to the member and that involved not just nurses but the multi-disciplinary team. They also stated that it met the needs of all parties while providing support for the member. One facility noted that the PRP resulted in the institution's accepting some accountability for the circumstances under which nurses work:

The hospital has to [accept] accountability because [many] of the complaints occur [in the] context of a tough environment to deliver care. So who's at fault? Is it the professionals? Is it the system? Or is it both? It comes...down to sometimes the individual can only be the weakest part of the system.

Other facility representatives were unsure whether the process would have long-term effects. Some complainants shared this uncertainty, believing that while outcomes for the College were positive, those regarding the facility were unclear. They questioned whether the agreement would affect the nurse's practice — "It's very difficult to change people's attitudes, and I don't know that I am convinced the PRP will do that, unless there is a concerted effort [by] the facility to monitor that on an ongoing basis" — or the system — "There's no guarantee that it's

going to change the system... That's the whole point. You just have an opportunity to try to change the system, but whether you do or not as a complainant you never know.”

Satisfaction

There are indications that the PRP has reduced the number of appeals to the Health Professions Appeal and Review Board, which may be construed as satisfaction with the process. There were 150 appeals in 1994, the year the PRP was introduced. The number of appeals declined to 89 in 1995 and 65 in 1996, increased to 153 in 1997 and 112 in 1998, and then declined to 81 in 1999, 66 in 2000, and 50 in 2001 (CNO, 1983–2001).

Most complainants said they would go this route again, but their level of satisfaction varied according to the Investigator and the degree of feedback they had received. Five out of 13 complainants would have preferred a different Investigator. Some complainants stated that they had received “no follow-up” from the College, whereas others said they had received a list of evaluations of meetings and events undertaken by facilities. On the whole, complainants were satisfied with the College but not with the facility.

Members were relatively satisfied with the process because it met their goal of avoiding a record and a potential appeal to the Health Professions Appeal and Review Board. One lawyer reported telling clients they were “darn lucky to avoid the Complaints Committee and a review by the Health Professions Board.” Members also favoured this alternative route because it made the complaint less serious and involved them in the agreement. However, several members believed it was a long, frustrating, unnecessary, and complainant-driven process.

Discussion

The study found that many of the CNO's goals were being met by the PRP but that the process was more complex than expected. Although complainants expressed satisfaction with the process, many did not consider themselves active participants in the PRP — which for them was not, paradoxically, a negative factor. They described themselves as “relieved” to “hand over” the issue because they were “emotionally exhausted” or because they were still angry and believed their rage would be counter-productive. Thus, some complainants may want more involvement than the formal system allows — even though this entails some emotional stress — but in a way that relieves them of the burden of complaining.

Members were satisfied because their file would not contain a record of the incident, as would be the case had they gone through the formal process. They also preferred it to the formal process because they (incorrectly) assumed that the latter would require their appearance before the Complaints Committee, which they did not distinguish from the Discipline Committee, and that their name might appear in the CNO's *Communiqué* — “going up in front of a court”... “name splattered all over the place in the *Communiqué*.” In reality, however, the PRP would not have been suggested to them had the complaint been serious enough to be considered by the Discipline Committee, and the *Communiqué* publishes only the names of nurses who appear before the Discipline Committee.

Many members were unaware that the College is required by law to investigate all complaints, is a regulatory body, and represents not nurses but the public. Some described the complaint in terms that suggested it was trivial and should not have been considered by the College. Others felt that the process was one-sided and that the College should be more supportive of nurses.

The high degree of emotional stress experienced by members seemed to be related to a lack of knowledge and fear of the College. Some members suggested that those who had experience with the PRP process should offer support to others who have had a complaint launched against them. Four members, five complainants, and one lawyer said the facilitator should be a neutral person from outside the College so that the member would feel less threatened.

The accounts of members suggest that the College was successful in promoting education and reflective practice and improving nursing practice, although some nurses were merely going through the motions to appease the complainant and avoid having a record. Some members did alter their view of the College, however, and did access the Practice Department. Furthermore, cooperation was achieved with most facilities with regard to promoting education and change.

Some facility representatives expressed concern about time and financial costs. One representative, although pleased with the outcome and its impact on staff, commented that cost might be a deterrent to future participation in a PRP. Facility-based PRPs took some time and effort to organize, and an initially simple process became a complex one requiring arrangements for in-services, conferences, department-wide meetings, and discussion groups. One representative commented that factors related to responsibility, content, methods, communication, and feedback become clearly defined only with time. Representatives also complained about delays: “Everything took longer...something [would arrive in the

mail] 10 days after we expected it.” Others complained about the time, organization, and delays entailed in educational sessions:

So you try to trace back and get people here involved and have them come to an educational session. They're going to say, "Okay, what's this about?" "Well, it was related to an incident that happened a year ago." It doesn't sound too good.

Given the shortage of resources and the current increase in non-nursing managerial staff, the issue of demands on resources does not bode well for the future of educational sessions, especially since positive outcomes require a commitment to long-term follow-up and change. The study also found that some facilities had been uncooperative, regarding the complaint as trivial and refusing to collaborate with the College. One nurse said: “My employer certainly wasn't going to go along with any of the College's recommendations. Not at all. They were not going to comply at all.” This exposes the weakness of the PRP. The College does not have the power to impose change at the facilities.

Conclusion

The College of Nurses of Ontario has responded to the present challenges by establishing a consumer-oriented/learning model for some complaints. Thus, it has created a form of mediation with the goal of improving nursing practice. This program has increased awareness of professional values in the workplace, has been relatively successful with members, complainants, and facilities, and is a useful tool in today's health-care environment. Complaints are treated as opportunities for learning, and the new approach can help to improve nursing practice and help nurses to cope with restructuring. However, the process is stressful and support mechanisms need to be provided for both the member and the complainant. Furthermore, members require more information on the disciplinary process and the legal obligations of the College. The College is, in fact, trying to increase members' knowledge concerning the complaint process by holding informal and interactive sessions in the workplace.

The main problem with the Participative Resolution Program is that the College lacks the power to enforce system change, and the cooperation of facility representatives, especially those who are not health professionals, can be difficult to obtain. Moreover, the College's mandate is to uphold the standards of one profession and address the mistakes of individual nurses. Yet complaints today are often rooted in an organizational context, even when the responsibility appears to lie with one person, and an incident can involve several health professionals. These

issues might be addressed if the facility were required to handle every complaint before it was submitted to the College. Alternatively, complaints could be filtered through a multidisciplinary organization with the power to censure the facility and impose system changes. One promising development in this area is the movement towards root cause analysis, a process in which the fundamental causes of a problem are determined and then improvements implemented or causative factors eliminated (Joint Commission on Accreditation of Healthcare Organizations, 2000; Kohn, Corrigan, & Donaldson, 2000). One hospital in Montreal, Quebec, has completely transformed its way of dealing with errors by adopting root cause analysis. Above all, facilities need to become aware of two facts: the environment they have created can put their nurses at risk of a complaint, and professionals are responsible not only to their employer but also to their profession.

