

*THE CANADIAN JOURNAL
OF
NURSING RESEARCH*

Spring / Printemps 1990 Vol. 22, No. 1

*REVUE CANADIENNE
DE RECHERCHE
EN SCIENCES INFIRMIÈRES*

The Canadian Journal of Nursing Research
Revue canadienne de recherche en sciences infirmières

Volume 22, No. 1

Spring/Printemps, 1990

EDITOR/RÉDACTRICE EN CHEF

MARY ELLEN JEANS, Ph.D. (McGill), Director and Professor, School of Nursing, and Associate Dean (Nursing), Faculty of Medicine, McGill University.

ASSOCIATE EDITORS/RÉDACTRICES ADJOINTES

JOAN ANDERSON, Ph.D. (U.B.C.), Professor and National Health Scholar, Faculty of Nursing, University of British Columbia.

LESLEY F. DEGNER, Ph.D. (Michigan), Professor, School of Nursing, University of Manitoba.

MARIE-FABIENNE PORTIN, Ph.D. (McGill), Professeur titulaire et Adjointe au Doyenne pour la recherche, Faculté des sciences infirmières, Université de Montréal.

ANNETTE O'CONNOR, Ph.D. (Toronto), Associate Professor, School of Nursing, and Vice Dean - Research, Faculty of Health Sciences, University of Ottawa.

MANAGING EDITOR/ADJOINT ADMINISTRATIF

ANDREW FERGUSON

REVIEW BOARD/COMITÉ DE LECTURE

CHRISTOPHER A. ARMSTRONG-ESTHER, Ph.D.
University of Lethbridge

JANETTA McPHAIL, Ph.D.
University of Alberta

SUZAN BANOUB, D.N.Sc.
Memorial University of Newfoundland

PATRICIA McKEEVER, M.Sc.(A)
University of Toronto

SHARON OGDEN BURKE, Ph.D.
Queen's University

ALBA MITCHELL, M.Sc.
McMaster University

CYNTHIA CAMERON Ph.D.(Cand.)
University of Manitoba

JANICE M. MORSE, Ph.D., Ph.D.
University of Alberta

MADELEINE CLÉMENT, M.N.
Université de Montréal

CAROLYN PEPLER, Ph.D.
Royal Victoria Hospital and McGill University

BEVERLEE-ANN COX, Ph.D.
University of Western Ontario

DOROTHY PRINGLE, Ph.D.
University of Toronto

ELIZABETH DAVIES, Ph.D.
University of British Columbia

CAROLYN ROBERTS, Ph.D.
Arizona State University

GEORGETTE DESJÉAN, Ph.D.
Université de Montréal

NICOLE ROUSSEAU, Ph.D.
Université Laval

SANDRA FAUX, Ph.D.
University of Western Ontario

KATHLEEN ROWAT, Ph.D.
McGill University

MARGARET FITCH, Ph.D.
Toronto General Hospital and University of Toronto

COLLEEN STANTON, D.N.Sc.
University of Calgary

LAURIE GOTTLIEB, Ph.D.
McGill University

JOAN G. STELLING, Ph.D.
Montreal Children's Hospital and McGill University

LESLIE K. HARDY, Ph.D.
Memorial University of Newfoundland

PHYLLIS NOERAGER STERN, D.N.S., F.A.A.N.
Dalhousie University

JEAN JENNY, M.Ed., M.S.N.
University of Ottawa

MARILYN D. WILLMAN, Ph.D.
University of British Columbia

JUNE F. KIKUCHI, Ph.D.
University of Alberta

EDITORIAL REPRESENTATIVES REPRÉSENTANTS DE LA RÉDACTION

CYNTHIA LOOS, *Lakehead University*
COLETTE GENDRON, *Université Laval*
ESTHER GROGIN, *University of Saskatchewan*
ALBERTA CASEY, *University of Ottawa*
PEGI EARLE, *Memorial University of Newfoundland*
DONNA POLEY, *University of Windsor*
JO-ANN POX, *McMaster University*
DIANA GENDRON, *University of Toronto*
DONILDA ELLIS, *University of British Columbia*
ELLEN MacPARLANE, *St. Francis Xavier University*
JOYCE MacQUEEN, *Laurentian University*
CAROLYN B. ATTRIDGE, *University of Victoria*
IRENE NORDWICH, *University of Manitoba*
JULIENNE PROVOST, *Université de Montréal*
SUSAN LASCHINGER, *Queen's University*
NANCY GRANT, *University of Calgary*
DOROTHY WASSON, *University of New Brunswick*
JEANETTE DOUCET, *Université de Moncton*
SHARON RICHARDSON, *University of Alberta*
SANDRA KNOWLES, *McGill University*
JUDY PEARCE, *Ryerson Polytechnical Institute*
SANDRA FAUX, *University of Western Ontario*
LINDA BERRY, *Dalhousie University*

The Canadian Journal of Nursing Research/Revue canadienne de recherche en sciences infirmières is published quarterly by the School of Nursing, McGill University, 3506 University Street, Montreal, Quebec, H3A 2A7. Letters regarding subscriptions, changes of address and other business matters should be sent to the Managing Editor.

SUBSCRIPTION RATES: Institutions (including hospitals, schools, libraries and agencies): \$36/one year; \$68/two years. Individual subscriptions: \$30/one year; \$56/two years. Students \$16/one year. Subscriptions through CAUSN \$26/one year; \$50/two years. Please add \$5/year for overseas airmail service.

ADVERTISEMENTS: Full-page display \$350; half-page display \$225.

BACK ISSUES: are available at \$8/copy or \$30/year. Xerox copies of articles are available at 25 ¢/page, or a minimum of \$3/article.

To ensure prompt service when you write us about your subscription, please include the address label from your *The Canadian Journal of Nursing Research* mailing envelope.

ABONNEMENTS: Institutions (ce qui comprend les hôpitaux, les écoles, les bibliothèques et les agences): 36\$ pour une année; 68\$ pour deux ans. Abonnements individuels: 30\$ pour une année; 56\$ pour deux ans. Étudiants: 16\$ pour une année. Veuillez ajouter 5\$ de plus pour les envois par avion outremer.

ANNONCES: 350\$ la page; 225\$ la demi-page

ANCIENS NUMÉROS: 8\$ le numéro ou 30\$ par année. On peut se procurer les photocopies d'articles pour 25¢ la page ou 3.00\$ minimum par article.

Pour accélérer le service dans toute correspondance relative à votre abonnement, veuillez inclure l'étiquette de l'enveloppe dans laquelle vous sont envoyées les *Revue canadienne de recherche en sciences infirmières*.

This issue has been supported by MRC (SR-1) and SSHRC (441-88-0104) grants. Nous avons reçu les subventions du CRM (SR-1) et du CRSHC (441-88-0104) pour cet numéro.

ISSN 0844-5621

Dépot légal - 1er trimestre 1974; Bibliothèque Nationale du Québec

Copyright: McGill University, School of Nursing, 1989.

CONTENTS - TABLE DES MATIÈRES

- 1 Editorial: Nursing Research: How does Canada Compare Internationally?
La recherche en sciences infirmières à l'échelle internationale: Où le Canada se situe-t-il?
Lesley F. Degner
 - 6 La qualité de vie de paraplégiques et quadriplégiques: Analyse relative à l'estime de soi
Abstract: Quality of Life in Paraplegics and Quadriplegics: Analysis of self-esteem
Louise Gagnon
 - 21 Married Registered Nurses' Labour Force Participation
Résumé: Participation des infirmières mariées à la population active
Gail P. Laing and Alfred W. Rademaker
 - 39 Comparison of Pain Perceptions among Males and Females
Résumé: Comparaison de la perception de la douleur chez les hommes et les femmes
Janice Lander, Susan Fowler-Kerry and Ann Hill
 - 51 Testing the OSCE: A Reliable Measurement of Clinical Nursing Skills
Résumé: Essai de l'ECOS: Mesure fiable des aptitudes cliniques des infirmières
Jacqueline Roberts and Barbara Brown
 - 61 Developing Strategies for Teaching Nursing Diagnosis
Résumé: Conception de stratégies pour l'enseignement du diagnostic infirmière
Sheila J. Rankin Zerr
-
- 70 Information for authors
 - 71 Renseignements à l'intention des auteurs

NURSING RESEARCH: HOW DOES CANADA COMPARE INTERNATIONALLY?

At the beginning of May, 1990 an historic event occurred in the development of nursing research. Co-sponsored by the international Council of Nurses and the National Center for Nursing Research (U.S.), a task force met in Geneva, Switzerland, to review the world-wide status of nursing research, and to recommend strategies for its further development. The countries represented at the meeting were: Brazil, Canada, Japan, Nigeria, Sweden, Thailand, the United Kingdom and the United States. I was fortunate enough to attend this meeting as the representative from Canada.

As my colleagues from around the world presented background papers on the status of nursing research in their countries and regions, I had the opportunity to compare our progress in Canada with that of others. A useful distinction emerged from our discussions. Nursing research development could be classified as being at one of four levels: established, traditional, emerging and pre-emergent. Where did Canada fit into the overall scheme?

There was clearly only one country functioning at the "established" level: the United States. Being established was characterized by having large numbers of doctorally prepared nurses (6000 to 7000, in the U.S.), and a stable national funding source (\$33 million this year, and \$40 million next year in the U.S., through the National Center for Nursing Research). Being at this level of development brings with it different types of problems from those at the other levels. For example, in an environment where there is a separate national funding source for nursing research, faculty members may be expected to achieve such funding to prove their worthiness for tenure and promotion, yet the number of grants awarded (less than 50) is small, compared to the number of doctorally prepared faculty.

As well, because the United States is producing the largest volume of nursing research findings in the world, American theories, concepts and measures are frequently being used to conduct research in other countries. Members of the Task Force noted that the uncritical transfer of research approaches from one culture to another often leads to findings that do not really explain the phenomena being studied, may lead to biased findings, or both. The need to identify and develop concepts and related measures that are culturally specific was emphasized at the meeting.

Canada, like most of the countries at the Task Force meeting, appeared to fall into the second level of development: transitional. At this level a country has begun to establish a critical mass of doctorally prepared nurses, given the

country's population (ranging from 35 in Sweden to about 400 in the United Kingdom), but has not yet achieved stable national funding. Many of the countries at this level of development have already established doctoral programs. Indeed, Canada is somewhat of an anomaly in this respect because Brazil, Japan, Korea, Thailand and the United Kingdom all have doctoral programs in Nursing. Nurses in countries at the transitional level of development all emphasized the importance of scholarly exchanges to promote the growth and quality of doctoral programs.

Two other stages of development were identified: emerging and pre-emergent. In countries where nursing research was emerging (such as Nigeria), there were a few doctorally prepared nurses struggling to foster research development, but often lacking even such basic resources as journal holdings. In pre-emergent countries the development was not yet possible, or social, political and economic conditions were so unstable that the development of nursing research was not a priority, or both.

How can Canada move up to the "established" level, in terms of nursing research development? Two of the objectives outlined in the new CNA Research Imperative are obviously critical: establishing doctoral programs and achieving a stable source of national funding. Given current developments in Canadian nursing research, both of these objectives are achievable by 1995. What is needed is concerted effort by all nurses in Canada to mobilize the political will to realize these objectives. The CNA, CAUSN, CNF and Canadian Nursing Research Group should work collaboratively to achieve these goals, particularly if the Medical Research Council fails to establish a separate review committee for nursing research by 1992. Such collaborative efforts in the United States, in which all sectors of Nursing banded together to pursue a common cause, led to the creation of the National Center for Nursing Research, within the National Institutes of Health. Can we move together in this manner in Canada? If we do not, it will be many more years before we move to the "established" level of development, with respect to nursing research.

Lesley F. Degner
Associate Editor

LA RECHERCHE EN SCIENCES INFIRMIERES A L'ÉCHELLE INTERNATIONALE: Où le Canada se situe-t-il?

Le début de mai 1990 a marqué un tournant décisif dans le développement de la recherche en sciences infirmières. Parrainé conjointement par le Conseil international des infirmières et le National Center for Nursing Research (États-Unis), un groupe de travail sur les recherches infirmières à l'échelle internationale s'est réuni à Genève, en Suisse, pour faire le point sur la recherche en sciences infirmières dans le monde entier et pour formuler des recommandations au sujet des stratégies visant à favoriser son développement. Le Brésil, le Canada, le Japon, la Corée, le Nigéria, la Suède, la Thaïlande, le Royaume-Uni et les États-Unis ont participé à cette rencontre. J'ai eu l'honneur de représenter le Canada à cette occasion.

En écoutant mes collègues du monde entier faire le point sur l'état des recherches infirmières dans leur pays ou leur région, j'ai eu tout le loisir de comparer les progrès réalisés au Canada aux efforts des autres pays. Nos entretiens ont permis de préciser quatre niveaux de développement de la recherche: "établie", "en transition", "en voie de développement", "à développer. Où le Canada se situe-t-il dans ce tableau?

De toute évidence, un seul pays se classe dans la catégorie "établie", les États-Unis. Pour satisfaire aux critères de cette catégorie, il faut faire état d'un grand nombre d'infirmiers ayant une formation de troisième cycle (de 6000 à 7000) et des sources de financement stables (33 millions de dollars cette année et 40 millions prévus pour l'an prochain par le biais du National Center for Nursing Research). Les problèmes auxquels on se heurte à ce niveau diffèrent sensiblement des difficultés qu'éprouvent les pays des autres catégories. Ainsi, dans un milieu où les recherches infirmières dépendent d'un organisme subventionnaire national distinct, il se peut que l'on exige des professeurs qu'ils obtiennent une subvention pour leur accorder la permanence ou une promotion éventuelle et pourtant le nombre de subventions accordées (moins de 150) est modeste compte tenu du nombre de professeurs titulaires d'un doctorat.

Dans la mesure où les États-Unis produisent la somme de résultats la plus importante au monde, les théories, les concepts et les mesures américaines servent souvent à effectuer des recherches dans d'autres pays. Les membres du groupe de travail ont noté que le transfert sans discernement des démar-

ches de recherche d'une culture à une autre donne souvent des résultats qui n'expliquent pas vraiment les phénomènes étudiés et(ou) qui en donnent une image faussée. La nécessité d'identifier et de mettre au point des concepts et des critères d'évaluation spécifiques de la culture étudiée a été soulignée lors des entretiens.

Le Canada, comme la plupart des pays qui ont participé à la conférence, semble s'inscrire dans la deuxième catégorie: "en transition". On observe dans ces pays l'émergence d'une masse critique de chercheurs ayant une formation de troisième cycle en rapport avec la population du pays (de 35 en Suède jusqu'à environ 400 au Royaume-Uni), sans toutefois qu'ait été mis en place un mode de financement stable à l'échelle nationale. De nombreux pays appartenant à cette catégorie offrent déjà des programmes de troisième cycle reconnus. Ce sujet, le Canada occupe une place un peu particulière puisque le Brésil, le Japon, la Corée, la Thaïlande et le Royaume-Uni offrent tous des programmes de troisième cycle en sciences infirmières. Les infirmiers des pays en transition ont tous souligné l'importance d'échanges de chercheurs pour favoriser la croissance et la qualité des programmes de doctorat.

Deux autres stades de développement de la recherche ont été délimités: "en voie de développement" et "à développer". Dans les pays où les recherches infirmières sont en voie de développement (comme au Nigéria par exemple), on retrouve quelques infirmiers ayant une formation de doctorat, luttant pour favoriser le développement de la recherche, mais souvent dépourvus de ressources élémentaires et notamment d'un fonds de revues savantes. Dans les pays où la recherche est "à développer", l'enseignement des sciences infirmières se situe à un niveau tel que le développement de la recherche n'est pas encore envisageable et(ou) les conditions sociales, politiques et économiques sont si instables que le développement de la recherche en sciences infirmières n'est pas perçu comme une priorité.

Comment le Canada peut-il gravir les échelons vers le plus haut niveau de développement des recherches infirmières, celui de recherche établie? Deux des objectifs indiqués dans un nouveau document de l'AIIC intitulé "Impératifs de recherche" jouent de toute évidence un rôle déterminant: l'établissement de programmes de doctorat et la mise en place d'un système de financement stable à l'échelle nationale. Compte tenu de l'état actuel de la recherche en sciences infirmières, ces deux objectifs pourraient être atteints d'ici 1995. La seule condition à la réalisation de ces objectifs est l'effort concerté et soutenu de tous les infirmiers et infirmières du Canada pour mobiliser les éléments politiques intéressés. Il faudra donc que l'AIIC,

l'ACEUN, la FIIC, et le Canadian Nursing Research Group unissent leurs forces pour réaliser cet objectif, particulièrement si le Conseil de recherches médicales n'établit pas de comité d'étude voué essentiellement aux recherches infirmières d'ici 1992. Aux États-Unis, ce sont des efforts de ce genre et notamment le ralliement de tous les secteurs de la profession à une cause commune qui ont permis l'établissement du National Center for Nursing Research au sein même des National Institutes of Health. Sommes-nous capables d'une concertation similaire au Canada? Sinon, nous devons peut-être attendre des années avant de voir les recherches infirmières progresser suffisamment pour avoir droit de cité dans nos universités.

Lesley F. Degner
Rédactrice adjointe

LA QUALITÉ DE VIE DE PARAPLÉGIQUES ET QUADRIPLÉGIQUES: ANALYSE RELATIVE A L'ESTIME DE SOI

Louise Gagnon

Cet article constitue le premier volet du compte-rendu d'une étude (Gagnon, 1988) s'intéressant aux réactions d'individus soudainement devenus paraplégiques ou quadriplégiques. Le choix de cette population découle du statut particulier des traumatisés de la moelle épinière: en effet, ils ne souffrent pas d'une maladie aiguë et ne sont pas en phase terminale; d'un autre côté, ils vivent dans la communauté et pourtant en sont plus ou moins exclus. Finalement, leur incapacité fonctionnelle est permanente mais ils n'entrent pas dans les diverses catégories de malades chroniques.

Il est intéressant de se demander pourquoi certains d'entre eux en arrivent à un niveau de réadaptation fonctionnelle tandis que c'est beaucoup plus difficile pour d'autres, malgré une lésion semblable et des traitements spécialisés similaires. A ce propos, Pearlin et Schooler (1978) affirment que c'est la façon dont l'individu réagit qui peut faire une différence quant à son état de bien-être futur; en ce sens, Adams et Lindemann (1974) voient la nécessité d'approfondir les mécanismes de *coping* et d'adaptation car, selon eux, le résultat final de la réadaptation repose fortement sur la capacité qu'a l'individu de faire face avec succès à sa situation.