References

- Allsop, J., & Mulcahy, L. (1996). *Regulating medical work: Formal and informal controls*. Buckingham, UK: Open University Press.
- Allsop, J., & Mulcahy, L. (1998). Maintaining professional identity: Doctors' responses to complaints. *Sociology of Health and Illness*, 20(6), 802–824.
- Annandale, E. (1996). Working on the front-line: Risk, culture and nursing in the new NHS. *Sociological Review*, 44(3), 416–451.
- Beardwood, B., Walters, V., Eyles, J., & French, S. (1999). Complaints against nurses: A reflection of the “new managerialism” and consumerism in health care. *Social Science and Medicine*, 48, 363–374.
- Bowling, A. (1997). *Research methods in health: Investigating health and health services*. Buckingham, UK: Open University Press.
- College of Nurses of Ontario. (1983–2001). [Annual Report for each year.] Toronto: Author.
- Ennis, M., & Vincent, C. (1994). The effects of medical accidents and litigation on doctors and patients. *Law and Policy*, 6(2), 97–121.
- Farber, H., & White, M. (1994). A comparison of formal and informal dispute resolution in medical malpractice. *Journal of Legal Studies*, 23(2), 777–806.
- Feld, L. (1995). Using mediation to resolve complaints about professionals: A creative alternative to the discipline process. *Canadian Journal of Dispute Resolution*, 5(ADR Forum), 11.
- Fielding, S. (1999). *The practice of uncertainty: Voices of physicians and patients in medical malpractice claims*. Westport, CT: Auburn House.
- Freidson, E. (2001). *Professionalism: The third logic*. Chicago: University of Chicago Press.
- Joint Commission on Accreditation of Healthcare Organizations. (2000). *Root cause analysis in health care: Tools and techniques*. Oakbrook Terrace, IL: Author.
- Kinney, E. (1995). Malpractice reform in the 1990s: Past disappointments, future success? *Journal of Health Politics, Policy and Law*, 20(1), 99–135.

- Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). *To err is human: Building a better health care system*. Washington: Institute of Medicine.
- Meschievitz, C. (1991). Mediation and medical malpractice: Problems with definition and implementation. *Law and Contemporary Problems*, 54(1), 195–215.
- Metzloff, T., Peeples, R., & Harris, C. (1997). Empirical perspectives on mediation and malpractice. *Law and Contemporary Problems*, 60(1/2), 107–152.
- Mulcahy, L., & Tritter, J. (1998). Pathways, pyramids and icebergs? Mapping the links between dissatisfaction and complaints. *Sociology of Health and Illness*, 20(6), 825–847.
- Petras, E. M., & Porpora, D.V. (1993). Participatory research: Three models and an analysis. *American Sociologist*, 24(1), 107–126.
- Salter, B. (1999). Change in the governance of medicine: The politics of self-regulation. *Policy and Politics*, 27(2), 143–158.

Authors' Note

This research was financially supported by the College of Nurses of Ontario.

Thanks are due to the other members of the Interdisciplinary Research in Health Group, Drs. J. Eyles and V. Walters, and to Jennifer Dawson, the Research Associate. We would also like to thank G. Siskind, RN, Director of Investigations and Hearings, College of Nurses of Ontario, and P. Marshall, RN, Manager, Investigations Program, who initiated this project.

A different version of this paper was presented by Susan E. French and Barbara A. Beardwood at the International Nursing 2000 conference "New Century, New Directions," held in Melbourne, Australia, in August 2000.

Comments or inquiries may be directed to B. A. Beardwood, Division of Social Science, York University, 4700 Keele Street, Toronto, Ontario M3J 1P3 Canada, or S. French, School of Nursing, McGill University, Wilson Hall, 3506 University Street, Montreal, Quebec H3A 2A7 Canada.

Barbara A. Beardwood, PhD, is Associate Professor, Division of Social Science, York University, Toronto, Ontario, Canada. Susan E. French, PhD, is Professor, School of Nursing, McGill University, Montreal, Quebec, Canada.

Résumé

Le choix d'un modèle de soins pour les patients exigeant un autre niveau de soins : le point de vue des soignants sur les accidents du travail

**Aleck S. Ostry, Katrina M. Tomlin,
Yuri Cvitkovich, Pamela A. Ratner, Il Hyeok Park,
Robert B. Tate et Annalee Yassi**

On constate une augmentation de la population des patients exigeant un autre niveau de soins (ANS), lesquels accaparent des ressources hospitalières en soins actifs inadaptés à leurs besoins. Ce projet de recherche porte sur quatre établissements de soins actifs dans la province canadienne de la Colombie-Britannique, dans le but d'étudier la gestion des soins destinés aux patients ANS et d'analyser son incidence sur les accidents du travail. On a mené des entrevues pour définir différents modèles ANS et obtenu des données relatives aux accidents pour tous les soignants ($n = 2\,854$). On a ensuite effectué une analyse de régression logistique pour classer les accidents en fonction des modèles ANS. On a également sondé les travailleurs accidentés sur leurs perceptions à l'égard du risque de blessure en relation avec l'ANS. Cinq modèles ANS ressortent de l'analyse : légèrement hétérogène, très hétérogène, services ANS spécialisés, services de soins actifs et services d'évaluation gériatrique. C'est dans les services spécialisés que le risque d'accident s'est révélé le moins élevé. Ces résultats suggèrent que les établissements de soins actifs qui connaissent une augmentation de la population ANS devraient envisager de créer des services ANS spécialisés.

Mots clés : autre niveau de soins, établissements de soins actifs, accidents du travail

Choosing a Model of Care for Patients in Alternate Level Care: Caregiver Perspectives with Respect to Staff Injury

**Aleck S. Ostry, Katrina M. Tomlin,
Yuri Cvitkovich, Pamela A. Ratner, Il Hyeok Park,
Robert B. Tate, and Annalee Yassi**

The population of alternate level care (ALC) patients utilizing acute-care hospital resources inappropriate to their needs is growing. The purpose of this study was to explore how the care of ALC patients was managed at 4 acute-care facilities in the Canadian province of British Columbia and to examine how this care impacts on outcomes of staff injury. Interviews were conducted to identify and characterize the different models of ALC. Injury outcomes for all caregivers were obtained ($n = 2,854$) and logistic regression conducted to compare staff injuries across ALC models. Injured workers were surveyed regarding their perceptions of injury risk and ALC. Five ALC models were identified: low-mix, high-mix, dedicated ALC units, extended care units, and geriatric assessment units. The risk for caregiver injuries was lowest on dedicated ALC units. These findings suggest that acute-care facilities faced with a growing ALC population should consider creating dedicated ALC units.

Keywords: alternate level care, geriatric patients, work organization, acute-care hospitals, nursing staff, staff injury

Introduction

An issue facing gerontological nursing practice today is how best to care for the growing population of seniors receiving non-acute care in acute-care settings. Many jurisdictions, particularly those with a shortage of nursing-home beds, have large populations of seniors virtually living in their hospitals, yet very little research has been undertaken on the way in which these patients are managed.

Seniors utilize more health-care resources than the rest of the population. In Canada in 1998, those over 65 years made up 12.3% of the population yet accounted for 47% of health-care spending (Campbell, 2001). The proportion of people aged 65 and over will increase to 23.5% in the next 20 years (Statistics Canada, 2002), thus intensifying the strain on a health-care sector already experiencing cutbacks in hospitals and

acute-care beds along with the decreased availability of long-term-care beds (Clarfield, Bergman, & Kane, 2001; McGrail et al., 2001; Mulley, 2001). The strain on acute-care resources is exacerbated by the inappropriateness of utilizing acute-care beds for non-acute patients and the delayed discharge of elderly patients, termed alternate level care (ALC) patients.¹ The magnitude of this problem is demonstrated by the finding of Flintoft et al. (1998) that, in Canada, between 18 and 48% of adult admissions to acute care and between 19 and 60% of subsequent days of acute care are inappropriate.

Despite the increase in ALC patients in many hospitals, few studies have examined the management of these patients. Even exploratory research on the extent to which ALC patients suffer or benefit from remaining in a hospital environment is minimal (United Hospital Fund of New York, 1989). Parker et al. (2000) found that few studies have investigated the relationship between ALC methods and patients' quality of life, costs to the health system, or impacts on care providers and their families. A few studies have explored patient outcomes related to remaining in an acute hospital setting when such intensity of care is no longer needed. More than 20 years ago Sloane, Redding, and Wittlin (1981) noted that elderly patients had extra medical complications as a result of prolonged hospital stays, including injuries from falls and nosocomial infections. Studies also have examined the impact of an unnecessary acute hospital stay on the patient's ability to cope independently upon discharge (Epstein et al., 2001; Michota, 1995). Michota found that elderly patients in acute-care hospitals were at risk of becoming dependent.