Selon Moos et Tsu (1977), l'estime de soi est un facteur personnel qui a un impact significatif sur l'habilité à s'adapter: un individu qui se sent insécure ou incompetent aura davantage tendance à moins utiliser ses capacités que l'individu ayant une image de soi plus positive. Bracken et Shepard (1980) abondent dans le même sens en affirmant que le maintien de l'estime de soi et du sens de sa propre valeur sont essentiels en vue d'un rétablissement ultérieur optimal.

Ces considérations ont conduit l'auteure à entreprendre une étude en vue de déterminer l'influence de différents facteurs reliés à la personne ou à l'environnement sur la qualité de vie d'individus paraplégiques et quadriplégiques. Le facteur personnel retenu est l'estime de soi et s'avère le sujet central de cet article.

Louise Gagnon, R.N., Ph.D. est professeur agrégée à la Faculté des sciences infirmières, à l'Université de Montréal.

Cadre Théorique

Le cadre théorique dont nous nous sommes inspirés pour cette étude est celui élaboré par Moos et Tsu (1977) en vue d'expliquer le déroulement d'une situation de crise engendrée par une maladie ou une blessure physique grave. Ce cadre théorique confirme l'existence de différents facteurs qui vont influencer le déroulement ainsi que le dénouement de la situation de crise, ce sont: les facteurs personnels, les facteurs reliés à la maladie ou à l'incapacité ainsi que les facteurs de l'environnement. En effet, ces facteurs permettront à l'individu de façonner sa réaction face à l'événement stressant vécu; c'est ainsi qu'il pourra, dans une plus ou moins grande mesure, réussir à faire face afin d'accomplir les tâches spécifiques qu'il lui faudra mener à bien s'il désire voir son adaptation facilitée. Ces tâches sont appelées des tâches adaptatives par Moos et Tsu. Voyons maintenant de quelle façon le cadre théorique a été appliqué à l'étude et aussi comment la variable "estime de soi" s'y est intégrée.

Dans le cadre de cette étude, les facteurs reliés à l'environnement ont été nommés "support social" et "support parental antérieur" tandis que l'estime de soi constitue le facteur personnel considéré. Il est à remarquer que les facteurs reliés à la maladie ou à l'incapacité ont été assumés les plus uniformes possibles par le respect des critères de sélection pré-établis pour les sujets. Ces différents facteurs ont donc été retenus afin d'évaluer s'ils influencent directement ou indirectement la façon de faire face à la situation stressante (*coping*) et, par le fait même, la qualité de vie des personnes impliquées. La Figure 1 présente le modèle théorique à la base de cette étude.

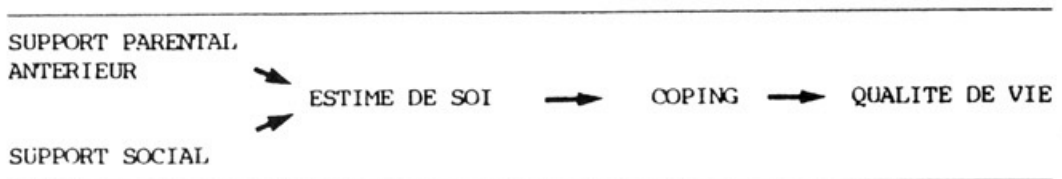


Figure 1
Modèle théorique initiale

Revue de Littérature

L'estime de soi est un des domaines d'intérêt lorsque nous nous attardons à la conception que chaque individu a de lui-même. Cependant, l'étude de ce phénomène ne va pas sans heurts étant donné la dissension qui existe quant à sa définition. En effet, pour certains auteurs l'estime de soi, par son importance, constitue presque à elle seule le concept de soi (Fitts, 1965; Korman, 1968; Taylor, 1955; Webb, 1955) tandis que pour d'autres son contenu est explicite sans qu'aucune allusion à l'expression "estime de soi" ne soit faite.

Le concept de soi est généralement considéré comme un phénomène tri-dimensionnel: cognitif, affectif et relié au comportement (Wells, 1976). Bien qu'habituellement associée à l'aspect affectif de la conception de soi, l'estime de soi est régie également par un autre processus, soit l'évaluation, et devient un concept fréquemment mis à contribution lorsqu'il s'agit d'auto-évaluation. Nous faisons alors appel au côté instrumental de l'individu: il s'agit de poser un jugement sur soi-même en tant qu'objet utile; sont alors impliquées les capacités, habiletés et performances par rapport à la notion de compétence (White, 1959), de compétence interpersonnelle (Fitts, 1970), de maîtrise de l'environnement (Woodworth, 1958) ou encore de contrôle (Ziller, Hagey, Smith, & Long, 1969).

Ces distinctions affective et évaluative ayant émergé de l'étude du concept d'estime de soi, il apparaît tout de même difficile d'établir une ligne de démarcation entre elles, ce qui se traduit par le fait que chacun emploie son propre vocabulaire pour tenter de la cerner. Par exemple, Wells (1976) estime que les trois sens principaux qui peuvent être donnés au concept d'estime de soi se distinguent par l'emphase accordée aux dimensions affective et évaluative: l'amour de soi et l'acceptation de soi concernent davantage la dimension affective tandis que la sensation de compétence est plutôt soutenue par la dimension évaluative. Pour sa part, Symonds (1951) suggère que l'auto-évaluation et l'auto-affection sont deux sortes d'estime de soi qui résultent d'expériences différentes.

Suite à ces précisions concernant l'interprétation du concept d'estime de soi, voyons maintenant les principales tendances qui émergent lorsqu'il s'agit de le définir. Elles sont regroupées par Wells (1976) en trois catégories principales.

L'estime de soi en tant qu'attitudes

Il s'agit alors d'un processus phénoménologique par lequel l'individu perçoit certaines caractéristiques le concernant et y réagit, émotionnellement ou par le comportement. Pour illustrer ce phénomène, Rosenberg (1965) fait remarquer que nous avons tous des attitudes envers les objets et que le soi ne constitue qu'un objet, au même titre que les autres.

L'estime de soi en tant que relations entre différentes attitudes

Cette catégorie s'illustre à merveille par l'équation de James (1890), encore reconnue de nos jours:

$$\text{estime de soi} = \frac{\text{réalisations}}{\text{prétentions}}$$

Cet auteur a en effet été appuyé dans sa pensée par plusieurs autres auteurs en ce qui concerne l'importance d'une démarche comparative. C'est ainsi que Cohen (1959) définit l'estime de soi en fonction du degré de correspondance entre l'idéal individuel et le concept de soi actuel. Les notions de réel et d'idéal s'avèrent également populaires pour tenter d'expliquer la pensée première de James (Altrocchi, Parsons, & Dickoff, 1960; Kornreich, Straka, & Kane, 1968).

L'estime de soi en tant que réactions psychologiques

Une telle compréhension de l'estime de soi reflète qu'une importance particulière est donnée à la dimension affective du concept. L'émotion ressentie est alors ce qui semble primordial face à soi-même. Il est ici question de valorisation de soi (Brownfain, 1952; Rogers, 1950), de croyance en sa capacité de faire face à la vie et de se considérer d'égale valeur face aux autres (Berger, 1955).

Cette dernière catégorisation, reliée à la définition du concept d'estime de soi, nous sensibilise à une approche utilisée dans l'étude de ce concept: l'approche sociale. Celle-ci ajoute une dimension nouvelle mais complémentaire aux principes déjà énoncés.

Ziller (1969) affirme que les perceptions que l'individu a de sa valeur sont en fonction des perceptions et des réactions des personnes significatives. Ce faisant, il confirme les propos tenus par Cooley (1902), illustrés par la notion du "looking-glass self" qui veut que la conception qu'un individu a de lui-même soit déterminée par la réaction des autres à son égard. Mead (1934), pour sa part, introduit le principe d'internalisation qui veut que nous adoptions les idées et les attitudes exprimées par les personnes qui nous sont chères, pour ensuite les exprimer comme étant nôtres. Cette internalisation amène Mead à affirmer qu'il y a autant de "soi" que de rôles sociaux: certains sont importants tandis que d'autres le sont moins et la situation qui les engendre, pour sa part, peut être plus ou moins spécifique.

Ce tableau général concernant le concept d'estime de soi nous amène à une théorie élaborée sur le concept de soi. Fitts et al. (1971) ont en effet entrepris une démarche à long terme dans le but de préciser les rapports qui existent

entre le concept de soi, l'actualisation de soi et le processus de réadaptation. Ces auteurs spécifient qu'un programme de réadaptation doit prendre en considération l'individu dans sa totalité car c'est celui-ci qui s'avère la meilleure ressource apte à en assurer la réussite. Ils sont en accord avec plusieurs autres auteurs lorsqu'il s'agit d'affirmer que de multiples variables paraissent importantes à investiguer afin de dévoiler le fonctionnement individuel. Cependant, ils considèrent que le concept de soi s'avère une variable centrale capable de livrer l'essence de plusieurs autres variables et se révélant très utile dans la mesure où elle permettra une prédiction réfléchie des comportements humains.

Hypothèse

L'hypothèse formulée relative à l'estime de soi est la suivante: Il existe une relation positive entre le niveau d'estime de soi et les réactions de *coping* de l'individu atteint de paraplégie ou de quadriplégie.

Méthode

Échantillon et collecte de données

L'échantillon réunit 135 sujets devenus paraplégiques ou quadriplégiques depuis au moins 24 mois, suite à un traumatisme accidentel de la moelle épinière. Le choix des sujets a été fait par échantillonnage de convenance étant donné la complexité très grande des procédures d'accès aux sujets (les entrevues à domicile ont été nécessaires vu la difficulté pour les sujets à se déplacer), les coûts entraînés par des déplacements en régions éloignées ainsi que les délais nécessaires pour effectuer de tels déplacements. Chaque sujet avait préalablement reçu par courrier des informations sur la nature de l'étude et sur son caractère confidentiel et avait fait savoir à l'investigatrice son désir de participer à l'étude.

Les entrevues ont eu lieu au domicile des sujets ou à leur lieu de travail et consistaient à répondre verbalement aux questionnaires visant à évaluer les variables étudiées; un formulaire de données socio-démographiques complétait l'entrevue. Les données présentées au Tableau 1 illustrent la répartition des sujets selon l'âge, le sexe, le statut civil, le diagnostic et le délai post traumatique.

Instrument de mesure

Le *Tennessee Self-Concept Scale* (TSCS), version française (Toulouse, 1971), a été utilisé comme instrument de mesure de l'estime de soi. Le TSCS a été développé en anglais par Fitts en 1965 et contient 100 items. Il a déjà été utilisé en de multiples occasions avec des populations différentes dont

Tableau 1***Repartition des sujets selon l'âge, le sexe, le statut civil, le diagnostic et le délai post-traumatique***

Caractéristiques	n (total: 135)	%	Moyenne
Age			
20-29 ans	60	44,4	32,6
30-39 ans	48	35,6	
40-49 ans	18	13,3	
50-59 ans	9	6,7	
Sexe			
Masculin	109	80,7	
Féminin	26	19,3	
Statut civil			
Célibataire	78	57,8	
Marié ou en union de fait	40	29,6	
Séparé ou divorcé	17	12,6	
Diagnostic			
Paraplégique	74	54,8	
Quadriplégique	61	45,2	
Délai post traumatique			
2 - 4,9 ans	30	22,2	9,5
5 - 9,9 ans	65	48,2	
10 - 14,9 ans	20	14,8	
15 ans et plus	20	14,8	

des individus ayant subi un traumatisme de la moelle épinière (Green, Pratt & Grigsby, 1984; Mayer & Eisenberg, 1982). La validité de l'instrument en sa version originale a été démontrée selon quatre aspects différents mais complémentaires (Fitts, 1965) soit: la validité de contenu, la validité de discrimination, le degré de corrélation avec d'autres mesures de personnalité et la validité prédictive. La fidélité a été démontrée par des corrélations variant de 0,60 à 0,92, par la méthode de test - retest avec un groupe de 60 étudiants de niveau collégial. En ce qui concerne la version française, la validité a été démontrée selon trois aspects différents mais complémentaires (Larmarche, 1968; Toulouse, 1968) soit: la validité de structure, la validité de contenu et la validité de discrimination. La fidélité a été démontrée par des corrélations variant de 0,565 à 0,912, par la méthode de test - retest avec un groupe de 92 étudiants de l'école normale ou du cours classique.

Les résultats obtenus des réponses au TSCS sont regroupés selon quatre catégories principales dont une qui touche exclusivement la variable ici étudiée: l'estime de soi. Cette catégorie a été retenue aux fins d'analyse et contient des scores d'estime de soi relatifs aux dimensions suivantes: l'identité, la satisfaction et le comportement, dimensions qui constituent les composantes du soi tandis que les régions du soi sont représentées par le soi physique, le soi moral-éthique, le soi personnel, le soi familial et le soi social. Une dernière dimension retenue est le total positif (score global).

Analyse statistique

L'analyse des données a été effectuée au moyen du programme informatisé LISREL VI (Linear Structural Relationships: Jorëskog & Sörbom, 1984). En plus de permettre les techniques de régression habituelles, LISREL VI apporte diverses indications nous renseignant sur la façon dont le modèle testé s'ajuste aux données. Jorëskog et Sörbom ont, en effet, développé un indice de la qualité d'ajustement du modèle: cet indice se situe entre zéro (0) et un (1), ce qui le rend facile d'interprétation et, de plus, il est indépendant de la taille de l'échantillon. LISREL permet aussi d'estimer l'impact, sur le modèle, de l'ajout de relations dites causales, ce qui se traduit par la possibilité de modifier le modèle à posteriori, de façon à améliorer la qualité d'ajustement de ce dernier. Il faut cependant demeurer conscient que cette stratégie a ses limites et ne peut servir à l'élaboration d'un modèle. Il faut ajouter que l'utilisation de LISREL, à l'image d'autres techniques d'analyse statistique, rend possible le test du khi-carré, ce test étant cependant affecté par le nombre de variables et le nombre de sujets, ce qui l'expose davantage à la critique.

La première étape de l'analyse des données fut la réduction des données. Celle-ci a été effectuée car les nombreuses sous-échelles contenues dans les instruments de mesure utilisés augmentaient le nombre de variables, celui-ci s'avérant alors trop élevé pour un modèle approprié à un nombre de sujets tel celui de notre échantillon. De plus, aucune hypothèse spécifique ne portait sur ces sous-échelles et enfin, une telle réduction permet de respecter le principe de parcimonie qui demande de tester tout d'abord le modèle le plus simple possible.

La stratégie de réduction des données employée pour la variable "estime de soi" est la suivante: comme l'instrument utilisé contient un score global en plus de nombreux scores relatifs à des sous-échelles, nous avons vérifié s'il était possible de substituer le score global à ceux des sous-échelles que nous avons retenues. Pour ce faire, des corrélations ont été établies entre ce score global et chacun des scores des sous-échelles. La conclusion de cette étude de corrélations, illustrée au Tableau 2, est que le score global représente très bien le score de la majorité des sous-échelles d'estime de soi. C'est ainsi que

le score global du questionnaire (J) a été retenu, aux fins d'analyse, en ce qui concerne la variable "estime de soi".

Tableau 2

Corrélations entre le score global et les sous-échelles d'estime de soi

	Total positif
Identité	0,89
Satisfaction	0,90
Comportement	0,85
Soi physique	0,66
Soi moral-éthique	0,82
Soi personnel	0,90
Soi familial	0,79
Soi social	0,79

p = 0,001

La réduction des données a conduit au modèle initial à tester, modèle qui a été par la suite remanié de façon mineure afin de tenir compte des indices de modification proposés par LISREL et d'ajouter au modèle six variables-contrôle perçues importantes pour la population visée soit l'âge, le sexe, le diagnostic (paraplégie ou quadriplégie), le délai post-traumatique, le revenu et l'activité (être actif ou non, avoir ou non une occupation). L'interprétation et la discussion des résultats ont été effectuées à partir du modèle final, cinquième modèle découlant de quatre remaniements successifs. Le Tableau 3 présente une vue d'ensemble de la composition des variables suite à la réduction des données et permet une meilleure compréhension du modèle final.

Résultats

Les résultats ici présentés ne touchent que ceux qui découlent directement de l'influence démontrée par la variable centrale traitée dans cet article: l'estime de soi. Ils sont complétés par l'énumération des relations significatives ayant émergé entre l'estime de soi et les différentes variables-contrôle, la variable "revenu" n'ayant pas été retenue pour le modèle final.

Tableau 3

Composition des variables suite à la réduction des données

Variable	Dimension(s) retenue(s)	Abréviation aux fins de représentation schématique
Support social Actuel	Satisfaction des besoins de support moral	SATMOR
	Satisfaction des besoins de support physique	SATPHY
Potentiel	Réseau autre que la famille	AMIS*
	Réseau famille pour support moral	FAMMOR
	Réseau famille pour support physique	FAMPHY
	Réseau d'interactions négatives	NEGA
Support parental antérieur	<i>Caring</i>	CARE
	Surprotection	OVER
Estime de soi	Score global d'estime de soi	J**
Réactions de <i>coping</i>	Habiletés de <i>coping</i> générales	COPING 1
	Habiletés de <i>coping</i> d'évitement	COPING 2
Qualité de vie	Score global de qualité de vie	QVIE

* Ainsi nommé car ce réseau est principalement constitué d'ami(e)s.

** Tel que spécifié par Fitts (1965).

Le modèle cinq (5) constitue le résultat final du processus d'analyse; les résultats du test effectué sur ce modèle final sont illustrés schématiquement par la Figure 2. Nous y retrouvons trois relations significatives engendrées par l'estime de soi (J): celle la reliant à la qualité de vie (0,347), à la variable activité (-0,263: l'estime de soi rend plus probable l'activité) et aux habiletés de *coping* de défense ou d'évitement, ici appelées *coping* 2 (-0,333). De plus, le diagnostic s'avère être relié de façon significative à l'estime de soi (0,222: les quadriplégiques ont un niveau plus élevé d'estime de soi que les paraplégiques).

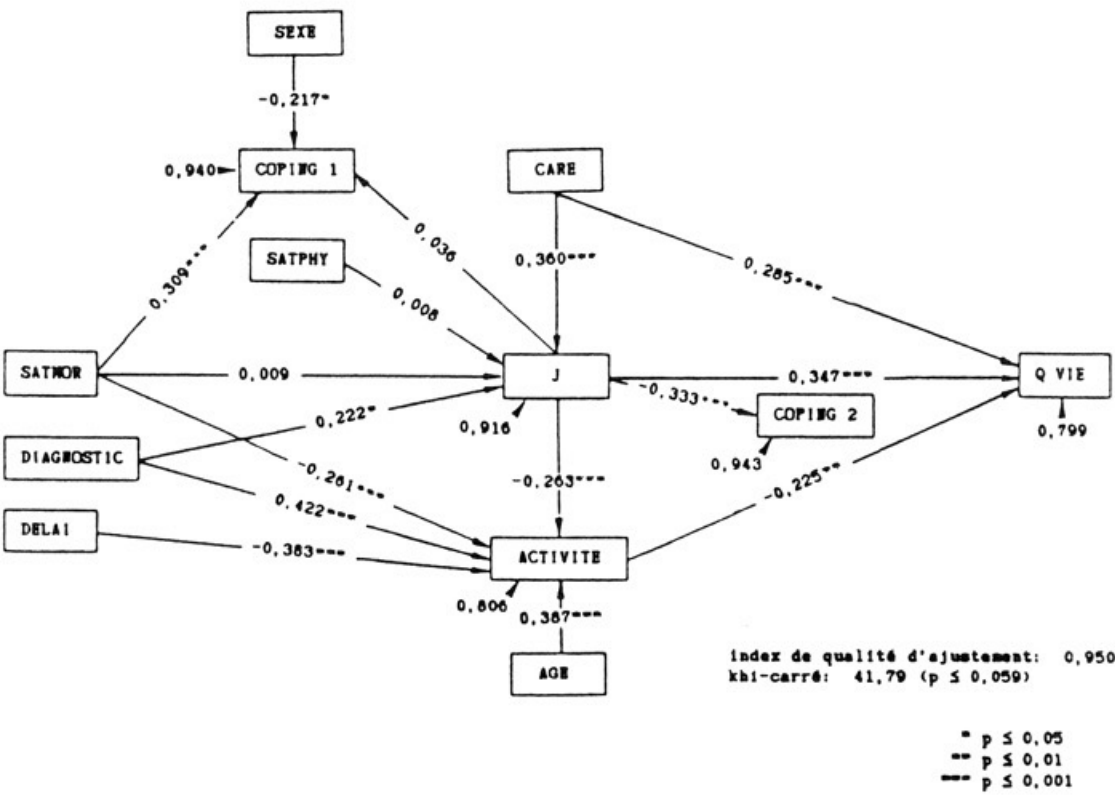


Figure 2
Teste du modèle final (5)

Verification de l'hypothèse relative a l'estime de soi

Il existe une relation positive entre le niveau d'estime de soi et les réactions de *coping* de l'individu atteint de paraplégie ou de quadriplégie.

Cette hypothèse a été infirmée par les résultats obtenus. Ceux-ci ont même démontré l'existence d'une relation négative entre le niveau d'estime de soi et les réactions de *coping* d'évitement ou de défense (-0,333; p ≤ 0,001), tandis qu'aucune relation significative n'a été démontrée entre le niveau d'estime de soi et les réactions générales de *coping*.

Discussion

L'estime de soi s'avère être une variable d'importance dans cette étude. Les résultats de celle-ci indiquent l'existence de trois relations significatives qui émanent de l'estime de soi. Ainsi, les individus ayant un niveau élevé d'estime de soi s'occupent davantage, sont plus actifs, ont une meilleure qualité de vie et font moins appel aux réactions de *coping* d'évitement ou de défense. Ces conclusions peuvent se greffer facilement aux nombreuses constatations qui découlent des études effectuées en vue de découvrir quelle influence exerce cette variable, et ce, dans des circonstances variées.

En effet, un niveau élevé d'estime de soi a été à maintes reprises relié à des effets positifs, autant en ce qui concerne la dynamique personnelle que les relations complexes avec notre environnement. C'est ainsi que les individus qui démontrent un tel niveau d'estime de soi ont été décrits comme étant moins affectés par des changements momentanés de leur situation (Ziller et al., 1969). Ils sont également mieux acceptés par les autres (Mann, 1959; Wylie, 1961) et prennent une part plus active dans les échanges de groupe (Mossman & Ziller, 1968).

De façon générale, les chercheurs s'intéressant à l'estime de soi aiment relier cette variable personnelle à différents indicateurs qui reflètent le niveau d'adaptation de l'individu. En ce sens, la perspective misant sur un niveau élevé d'estime de soi est la plus répandue; elle préconise que ceux qui possèdent cette caractéristique vivent moins d'anxiété et d'insécurité, sont plus actifs, bref, réussissent mieux à s'adapter (Wells, 1976).

Plus spécifiquement lors d'une situation de crise, le maintien de l'estime de soi est défini comme essentiel à travers les conclusions de plusieurs auteurs (Chodoff, Friedman, & Hamburg, 1964; Hamburg et Adams, 1967; Visotsky et Hamburg, 1961). Lors d'une blessure ou d'une maladie physique grave, Adams et Lindemann (1974) insistent sur le fait que cette tâche très importante doit être menée à bien malgré un niveau fonctionnel souvent diminué. Moos et Tsu (1977) sont également de cet avis lorsqu'ils effectuent une analyse approfondie de la situation de crise que constitue une atteinte à l'intégrité physique; cependant ils font remarquer que le maintien d'une image de soi satisfaisante et d'un sens de compétence personnelle, en pareil cas, commence par une crise d'identité. Des changements doivent en effet être apportés face aux valeurs personnelles et au style de vie; c'est ainsi qu'un individu faisant usage d'un fauteuil roulant devra sans doute repenser son échelle de valeurs face à plusieurs réalités, par exemple en ce qui concerne la séduction et les rapports homme-femme.

Enfin, l'estime de soi n'est pas un concept à négliger lorsqu'il s'agit de l'analyse des choix de réactions de *coping* utilisées par l'individu. Nos

résultats indiquent clairement une relation négative entre le niveau d'estime de soi et l'utilisation de réactions de *coping* défensives. Ceci s'explique également par l'impact significatif de l'estime de soi sur l'habilité à s'adapter. Lorsque nous nous sentons insécures et que nous doutons de nos possibilités, une réaction de négation s'avère très attrayante; elle implique l'aveu de non-confiance en ses propres possibilités tout en permettant de faire reculer la prise de conscience face à l'inévitable. A l'inverse, l'individu qui démontre un niveau plus élevé d'estime de soi sera moins dépendant de la situation et, du fait même, beaucoup moins vulnérable (Cohen, 1959). Il envisagera une situation nouvelle en ayant confiance en ses capacités et en présageant déjà du succès, d'où une moins grande utilisation de réactions de *coping* négatives ou d'évitement.

La relation qui existe entre le diagnostic et l'estime de soi peut nous paraître singulière au premier abord, soit le fait que le niveau d'estime de soi est plus élevé chez les quadriplégiques que chez les paraplégiques. Devant une telle constatation, notre première réaction est de vérifier qu'il n'y ait pas d'erreur....lorsque nous en sommes persuadés, la surprise et l'incrédulité cherchent à nous envahir.

Il est bien difficile, en effet, de croire à une telle éventualité, mais pourquoi donc? Orbaan (1986) explique ce phénomène en faisant appel à un mécanisme de défense bien connu: la projection. Qu'est-ce-à-dire? Nous, qui avons le plein contrôle de notre corps, ou du moins dans la mesure du possible, avons tendance à croire et à dire que nous ne pourrions vivre en étant quadriplégiques. Cet exercice de projection de nos propres sentiments sur la personne de quelqu'un d'autre nous amène à affirmer que la vie d'un individu quadriplégique est affreuse, en d'autres termes, qu'elle ne vaut pas la peine d'être vécue. Cette même réaction peut, de façon similaire, expliquer notre difficulté à concevoir que le niveau d'estime de soi d'individus quadriplégiques puisse être élevé, ou du moins plus élevé que celui d'individus paraplégiques.

Orbaan est bien loin de partager ce doute car, lors d'une étude effectuée avec 35 sujets ayant subi un traumatisme de la moelle épinière, il n'identifie aucun effet sur le processus d'adaptation qui soit relié au niveau de la lésion, c'est-à-dire thoracique (paraplégique) ou cervicale (quadriplégique). Un argument intéressant s'avère axé sur les changements qui ont lieu chez l'individu durant le processus d'adaptation, changements qui touchent les contextes affectif, cognitif et celui relié au comportement. Ainsi si quelqu'un ayant une lésion cervicale complète demeure capable de communiquer, a le plein usage de ses facultés intellectuelles, peut apprécier la nature, la musique et combien d'autres choses, alors cette personne peut tout aussi bien être en mesure d'apprécier la vie.

Une alternative à cette explication serait celle qui met en cause la désirabilité sociale. Il s'agit alors de penser que, plus ou moins consciemment, l'individu paraplégique puisse répondre au questionnaire de façon à ce que ses réponses ne soient pas trop éloignées de ce qui est normalement accepté et acceptable dans notre société. Une autre hypothèse qui touche indirectement la façon de répondre au questionnaire sur l'estime de soi se rapporte au groupe de référence. A quel groupe se compare l'individu? Une explication possible serait que les paraplégiques et les quadriplégiques se comparent à des groupes différents. Comme l'individu paraplégique a quand même conservé une bonne partie de ses habiletés fonctionnelles, il est peut-être davantage porté à se comparer aux individus "normaux" ou encore à se comparer à lui-même avant son accident. Pour sa part, l'individu quadriplégique s'est retrouvé tellement démuni, face à son état fonctionnel suite à son accident, qu'il sera porté, après le processus de réadaptation, à se comparer à lui-même tel qu'il était en période post-traumatique immédiate. Cette explication permet de réaliser qu'il est possible que le niveau d'estime de soi d'individus quadriplégiques soit plus élevé que celui d'individus paraplégiques, malgré le fait que la capacité fonctionnelle de ces derniers soit supérieure.

Conclusion

Cette étude a permis de réaliser l'importance à accorder à l'estime de soi en tant que caractéristique personnelle en vue d'une réaction favorable à un traumatisme accidentel de la moelle épinière. L'influence directe de l'estime de soi sur la qualité de vie porte à réfléchir: il devient en effet primordial d'orienter les soins infirmiers en fonction de favoriser l'établissement d'un niveau élevé d'estime de soi.

Pour ce faire, il nous faut sélectionner ou même élaborer des instruments de mesure d'estime de soi qui permettent l'évaluation la plus juste possible de chaque population visée par des soins infirmiers spécifiques. Cette évaluation, en tant qu'intervention préventive, rendra possible l'identification des individus "à risques" en vue d'une action rapide visant à les aider à traverser positivement toute situation de crise personnelle.

REFERENCES

- Adams, J.E., & Lindemann, E. (1974). Coping with long-term disability. In G.V. Coelho, D.A. Hamburg, & J.E. Adams (Eds.), *Coping and adaptation*. New York: Basic Books.
- Altrocchi, J., Parsons, O., & Dickoff, H. (1960). Changes in self-ideal discrepancy in repressors and sensitizers. *Journal of Abnormal and Social Psychology*, 61, 67-72.
- Berger, E.M. (1955). Relationships among acceptance of self, acceptance of others, and MMPI scores. *Journal of Counseling Psychology*, 2, 279-283.
- Bracken, M.B., & Shepard, M.J. (1980). Coping and adaptation following acute spinal cord injury: A theoretical analysis. *Paraplegia*, 18, 74-85.
- Brownfain, J. (1952). Stability of the self-concept as a dimension of personality. *Journal of Abnormal and Social Psychology*, 47, 596-606.
- Chodoff, P., Friedman, S., & Hamburg, D. (1964). Stress, defense and coping behavior: Observations in parents of children with malignant disease. *American Journal of Psychiatry*, 120, 743-749.
- Cohen, A.R. (1959). Situational structure, self-esteem and threat-oriented reactions to power. In D. Cartwright (Ed.), *Studies in social power*. Ann Arbor: University of Michigan Institute for Social Research.
- Cooley, C.H. (1902). *Human nature and the social order*. New York: Scribner.
- Fitts, W.H. (1965). *Manual, Tennessee self-concept scale*. Nashville: Counselor Recordings and Tests.
- Fitts, W.H. (1970). *Interpersonal competence: The wheel model*. Nashville: Counselor Recordings and Tests.
- Fitts, W.H., Adams, J.L., Radford, G., Richard, W.C., Thomas, B.K., Thomas, M.M., & Thompson, W. (1971). *The self concept and self-actualization*. Dede Wallace Center, Monograph III. Nashville: Counselor Recordings and Tests.
- Gagnon, L. (1988). *La qualité de vie de paraplégiques et quadriplégiques*. Thèse doctorale non-publiée, Université de Montréal.
- Green, B.C., Pratt, C.C., & Grigsby, T.E. (1984). Self-concept among persons with long-term spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 65, 751-754.
- Hamburg, D., & Adams, J.E. (1967). A perspective on coping behavior. *Archives of General Psychiatry*, 17, 177-284.
- James, W. (1890). *Principles of psychology*. New York: Holt.
- Jörëskog, K.G., & Sörbom, D. (1984). *Lisrel VI: Analysis of linear structural relationships by the method of maximum likelihood*. Mooresville, Indiana: Scientific Software.
- Korman, A. (1968). Self-esteem, social influence, and task performance: Some tests of a theory. *Proceedings of the 76th American Association Convention*, 3, 567-568.
- Komreich, L.B., Straka, J., & Kane, A. (1968). Meaning of self-image disparity as measured by the Q sort. *Journal of Consulting and Clinical Psychology*, 32, 728-730.
- Lamarche, L. (1968). *Validation de la traduction du TSCS*. Mémoire de maîtrise non-publié, Université de Montréal.
- Mann, R.D. (1959). A review of the relationship between personality and performance in small groups. *Psychological Bulletin*, 56, 241-270.
- Mayer, J.D., & Eisenberg, M.G. (1982). Self-concept and the spinal cord injury: An investigation using the Tennessee Self-Concept Scale. *Journal of Consulting and Clinical Psychology*, 50, 604-605.
- Mead, G.H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.
- Moos, R.H., & Tsu, V.D. (1977). The crisis of physical illness: An overview. In R.H. Moos (Ed.), *Coping with physical illness*. New York: Plenum Medical Book.
- Mossman, B.M., & Ziller, R.C. (1968). Self-esteem and consistency of social behavior. *Journal of Abnormal Psychology*, 73, 363-367.
- Orbaan, I.J.C. (1986). Psychological adjustment problems in people with traumatic spinal cord lesions. *Acta Neurochirurgica*, 79, 58-61.

- Pearlin, L.I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19, 2-21.
- Rogers, C.R. (1950). The significance of the self-regarding attitudes and perceptions. In M.L. Reymert (Ed.), *Feeling and emotion: The mooseheart symposium*. New York: Mc Graw-Hill.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton: Princeton University Press.
- Symonds, P. (1951). *The ego and the self*. New York: Appleton-Century-Crofts.
- Taylor, J.B. (1955). Changes in the self-concept without psychotherapy. *Journal of Consulting Psychology*, 19, 205-209.
- Toulouse, J.M. (1968). *Changement du concept de soi et structure de groupe dans le contexte d'une expérience de sensibilisation aux relations humaines*. Thèse doctorale non-publiée, Université de Montréal.
- Toulouse, J.M. (1971). *Mesure du concept de soi TSSC, manuel*. Manuscrit non-publié.
- Visotsky, H., & Hamburg, D. (1961). Coping behavior under extreme stress: Observation of patients with severe poliomyelitis. *Archives of General Psychiatry*, 5, 423-448.
- Webb, W. (1955). Self-evaluations, group evaluations, and objective measures. *Journal of Consulting Psychology*, 19, 210-212.
- Wells, L.E. (1976). *Self-esteem*. Beverly Hills: Sage.
- White, R. (1959). Motivation reconsidered: the concept of competence. *Psychological Review*, 66, 297-333.
- Woodworth, R. (1958). *Dynamics of behavior*. New York: Holt, Rinehart, et Winston.
- Wylie, R.C. (1961). *The self-concept*. Lincoln: University of Nebraska Press.
- Ziller, R. (1969). The alienation syndrome: A triadic pattern of self-other orientation. *Sociometry*, 32, 287-300.
- Ziller, R., Hagey, J., Smith, M., & Long, B. (1969). Self-esteem: A self- social construct. *Journal of Consulting and Clinical Psychology*, 33, 84-95.

ABSTRACT

Quality of Life in Paraplegics and Quadriplegics: Analysis of self-esteem

This study suggests that self-esteem is a positive indicator of quality of life among persons who have sustained a spinal cord injury. Significant correlations were found between self-esteem and defensive or avoidance styles of coping. As well, self-esteem scores for quadriplegic subjects were significantly higher than scores for the paraplegic subjects.

These findings should encourage nurses to evaluate their client's level of self-esteem as soon as possible during the rehabilitation process, so that they might initiate interventions that would assist the client to increase this level.

MARRIED REGISTERED NURSES' LABOUR FORCE PARTICIPATION

Gail P. Laing and Alfred W. Rademaker

Traditionally, nursing staffing planning policies have been directed toward increasing or curtailing professional training outputs in a manner similar to other health professions. Nursing is almost exclusively a female occupation in which a majority of the participants are married, and a married woman's labour force participation has to be balanced with family responsibilities; as such, participation may tend to be short-term or intermittent. A more fruitful staffing planning approach might be to direct attention toward those nurses who are already trained: the so-called "pool" of nursing supply. The problem is to understand and take account of this intermittent or secondary nature of married nurses' labour force participation. In effect, what distinguishes married registered nurses who work from those who do not? The purpose of the study, then, was to investigate concomitants of married registered nurses' labour force participation, in order to identify factors that might be useful as predictors of or manipulatable influences on the future supply of nurses. This report is a synthesis of a larger report (Laing, 1986).