The results of these few studies suggest that the standard model of ALC is to mix such patients with acute-care patients on medical or surgical nursing units. However, because pressure on the acute-care system has increased, many jurisdictions have developed different ALC models, ranging from conventional mixed units to specialized geriatric assessment and treatment units.

Two studies investigated the outcomes for elderly patients placed on dedicated ALC units. A study conducted by the United Hospital Fund of New York (1989) showed that ALC patients who were moved to a dedicated ALC unit experienced longer stays than those who were kept

¹ The Canadian Institute of Health Information defines an ALC patient as: "A patient who is considered a non-acute treatment patient but occupies an acute care bed. This patient is awaiting placement in a chronic unit, home for the aged, nursing home, rehabilitation facility, other continuing care institution or home care program, etc. The patient is classified as ALC when the patient's physician gives an order to change the level of care from acute care and requests a transfer to another facility."

on acute-care units. The authors hypothesize that longer stays resulted because of the type of patients the hospital placed on these dedicated units: those with few social supports or with problematic behaviour.

Bowcutt, Andrews, and Kaye (2000) assessed the health outcomes for care received on a unit dedicated solely to ALC patients. The unit was self-contained and staffed by a multidisciplinary team of specialists. Although, as in the United Hospital Fund of New York (1989) study, these patients stayed longer than ALC patients assigned to acute-care units, they were likely to be in better health upon discharge than ALC patients discharged directly from mixed acute-care units. Despite the longer stays on the dedicated ALC unit, the direct costs for patients admitted to the new unit were significantly lower than those for ALC patients on the mixed unit.

Neither study investigated the impact of these ALC models (mixed vs. dedicated) on staff outcomes such as job satisfaction, health, and injury, despite the importance of staff morale and health outcomes as factors to consider when choosing among various models of care for ALC patients. It has been suggested that registered nurses intent on specializing in hospital acute care often regard care for stable, elderly patients as “low status” (the territory of licensed practical nurses and care aides) and unchallenging (Campbell, 1971; Stevens & Crouch, 1992). Increased pressure to care for ALC patients may therefore affect the morale and the sense of perceived control by registered nurses, particularly if organized and administered in a non-participatory fashion.

The management of ALC patients requires extensive lifting and transferring of patients, which is the main cause of injuries in nurses (Yassi, Ostry, Spiegel, Walsh, & de Boer, 2002). The risk of injury is magnified on units where staff do not have proper patient-lifting equipment or are not properly trained for lifting tasks. This is highly pertinent because in 1997 nurses had the highest prevalence of illness and days lost amongst all groups of workers in Canada, both within and outside the health-care sector (Akyeampong & Usalca, 1998).

In the South Fraser Health Region (now part of the Fraser Health Authority) in the Canadian province of British Columbia, a “natural experiment” has been underway in the region’s four acute-care facilities as different models have evolved regarding the organization of nursing care for ALC patients. We assume that these ALC models are similar to others that have emerged in acute-care hospitals, both in Canada and elsewhere, so that the results from our study will be generalizable and hence useful in other jurisdictions.

The purpose of this investigation was to identify and characterize ALC models in the four regional acute-care hospitals; to determine the impact of these ALC models on the rate of staff injuries sustained during patient

care; and to determine, through interviews, the perspectives of injured caregivers regarding the cause of their injuries, the extent to which these were related to ALC, and ways of avoiding such injuries in the future.

Methods

Characterizing the Models of Care and the Perceptions of Health-Care Workers

This study was conducted with representatives from a joint union-management committee of the South Fraser Health Region and the four institutions. Ethics approval was obtained from the University of British Columbia's behavioural ethics board. Ethics approval for the qualitative interviews was based on a review of the questionnaires, participant selection and approach, and procedures for obtaining informed consent from interviewees.

To obtain ethics approval for the quantitative portion of the study, we ensured that all personnel files collected were stripped of identifiers (names) after linkages with outcome files had been made. Identifiers were replaced with numeric codes to ensure confidentiality and privacy. This was important as it was not feasible to contact each of nearly 3,000 cohort members individually to obtain their consent for the analytic component of the study. As well, results were grouped and reported in this fashion so that no individual could be identified through the presentation of analytic results.

Extensive qualitative interviews were undertaken with workers and managers at each facility to identify all nursing units that cared for ALC patients and to characterize the type of ALC model used. Each prospective interviewee was first given the study protocol to read and discuss with the interviewer, then invited to participate in the study and asked to sign a consent form (approved by the ethics committee).

A medical sociologist conducted interviews with senior managers and nursing staff at each facility as well as the managers responsible for the region-wide seniors' program, to identify all ALC nursing units and to better characterize the philosophy and structure of ALC across the four facilities.

Once the ALC units were identified, further interviews were conducted with senior nursing managers and key staff involved in ALC patient assessment, care, rehabilitation, and discharge planning (such as physiotherapists, social workers, nurses, and geriatricians) in each unit. Interviews were conducted with managers and staff involved with ALC patients to ascertain each unit's: (1) philosophy of care; (2) type, number, and acuity of ALC patients typically on each unit; (3) availability and

quality of lifting equipment; (4) typical patient-staff ratios and staff mix; (5) availability of specialized staff to assess and treat ALC patients; (6) suitability of the built environment for ALC patients; and (7) the advantages and disadvantages of these different models of care.

The interviews were audiotaped, transcribed, and reviewed by each interviewee. A follow-up meeting was held to discuss and refine the interview findings. Through this iterative process, a detailed qualitative as well as quantitative (e.g., the typical number of ALC patients treated, type and number of lifts available, and typical staffing mix) description for every unit involved in ALC was obtained at the four facilities. From these qualitative and quantitative data, we identified archetypal ALC models. The typology of ALC models was further reviewed in a focus group session with key staff involved in ALC in the region, as was the classification of particular units. A total of 30 individuals were interviewed, with equal representation from each archetypal ALC model.

Identification of Cohort

Using personnel records, we identified 2,854 caregivers (registered nurses, licensed practical nurses, care aides, and rehabilitation staff such as physiotherapists) employed by the acute-care facilities on June 10, 2001. The average age of cohort members was 42.3 years and the average seniority was 7.4 years. The cohort consisted of 1,528 (53.5%) registered nurses, 1,063 (37.2%) licensed practical nurses/care aides, and 263 (9.2%) rehabilitation staff.

All reported injuries and time-loss injuries to cohort members were obtained prospectively from the regional occupational health and safety database during the 6-month follow-up period (June 10–December 10, 2001). (Once this linkage was made, all identifiers, as per the ethics approval process, were stripped from the data and replaced with numeric identifiers in order to ensure participant confidentiality.)

Logistic regression models were developed in a forward stepwise fashion for all reported injuries, staff injuries sustained during patient care, violence-related injuries, all time-loss injuries, and time-loss staff injuries sustained during patient care. Conceptually relevant variables, including the socio-demographic variables of age and seniority, were added, followed by a variable measuring whether the worker had sustained a work-related injury in the preceding year, because injury history is often the strongest single predictor of future injury (Tate, Yassi, & Cooper, 1999). Next, the hospital variable was entered in order to test for an organizational-level effect on injury, followed by the occupation variable. In the final step, the ALC model variable was added to the logistic regression model. Analyses were performed using SPSS Windows Version 10.