Literature

Factors associated with labour force participation of women in general have been studied in the United States and Canada but very few studies have dealt with a particular professional group. Six studies of nurses' labour force participation have been located (Bishop, 1973; Bognanno, Hixson & Jeffers, 1974; Greenleaf, 1983; Link & Settle, 1979, 1980; Sloan & Richupan, 1975). All utilized an economic conceptual framework which included family life cycle variables. Each employed a type of regression modelling technique to estimate the effect of a slightly different group of independent variables on labour force participation. Several studies used U.S. Census data (Bognanno, Hixson & Jeffers, 1974; Link & Settle, 1979, 1980; Sloan & Richupan, 1975), another used state registration data (Bishop, 1973), while Greenleaf (1983) used secondary questionnaire data. Bishop used towns and

Gail P. Laing, R.N., Ph.D. is Associate Professor in the College of Nursing, at the University of Saskatchewan, in Saskatoon. Alfred P. Rademaker, Ph.D. is Associate Professor in the Department of Community Health and Preventative Medicine, at the Northwestern University Medical School, in Chicago.

cities as the unit of analysis, while all of the other studies were analysed on an individual nurse basis. Greenleaf used a dichotomous dependent variable (working or not-working) while the other studies used annual hours worked as the interval-level dependent variable. Accordingly, estimating techniques differed across studies.

The findings of these studies, when taken together, present a rather unclear picture of the relationship of these selected variables to nurses' labour force participation. The overall picture is confounded by differences in models, differences in methods and differences in time over the range of the data (1960 to 1980). In general though, these previous studies indicate that the wage of the spouse and other family income was significantly related to nurses' labour force participation. Wage of the nurse herself was equivocal; a significant factor in some studies (Bishop, 1973; Sloan & Richupan, 1975; Link & Settle, 1979), and not significant in others (Bognanno, Hixson & Jeffers, 1974; Link & Settle, 1980). The presence of young children was generally a constraint on the labour force participation of their mothers; the effect of the presence of older children was not certain. Attitudes toward a career or satisfaction with nursing were not included in any of these models.

Conceptual Framework

Labour force participation (the number of persons working out of the potential number trained or otherwise eligible to work) can be conceptualized and measured in several ways. The first is quantity of labour supplied in a given year, measured by annual hours worked. The second is the decision to work or not to work in a given year, measured as a dichotomous variable. In nursing, where such a large proportion of work is part-time, this is perhaps more properly conceptualized as a trichotomous variable - not working, part-time or full-time. Further, the decision regarding working may not be a yearly event but may rather correspond to a more extended time frame, such as a five-year pattern of participation. No one of these conceptualizations is theoretically better than another; therefore, all were taken into account in modelling labour force participation.

Five categories of factors were expected to influence labour force participation. These were: economic choice and need; sex role attitudes; stage of family life cycle; work related factors; and other factors such as educational level, health status and rural/urban residence. These factors and their operationalized variables are shown in Figure 1. The plus and minus signs next to the operationalized variables indicate the expected direction of the association between these variables and the dependent variable.

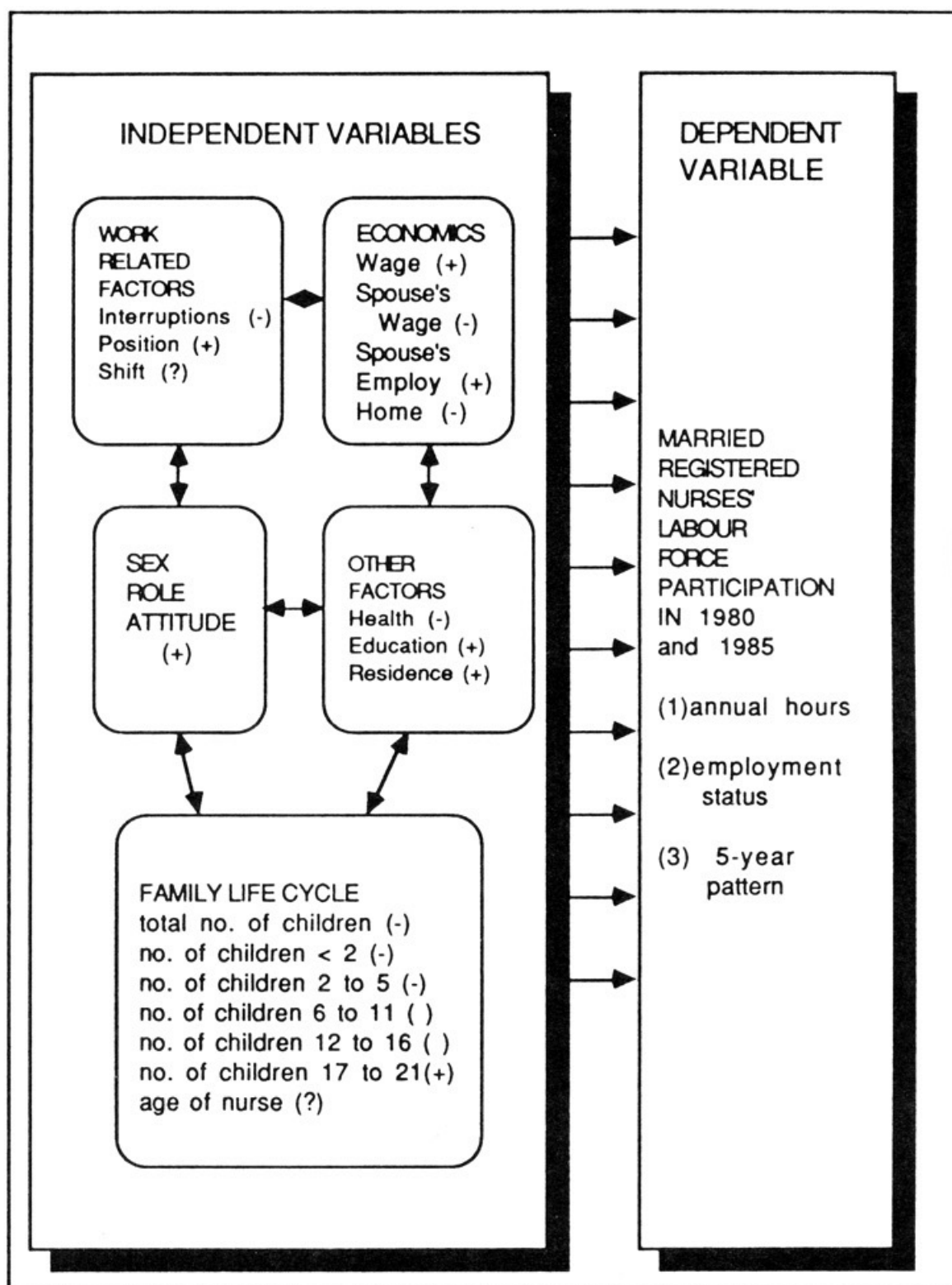


Figure 1

Conceptual Framework of Factors Influencing Married Nurses' Labour Force Participation

Economic choice was conceptualized as a decision to work, based on perceived rewards for paid employment, relative to the perceived rewards for remaining outside the labour force. Gronau's (1973) method of calculating a non-market value in monetary terms was employed. Gronau hypothesized that a woman would work if her "market" wages exceeded her estimate of the value of her non-work time. Further, her "non-market" wage could be approximated by calculating the wage she could earn if she did work. Accordingly, monthly wage rate for workers and non-workers was estimated with regression equations, based on the collective bargaining contract that prevailed across the population studied.

Economic need was included to capture previous evidence that female labour force participation is negatively associated with other family income and assets (Bowen & Finegan, 1969; Long & Jones, 1980; Spencer, 1973). Other assets were measured with spouse's income, spouse's work status and home ownership status.

While economic household choice theory posits that monetary concerns have the strongest influence on the decision by a married woman to work, it also includes the assumption that "inclinations" for home-work or for "market" work influence the amount of time a woman spends on either alternative (Bowen & Finegan, 1969; Spitze & Spaeth, 1979). Previous studies have not specifically measured and included 'tastes'. In this study these inclinations were specifically measured with a sex role attitude scale (Barbery, 1983).

Sex role attitude was conceptualized as a continuous construct, with its polarities epitomized by the "traditionalist" versus the "egalitarian" viewpoints. The home or traditionalist view centers on the division of labour within the family, with the gender-based homemaker and bread-winner specialization of wife and husband (Mason, Czajka & Arber, 1976). Fulfillment is seen as centered on the role of wife and mother. The egalitarian viewpoint is that women in general should hold a job if they want to, and that no-one, specifically a child, is harmed if they do so (Waite, 1978). Fulfillment is seen as centered on work and career.

Family life cycle was defined as a sequence of characteristic stages, beginning with family formation and continuing through the life of the family to its dissolution (Duvall, 1971). These stages are characterized not only by changing family constellations, but also by differing goals, tasks and values; they correspond loosely to the ages of mother and children. On the basis of previous studies the expectation was that there would be differential labour force participation according to the number and ages of the nurses' children (Landsberger, 1973; Mincer & Polacheck, 1974; Nye & Hoffman, 1963). As shown in Figure 1, younger children were expected to constrain labour force participation while older children were expected to encourage it.

When career and family both represent high demands on a woman's inclinations, the person with a satisfying career would be less likely to respond to conflicting demands by decreasing career involvement than would a person with less career satisfaction. Job commitment results from job satisfaction and, in turn, encourages continued participation in the labour force (Locke, 1976; Mobley, Griffeth, Hand & Meglino, 1979; Price & Mueller, 1981). A growing body of literature suggests that job satisfaction contributes to job commitment via five key factors: variety of skills required by the job, the extent to which the work is seen as whole rather than a fragment, the extent to which the work is perceived as important, the extent to which feedback is available from the work itself and the amount of autonomy in determining which work will be done (Gaertner, 1984; Hackman, 1977; Hackman & Oldham, 1975). A hierarchy of nursing positions, based on the scope for meeting these key factors, was hypothesized to represent job commitment. Through autonomy, shift work also appears to be associated with job commitment (Greenleaf, 1983; Parasuramen, Drake & Zammuto, 1982). Further, the number of previous career interruptions, when age and number of children have been controlled, was assumed to measure the degree to which a nurse has chosen to work in the face of conflicting demands. The implication was that fewer interruptions represents more satisfaction with work and commitment to it.

Some evidence in previous studies (Bishop, 1973; Bowen & Finegan, 1969; Decore, 1976; Willis, 1967) of rural or urban differentials in female labour force participation, prompted the inclusion of this variable. There has also been some evidence of difference in labour force participation by educational level (Greenleaf, 1983; Knopf, 1983; Michael, 1974; Suter & Miller, 1973). Finally, health status of the nurse was included as a control variable. Poor health or maternity leave may be the reason for withdrawal from the workforce and, if this possibility was not accounted for, it might have obscured the effect of other factors.

The possibility of interaction between many of these variables was allowed. Specifically, sex role attitude was expected to influence education, number of children, number of previous career interruptions and position. Education was expected to influence number and age of children, spouse's salary, position, shift and nurse's wage. Rural or urban residence was expected to influence home ownership and sex role attitude. Age of the nurse was expected to influence home ownership, spouse's salary, and number and age of children. The work-related variables (number of interruptions, position and shift) were expected to influence a nurse's wage as well as to interact among themselves.

Design

The main study was an exploratory survey conducted in 1985. It was a longitudinal design in the sense that respondents were asked to recall their work history over the past six years (1980 to 1985).

Population and sample

The target population was married nurses registered in Saskatchewan, Canada in 1985. The Saskatchewan Registered Nurses' Association (SRNA) regulations specify that, subsequent to initial registration, a nurse must have worked a certain number of hours within the past five years to be eligible for current registration (SRNA, 1985). Thus the definition of a registered nurse (as opposed to a graduate nurse) is based on a five-year time frame. In order to represent the target population adequately, the sampling frame had to include anyone who was registered with the SRNA within the past five years (1980 to 1984). This allowed inclusion of nurses who were not currently registered, but who would be eligible for registration if they chose to be. A cumulative list of married, female nurses under the age of 65 was assembled from computer records of year-end files for the past five years. A random selection procedure was then used to select a sample of 1,000 subjects.

The instrument

Data were collected with a mail questionnaire composed of three sections which measured labour force participation, economic, work related and family life cycle variables and sex role attitudes. Section I was composed of questions related to personal and family life cycle variables. Section II was a work history. These questions were taken from the 1981 Canadian Census, and from studies of work patterns of nurses (Jope, 1981; Knopf, 1983). Section III was a sex role attitude scale constructed by Barbery (1983). She tested construct validity by checking her scale classification of home- versus career-oriented women against classifications of the same subjects with the Edwards Personal Preference Schedule (Edwards, 1959) and the Strong-Campbell Interest Inventory (1981). For a statistically significant number of subjects, the classifications were consistent. Significant differences in the way women in different occupational categories (housewives, non-professionals and professionals) responded were demonstrated. Reliability estimates (item-total correlations) indicated homogeneity of content. However, because validity for the use of this scale had not been established with a sample of nurses, the scale, along with the rest of the questionnaire, was pretested with 100 nurse subjects from a neighboring province. Statistical tests of internal consistency (split-half and item-total correlations) and predictive validity (t-test between employed and non-employed subject's

scores, and analysis of variance among scores of type of position categories) indicated a satisfactory level of reliability for the Barbery scale with nurse subjects ($r > .8$).

Data collection procedure

After consent for access to subjects had been obtained from the SRNA, the study was publicized in the provincial nursing newsletter. The questionnaire along with an explanatory letter and a stamped, self-addressed envelope were delivered to the SRNA office; the computer generated mailing labels were applied by SRNA staff; and the package was mailed to subjects. Return of the completed questionnaire was taken as informed consent. The researcher did not see the names on the mailing list nor was the respondent's name on the completed questionnaire, thus confidentiality and anonymity were assured. A post-card reminder was forwarded two weeks later to the entire sample by SRNA office staff, to thank respondents and re-appeal to non-respondents. This elicited a response rate of 61%.

Analysis

Analysis involved the estimation of eight different models of married nurses' labour force participation. Four descriptive models that used annual hours worked and employment status as the dependent variables were estimated for 1980 and 1985, and compared. Stepwise multiple regression and path analysis were used to estimate annual hours models. Discriminant analysis was used to estimate three-category employment status (full-time, part-time and not working) models for 1980 and 1985. These four models were compared, according to the relative importance of the various independent variables, to ascertain the differences engendered by the differential definitions of labour force participation and the stability of the postulated relationships over time. Four forecasting models were estimated that used 1980 data for the independent variables; a three-group and a six-group categorization of the five-year career pattern, annual hours worked and employment status in 1985 were the dependent variables. The three-group career pattern consisted of either an interrupted pattern, continuous full-time work, or continuous part-time work. The six-group career pattern was an attempt to refine career pattern, by defining interruptions more specifically. The groups were: continuous full-time, continuous part-time, interrupted with periods of not working, interrupted with periods of looking for work, interrupted with periods of working other than as nurses and interrupted with periods of being a student. As with the descriptive within-year models, stepwise regression and path analysis were used to estimate the annual hours model, and stepwise discriminant analyses were used to estimate the career pattern and employment status models. This analysis is summarized in Figure 2.

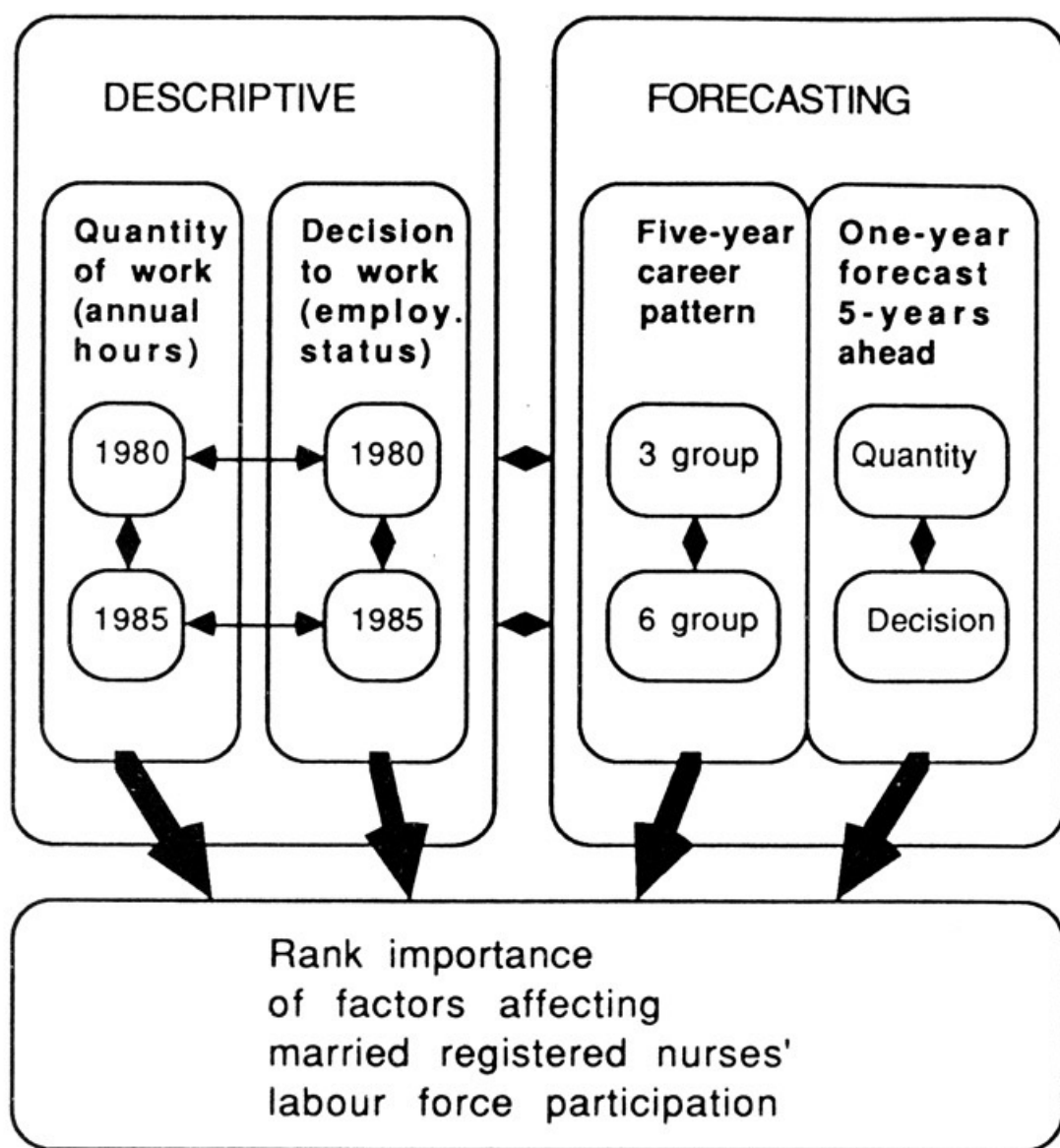


Figure 2

Summary of the Analysis: Eight models of labour force participation

In order to legitimize the comparison of models with different dependent variables and different time frames, the same cases were used for all models. Consequently, cases with missing values for any of the 1980 or 1985 variables were deleted, as were cases in which the respondent was not married or working other than as a nurse. This deletion resulted in 400 cases with complete data for 1980 and 1985 which were used in all models, thereby ruling out the possibility that differences between models might be attributed to essentially different samples. Four hundred cases still allows ample power for the techniques used, according to calculations based on Cohen's (1977) formulations. The same variables were offered for selection in all of the step-wise estimating procedures.