Follow-up Interviews with Injured Workers

To obtain both a more detailed understanding of the conditions leading to injury and the workers' opinions as to the cause and prevention of such injuries, injured workers were contacted by telephone and a semi-structured interview conducted. The sample comprised all workers injured during the 6-month follow-up period. Interviewees were first contacted by letter (in keeping with the ethics approval process).

The semi-structured telephone interview was used to collect socio-demographic information and to determine the circumstances of the injury such as whether or not it was sustained while the worker was caring for an ALC patient. The workers' identification of the risks of caring for ALC patients and their recommendations for preventing future injuries were solicited.

Results

Description of ALC Models

Of a total of 84 nursing units across the four acute-care hospitals, 44 (52.4%) were involved in the care of ALC patients. These 44 units were categorized into five ALC models: units in which ALC patients were mixed into the general medical/surgical patient population, either (1) sporadically (low-mix), or (2) extensively (high-mix), (3) dedicated ALC units, (4) extended care units (ECUs) that had ALC patients, and (5) geriatric assessment units (GAUs). Table 1 shows the distribution of caregivers by hospital and across ALC models.

ALC Care Model	Hospital A	Hospital B	Hospital C	Hospital D	Total Number of Workers
Low-mix	34 (14.4) ^a	95 (15.0)	122 (15.7)	141 (11.7)	392 (13.8)
High-mix	0	29 (4.6)	27 (3.5)	92 (7.6)	148 (5.2)
Dedicated ALC	23 (9.7)	21 (3.3)	31 (4.0)	0	75 (2.6)
ALC/ECU	95 (40.1)	259 (40.9)	371 (47.8)	256 (21.2)	981 (34.4)
GAU	0	0	23 (3.0)	35 (2.9)	58 (2.0)
Non-ALC unit	7 (2.9)	108 (17.0)	90 (11.6)	560 (46.4)	765 (26.8)
Unknown unit ^b	78 (32.7)	122 (19.2)	112 (14.4)	123 (10.2)	435 (15.2)
Total	237	634	776	1,207	2,854

^a Figure in parenthesis is column percentage (proportion of workers in an ALC nursing unit within the hospital).
^b Unknown refers to the 435 cohort members who were nurse casuals or rehabilitation staff. Because these workers are not linked to a nursing unit in the personnel records (they often work in multiple units), there cannot be an assigned unit.

Twenty-two units (one half of the 44 ALC units) were identified as ECUs. These units were found in all four facilities. A total of 981 cohort members (34.4%) worked on this type of unit (Table 1). Most of these units were extended care *only*, although some had a mix of alternate care and extended care patients. These units were generally located in buildings originally designed to care for elderly patients. Although some units were built many years ago, they had better and more available lifting equipment than other ALC units.

Table 2 shows the characteristics of ALC models as determined through qualitative interviews. These units used a modified ECU staffing mix, with lower registered nurse-licensed practical nurse/care aide ratios than other ALC models. For example, while non-ALC units had 12 registered nurses for each licensed practical nurse/care aide, ECUs had approximately three licensed practical nurses/care aides for each

Table 2 *Characteristics of ALC Models Determined Through Qualitative Interviews*

	Dedicated ALC	Non-ALC	Low-Mix ^a	ALC/ECU	High-Mix ^b	GAU
Philosophy of care	Acute	Acute	Acute	Long-term ^c	Acute	Long-term
Staff mix: RNs to licensed practical nurses/care aides	1.3:1	12:1	6.5:1	0.35:1	2.5:1	2.1:1
Access to rehabilitation staff	Good	Limited	Limited	Limited	Limited	Good
Access to lifts	Average	Poor	Poor	Good	Poor	Best
Percentage of workers with previous injuries	17.3	15.2	19.9	23.2	21.6	27.6
Percentage of workers with injuries during follow-up ^d	8.0	8.7	11.2	14.3	20.3	20.7
Percentage of workers with time-loss injuries during follow-up	2.7	2.2	3.8	5.7	6.1	10.3
Ratio of time-loss to all injuries during follow-up	0.33	0.29	0.34	0.40	0.30	0.50

^a Low-mix units typically have 15% or fewer ALC patients.

^b High-mix units typically have 15 to 50% ALC patients.

^c Long-term philosophy of care: staff are trained and psychologically prepared to care for elderly non-medical patients.

^d Models sorted left to right in ascending percentage of injuries during follow-up.

registered nurse. Finally, these ECUs operated under a philosophy of long-term rather than acute care, which means that staff were trained and psychologically prepared to care for elderly non-medical patients.

The second most common ALC model, also found across all four facilities, was random placement of ALC patients on existing medical/surgical nursing units. Seventeen units (38.6% of the ALC units) and 540 (18.9%) cohort members worked on these mixed units, which were divided into low-mix (< 15% ALC patients) and high-mix (> 15% ALC patients); 392 cohort members (13.8%) worked on low-mix ALC units and 148 (5.2%) worked on high-mix ALC units.²

Three of the four hospitals had dedicated ALC units. Seventy-five (2.6%) cohort members worked on these units. Patients on these units had access to specialized assessment, treatment, and in some cases rehabilitation staff. These units usually had access to more and better lifting equipment than the mixed units.

Unlike the ALC/extended care units, dedicated ALC units operated under an acute-care philosophy. Although they had an acute-care staffing mix, the ratio of registered nurse to licensed practical nurse/care aide was lower than that on the low- and high-mix ALC units and GAUs.

Two of the hospitals had dedicated geriatric assessment and treatment units. Fifty-eight (2.0%) cohort members worked and functioned as a specialized team supervised by a geriatrician on these units, which had been especially built and equipped for ALC. On these units, patients assessed as able to return home quickly were stabilized and rapidly discharged, whereas more difficult patients were kept until they were stabilized and could be placed on other ALC units. Thus, although the GAUs were best equipped and staffed regarding ALC patients, they also had the most difficult-to-manage patients.

Finally, the ratio of registered nurses to licensed practical nurses/care aides depended on the intensity of ALC. On non-ALC units in these four facilities, for example, for every licensed practical nurse/care aide there were 12 registered nurses. Moving to the low-mix units, which had the least number of ALC patients, this ratio decreased to 6.5 registered nurses for each licensed practical nurse/care aide. On GAUs, which treat only ALC patients, there were approximately two registered nurses per licensed practical nurse/care aide, and on dedicated ALC units, which also treat only ALC patients, there was an even mix of registered nurses and licensed practical nurses/care aides (see Table 2).

² Medical units were divided into low- and high-mix based on interviews with head nurses of these units. During the interviews, head nurses were asked to estimate the "usual" number of ALC patients on each unit. Those units with 15% or fewer ALC patients were designated low-mix and those with more than 15% as high-mix.

Staff Assessment of the Different Models of Care

In interviews with staff, four themes concerning management of ALC patients emerged. First, the interviewees continually stressed the importance of proper classification of ALC patients. They stated repeatedly that without proper classification ALC patients may be mismanaged and/or inappropriately placed and that proper classification ensures that these patients are placed in the right ALC model.

Interviewees stressed the importance of timely patient access to rehabilitation staff. On mixed units and ECUs, rehabilitation staff were sometimes difficult to access, a situation that was exacerbated by the restricted availability of rehabilitation staff, from 9 a.m. to 5 p.m., on ECUs. Interviewees said that the health status of ALC patients who lacked adequate rehabilitation often deteriorated and that, particularly on ECUs when rehabilitation staff were unavailable, rehabilitation tasks tended to be provided by care aides.

Interviewees stated repeatedly that the key to smooth functioning of any ALC model are interdisciplinary teams of nurses, social workers, physiotherapists, occupational therapists, and geriatricians to assess, classify, and appropriately assign patients in a timely manner. Finally, they noted the lack of adequate physical supports, particularly lifts, on the mixed units; even on the few nursing units where lifts were available, inappropriate unit design and time pressures rendered use of the lifts difficult or impossible.