Finally, the overall relative importance of the factors posited to be associated with married registered nurses' labour force participation was calculated. A scheme that took into account both the rank of the important variables within the respective models and the number of models in which the variables ranked was used.

Results

A profile of the "typical" respondent, assembled from the means and medians of these data, would be a nurse who was married and living with her spouse both in 1980 and in 1985. In 1980 the average respondent was 35 years old, with one child between the ages of six and eleven. She graduated from a hospital-based diploma program in 1967, and was working full-time as a staff nurse on a rotating shift, 26 hours a week for 37 out of 52 weeks. She earned \$1,237 per month. Her husband worked 48 out of 52 weeks; his reported annual salary was between \$15,000 and \$25,000. The nurse lived in a mortgaged home in a city in Saskatchewan; she considered herself to be healthy.

In 1985, the typical respondent (the same respondent as in 1980) was 39 years old and had two children between the ages of six and eleven. She graduated from a hospital-based diploma program in 1967. She had worked for 15 years, with one career interruption. In 1985 she was likely to be working part-time as a staff nurse, on a rotating shift: 24 hours a week for 17 weeks (out of a possible 22 weeks, considering a mid-June cut-off point for data collection). She earned \$1,633 per month. Her husband has been employed 19 out of the possible 22 weeks; he earned between \$25,000 and \$30,000 per annum. The nurse lived in a mortgaged home in a city in Saskatchewan; she considered herself to be healthy.

Participation rates, calculated as the proportion of those working in nursing, either part-time or full-time out of the total sample were 84% in 1985 and 85% in 1980. Comparing these rates with Statistics Canada (1983) figures

for Saskatchewan married registered nurses in 1983, shows the difference between rates calculated with nurses who are registered as the denominator (Statistics Canada) and rates calculated with nurses who are eligible for registration as the denominator. The participation rate from Statistics Canada was 96.3% as compared to 85% from these data.

Examination, by age categories, of annual hours worked in 1980 and 1985 revealed a U-shaped trend in both years; more pronounced in 1980 than 1985. This curve is described only as a trend; there was no statistically significant difference among the mean hours worked in the separate age categories. The trough in the U corresponds to the presence of more children in the 2-to-5 and 6-to-11 age ranges. Thus respondents tended to interrupt their careers when their children were 2-to-11 years old, and then return to work.

Table 1

Distribution of Five-year Career Patterns:1981 to 1985

Pattern	Absolute Frequency	Relative Frequency (%)
Continuous		
Full-time	141	24.1
Part-time	158	27.0
Full-time and part-time	79	13.5
Not working for pay	11	1.9
Other than Nursing	2	.3
Not Continuous (interrupted)		
Interrupted with not working for pay	92	15.7
Interrupted with unemployment	30	5.1
Interrupted with other than Nursing	27	4.6
Interrupted with student role	27	4.6
Missing values in any year	<u>18</u>	<u>3.1</u>
Total	585	100.0

Table 2

Summary of Ranking of Variables in Eight Models Tested

Variable	1980				1985		Rank in Model		Forecasting		Score
	Annual Hours	Employ. Status	Annual Hours	Employ. Status	Annual Hours	Employ. Status	Five-year Group	Pattern Group	Annual Hours	Employ. Status	
Sex role attitude	2	7	1	3	1	1	1	1	1	1	17
Position	1	2	2	2	4	3	4	3	5	10	29
Interruptions	4	5	10	5	2	2	2	2	2	2	32
Children 2-5	10	3	3	4	3	6	3	6	6	3	38
Shift	5	1	4	1	10	4	10	4	10	10	45
Spouse's salary	10	10	5	8	6	10	6	10	4	6	59
Total children	3	10	10	10	10	5	10	5	7	5	60
Children < 2	6	6	10	10	5	10	5	10	10	4	61
Children 6-11	10	4	6	6	10	10	10	10	10	10	66
Age of nurse	7	8	7	10	10	10	10	10	8	10	68
Health	10	10	10	7	10	10	10	10	3	10	70
Education	10	9	10	10	7	10	7	10	9	10	75
R-square*	.51	.40	.41	.58	.45	.44			.26	.25	

*R-square for the employment status and pattern models which were estimated with discriminant analysis = 1 - Wilks' lambda.
10 means the variable did not enter the model.

Examination of the five-year detailed career pattern (Table 1) showed that, in contrast to the within-year participation rates of 85%, the five-year participation rate was 64.6%. That is, 64.6% of the respondents worked continuously, either part-time or full-time over the entire period from 1981 to 1985. Only 24% worked full-time continuously for the five-year period, and 27% worked part-time for the total period.

In Table 2 the rank of the important variables selected by stepwise estimating procedures are compared and a calculation of their overall importance is presented. The within-model ranks have been previously assigned, either according to the size of the total causal effects in the decomposition of zero-order correlations for annual hours models, or according to the step at which a variable entered the stepwise discriminant analysis for the employment status models. Each variable that entered some but not all models was assigned a rank of 10 in those models in which it was *not* significantly ranked. A ranking score was assigned to each variable by adding its rank positions across the eight models. This weighting scheme allows the variables to be ranked according to their overall importance, taking into account their relative rank in the individual models and the number of models in which a particular variable participated.

Table 2 shows that sex role attitude was clearly the most important variable in the models tested. It was highly ranked in all of the models except one. Position was a clear second. Previous career interruptions ranked third. The presence of children between two and five years old ranked fourth. The shift which a nurse worked ranked fifth. Spouse's salary ranked sixth, followed by several further family life cycle variables, - total number of children, children under the age of two, children between the ages of six and eleven and the age of the nurse. Health of the nurse ranked eleventh, followed by nurse's education. The other variables postulated in the conceptual model - nurse's wage, rural or urban residence, home ownership status, spouse's employment status, length of service, and the presence of children over the age of 12 - were not significant in any model and therefore do not appear in Table 2.

Discussion

The results of this study indicate that the current high labour force participation rate for married registered nurses will likely continue because it is influenced more by such long-term trends as increasingly egalitarian sex role attitudes, increasing participation by mothers of young children and work-related factors rather than by factors related to the difficult economic times of the early 1980's.

Sex role attitudes are strongly associated with labour force participation; those nurses holding an egalitarian attitude are more likely to work more

hours in a given year, to work full time rather than part time or not work, and to work full time or part time over a five-year period, rather than to interrupt their participation. Sex role attitude is a stronger predictor of married nurses' labour force participation than work commitment, family life cycle or economic considerations. Sex role attitude among married women has been demonstrated in previous research to be shifting increasingly toward egalitarianism (Mason, Czajka & Arber, 1976; McBroom, 1984; Waite, 1979). The relationship of sex role attitudes and labour force participation among the nurses in this study is similar to that of women in general. Therefore married registered nurses' labour force participation rates (85%) should continue at the current high level and even increase.

Given this strong association between sex role attitude and labour force participation, two main implications arise. The first is that monitoring sex role attitudes could be a good way to predict trends in labour force participation rates. The second implication centers on the feasibility and the ethical justification of objectives in nurses' educational programs directed toward increasing the egalitarian attitudes of nursing students.

Work commitment was conceptualized in this study as a function of work-related factors, and was found to be strongly predictive of labour force participation. Those with a stronger work commitment worked more than those with a weaker commitment. This is an important association because work commitment, more than any of the other concomitants studied, should be amenable to direct manipulation by competitive employers and nursing groups, to increase participation if they so wish. Work commitment and job satisfaction have also been linked to performance quality (Hall, VonEndt & Parker, 1981), which adds to the importance of their encouragement.

Of the three variables measuring work commitment, position was the strongest predictor of labour force participation. Position was conceptualized as representing status and autonomy. Thus strategies that increase status and autonomy for nurses at all levels in the work hierarchy, and particularly at the staff nurse level where the majority of nurses work, should increase participation. Examples of such strategies which have been proposed by other authors are: career counselling by employers and educational institutions to plan goals for advancement; awarding clinical appointments in cooperation with nursing schools in order to recognize clinical excellence; placing nurses on institutional policy committees (Friss, 1981); and providing monetary recognition commensurate with educational investment and work responsibilities of nurses that is comparable to other workers in the institution and in society,

Previous career interruptions was the next most important of the work commitment variables, as a predictor of labour force participation. A nurse who

had previous career interruption was more likely than one who had not to be not working in a particular year or to have more interruptions over the five-year period studied. A strategy of accommodation between employing institutions and nurses with previous career interruptions that treated such nurses, "not as uncommitted transients but as astute career negotiators seeking to achieve a balance in their life space" (Friss, 1981, p.19), would facilitate their return and use the contribution that they are able to provide.

The results of this study support the idea that shift work afford flexibility that allows a nurse to maintain a work commitment, in spite of family responsibilities or alternatively, that shift work affords more work satisfaction than the day shift. However, such support is inconclusive because an alternative explanation, that shift work was the only option available, cannot be ruled out. Unfortunately, the data did not allow testing of these alternative hypotheses.

In summary, work commitment, rather crudely measured in this study with behavioural variables, position, previous career interruptions and shift proved to be an important predictor of married registered nurses' labour force participation. Work commitment is a function of work satisfaction and this is the most amenable to manipulation of all of the factors studied; as such, further research in the area is needed to test the assumptions made in this study.

Family life cycle variables, taken together, were the third most important predictor of labour force participation, following sex role attitude and work commitment. While the presence of children below the age of 11, and particularly between the ages of two and five were a significant and stable deterrent to the participation of their mothers, an increase in the participation of young married nurses between 1980 and 1985 was also evident. This increase parallels a profile of Canadian women in general, and projections of future participation rates of married women indicate that the increase is expected to continue. Implications for forecasting the future supply of nurses, then, are that the supply should increase as more nurses continue to work through their childbearing years. Employers who wish to take advantage of this trend could promote the employment of young mothers with flexible hours, time sharing and child care policies.

Of the economic variables, only spouse's salary was an important predictor of labour force participation. Further, the importance of spouse's salary has increased over time from 1980 to 1985, paralleling a down-turn in the provincial economy. Thus economic need was demonstrated to be an important factor in married nurses' labour force participation, although less important than sex role attitude, work commitment and family life cycle factors. The nurse's own wage was not an important predictor of employment in any

of the models. Whether or not this lack of importance can be attributed to the association of wage with other variables (particularly with position and previous career interruptions), to the narrow variance of wage when calculated from provincial collective bargaining contracts, or to a "real" unimportance was not ascertainable from these data and analyses.

Significant among the other factors studied was the finding that education was only weakly, but positively related to labour force participation. Some of the weakness could be attributed to the fact that nurses who had a higher education were married to spouses who earned more, thus these nurses had less economic need to work. However, arguments that baccalaureate entrance to practice would increase labour force participation among nurses are not supported by these findings.

In conclusion, this research has indicated that labour force participation for married registered nurses is characterized by periods of interruptions and part-time work. Whether such a nurse works or not is the result of a complex interplay of factors: her beliefs about the propriety of a married woman working, the satisfaction she derives from work, the presence of young children in the home and her family's economic need. Within the scheme of the variables studied, educational level and health status contribute a minor influence to the decision on whether or not to work.

REFERENCES

- Barbery, M. (1983). The Development and Initial Construct Validity of the Women's Attitude toward Work Scale. *Dissertation Abstracts International*, 43,3883A. (University Microfilms No. DA8309678).
- Bishop, C. (1973). Manpower policy and the supply of nurses. *Industrial Relations*, 12, 86-94.
- Bognanno, M.F., Hixson, J.S. & Jeffers, J.R. (1974). The short-run supply of nurses' time. *The Journal of Human Resources*, 9, 1, 80-94.
- Bowen, W.G. & Finegan, T.A. (1969). *The Economics of Labour Force Participation*. Princeton: Princeton University Press.
- Campbell, D.P. & Hansen, J.C. (1981). *Manual for the SVIB -SCII Strong Campbell Interest Inventory*. (3rd. ed.) Stanford, Ca.: Stanford University Press.
- Cohen, J. (1977). *Statistical Power Analysis for the Behavioural Sciences*. (rev. ed.). New York: Academic Press.
- Decore, M. (1976). *Women and Work in Canada, 1961-1971*. Unpublished doctoral dissertation. University of Alberta. Edmonton.
- Duvall, E.M. (1971). *Family Development*. (fourth edition). New York: J.B. Lippincott.
- Edwards, A.L. (1959). *Edwards Personal Preference Schedule Manual* (revised). New York: The Psychological Corporation.
- Friss, L. (1981). An expanded conceptualization of job satisfaction and career style. *Nursing Leadership*, 4, 13-21.
- Gaertner, K.M. (1984). Work satisfaction and family responsibility correlates of employment among nurses. *Work and Occupations*, 11, 439-459.
- Greenleaf, N.P. (1983). Labour force participation among registered nurses and women in comparable occupations. *Nursing Research*, 32, 5, 306-311.
- Gronau, R. (1973). The inter-family allocation of time. *American Economic Review*, 63, 634-651.
- Hackman, J.R. (1977). Work Design. In J. R. Hackman and J. L. Suttle (eds.). *Improving Life at Work*. Santa Monica Ca.: Goodyear.
- Hackman, J.R. & Oldham, G.R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, 60, 159-170.
- Hall, B., VonEndt, L. & Parker, G. (1981). A framework for measuring satisfaction of nursing staff. *Nursing Leadership*, 4, 29-33.
- Jope, A. (1981). *Career Patterns of Graduate Nurses: An Analysis of Selected Personal, Professional and Employment Variables*. Unpublished doctoral dissertation. University of Manitoba.
- Knopf, L. (1983). *Registered Nurses 15 Years After Graduation: A Report of the Nurse Career Pattern Study*. Pub. No. 19-1919. New York: National League for Nurses.
- Landsberger, M. (1973). Children's age as a factor affecting the simultaneous determination of consumption and labour supply. *Southern Economics Journal*, 40, 2, 279-288.
- Laing, G. (1986). *Factors Associated with Married Registered Nurses' Labour Force Participation*. Unpublished doctoral thesis. University of Calgary.
- Link, C.R. & Settle, R.F. (1979). Labour supply responses of married professional nurses: new evidence. *Journal of Human Resources*, 14, 256-266.
- Link, C.R. & Settle, R.F. (1980). Financial incentives and labour supply of married professional nurses. *Nursing Research*, 29, 4, 238-242.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M.D. Dunnette (ed.). *Handbook of Industrial and Organizational Psychology*. Chicago: Rand McNally.
- Long, J.E. & Jones, E. B. (1980). Labour force entry and exit by married women: a longitudinal analysis. *The Review of Economics and Statistics*, 62, 1, 1-6.
- Mason, K.O., Czajka, J.L. & Arber, S. (1976). Changes in women's sex role attitudes, 1964-1974. *American Sociological Review*, 41, 573-596.
- McBroom, W.H. (1984). Changes in sex role orientations: a five-year longitudinal comparison. *Sex Roles*, 11, 583-592.

- Michael, R.T. (1974). Education and the derived demand for children. In T.W. Schultz (ed.). *The Economics of the Family: Marriage, Children and Human Capital*. Chicago: University of Chicago Press.
- Mincer, J.S. & Polacheck, S. (1974). Family investments in human capital: earnings of women. In *Economics of the Family: Marriage, Children and Human Capital*. T.W. Schultz (ed.) Chicago: University of Chicago Press.
- Mobley, W.H., Griffeth, W.R., Hand, H.H., & Meglino, B.M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, 86, 493-522.
- Nye, F. I. & Hoffman, L.W. (1963). (eds.) *The Employed Mother in America*. Chicago: Rand McNally.
- Parasuraman, S., Drake, B.H. & Zammuto, R.F. (1982). The effect of nursing care modalities and shift assignments on nurses; work experiences and job attitudes. *Nursing Research*, 31, 364-367.
- Price, J. L. & Mueller, C. W. (1981). A causal model of turnover for nurses. *Academy of Management Journal*, 3, 543-565.
- Saskatchewan Registered Nurses' Association. (1985). *Objectives and Bylaws*. Regina: Saskatchewan Registered Nurses' Association.
- Sloan, F. & Richupan, S. (1975). Short-run supply responses of professional nurses: a micro-analysis. *Journal of Human Resources*, 10, 241-257.
- Spencer, B.G. (1973). Determinants of the labour force participation of married women: a microstudy of Toronto Households. *The Canadian Journal of Economics*, 6, 222-238.
- Spitze, G.D. & Spaeth, J.L. (1979). Employment among married female college graduates. *Social Science Research*, 8, 184-199.
- Statistics Canada. (1983). Revised Registered Nurses Data Series. Ottawa: Health Manpower Statistics Section, Health Division. Statistics Canada.
- Suter, L.E. & Miller, H.P. (1973). Income differences between men and career women. *American Journal of Sociology*, 77, 962-974.
- Waite, L.J. (1978). Projecting female labour force participation from sex role attitudes. *Social Science Research*, 7, 299-318.
- Willis, L.D. (1967). *A Study of Work Histories of Married Nurses*. Unpublished doctoral dissertation. University of California, Berkley.

This paper is based on research conducted while both authors were in the Department of Community Health Sciences, Faculty of Medicine, University of Calgary. The study was partially funded by the Alberta Foundation for Nursing Research.

RÉSUMÉ

Participation des infirmières mariées à la population active

Traditionnellement, les politiques de planification du personnel infirmier ont cherché à augmenter ou à écourter les programmes de formation professionnelle. Mais étant donné que la profession d'infirmière est essentiellement dominée par les femmes, que la majorité des infirmières sont mariées et qu'une femme mariée doit créer un équilibre entre son travail et ses responsabilités familiales, leur participation est souvent de courte durée ou de nature intermittente. Une méthode plus fructueuse consisterait peut-être à s'intéresser davantage aux infirmières déjà formées.