Risk of Injury to Caregiving Staff

The numbers of cohort members who reported any injury and a time-loss injury during the 6-month follow-up period were, respectively, 320 (11.2%) and 111 (3.9%). Table 2 illustrates that within ALC models the proportion of workers sustaining any injury in the 6-month follow-up period ranged from 8.0% on dedicated ALC units, to 11.2% on low-mix units, to 14.3% on extended care/ALC units, to 20.3% on high-mix units, to 20.7% on GAUs. The proportion of workers sustaining any injury during the follow-up period was 2.5 times higher for those on high-mix units and GAUs than those on dedicated ALC units. This pattern was similar for time-loss claims. The ratio of time-loss claims to all injuries was 0.25 for workers on non-ALC units. This ratio was higher for all units caring for ALC patients and particularly for extended care/ALC units (0.40) and GAUs (0.50).

The logistic regression results for any injury, staff injury sustained during patient care, violence-related injury, any time loss, and time loss injury sustained during patient care are presented in Table 3. For all outcomes, age, seniority, and hospital were not statistically significant in the

Table 3 *Adjusted Odds Ratios from Logistic Regression Model*

Variable	Adjusted Odds Ratio (95% CI)				
	Any injuries	Injuries during patient care	Violence-related injuries	Time-loss injuries	Time-loss injuries during patient care
Previous injury	3.23 (2.44–4.12)	3.07 (2.30–4.10)	2.32 (1.32–4.07)	3.15 (2.17–4.57)	2.78 (1.81–4.26)
Occupation					
RN (referent)	1.00	1.00	1.00		1.00
LPN/Care aide	1.58 (1.24–2.36)	2.08 (1.46–2.96)	3.09 (1.53–6.24)		1.78 (1.05–3.01)
Rehabilitation staff	0.11 (0.03–0.45)				
ALC model					
Non-ALC (referent)	1.00	1.00	1.00		1.00
Staff not assigned to a unit	0.68 (0.39–1.17)	0.63 (0.31–1.27)	0.62 (0.11–3.37)	0.58 (0.23–1.47)	.71 (0.18–2.73)
ALC/ECU	1.07 (0.73–1.56)	1.22 (0.77–1.94)	1.65 (0.56–4.82)	2.46 (1.46–4.16)	2.79 (1.25–6.22)
Low-mix	1.1 (0.73–1.67)	1.35 (0.82–2.23)	2.44 (0.79–7.56)	1.56 (0.79–3.08)	1.79 (0.72–4.46)
High-mix	2.08 (1.27–3.41)	2.71 (1.53–4.80)	5.36 (1.67–17.17)	2.62 (1.18–5.79)	3.47 (1.29–9.34)
Dedicated ALC	0.67 (0.27–1.64)	1.10 (0.44–2.80)	1.09 (0.12–9.76)	1.59 (0.46–5.54)	2.43 (0.63–9.48)
GAU	1.97 (0.98–4.00)	3.47 (1.66–7.26)	4.95 (1.12–21.83)	4.65 (1.84–11.73)	8.08 (2.84–23.01)
<p><i>Note:</i> Rehabilitation staff were excluded from models with staff injuries involving patient care and violence-related injuries as outcomes, because none of them was injured during patient care or in a violence-related situation.</p>					

bivariate analyses and were therefore not included in the final logistic regression models. After previous injury and occupation were controlled for, the likelihood of any staff injury during patient care on high-mix ALC units was approximately triple that for non-ALC units (OR = 2.71; 95% CI = 1.53–4.80). Staff injuries during patient care were 3.5 times more likely to occur in GAUs than in non-ALC units (OR = 3.47; 95% CI = 1.66–7.26). For all five outcomes, low-mix and dedicated ALC units were not significantly different from non-ALC units. Logistic regression models for violence-related injuries showed a similar pattern to models with any injury and staff injury during patient care, but with

higher risk for injury in high-mix units and GAUs. Similar findings emerged for time-loss injuries, with high-mix ALC units having 3.47 times (95% CI = 1.29–9.34) the risk of non-ALC units and GAUs having over eight times the risk (95% CI = 2.84–23.01).

Interviews with Injured Workers

Interviews were conducted with 261 (81.6%) of the workers with a time-loss injury during the 6-month follow-up period. Interviewees cited “dealing with uncooperative/aggressive patients” as the main cause of injury (29.9%), with “lifting/transferring/re-positioning in bed” a close second (23.4%). All lifting/transferring options amounted to 41.8% of the cited causes of injury. When asked how working conditions could be improved to reduce injuries, 173 (66.3%) of the injured workers listed “increased staffing” as the most important solution; the second most frequently cited solution was “more teamwork/support from co-workers” (31.4%)

Seventy-five percent of the interviewees from high-mix units and 66.7% of interviewees from low-mix units attributed their injuries to caring for ALC patients. When all interviewees were asked to identify which specific ALC feature most contributed to their injuries, 33% cited “unpredictable and aggressive behaviour and dementia,” 29.5% cited “heavy lifting and transferring,” and 23.8% cited the “heavier workloads” associated with ALC. When they were asked how ALC injuries could be prevented, their most frequently cited solution was improved staffing levels (25.7%), followed by “dedicated ALC units” (23.0%)

Discussion

Approximately half the nursing units and approximately 60% of the caregivers in the region’s hospitals cared for alternate level care patients. While the Fraser Valley Health Region may be unique because of its unusually high proportion of elderly residents, its struggle with ALC may be a predictor of future acute-care situations in many jurisdictions.

The five identified ALC models showed profound differences in terms of philosophy of care, staffing levels and mix, physical setting, and availability of quality lifting equipment. While these ALC models have evolved more or less naturally in response to the increased needs for elder care in the region, it is likely that similar methods of ALC have been developed in other jurisdictions.

These five ALC models vary greatly in terms of unit level but are knitted together by facility-level features of ALC that staff identified as essential for the smooth operation of the entire elder-care system. Specifically, staff asserted that specialized interdisciplinary teams are essen-

tial for the appropriate assessment and classification of ALC patients, to ensure optimal placement as well as timely discharge. According to interviewees, in order to increase effectiveness, the interdisciplinary team must function in close collaboration with skilled rehabilitation specialists.

Clearly, these observations require elaboration and further examination. While this study has demonstrated the ways in which ALC matters in terms of caregiver injury, the interviewees commented repeatedly that well-coordinated interdisciplinary teams throughout the system are key to the smooth functioning of ALC. This must be the focus of future research in the area.

The results of this study demonstrate that different methods of ALC organization have very different impacts on the outcomes of caregiver injury. Aiken and colleagues found staff morale as well as staff health and injury outcomes to be closely linked with patient health outcomes. As elder care increases in hospitals, managers must attend to the ways in which it is organized and delivered, and, as the findings of this study show, must plan systems of care in relation to staff needs as well as patient needs. This becomes critical in the context of an ageing registered nurse workforce and a registered nurse shortage, because reducing injuries among nurses may help to prevent their early exit from the workforce (Aiken, Clarke, Sloane, & Patrician, 2001; Aiken, Smith, & Lake, 1994).

As well, given the much higher risk for injury on high-mix units compared to dedicated ALC units, there may be a cost-benefit argument for placing ALC patients in dedicated units. In most hospital systems, planning for different types of care does not involve cost-benefit impact in terms of reduced staff injury. Given the differences in risk for injury between high-mix and dedicated units, it may be prudent to calculate cost savings that could result from the adoption of ALC methods that involve fewer staff injuries.