L'étude a été conçue comme sondage rétrospectif exploratoire. Les données ont été recueillies au moyen d'un questionnaire envoyé à un échantillon randomisé de 1000 infirmières mariées de Saskatchewan, membres de l'Association des infirmières diplômées de la Saskatchewan, au cours des cinq dernières années. On a obtenu un taux de réponse de 61% après un envoi et une carte de suivi.

La structure conceptuelle posait en principe que la décision d'une infirmière mariée au sujet de son travail subit l'influence de facteurs et de besoins économiques, de ses attitudes sur la propriété des femmes au travail, de l'étape du cycle de la vie familiale où elle se trouve, de facteurs liés au travail et d'autres facteurs comme l'éducation, la santé et le fait d'habiter en zone rurale/urbaine.

L'analyse du cheminement de carrière quinquennal des répondantes a révélé que contrairement à des taux de participation de 85% en 1980 et 1985, seulement 64% des répondantes ont travaillé de façon ininterrompue au cours de ces cinq ans. Le taux de participation de 36% de ces infirmières mariées a effectivement été interrompu ou intermittent. D'autres résultats révèlent que les taux de participation des infirmières mariées subissent l'influence de tendances à long terme comme les attitudes de plus en plus égalitaires sur les rôles sexuels, la participation accrue des mères de jeunes enfants et des facteurs d'ordre professionnel plutôt qu'économique.

COMPARISON OF PAIN PERCEPTIONS AMONG MALES AND FEMALES

Janice Lander, Susan Fowler-Kerry and Ann Hill

Convictions about male or female superiority in bearing pain have inspired much research. This research, which dates back to the 1930's, has been the domain of psychologists and physicians. Traditionally, researchers have examined many aspects of pain mechanisms in the laboratory by studying normal subjects in whom pain is induced by application of physical stimuli (Procacci, Zoppi & Maresca, 1979). Seldom have gender effects been examined in clinical populations; that is, in those who have endogenous pain or pain caused by procedures.

While the majority of the research has indicated that females are more responsive to pain than males, a review of the literature indicates that this conclusion may not be warranted. There are two purposes to this paper. One is to present the historical background to this issue, through a critical review of the literature. Some technical aspects of the research will also be delineated as techniques used by researchers have influenced the interpretation of the findings. The second purpose is to assess clinical pain experienced by males and females.

The Research Paradigm

The research techniques of clinical and experimental pain studies are distinguished by the nature of the pain and by the manner in which pain is measured. As mentioned, clinical pain is endogenous or is induced by procedures. It is normally of longer duration and greater intensity than experimentally induced pain. Furthermore, the person with clinical pain may be concerned about death, disability or other consequences of the illness that is the source of the pain.

Experimental pain, on the other hand, is induced for the sole purpose of studying pain. Stimuli used to induce pain can be classified as thermal (heat

Janice Lander, Ph.D., is Associate Professor in the Faculty of Nursing at the University of Alberta, in Edmonton. Susan Fowler-Kerry, M.N., is Associate Professor in the College of Nursing at the University of Saskatchewan. Ann Hill, M.N. is Instructor at Misericordia Hospital School of Nursing, in Edmonton.

and cold), mechanical (pressure), electrical (electric shock) and chemical (injection or application of irritating substances). What these stimuli have in common is that they are safe, controlled and produce short-term pain which is cutaneous, deep somatic or visceral in nature. Cutaneous pain arises from stimulation of the skin, whereas deep somatic pain arises from stimulation of tissues like bone, muscle and tendons. Visceral pain originates from stimulation of organs such as the bladder or stomach. Neither visceral nor deep somatic pain are commonly chosen for study in laboratory pain research (Wolff, 1977) whereas clinical pain research includes cutaneous, deep somatic and visceral pain.

Moreover, in laboratory studies, pain is assessed with psychophysical measures that are particular to the setting (Chapman et al., 1985). The measures that are employed include pain threshold and pain tolerance. By contrast, clinical studies about pain do not employ psychophysical measures like threshold and tolerance because they are not useful concepts in the clinical management of pain. Instead, pain is often measured by subjective reports of pain intensity. Less valid and more error-prone clinical measures of pain include observation of behaviour and analgesic intake, both of which are used to infer occurrence of pain.

To date, much research on gender and pain employs an experimental research paradigm in which cutaneous pain is induced through the application of ice-water, pin-point heat or electric shock. Further, pain threshold, tolerance and intensity have been utilized as measures of pain.

Experimental studies on gender and pain

Experimental studies of gender and pain have generated consistent findings. This can be seen in Table 1, which summarizes the results of the studies by crosstabulating type of pain stimulus and measure of pain. Females have lower pain thresholds and lower pain tolerances, and they report greater pain intensity than males. Where these conclusions were not supported (Notermans & Tophoff, 1967; Tedford, Warren & Flynn, 1977), the studies were noted to have weaknesses, especially with regard to data analyses and statistical power.

These observations of the relationship of gender to pain can be interpreted in several ways. One view is that there are gender differences in pain threshold, tolerance and intensity. Evidence for this view comes from findings of alterations to pain sensation during the ovulatory phase of the menstrual cycle where sensitivity to pain has been found to be both heightened (Goolkasian, 1980) and diminished (Tedford et al., 1977) during the ovulatory phase. Lack of consistency in the results from the two studies may be attributable to the use of different measures of pain.

Table 1

Research on Gender Effects in Pain: Crosstabulation of Type of Pain Stimulus and Measure of Pain

Pain Stimulus	Threshold	Measure of Pain Tolerance	Intensity
Heat	Procacci et al., 1970 ¹		Goolkasian, 1980 ¹ Clark & Mehl, 1971 ² Clark & Goodman, 1974 ²
Pressure		Otto & Dougher, 1985 ¹ Dubreuil & Kohn, 1986 ¹ Woodrow et al., 1972 ¹	Dubreuil & Kohn, 1986 ¹
Electric Shock	Notermans & Tophoff, 1967 ¹ Leon, 1974 ¹ Kennard, 1952 ¹	Notermans & Tophoff, 1967 ¹ Tedford et al., 1972 ²	Davis et al., 1979 ¹
Cold Pressor	Westcott et al., 1977 ¹	Westcott et al., 1977 ¹	

¹ Females found to have greater pain threshold, lesser pain tolerance or greater reported pain intensity compared to males.² No difference found between males and females.

Another interpretation for the observed gender effect in these experimental studies is that pain sensation is the same for males and females, but that some feature of the experiment causes males to delay their response compared to females, or alternatively, results in females responding more quickly than males. In short, a response bias has occurred. Subjects may be reacting to what has been labelled the "demand characteristics" of the study, resulting in biased responses among subjects (Orne, 1962).

In pursuing the latter explanation, some researchers sought to apply a complex psychophysical method called Signal Detection Theory (Green & Swets, 1966), in order to assess gender differences in pain. The Signal Detection approach is used to partition the outcome variable into that which is due to the sensory effects of the stimulus and that which is due to response biases from such factors as motivation, attitude, anxiety and reactivity. When this approach has been used, males and females have not been found to differ in sensitivity to pain (Clark & Goodman, 1974; Clark & Mehl, 1971). However, Rollman (1977) has argued convincingly that Signal Detection Theory cannot be applied to pain research and that, where it has been used, considerable theoretical and methodological flaws are evident. The issue of whether or not the gender differences associated with experimentally induced pain can be attributed to gender differences in pain sensation or to response bias remains unresolved and, perhaps, unresolvable.

Clinical studies of gender and pain

Information about gender effects on pain obtained from clinical studies is often incidental and not related to the main purpose of the studies. Hence, the information tends to be lost in the literature, rather than to be added to knowledge derived from experimental studies about gender and pain.

It has been found that women report more physical symptoms, including pain (Davis, 1981; Edwards, Zeichner, Kuczmierczyk & Bockowski, 1985; Margolis, Zimny, Miller & Taylor, 1984). This was also related in a report of a Canadian survey of patients from a group family practice unit (Crook, Rideout & Browne, 1984). Women were more likely than men to report having experienced pain in the two weeks prior to the survey. Women have also been noted to complain of greater intensity of back pain than men, although the proportion of variance in pain accounted for by gender was very small (Keefe, Wilkins, Cook, Crisson & Muhlbaier, 1986). In a number of studies the differences between males and females were so small that it would be reasonable to conclude that males and females are more alike than they are different, with respect to reported pain intensity and observed pain behaviours (Davis, 1981; Haley, Turner & Romano, 1985; Keefe et al., 1986). Moreover, it is not apparent that a gender difference in symptom reporting indicates a gender difference in pain perception.

There have been reports of gender differences among children, when pain behaviours are observed. Females have been observed to show distress of pain more than males (Katz, Kellerman & Siegel, 1980), and to react by orienting toward a painful stimulus - unlike males do (Craig, McMahon, Morison & Zaskow, 1984). Further, younger females demonstrate more verbal resistance to painful procedures when compared to older females and when compared to older and younger males (Jay, Ozolins, Elliott & Caldwell, 1983). On the other hand, neither heart rate nor crying were found to differ for male or female neonates following heel lance (Owens & Todt, 1984). Further, no gender differences were found in knowledge about pain or in ability to communicate about pain among school age children (Ross & Ross, 1984).

Nurses' inferences about gender and pain

As mentioned, psychologists and physicians have been responsible for much of the research on gender differences in pain. Nurse researchers have contributed through the study of nurses' judgments and inferences about pain. In some studies, it has been reported that nurses believe that there is no difference in pain experienced by males and females (Dudley & Holm, 1984; Holm, Cohen, Dudas, Medema & Allen, 1989). Others have reported that nurses believe that females suffered more pain than males (Davitz & Davitz, 1981). An apparent contradiction to that view is the observation that nurses believed females should have smaller amounts of narcotics than males (all other conditions except gender were held constant) (Cohen, 1980).

The purpose of this paper was to address the question of whether males and females react to clinical pain in dissimilar ways. In this study, three clusters of patients were studied to determine if perceived pain intensity was related to gender. As the three clusters were examined separately, this study could be considered to be three replications of the study of gender on pain. A comparative descriptive design was employed.

Method

Subjects

Three clusters of subjects were selected because each had one source of pain in common: either cutaneous or deep somatic. The first cluster of subjects consisted of 200 children, aged 4.5 to 6.5 years (mean age 5.5 years), receiving preschool immunizations. There were 100 males and 100 females. The second cluster consisted of 75 post-surgical patients who were having their abdominal incision cleaned and packed. They ranged in age from 18 to 89 years (mean age 56.9 years) and there were 41 males and 34 females. The last cluster consisted of 78 patients, aged 18 to 61 years (mean age 45.9

years), who complained of knee pain caused by osteoarthritis, rheumatoid arthritis or traumatic arthralgia. There were 48 females and 30 males.

Instrument

In this study, pain was measured with self-report pain scales. This is a reliable and valid approach to the measurement of pain for adults and children (Huskisson, 1974; Scott, Ansell & Huskisson, 1977). The two adult clusters of subjects were presented with 11-point self-report numerical pain scales, where "0" represented no pain and "10" represented the worst pain possible. Because of the young age and level of cognitive development of the children, pain intensity was measured with a simplified version of the adult pain scale. The children used a four-point self-report pain scale, where "0" represented no pain and "3" was the worst possible pain. The scale consisted of four equal sized grey blocks printed on white paper.

Procedure

Two clusters of subjects were exposed to procedural pain. One of these consisted of children making a visit to a community health clinic for a pre-school Diphtheria-Pertussis-Tetanus immunization injection. Consent was obtained separately from the parent and child before they proceeded into the immunization room. While being informed about the study, the parent was instructed not to prompt the child during pain reporting. The child was instructed in use of the pain scale and presented with the anchors (the block on the left was no pain and the block on the right was the worst pain there could be). Then the child was asked to rate the pain that would be experienced from three hypothetical problems. This was done to ascertain that the child could understand how to use the pain scale. No child was excluded for being unable to comprehend the pain scale.

There were a number of community health nurses and all gave immunizations during the course of the study. The staff nurse positioned the child, prepared the injection site and administered the injection as would routinely be done in that setting. Hence, the preparation and injection were not controlled; this was done to avoid conducting the study in an artificial environment. Immediately following the procedure the research assistant asked the child to rate the pain from the injection by using the four-point scale. The child was shown the scale and asked to point to the block which was most like the pain from the needle. Notwithstanding the prior warning given to the parent not to prompt the child about amount of pain, the research assistant made it impossible for the parent to communicate non-verbally with the child by taking a position between the parent and child, thus obstructing the child's view. The staff nurse had also been instructed not to provide any cues about the pain of injection.

The second cluster of subjects who were exposed to procedural pain were those having wound packing removed from an abdominal incision. On the day prior to surgery, potential subjects were approached and asked to participate in the study. If they agreed, the research assistant instructed them in use of the 11-point pain scale. If the patient returned from the operating room with an incision requiring wound packing and cleaning, he or she was included in the study. Surgery had been performed by one of six surgeons. The reasons for surgery were primarily for cancer, diverticular disease, Crohn's disease, gastric ulcer, ostomy closure, cholelithiasis and colitis. The incisions were located in the upper or lower abdomen or midline and they were vertical, transverse or diagonal. Subjects received routine nursing care prior to having their pain assessed. This included post-operative mobilization, dressing change and analgesia.

The routine wound packing and cleaning taking place two mornings after surgery became the procedural pain stimulus. Immediately prior to the dressing change, the subject was re-acquainted with the pain scale. The dressing procedure was completed by the staff nurse caring for the patient. Accordingly, a number of nurses participated in this study. After the nurse had completed the dressing, the research assistant then entered the room and asked the subject to mark the point on the scale which best represented the pain experienced from the procedure. The research assistant also reviewed the patient chart and obtained information about analgesia given prior to the pain rating of the dressing procedure.

The third cluster of subjects were attending a first appointment with a physician for complaints of knee pain. These subjects complained of pain which had been present from four months to 32 years (mean 7.3 years) and had been referred for treatment by a specialist in rheumatology. The study was described to potential participants and informed consent obtained. Then the 11-point pain scale was presented and subjects were instructed in its use. Subjects were asked to complete the pain scale after seeing the physician, but before any new treatment had commenced. For those subjects who had bilateral pain, one knee was randomly selected to be the knee to be rated. Subjects were asked to report their present pain intensity.

The inclusion of these three clusters permitted the study of two types of clinical pain in subjects having a broad age-range. The types of pain were: cutaneous pain, in children with injections and in adults with wound packing during dressing change; and deep somatic pain, in patients with knee pain.

Although all data collectors, nurses and subjects knew that clinical or procedural pain was to be assessed, none was aware of the specific purpose of the study reported in this paper. This reduced the potential for bias to occur in subjective pain reports arising from demand characteristics of the study.

Results

Inasmuch as the three clusters were heterogeneous, gender effects were analyzed separately for each cluster of subjects. A chi-square analysis was chosen to examine data about children's reported injection pain because the scale of measure was a four-point ordinal scale. This analysis did not indicate a significant difference in pain for boys and girls. Mean pain for boys was 1.5 and for girls was 1.6.

Analysis of variance indicated that there were no significant differences in reported pain arising from wound packing and cleaning for males or females. Mean pain for males was 4.0 and for females was 4.5. Further, analysis of variance demonstrated that wound characteristics were not factors that influenced the pain rating provided after the dressing change. Neither frequency of narcotic administration ($r=.16$) nor the amount of analgesia ($r=.12$) given at the last administration prior to the dressing were significantly correlated with reported pain. The time since the last analgesia was significantly, negatively correlated with pain from the dressing change ($r=-.25$, $p=.01$). In addition, there were no significant differences for males or females in frequency of narcotic administration nor in time since and amount of last narcotic before the dressing (analysis of variance).

The subjects with knee pain were diagnosed as having rheumatoid arthritis ($n=39$), osteoarthritis ($n=27$) or traumatic arthralgia ($n=12$). There were significantly more females who were diagnosed as having rheumatoid arthritis than males (chi-square=7.15, $df=2$, $p=.03$). However, there were no significant differences in reported pain for the three diagnostic categories of knee pain (analysis of variance). Duration of pain was not significantly correlated with reported knee pain ($r=-.05$). There was no significant difference between males and females for reported knee pain (analysis of variance). Mean reported pain for males was 5.9 and for females was 5.7.

Discussion

Analysis of gender effects for three different clusters of subjects with clinical pain failed to find differences in reported pain between males and females. This finding was noted for both child and adult subjects, and for acute and chronic pain.

Subjects in two clusters had pain induced by clinical procedures. Although not as controlled as laboratory techniques for inducing pain, these methods provided a satisfactory clinical alternative to laboratory procedures. The advantage of using the clinical procedures is that of ecological validity. Arthritic pain, the third source of clinical pain included in this study, was a much less controlled source of pain than the other two sources. However,

even when a disease process was used as the source of pain, no gender effect was noted in reported pain.

The results of this study are in disagreement with those from laboratory studies of gender effects on pain perception where, compared to males, females have lower pain threshold and tolerance and they rate experimentally induced pain as being more intense. Even though gender differences in behavioural response to pain have been observed, males and females do not perceive or report clinical pain in a manner that is gender related. The findings of differences in pain behaviour for males and females in past research and no gender differences for reported clinical pain in this study give credence to the view that gender differences in laboratory pain are caused by demand characteristics associated with the studies.

It is not clear that results obtained from normal subjects who have had experimentally induced pain should be generalized to clinical populations. Experimentally induced pain likely differs markedly from clinical pain. The main advantage of using experimentally induced pain in research is control; the cost of achieving this control may be poor ecological validity, as the results may not be applicable to pain situations. In spite of this shortcoming, it is important to note that lack of ecological validity should not be used to trivialize the importance of experimental pain research. Rather, differences in findings from the two research paradigms should be valued for they help us to understand the behaviour of humans under different circumstances.

These results are important because, as researchers and clinicians, we often overhear views expressed that either males or females are more tolerant of pain in clinical settings. If pain perceptions do not differ for males and females, then perhaps what is influencing clinicians' beliefs are gender differences in pain behaviours. It is important that clinicians' perceptions and ultimately their clinical decisions not be biased by irrelevant information.

Nurses have been found to make hypothetical pain management decisions for female patients that were different from those made for male patients described in case vignettes (Cohen, 1980). In this study, there was no evidence that nurses actually did vary analgesic administration on the basis of gender, at least for one cluster of subjects. Future research should extend the study of nurses' management of pain with regard to gender to other populations. If the finding is supported in other settings, then it can be concluded that, notwithstanding of the debate about gender and pain perception, nurses provide males and females equally with analgesia for their pain.