The high injury and time-loss risks observed on geriatric assessment units indicate that even in the case of a highly specialized team working in a specially designed environment with appropriate equipment, the assignment of the most "difficult" ALC patients may overwhelm the staffing, equipment, and design advantages. This further indicates that not just the staffing mix, but also the right staffing *levels*, may be key, particularly for these specialty units.

The GAUs received most of their patients directly from Emergency. Many of these patients were unstable and had yet to be properly assessed. The unpredictability of many of these patients meant that GAU staff were more at risk for injury than staff in other units treating ALC patients. This is because dedicated ALC units and ALC/extended care units received ALC patients who had already been assessed and stabilized.

Thus, the GAU was the front line in the hospital in terms of ALC patients.

These results show that most units cared for relatively stable ALC patients (extended care units, low- and high-mix units, and dedicated ALC units). Of these ALC models, the risk of injury is lowest on dedicated ALC units. This finding indicates that, at least in terms of staff injury, planners should move to a strategy of placing stable ALC patients on dedicated ALC units as opposed to mixing them in with acutely ill medical and surgical patients.

Finally, the follow-up survey of injured workers found that improvements in staffing levels were perceived as the means most likely to reduce injuries. Thus, whatever ALC model is used, better staff-to-patient ratios will be necessary to provide effective patient care while maintaining low levels of caregiver injury.

References

- Aiken, L. H., Clarke, S. P., Sloane, D. M., & Patrician, P.A. (2001). Nurses' reports on hospital care in five countries. *Health Affairs*, May/June, 43–53.
- Aiken, L. H., Smith, H. L., & Lake, E. T. (1994). Lower Medicare mortality among a set of hospitals known for good nursing care. *Medical Care*, 32(8), 771–787.
- Akyaempong, E. B., & Usalca, J. (1998). *Work absence rates (1980 to 1997)*. Statistics Canada Catalogue #71-535-MPB, 9. Ottawa: Statistics Canada.
- Bowcutt, M., Andrews, B. C., & Kaye, J. (2000). Subacute care: A competitive response to providing geriatric care. *Journal of Nursing Administration*, 30(6), 300–303.
- Campbell, M. E. (1971). Study of the attitudes of nursing personnel towards the geriatric patient. *Nursing Research*, 20, 147–151.
- Campbell, T. (2001). Getting a handle on hospital costs. *Canadian Healthcare Manager*, April. Available: <http://www.chmonline.ca/chmonline/story.asp?ArticleID=181>
- Clarfield, A. M., Bergman, H., & Kane, R. (2001). Fragmentation of care for frail elderly people: An international problem. Experiences from three countries: Israel, Canada, and the United States. *Journal of the American Geriatrics Society*, 49, 1714–1721.
- Epstein, J., Kaplan, G., Lavi, B., Shlomo, N., Sharhar, I. B., Shahaf, P., et al. (2001). Description of inappropriate hospital stays in selected in-patient services: A study of cases receiving social work services. *Social Work in Health Care*, 32(4), 43–65.
- Flintoft, V. F., Williams, J. I., Williams, R. C., Basinski, A. S. H., Blackstein-Hirsch, P., & Naylor, C. D. (1998). The need for acute, subacute and nonacute care at 105 hospital sites in Ontario. *Canadian Medical Association Journal*, 158(10), 1289–1296.
- McGrail, K., Evans, R. G., Barer, M. L., Sheps, S. B., Hertzman, C., & Kazanjian, A. (2001). The quick and the dead: "Managing" inpatient care in British

- Columbia hospitals, 1969–1995/96. *Health Services Research*, 35(6), 1319–1338.
- Michota, S. A. (1995). Hospital-based skilled nursing facility: A special place to care for the elderly. *Geriatric Nursing*, 16(2), 64–66.
- Mulley, G. P. (2001). Alternatives to hospital care for older people. *Age and Ageing*, 30(S3), 1.
- Parker, G., Bhakta, P, Katbamna, S., Lovett, C., Paisley, S., Parker, S., et al. (2000). Best place of care for older people after acute and during subacute illness: A systematic review. *Journal of Health Services and Research Policy*, 5(3), 176–189.
- Sloane, P. D., Redding, R., & Wittlin, L. (1981). Longest-term placement problems in an acute care hospital. *Journal of Chronic Disease*, 34, 285–290.
- Statistics Canada. (2002). <http://www.statcan.ca/english/Pgdb/demo23a.htm> Retrieved in January 2003.
- Stevens, J. A., & Crouch, M. (1992). Working with the elderly: Do student nurses care for it? *Australian Journal of Advanced Nursing*, 10(3), 12–17.
- Tate, R. B., Yassi, A., & Cooper, J. (1999). Predictors of time loss after back injury in nurses. *Spine*, 24(18), 1930–1935.
- United Hospital Fund of New York. (1989). *Transitional care: The problem of alternate level of care in New York City*. New York: Author.
- Yassi, A., Ostry, A., Spiegel, J., Walsh, G., & de Boer, H. M. (2002). A collaborative evidence-based approach to making healthcare a healthier place to work. *Hospital Quarterly*, 5(3), 70–78.

Authors' Note

This research was funded by the Canadian Health Services Research Foundation, the Canadian Institutes of Health Research (through its Community Alliance for Health Research funding program and through career awards to Drs. Yassi, Ostry, and Ratner), the South Fraser Health Region, the Health Employers Association of BC, the Hospital Employees' Union, the BC Nurses' Union, the Health Sciences Association, and the Occupational Health and Safety Agency for Healthcare in British Columbia. Dr. Ostry is also being funded through a scholar award from the Michael Smith Foundation for Health Research (MSFHR) in British Columbia. Dr. Park was funded through a postdoctoral award from the MSFHR.

Comments or inquiries may be directed to Dr. Aleck Ostry, Department of Healthcare and Epidemiology, University of British Columbia, 5804 Fairview Avenue, Vancouver, British Columbia V6T 1Z3 Canada. Telephone: 604-822-5872. Fax: 604-822-4994. E-mail: ostroy@interchange.ubc.ca

Aleck S. Ostry, MA, MSc, PhD, is Assistant Professor, Department of Health Care and Epidemiology, University of British Columbia, Vancouver, Canada. Katrina M. Tomlin, BA, MSc, is Research Assistant, Institute of Health Promotion Research, University of British Columbia. Yuri Cvitkovich, BEng, BSW, MA, is Researcher, Institute of Health Promotion Research. Pamela A. Ratner, RN, PhD, is Associate Professor, School of Nursing, University of British Columbia. Il Hyeok Park, MEd, PhD, is Postdoctoral Fellow, Institute of Health Promotion Research. Robert B. Tate, MSc, PhD, is Assistant Professor, Department of Community Health Science, University of Manitoba, Winnipeg, Canada. Annalee Yassi, MD, MSc, FRCPC, is Professor, Department of Health Care and Epidemiology, University of British Columbia, and Director, Institute of Health Promotion Research.

Happenings

PORT – Psychosocial Oncology Research Training: A Newly Funded Strategic Initiative in Health Research

**Carmen G. Loiselle, Joan L. Bottorff,
Lorna Butler, and Lesley F. Degner**

An innovative Canadian psychosocial oncology research training program led by nurse scientists has just been launched. This program is intended to attract trainees from a variety of health, social, organizational, and technological sciences that share interests related to the oncology population. Its guiding vision is the development of research collaborations at the interface of these disciplines to shape both the future of the science of psychosocial oncology and the context for cancer care delivery to optimally meet the needs of diverse oncology populations.

Given the demographic trends and the significance of cancer as a population health issue, the development of PORT is timely. Cancer remains a leading cause of morbidity and premature death in Canada, resulting in much physical as well as emotional suffering for patients and their families. The National Cancer Institute of Canada (NCIC) estimated there would be 139,900 newly diagnosed cases of cancer in 2003, and currently predicts that 38% of women and 41% of men will develop cancer during their lifetime (National Cancer Institute of Canada [NCIC], 2003). At the same time, the relative survival rate for cancer is improving due to advances in detection and treatment (American Cancer Society, 1997), increasing the numbers of patients living with the sequelae of their disease.

As cancer is primarily a disease of older individuals, the numbers of new cases and deaths continue to rise steadily as the Canadian population ages. Currently, among men, 75% of new cancer cases and 82% of deaths due to cancer occur in those over 60 years of age, and, among women, 63% of new cases and 78% of deaths occur in those 60 years and older (NCIC, 2003). Thus the number of patients with cancer is expected to double within the next 15 years (Bultz & Kapusta, 2002). Cancer disrupts all aspects of daily life including family, work, economic

status, and friendships, threatening immediate and future goals and upsetting physiological, psychological, and social equilibrium (Carver et al., 1994; Cassileth et al., 1986; Fife, 1994, Pompe, Antoni, Visser, & Garssen, 1996). The consequences of failing to identify and effectively manage distress among those facing the threat of cancer include poorer outcomes of cancer therapies or risk management strategies, decreased quality of life, and increased health-care costs (Walker et al., 1999; Zabora, Brintsenhofeszoc, Curbow, Hooker, & Piantadosi, 2001). The potentially devastating impact of the experience of cancer on family stability, economics, and health status may transcend generations.

Based on these trends, the psychosocial needs of patients with or at risk for cancer are predicted to increase in complexity and the demand for cancer-related services is estimated to intensify at a yearly rate of 7 to 10% (Cancer Care Ontario, 2002). Psychosocial oncology, a subspecialty in oncology, seeks to document the social, psychological, emotional, spiritual, quality of life, and functional impacts of cancer across the trajectory from prevention to bereavement (Canadian Association of Psychosocial Oncology, 1999). Interventions in the domain of psychosocial oncology are intended to soften the blow of a cancer diagnosis and treatment for those affected and their relatives as well as mitigate the intergenerational impact of cancer. As the incidence of cancer is on the increase, pressures mount to find innovative, effective, and patient-centred strategies to promote optimal psychosocial adjustment through the spectrum of cancer prevention, screening, diagnosis, treatment, and follow-up.

PORT – Psychosocial Oncology Research Training

PORT is a transdisciplinary graduate research training program whose goal is to prepare a new generation of scientists in the development, implementation, evaluation, and transfer of theoretically based and cutting-edge psychosocial approaches to oncology care. This much-needed initiative offers graduate-level fellowships and awards to prepare young researchers to develop, test, and refine effective and accessible state-of-the-art psychosocial cancer-care interventions that will make a significant difference in the lives of people facing the threat of cancer. PORT is funded primarily by the Canadian Institutes of Health Research – Institute of Cancer Research and the National Cancer Institute of Canada. Additional funds are provided by the CURE Foundation and the Newton Foundation.

Rationale

The Canadian Association of Psychosocial Oncology (1999) identifies the rapidly developing field of psychosocial oncology as an area of spe-

cialization with few formal training opportunities. To fill this gap and respond to society's increasing needs for cancer support, the PORT program was developed to promote state-of-the-art theory generation, testing of interventions, and knowledge transfer in the field of psychosocial oncology. This program is an innovative coast-to-coast partnership among Dalhousie University, McGill University, the University of Manitoba, and the University of British Columbia.

Initially the PORT program will engage the core disciplines of nursing, psychology, and health-care management to increase the capacity for high-impact research in psychosocial oncology. To date, the fields of psychology and nursing have contributed significantly to the advancement of psychosocial oncology as a specialty area in health care. However, psychosocial oncology research traditionally has focused on the identification, measurement, and prevalence of selected clinical variables, with limited testing of theoretically based psychosocial approaches to oncology care or psychosocial oncology health services research. The high prevalence of psychological distress among those living with or at risk for cancer demands not only the development and systematic evaluation of theoretically guided psychosocial interventions in high-risk populations, but knowledge of how to successfully imbed these interventions in health-care organizations. The innovative inclusion of health-care management scientists as key partners in PORT ensures that the knowledge generated is readily transferred to interventions that are accessible to those most in need of support.

Objectives

This training initiative addresses the need to complement nationally and internationally recognized programs in basic biomedical oncology research already in place at the four participating universities with a broader cross-site psychosocial focus. The primary objectives of the program are to:

- build on existing strengths of psychosocial oncology research (nursing, psychology) and health-care management (e.g., health service research) teams at Dalhousie University, McGill University, the University of Manitoba, and the University of British Columbia to create synergetic knowledge
- attract the best doctoral and postdoctoral students from Canada and abroad with an interest in psychosocial oncology from a range of health-related disciplines such as nursing, psychology, medicine, health promotion, epidemiology, health services, oncology nursing, and management, as well as to facilitate student exchanges across the diverse research sites

- deliver high-quality student mentorship, research training in psychosocial oncology, and skills in knowledge synthesis and knowledge transfer
- foster the transfer of new knowledge into effective and accessible health-care practices and health-system design and management that contribute to the well-being of cancer patients and their families
- serve as a widely accessible virtual resource centre for oncology researchers, clinicians, patients/families, health managers/administrators, and policy-makers
- build linkages between health-policy and management experts who will play key roles in developing the health-care system of the future, by ensuring that trainees are exposed to decision-making forums (e.g., consortiums, grants panels).

PORT Scientists

As a first step, PORT has brought together scholars who share a common perspective in theoretically based psychosocial oncology interventions. The fields of education, engineering, epidemiology, journalism, occupational/physiotherapy, nutrition, and social work will be progressively integrated, to maximize opportunities for interdisciplinary exchanges, multi-method research, and the development of innovative health education materials and technologies. As the training program expands in scope, additional collaborators to be recruited include those in diverse fields such as library science, medical geography, and architecture.

PORT's four program leaders, one from each of the participating universities, are all nurse scientists recognized nationally and internationally for their research in psychosocial oncology. As a biopsychosocial science long involved in the research and coordination of patient/family health and health services, nursing is in a key position to spearhead transdisciplinary clinical research and to implement findings to enhance the physical and psychological outcomes of oncology patients and the quality of their health care.

The 22-member team of mentors and co-investigators who are committed to this research training program represent a very strong transdisciplinary faculty of scientists with active programs of psychosocial oncology research; they hold operating grants from a broad range of funding agencies and are affiliated with a range of departments and facilities across the four participating sites.

PORT scientists represent a mix of senior, mid-career, and junior scientists, enhancing the long-term sustainability and renewal of the program. In addition, the program's mentors share an active interest in

developing and evaluating new models of graduate education. Guided by the program's vision and values, this initiative will serve also as an experiment in graduate-student learning, extending research in education concomitantly with the development of the PORT program.

Through its guiding precepts of innovation, mentorship, transdisciplinary collaboration, knowledge transfer, and accessibility, the PORT program offers a unique opportunity to train the next generation of researchers and clinician scientists in a new, broad model that facilitates movement of findings across fundamental research in psychosocial oncology to interventions that significantly impact on cancer patients and their families.