REFERENCES

- Chapman, C., Casey, K., Dubner, R., Foley, K., Gracely, R. & Reading, A. (1985). Pain measurement: An overview. *Pain*, 22, 1-31.
- Clark, W. & Goodman, F. (1974). Effects of suggestion on d' and Cx for pain detection and pain tolerance. *Journal of Abnormal Psychology*, 83, 364-372.
- Clark, W. & Mehl, L. (1971). Thermal pain: A sensory decision theory analysis of the effects of age and sex on d' , various response criteria and 50% threshold. *Journal of Abnormal Psychology*, 78, 202-212.
- Cohen, F. (1980) Post-surgical pain relief: Patients' status and nurses' medication choice. *Pain*, 9, 265-274.
- Craig, K., McMahon, R., Morison, J., & Zaskow, C. (1984). Developmental changes in infant pain expression during immunization injections. *Social Science Medicine*, 19, 1331-1338.
- Crook, J., Rideout, E. & Browne, G. (1984). The prevalence of pain complaints in a general population. *Pain*, 18, 299-314.
- Davis, G., Buchsbaum, M. & Bunney, W. (1979). Analgesia to painful stimuli in affective illness. *American Journal of Psychiatry*, 126, 1148-1151.
- Davis, M. (1981). Sex differences in reporting osteoarthritic symptoms: A sociomedical approach. *Journal of Health and Social Behavior*, 22, 298-310.
- Davitz, J. & Davitz, L. (1981). *Inferences of Patients' Pain and Psychological Distress: Studies in Nursing Behaviors*. Springer: New York.
- Dubreuil, D., & Kohn, P. (1986) Reactivity and response to pain. *Personality and Individual Differences*, 7, 907-909.
- Dudley, S. & Holm, K. (1984) Assessment of the pain experience in relation to selected nurse characteristics. *Pain*, 18, 179-186.
- Edwards, P., Zeichner, A., Kuczmierczyk, A. & Bockowski, J. (1985). Familial pain models: The relationship between family history of pain and current pain experience. *Pain*, 21, 379-384.
- Goolkasian, P. (1980) Cyclic changes in pain perception: an ROC analysis. *Perception and Psychophysics*, 27, 499-504.
- Green, D. & Swets, J. (1966). *Signal Detection Theory and Psychophysics*, Wiley: New York.
- Haley, W., Turner, J. & Romano, J. (1985). Depression in chronic pain patients: Relation to pain, activity and sex differences. *Pain*, 23, 337-343.
- Holm, K., Cohen, F., Dudas, S., Medema, P. & Allen, B. (1989). Effect of personal pain experience on pain assessment. *Image*, 21, 72-75.
- Huskisson, E. (1974). Measurement of pain. *Lancet*, 9, 1127-1131.
- Jay, S., Ozolins, M., Elliott, C. & Caldwell, S. (1983). Assessment of children's distress during painful medication procedures. *Health Psychology*, 2, 133-147.
- Katz, E., Kellerman, J. & Siegel, S. (1980). Distress behavior in children with cancer undergoing medical procedures: Developmental considerations. *Journal of Consulting and Clinical Psychology*, 48, 356-365.
- Keefe, F., Wilkins, R., Cook, W., Crisson, J. & Muhlbaier, L. (1986). Depression, pain and pain behavior. *Journal of Consulting and Clinical Psychology*, 54, 665-669.
- Kennard, M. (1952). Responses to painful stimuli of patients with severe chronic painful conditions. *Journal of Clinical Investigation*, 31, 245-252. Leon, B. (1974). Pain perception and extraversion. *Perceptual and Motor Skills*, 38, 510.
- Margolis, R., Zimny, G., Miller, D. & Taylor, J. (1984). Internists and the chronic pain patient. *Pain*, 20, 151-156.
- Notermans, S. & Tophoff, M. (1967) Sex difference in pain tolerance and pain perception. *Psychiatria, Neurologica, Neurochirurgia*, 70, 23-29.
- Orne, M. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17, 776-783.

- Otto, M. & Dougher, M. (1985). Sex differences and personality factors in responsivity to pain. *Perceptual and Motor Skills*, 61, 383-390.
- Owens, M., & Todt, E. (1984). Pain in infancy: Neonatal reaction to heel lance. *Pain*, 20, 77-86.
- Procacci, P., Bozza, G., Buzzelli, G. & Della Corte, M. (1970). The cutaneous pricking pain threshold in old age. *Gerontologia Clinica*, 12, 213-218.
- Procacci, P., Zoppi, M. & Maresca, M. (1979). Experimental pain in man. *Pain*, 6, 123-140.
- Rollman, G. (1977) Signal detection theory measurement of pain: A review and critique. *Pain*, 3, 187-211.
- Ross, D. & Ross, S. (1984). Childhood pain: The school-aged child's viewpoint. *Pain*, 20, 179-191.
- Scott, J., Ansell, B. & Huskisson, C. (1977). The measurement of pain in juvenile chronic polyarthritics. *Annals of the Rheumatic Diseases*, 36, 186-187.
- Tedford, W., Warren, D. & Flynn, W. (1977). Alteration of shock aversion thresholds during the menstrual cycle. *Perception and Psychophysics*, 21, 193-196.
- Westcott, T., Huesz, L., Boswell, D. & Herold, P. (1977). Several variables of importance in the use of the cold pressor as a noxious stimulus in behavioral research. *Perceptual and Motor Skills*, 44, 401-402.
- Wolff, B. (1977). The role of laboratory pain induction methods in the systematic study of human pain. *Acupuncture and Electro Therapeutics Research*, 2, 271-305.
- Woodrow, K., Friedman, A., Siegelau, M., & Collen, M. (1972). Pain tolerance: Differences according to age, sex and race. *Psychosomatic Medicine*, 34, 548-556.

RÉSUMÉ

Comparaison de la perception de la douleur chez les hommes et les femmes

La documentation sur les différences liées au sexe en matière de perception de la douleur est analysée et résumée. La plupart des rapports signalés font état de douleurs provoquées en laboratoire. On a signalé un seuil de douleur plus bas, une moindre tolérance à la douleur et une plus grande intensité de la douleur chez la femme que chez l'homme. Toutefois, on ignore si les résultats d'études réalisées en laboratoire s'appliquent dans le contexte clinique. Dans la présente étude, trois groupes de sujets de sexe masculin et de sexe féminin ont été étudiés en vue d'évaluer les douleurs dont les intéressés se plaignaient. Aucune différence significative liée au sexe n'a été notée. Ces résultats et leurs implications cliniques sont exposés.

COMING EVENTS

SECOND INTERNATIONAL SYMPOSIUM ON PEDIATRIC PAIN

Montreal, Quebec
April 23-27, 1991

For further information:

Pain Secretariat
3450 University Street, Montreal, Quebec, H3A 2A7
Tel: (514) 398 3770 Fax: (514) 398 4854
Telex: 05-268510 E-Mail: PAIN@CO.LAN.MCGILL.CA

Third Management of Nursing Practice Research Conference *"Changing Tides"*

Sponsored by the Nursing Division, Victoria General Hospital,
Halifax, Nova Scotia.

The conference will be held January 24 & 25, 1991 at the Chateau
Halifax. Keynote speaker will be Dr. Joy Calkin, R.N., Ph.D. (Health
Services Administration), Vice-President, University of Calgary.

For further information:

Dawn Miller, R.N., B.N.
Room 341, Bethune Building, Victoria General Hospital
1278 Tower Road, Halifax, Nova Scotia, B3H 2Y9

Qualitative Health Research Conference

An international, interdisciplinary conference to explore issues in
qualitative methods and latest qualitative health research will be held
at:

West Edmonton Mall, Edmonton, Alberta, Canada
February 22-23, 1991

For further information:

Dr. J. Morse, Conference Convener
Faculty of Nursing, University of Alberta
Third Floor Clinical Sciences Building
Edmonton, Alberta, T6G 2G3

TESTING THE OSCE: A RELIABLE MEASUREMENT OF CLINICAL NURSING SKILLS

Jacqueline Roberts and Barbara Brown

The Objective Structured Clinical Examination (OSCE) is a method for evaluating nursing students' clinical skills. Its main aim is to reduce some of the problems inherent in the traditional observation type of evaluation.

The OSCE has been seen, both by students and by faculty, as being more objective than the traditional observation methods. The objective and reliable nature of the OSCE permits it to be repeated on a regular basis, with comparisons of test results between the individual performance of students, or between different classes of students. The OSCE has also been useful in identifying areas for modification of the nursing curriculum in various clinical nursing courses. Therefore, the purpose of this paper is to summarize the use of the OSCE, and to present the results of reliability and validity testing of it over the past five years.

Background

The OSCE was initially reported in the medical education literature as a technique for the evaluation of medical students' clinical performance (Harden & Gleeson, 1979; Harden, Stevenson, Downie, & Wilson, 1975). The rationale for developing this type of evaluation had been to avoid many of the disadvantages of the traditional clinical examination. Since then, many studies have reported on the use of the OSCE in medical education. There are several reports on the OSCE in the nursing literature. Ross et al. (1988) reported on the usefulness of the OSCE in measuring the clinical skills associated with conducting a nursing neurological examination. In South Africa, Van Niekert and Lombard (1982) implemented the OSCE with post-diploma nursing students prior to registration. They found the OSCE to be a useful method of evaluation in that context.

McKnight et al. (1987) described the development and implementation of the OSCE at McMaster University; they outlined its acceptability to students

Jacqueline Roberts, R.N., M.Sc., and Barbara Brown, R.N., M.Sc.N. are both associate professors in the School of Nursing, Faculty of Health Sciences, at McMaster University in Hamilton, Ontario.

and faculty, time effectiveness and its overall usefulness as an evaluation measure. In an initial report of reliability and validity, Brown et al. (1987) indicated that the OSCE appeared to be a promising measure of clinical nursing performance, and needed continued refinement to ensure that it had greater reliability and validity than the traditional approaches. Woodward, Patton & Brown (1985) discussed student feedback on the OSCE, including the relationship between the students' evaluations of the OSCE and their performance.

Description of the OSCE

In brief, the OSCE is designed to assess a wide range of knowledge and clinical skills, for a large number of students, within one short examination time period. Students rotate through a series of timed stations, usually four to five minutes. At observer or examiner stations, students are asked to demonstrate history taking, health teaching, physical assessment and other technical clinical skills. At these stations, a faculty observer scores a student's performance with a simulated or standardized patient (if required) on a preset criteria check list. At written or marker stations, which do not require an observer or examiner, students write answers to short questions and record or interpret written patient data (McKnight et al., 1987).

The OSCE is preceded by an orientation session and followed by a debriefing session. In the orientation session, students are arranged into groups, given a review of the process, and taken to the location of the circuit. In the debriefing session, students can be given the content or the answers, their checklist results, and asked to provide feedback regarding the relevance of the stations. Two circuits can be run simultaneously. For example, 100 students can complete the process in four and a half hours.

Using the OSCE as a method of evaluation for clinical nursing courses offers many advantages for both faculty and students. For the student it provides feedback through both formative and summative evaluation, and alerts the student to individual areas of weakness. It is an objective type of exam that reduces potential subjectivity and other problems inherent in the direct observation method of evaluation, and provides some structure to the evaluation process. Finally, it reinforces students in their knowledge of critical clinical skills.

In light of the fact that clinical skills are the basis of nursing, it is very appropriate and necessary to have some objective method of evaluation of these skills. The OSCE allows for testing of each level of clinical skills, from the basic skills (such as administering injections), through advanced clinical skills (such as physical assessment and health teaching).

Method

Sample

Since 1984, the OSCE has been successfully implemented by the School of Nursing at McMaster University as a clinical skills evaluation method, mainly in Level I and Level III clinical courses, with a recent introduction into Level II.

The clinical component of the Level I Nursing course is divided into a clinical skills laboratory and an in-patient clinical experience. In the first term, students practise clinical skills in a small group laboratory. In the second term, the students implement their skills in a medical-surgical in-patient setting. Specifically, the Level I clinical objectives relate to patient assessment and to specific beginning nursing clinical skills. The OSCE is implemented at the end of Term I, before the student begins the in-patient clinical experience.

In Level III the OSCE is used in the primary care nursing course. In the first term students work with a faculty member to demonstrate and practise assessment and clinical skills. In Term II, students practise these skills in primary care settings, where supervision is provided by the clinician in the setting. Objectives of this primary care course relate to physical assessment, history taking, health teaching and health promotion. The OSCE is implemented at the end of both terms.

Each year, there are approximately 75 nursing students in Level I and 100 students in Level III. Level III students include 25 post-RN students (diploma nurses returning to obtain their baccalaureate).

Design

In order to judge the merits of any test objectively, it is necessary to obtain evidence of reliability and validity. During the course of five years, a variety of studies were designed to explore the reliability and validity of the OSCE.

Reliability is concerned with the degree of consistency and precision. Selected marker and examiner questions were examined for interrater reliability, test-retest reliability and internal consistency. When more than one faculty member marked stations, interrater reliability of marker stations was determined. Two faculty members independently scored selected Level III marker (written) stations, using predetermined criteria scoring sheets. Intraclass correlation coefficients were calculated. Interrater reliability of examiner (observer) stations was determined for Level I and III stations. Examiner stations either had two examiners who independently scored each

student during the OSCE, or were videotaped following written consent of students. Approximately one month later, the same examiners, as well as different faculty, independently scored the videotape of the stations that had been videotaped, using the same scoring criteria. Intraclass correlations or Quadratic Kappa calculations were determined.

Test-retest reliability was determined for five examiner stations in Level I. Each student repeated a predetermined OSCE station at the end of the circuit. In this way, each student completed a total of six clinical examiner stations, of which one was a repeat of the same tested skill. Intraclass correlation coefficients, or Quadratic Kappas, were determined for each station. Internal consistency or interstation reliability was measured for the five OSCE examiner stations in Level I, using Cronbach's Alpha statistic.

Validity refers to the extent to which a test measures what it is supposed to measure. Validity, concurrent criterion and predictive criterion validity of the OSCE were tested.

Content validity was determined through a variety of methods. The evaluation criteria for each station were drawn from the course objectives, and designed by faculty whose clinical expertise was related to particular themes. As well, the OSCE committees reviewed stations, and pretesting by clinical tutors and senior level students was done. To strengthen content validity, final feedback was obtained, from both students and faculty, about the relevance and appropriateness of the content and marking criteria, and whether the students had had the opportunity to practise the skills being examined. Concurrent validity was assessed by correlating the OSCE score with other student marks for both Level I and Level III. Predictive validity was assessed by correlating Term I OSCE grades with Term II clinical grades.

Results

The reliability and validity of the OSCE will be discussed under Level I and Level III, respectively.

Level I

Interrater reliability was acceptable for examiner stations. The Quadratic Kappa's ranged from .53 to .96 (Table 1). Test-retest reliability on repeated stations was good for examiner stations tested ($ICC = .66$ to $.86$), suggesting that students gave consistent performances on the same station (Table 2). The Level I internal consistency or interstation reliability as measured using Cronbach's Alpha statistic was low ($\alpha = .20$) indicating that each student did not have the same level of performance across all stations.

Table 1***Interrater Reliability for Examiner Stations - Levels I and III***

Examiner Station	Q. Kappa
Level I	
Sterile Dressing	.70
Bed to Chair	.72
Turn Patient	.72
Changing Linen	.74
Sterile Gloves	.53
Vital Signs	.96
Cane Instruction	.60
Level III	
Urinary Tract Infection	.67
Anticipatory Guidance	.59
Chest Assessment	.74
Hypertension History	.85
Hypertension Teaching	.83
Otitis Media Teaching	.71
Abdominal Assessment	.91

Table 2***Test-retest Reliability for Examiner Stations - Level I***

Examiner Station	Intraclass Correlation
Sterile Gloves	.73
Transferring	.86
Bedmaking	.66
Dressing (Aseptic Technique)	.66
TPR (Vital Signs)	.66

The OSCE was judged to have reasonable content validity because the stations and evaluation criteria were derived from the course objectives, designed by expert faculty and revised by the OSCE planning group following student and faculty feedback. In addition, the Course Coordinator had reviewed all OSCE stations to determine whether they were appropriate. More than 80% of the students felt that the content was relevant; 77% rated the evaluation criteria as appropriate. Eighty-one percent of Level I students indicated they had the opportunity to practise these skills in the clinical laboratory.

The correlations between the students' OSCE results and their results on other courses or assignments were low ($r = .07$ to $.46$), thus hampering concurrent validity. Predictive validity (Table 3) was also low as the Level I OSCE did not predict Term 2 clinical grades ($r = .24$ to $.26$).

Table 3

Predictive Validity of the OSCE - Term II

		Clinical Tutor Subjective Evaluation
Level I		
	OSCE	.24 to .26
Level III		
	OSCE	.13 to .26

Level III

Interrater reliability for the Level III marker stations was acceptable, as the intraclass correlations ranged from $.62$ to $.99$ (Table 4). The interrater reliability for the examiner stations was satisfactory, Quadratic Kappa = $.59$ to $.91$ (Table 1)

The Level III OSCE was also judged to have content validity. It was set and reviewed by expert faculty and Course Coordinators. Eighty percent of the students felt the content was relevant and 77% rated the evaluation criteria as appropriate. 56% of Level III students felt they had had the opportunity to practise these skills in the clinical setting. Correlations between other course grades and Level III grades were low ($.10$ to $.34$), and Level III OSCE grades did not correlate well ($r = .13$ to $.26$) with Level III clinical grades (Table 3).

Table 4***Interrater Reliability for Marker Stations - Level III***

Marker Station	Intra-class Correlation
Primary Care Role	.62
Child Development	.99
Prenatal History	.80
Mental Status	.88
Compliance	.76
Health History	.94

Discussion

In determining the reliability and validity of the OSCE for testing clinical nursing skills in Level I and III baccalaureate nursing students at McMaster University, we have concluded that the OSCE is a reliable measure of assessing specific clinical nursing skills. The reliability rating by faculty observers of OSCE clinical nursing skill stations demonstrated an improvement over most student evaluations which tend to be subjective in nature. In addition, stations have very good test-retest reliability. Students perform consistently at repeating the same skill, when no time is allowed for the students to get feedback, use or think about the skill. However, the OSCE clinical nursing skills observer stations that were tested were not internally consistent for first year BScN students; the interstation reliability was low. It is clear from these analyses that the low observed correlation across different stations is a result of different skills being assessed, rather than inherent variability in performance. This might cause faculty to regard the broad performance category "clinical nursing skills" as having limited utility.