PORT is currently accepting applications from those interested in pursuing doctoral or postdoctoral studies in psychosocial oncology at the four participating universities. Further information is available on the PORT Web site: www.port.mcgill.ca

References

- American Cancer Society. (1997). CA: A cancer journal for clinicians. In S. Peters, Lassoing hope: New frontiers in cancer treatment. *Advances for Nurse Practitioners*, 5, 55–58.
- Bulz, B., & Kapusta, B. (2002, December 11). Where's the compassion in medicare? *Globe and Mail*, A21.
- Canadian Association of Psychosocial Oncology. (1999). *National psychosocial oncology standards for Canada*. Retrieved December 19, 2002, from <http://cancercentre.com/capo/finalstandards.cfm>
- Cancer Care Ontario. (2002). *Research and statistical information*. Retrieved September 6, 2002, from <http://www.cancercare.on.ca/research/home.html>
- Carver, C. S., Pozo-Kaderman, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S., et al. (1994). Optimism versus pessimism predicts the quality of women's adjustment to early stage breast cancer. *Cancer*, 73(4), 1213–1220.
- Cassileth, B. R., Lusk, E., Brown, L., Cross, P., Walsh, W., & Hurwitz, S. (1986). Factors associated with psychological distress in cancer patients. *Medical Pediatric Oncology*, 14, 251–254.
- Fife, B. L. (1994). The conceptualization of meaning in illness. *Social Science and Medicine*, 38(2), 309–316.
- National Cancer Institute of Canada. (2003). *Canadian cancer statistics*. Retrieved January 27, 2004, from http://www.cancer.ca/ccs/internet/standard/0,2283,3172_14423__langId-en,00.html
- Pompe, G., Antoni, M., Visser, A., & Garssen, B. (1996). Adjustment to breast cancer: The psychobiological effects of psychosocial interventions. *Patient Education and Counseling*, 28(2), 209–219.
- Walker, L. G., Heys, D., Walker, M. B., Ogston, K., Miller, I., Hutcheon, A., et al. (1999). Psychological factors can predict the response to primary chemotherapy in patients with locally advanced breast cancer. *European Journal of Cancer*, 35(14), 1783–1788.

- Zabora, J., Brintsenhofeszoc, K., Curbow, B., Hooker, C., & Piantadosi, S. (2001). The prevalence of psychological distress by cancer site. *Psycho-Oncology*, 10, 19–28.

Carmen G. Loiselle, RN, PhD (PORT Program Leader), is Assistant Professor, School of Nursing, and Associate Member, Department of Oncology, McGill University; and Nurse Scientist, Center for Nursing Research/Lady Davis Institute, SMBD–Jewish General Hospital, and McGill University Health Centre, Montreal, Quebec, Canada; she holds a research career award from Fonds de la recherche en santé du Québec and several CIHR operating grants. Joan L. Bortoff, RN, PhD (PORT Program Co-leader), is Professor, Distinguished Research Scholar, CIHR Investigator, and Co-principal Investigator, Nursing and Health Behaviour Research Unit, School of Nursing, University of British Columbia, Vancouver, Canada; she is Co-director of NEXUS, a research unit dedicated to the social contexts of health behaviour, and an Affiliate Scientist at the British Columbia Cancer Agency. Lorna Butler, RN, PhD (PORT Program Co-leader), is Associate Professor, School of Nursing and Department of Urology, Dalhousie University, and Affiliate Scientist, Division of Nursing, Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia, Canada; she is Co-principal Investigator for CaRE, a cancer interdisciplinary regional development program in Nova Scotia. Lesley F. Degner, RN, PhD (PORT Program Co-leader), is Professor, Faculty of Nursing, and Associate Professor, Department of Family Medicine, University of Manitoba, Winnipeg, Canada, and Foreign Adjunct Professor, Department of Nursing, Karolinska Institute, Stockholm, Sweden; she holds a Chair in Nursing Care from the Canadian Health Services Research Foundation/Canadian Institutes of Health Research (2000–10) and serves as Consultant in Evidence-Based Nursing Practice at the Health Sciences Centre, Winnipeg.

Book Review

Transforming Health Promotion Practice: Concepts, Issues and Applications

Edited by Lynne Young and Virginia Hayes
Philadelphia: F. A. Davis, 2002. 340 pp.
ISBN: 0-803-60814-4

Reviewed by Catherine P. Gros

Transforming Health Promotion Practice: Concepts, Issues and Applications is an important departure from mainstream nursing texts. In this bold and provocative collection of writings, the ultimate goal of editors Lynne Young and Virginia Hayes is to shape current and future nursing practice. Critical questions are raised through an examination of historical and professional trends and through the presentation and analysis of theoretical literature, clinical data, and research-based evidence. Key issues and principles come alive through the use of clinical exemplars, and various personal accounts are used to illustrate the struggles and realities faced by nurses as they attempt to implement health-promoting practices within the current system.

Rooted in a largely postmodern perspective, the contributors' views on health promotion draw upon principles put forth in the Ottawa Charter (World Health Organization, 1986). Accordingly, health promotion is defined as "a collaborative process in which health professionals work with clients (defined as individuals, families, communities and populations) to gain insights into social, organizational, political, and personal patterns that strengthen or disrupt health and wholeness and to take action toward improved health" (p. 4).

This being said, the authors go beyond the rhetoric to examine how these ideas are applied in practice. For example, nursing strategies such as advocating and empowering are specific approaches that can be used at the bedside to help individuals and families take control over and improve their health. Moreover, the contributors' expanded view of nursing highlights the social, political, and ecological factors that are known to have a powerful influence on nursing care. Therefore, descriptions of specific approaches to guide practice at this level are also addressed. These include strategies such as building public policy, creating supportive environments for learning and health, strengthening com-

munity action, conducting health promotion research, and reorienting health services.

In terms of its structure and content, the 340-page text is divided into 24 chapters grouped under five themes: Foundations of Health Promotion Practice; Key Concepts for Transforming Health Promotion Practice; Challenges and Controversies: Revisiting and Recreating Knowledge; Health Promotion Research; and A Critique of Transformative Health Promotion Practice. The following sampling of chapter titles provides a flavour of the nature and scope of the book's contents: Beyond Interpersonal Communication: The Significance of Relationship; Public Participation in Health Care Decision Making; Emancipatory Politics...and the Health Professional as Social Activist; The Human Genome Project: Implications for Nursing Practice; Promoting Health Through Participatory Action Research; and Enhancing Health Promotion Through Cooperative Inquiry. Each chapter ends with a brief summary and review. The book's contributors, most of whom are nurses, are clearly committed to the philosophy of health promotion. They possess in-depth knowledge of the concepts and demonstrate a clear understanding regarding the application to practice of these ideas. Written primarily with both practitioners and undergraduate and graduate nursing students in mind, this book would also appeal to nursing educators, researchers, managers, and policy-makers in all areas and at all levels of practice.

Throughout this volume, the importance of learning through critical reflection is a consistent theme. In addition to the critical questions and issues raised within the authors' own analyses, each chapter is punctuated with a series of reflective questions for the reader to consider. Furthermore, the editors "walk the talk" by including a final chapter in which experts from outside the profession critique the work as a whole. Co-authors Lawrence Green, a writer and researcher with international experience in the field of health promotion, and Mark Daniel present a critical review of each chapter.

From the theoretical discussions through to the practical examples, what is professed at the outset of this book is delivered simply and consistently, with conceptual clarity and with structural and intellectual integrity. For the contributors, closely adhering to a collaborative, person-centred approach is not the best way to promote health: it is the only way. Young and Hayes argue that if we as nurses are truly to make a difference, then we must take charge of our profession and ensure that the familiar concept of health promotion (e.g., collaboration, learning partnerships) is consistently applied in practice. The evidence on current health-care practices clearly indicates otherwise, and it is in this context

that the book *Transforming Health Promotion Practice* comes to represent a timely contribution towards the goal of moving nursing forward.

Reference

World Health Organization. (1986). *Ottawa Charter for Health Promotion*. Ottawa: Canadian Public Health Association and Health & Welfare Canada.

Catherine P. Gros, N, MSc(A), is Faculty Lecturer, School of Nursing, McGill University, Montreal, Quebec, Canada.