These results also indicated that the OSCE stations were not associated with other grades, such as on a written assignment or, in fact, with other nursing courses. For example, written essays although marked according to predetermined criteria, by faculty who are unaware of the student's name, are designed to examine a learned skill that is different from the OSCE. In addition, despite criteria, the reliability of the essay marking may be low.

Predictive validity was poor, as indicated by the OSCE stations and final clinical evaluation grades. This result has been corroborated by others (Ross et al., 1988). The low correlation suggests that the OSCE and the clinical evaluation may be measuring different aspects of clinical performance.

Alternatively the reliability of the clinical evaluation, as suggested by Neufeld and Norman (1985), may be low as a result of the many biases that can enter into such global assessments. As such, we suspect that a combination of clinical evaluation measures probably presents the most accurate picture of a nursing student's clinical performance.

In conclusion, subjective feedback from students includes statements that the OSCE is a fair and less biased measure of clinical skills than are the usual clinical evaluations, because each student was evaluated at the same time, on the same objectives, by the same faculty. In addition, evaluation is not done while learning is in progress. Of particular importance to students is the relevance of the immediate feedback on their performance. Each student and tutor is able to see areas of strength and weakness, a very important part of the learning and evaluation process.

Feedback from faculty emphasizes that it may be a more appropriate test of clinical nursing skills than written examinations, especially multiple choice examinations. In addition, they identified its usefulness in pointing out recurrent deficiencies in student knowledge or performance, and possible omissions of specific content from the programme.

Although the introduction of the OSCE seems complex and time consuming, it should reduce many of the problems inherent in traditional evaluation measures of clinical competence. As well, it can evaluate a wide range of skills, for a large number of students, in a short period of time. Of final importance is the apparently objective nature of this clinical skills evaluation.

The OSCE manual and resource bank of clinical nursing skills may be purchased from Barbara Brown, at the School of Nursing, McMaster University.

REFERENCES

- Brown, B., Roberts, J., Rankin, J., Stevens, B., Tompkins, C. & Patton, D. (1987). *The Objective Structured Clinical Examination: Reliability and Validity*. Proceedings of the 2nd Annual International Conference on Assessing Clinical Competence, Ottawa, 563-571.
- Harden, R.M. & Gleeson, F.A. (1979). Assessment of clinical competence using an objective structured clinical examination (OSCE). *Medical Education*, 13: 41-54.
- Harden, R.M., Stevenson, M., Downie, W. & Wilson, G.M. (1975). Assessment of clinical competence using the objective structured examination. *British Medical Journal*, 1, 447-451.
- McKnight, J., Rideout, E., Brown, B., Ciliska, D., Patton, D., Rankin, J. & Woodward, C. (1987). The objective structured clinical examination: An alternate approach to assessing student performance. *Journal of Nursing Education*, 26(1), 39-41.
- Neufeld, V. & Norman, G. (1985). *Assessing Clinical Competence*. Springer Publishing Company: New York.
- Ross, M., Carroll, G., Knight, J., Chamberlain, N., Bourbonnais, F. & Linton, J. (1988). Using the OSCE to measure clinical skills performance in nursing. *Journal of Advanced Nursing*, 13: 45-36.
- Van Niekert, J.G. & Lombard, S.A. (1982). The OSCE experiment at MEDUNSA. *Curations*, 5(1), 44-48.
- Woodward, C., Patton, D. & Brown, B. (1985). *The relationship between nursing student's evaluation of the OSCE and performance*. Proceedings of the International conference on Newer Developments in Assessing Clinical Competence, Ottawa, 215-225.

RÉSUMÉ

Essai de l'ECOS: Mesure fiable des aptitudes cliniques des infirmières

Les problèmes inhérents à l'évaluation des aptitudes cliniques des infirmières et notamment la pénurie de mesures cliniques sûres et fiables sont bien connus dans les milieux infirmiers. Face à ces problèmes, l'École de sciences infirmières de l'Université McMaster a introduit l'examen clinique objectif structuré (ECOS) et a effectué une recherche visant à en déterminer la fiabilité et la validité. L'ECOS peut évaluer une gamme étendue d'aptitudes cliniques chez un grand nombre d'étudiants et ce, en peu de temps, ces derniers passant à tour de rôle d'un poste d'évaluation à un poste tenu par un examinateur. Ces cinq dernières années, l'ECOS a été administré à des étudiants de niveau III du baccalauréat en sciences infirmières qui suivaient un cours de soins primaires ainsi qu'à des étudiants de niveau I à la suite de leurs travaux pratiques d'aptitudes cliniques. Les variations d'un examinateur à l'autre et d'un poste d'évaluation à l'autre se situaient entre 0,53 et 0,99. La constance test-retest était très bonne pour les postes de niveau I (I.C.C. = .66 à .86) et la constance interne était mauvaise ($\alpha = .20$) soit une constance élevée dans le cas de répétitions de la même tâche, et peu de constance dans le niveau de performance de différentes tâches. On n'a pas noté de bonne corrélation entre l'ECOS et les autres modes d'évaluation actuellement utilisés. On peut en déduire que l'ECOS mesure peut-être d'autres aptitudes que les modes d'évaluation connus ou que la fiabilité de ces autres modes d'évaluation est faible.

Canadian Bioethics Society
2nd Annual Meeting

Date:

November 23-24, 1990

Theme:

"Autonomy, Donation and Sharing as Issues in Bioethics"

Place:

Chateau Frontenac, Quebec City, Quebec

Coordinator:

Harry Grantham, President of the 1990 meeting

L'Hôtel-Dieu de Québec

11, Côte du Palais, Quebec, QC

G1R 2J6

Tel: (418) 691 5076; FAX: (418) 691 5331

Société Canadienne de Bioéthique
2e assemblée annuelle

Date:

Les 23 et 24 novembre, 1990

Theme:

"Autonomie, Don et Partage en Bioéthique"

Endroit:

Château Frontenac, Québec, Québec

Responsable:

Harry Grantham, Président du Congrès

L'Hôtel-Dieu de Québec

11, côte du Palais, Quebec, QC

G1R 2J6

Tel: (418) 691 5076; FAX: (418) 691 5331

DEVELOPING STRATEGIES FOR TEACHING NURSING DIAGNOSIS

Sheila J. Rankin Zerr

Nursing practice has evolved through a series of changes during the last half century. A most significant change has been in the development and use of nursing process skills, with the recent focus on nursing diagnosis. Efforts to keep practising nurses' knowledge and skills in pace with theory development has been a constant challenge to nurse educators.

Since the early 1960s, the trend in nursing practice has been to use structured problem solving or what is known as "the nursing process". Ziegler (1984) states that the nursing process is the methodology of professional nursing. Patient problems are identified and a plan of nursing care is developed. The nursing process has gradually evolved to the current five-step technique identified by Mundinger and Jauron (1975) as: assessment, nursing diagnosis, planning, implementation and evaluation. In more recent years, the focus of this process has centred on problem identification or "nursing diagnosis" (the second step of the nursing process.) This paper presents a preliminary study that looks at the teaching strategies used to develop nursing diagnostic skills.

The study investigates the work of 137 nursing students enrolled in a clinical course at the University of Victoria. It focuses on student performance skills for nursing diagnosis by looking at the structure of the nursing diagnostic statement. Comparisons are made from test study diagnostic skills to final nursing diagnosis skills in clinical practice.

Literature Review

A widely accepted definition of nursing diagnosis is credited to Mundinger and Jauron (1975): "A nursing diagnosis is a statement of a patient response which is actually or potentially unhealthful and which nursing intervention can help change in the direction of health." It is interesting to see how the definitions of nursing diagnosis have changed and evolved since the first definitions appeared in the literature in the late 1950s. The early definitions addressed the identification of nursing problems. As the concept of nursing

Sheila J. Rankin Zerr, R.N., M.Ed. is visiting Assistant Professor in the School of Nursing, at the University of Victoria, Victoria, B.C.

diagnosis developed, the definitions became more descriptive of the scope of nursing practice. In recent years there have been attempts to include the critical thinking process involved in defining a nursing judgement or diagnosis. As a result, many of the diagnoses fall into one of two categories. Diagnosis is referred to as the process of determining the diagnosis, or it is described as the name or label that is applied to the problem (Miller, 1989, p.17).

McGee (1989) addresses both these aspects in her definition of nursing diagnosis. She gives her definition as "a label assigned to the judgement of the interpretation of data on patient status that may or may not be susceptible to nursing intervention." She goes on to state that the diagnosis may or may not include etiology. The purpose of the definition according to McGee is for documentation, communication and inquiry.

Another group of definitions addresses the types of problems that nursing diagnosis describe. The definition given by Bower (1982) is a good example of this type of definition. She states that nursing diagnosis describes the client's health problem, the clients's health needs, or both. The National Conference Groups (now NANDA) have been working since the early 1970s to identify categories of problems that should be considered to be nursing diagnoses. This group has attempted to direct and validate nursing research into specific diagnostic categories and have developed a list of nursing diagnostic categories. Their list of diagnostic labels is updated on a continuous basis (NANDA 1989).

There is a growing body of literature that addresses the formats suggested for writing a nursing diagnostic statements. Miller (1989) outlines the several different formats and gives the rationale for using a brief or complex statement structure. On the side of brevity, she argues that a useful diagnostic label should be able to convey a constellation of characteristics that are the components of the label. This increases the ease with which one can communicate a large amount of data quickly and easily. Miller further argues that the longer, more descriptive nursing diagnostic format is important at this point in the development of nursing diagnosis. She points out that the work NANDA is doing in attempting to validate nursing diagnostic labels has just begun and much more research is needed to establish the labels identified. Miller feels because the current problem names have not been investigated in many cases, there is a need to specify exactly what the problem is, what is causing it and on what symptoms that determination is based. This clarity is also important in view of the fact that the nursing diagnosis should direct the nurse in the selection of the most beneficial and effective nursing interventions. This study investigates the nurse's ability to develop clear, accurate nursing diagnostic statements that ultimately direct nursing actions. The longer, more descriptive nursing diagnostic format was chosen for instruction and investigation.

The nursing diagnostic format chosen for study and analysis is known as the P-E-S format (Gordon, 1987). In this format the problem, the etiology, and the signs and symptoms that led to determination of the problem are listed. This results in a three-part diagnostic statement. Several other formats were considered: Carnevali (1983) with a four-component structure, and Kelly (1985) with diagnosis, type, status and stimulus. However, the more popular P-E-S format was chosen because students were more likely to be familiar with it from their clinical practice. Also, the P-E-S format was the closest to the course text diagnostic statement format (Griffith-Kenney & Christensen, 1985). Griffith-Kenney and Christensen identify the assessment components of the diagnostic statement as response, system/category, and "related to" factors. These three components formed the basis of the scoring format used to evaluate student diagnostic statements (Table 2).

Project development

Clinical Studies in Nursing (Zerr 1986) is the clinical course taken in the first year of the University of Victoria nursing baccalaureate program for post-RN students. The major purpose of this course is to develop clinical skills in the application of the nursing process.

Nursing process skills for assessment and nursing care planning were illustrated on the TV knowledge network, using simulated care study presentations. Students were provided with print materials for each case presentation. The expected level of nursing process skills was illustrated, and a discussion of each step of the nursing process accompanied the case presentation.

Nursing practice skills were evaluated by regional clinical evaluators, in strategic locations around the province of British Columbia. The simulated case study approach, demonstrated on air, was followed by the evaluators when testing and evaluating student nursing process skills. Students were given a printed case study as a preliminary test of process and diagnostic skills. After successful completion of the preliminary case study and care plan, students went on to carry out a clinical study and care plan, on a selected client in their respective community. The nursing care plans and diagnostic statements were graded by the clinical evaluators, using standardized grading criteria.

Throughout successive course offerings, it became evident that certain steps of the nursing process were more difficult than others, both for clinical evaluators and for nursing students. A preliminary study of clinical evaluator scoring, for each section of the nursing process, revealed weaknesses in nursing process skills that warranted further study.

Preliminary study

A preliminary study of evaluator scoring practices was undertaken during the May-September, 1986 course. This analysis of scores assigned by clinical evaluators was originally done to give the clinical evaluators feedback on scoring practices. A case study with a nursing care plan developed by the course instructor, was graded by each of the clinical evaluators, using the course grading criteria. Evaluator grading practices were reviewed and the scores they assigned were analyzed. Table 1 illustrates the scores obtained for each section of the nursing process assignment.

Table 1

Nursing Care Plan Sections: Mean and Standard Deviation

Nursing Care Plan	Mean	SD	N	Total Possible	SD as a % of Mean
Data collection	18.3	1.81	15	21	10
Data analysis	10.42	1.19	18	12	11
Nsg. Diag.	8.2	1.77	15	11	22
Pt. Outcomes	6.89	1.35	16	10	20
Nsg. Act.	8.81	1.64	15	12	19
Evaluation	4.87	1.64	15	7	34
Summ./SOAP	5.11	0.90	18	6	18
Recording Skills	1.97	0.12	18	2	6
Roy Model	16.08	2.59	18	19	11

The purpose of this study was to give the clinical evaluator feedback on scoring practices from one evaluator to another by comparing scores assigned against the mean score of the 18 evaluators participating in the study. It was evident from the scores obtained, that there was considerable variation in the scores assigned to nursing diagnosis and evaluation. As such, I decided to study the evaluator scoring of nursing diagnosis in the next course offering, and plans for analysis of the student nursing diagnostic skills were initiated.

Nursing Diagnosis Study

An evaluation of the students' nursing diagnostic skills was undertaken during the May-September, 1988 course. Students were first given a written case presentation as a preliminary test of process and diagnostic skills. The written care plan, based on the test case, was submitted to the evaluator for assessment and grading. The clinical evaluator graded the care plan and diagnostic statement, using course grading criteria. After successful completion of the test nursing care plan, the students went on to carry out a clinical care plan on a selected clinical patient in their respective community. Clinical assessment and planning was closely monitored by the regional evaluator before the student submitted the final written nursing care plan. The clinical evaluator graded the clinical care plan and diagnostic statements, using the same course grading criteria applied to the test care plan. The grading criteria and marking format used to score the diagnostic statements in the test care plan and clinical care plan have been used to score the diagnostic statements evaluated in this study. All diagnostic statements were scored. The diagnostic statement from the test care plan and from the clinical care plan that obtained the highest score, were used for analysis in the study. The test care plan statement provided the pre-test score and the clinical care plan statement provided the post-test score.

The sample

The total population consisted of 137 students enrolled in the distance course "Clinical Studies in Nursing", offered in September, 1988. Test care plan and clinical care plan were paired for the same student. A total of 95 responses were analyzed with 42 (of 137) students eliminated for lack of a complete paired data set.

Scoring of the diagnostic statement

Score out of a possible total of 5 was used as the test standard for each student. All diagnostic statements were scored. The best score obtained in the test care plan became the pre-test score. The best score obtained in the clinical care plan became the post-test score. Table 2 outlines how the diagnostic statement was scored. A bonus point was given for clear, concise direction given for nursing care. A penalty deduction of 1 point was applied for lack of clarity and consistency.

Table 2***Scoring of Diagnostic Statement***

Description	Response	System Category	Related to	Bonus (+1)	Penalty(-1)
Actual Potential Possible	Increased Decreased Altered	Function Pattern Behaviour	Behaviour Etiology	Clear, concise directions to nursing care	Lack of clarity and consistency
1 point	1 point	1 point	1 point	+1 point	-1 point

Possible total 5

Analysis

Pre-test and post-test scores were first analyzed for obvious differences in each individual section or component of the diagnostic statement. The first two components, the response and system/category section (the P and E of the P-E-S format) remained relatively unchanged from pre-test score to post-test score. The component section that showed the greatest change from pre-test to post-test was the "related to" section (or the S of the P-E-S format). There was also an obvious improvement, from pre-test to post-test, in the bonus point awarded (for a clear, concise statement giving direction to nursing care). It could be concluded from the analysis of pre-test to post-test scores that the segment of the nursing diagnostic statement that showed the greatest improvement was the "related to" component. As the score improved for this component of the diagnostic statement, there was an obvious increase in the bonus point being awarded.

Results

Total test scores, pre-test to post-test, were analyzed, using the t-distribution test, for significance at a p-value lower than 0.5%. Table 3 illustrates total test score results. Results of the t-distribution test indicate that the scores achieved by these students resulted in a significant increase in total score from pre-test to post-test. This change is linked to the improved performance found in the analysis of the "related to" component of the diagnostic statement and the accompanying bonus point awarded for clarity and improved direction for nursing care.

Table 3***Total Test Score Results***

	Pre-test	Post-test
Mean	3.74	4.64
Standard Deviation	1.17	0.62
Differential	0.89	1.12

N = 95; $p > .05$

Discussion

Results of analysis indicate significant differences in diagnostic skills from test care plan to clinical care plan. Analysis of the component parts of the diagnostic statement indicate the area of greatest change was in the "related to" segment of the statement. Improvement in this segment of the diagnostic statement resulted in greater clarity and precision to direct nursing actions.

This suggests a possible relationship between the fuller more accurate diagnostic statement and the effect this would have on the nurses choice of nursing actions. This finding warrants further investigation. As Miller (1989) has pointed out, because the current problem names (NANDA 1989) have not been adequately researched, there is a need for the nurse to specify exactly what the problem is, what is causing it, and on what symptoms that determination is based. The findings of this study support Miller's (1989) recommendation that a diagnostic statement that includes these components should direct the nurse in the selection of nursing actions.

This preliminary study is a step toward analyzing nursing diagnostic skills. The next step will be to study the relationship between the component parts of the diagnostic statement and how this relationship effects the choice of nursing actions. Long-term research is needed to study the ultimate effects on the quality of patient care.

REFERENCES

- Bower, F.L. (1982). *The process of planning nursing care*. (3rd ed.). St. Louis, MO: Mosby.
- Camevali, D.L. (1983). *Nursing care planning: Diagnosis and management*. Philadelphia: J.B. Lippincott.
- Gordon, M. (1987) *Nursing diagnosis: Process and application*. (2nd ed.). New York: McGraw Hill.
- Griffith-Kenney, J., & Christensen, P. (1986). *Nursing process: Application of theories, frameworks, and models*. (2nd ed.). St. Louis, MO: Mosby.
- Kelly, M.A. (1985). *Nursing diagnosis source book: Guidelines for clinical application*. Norwalk, CT: Appleton-Century-Crofts.
- McGee, M. (1989). The Interface between nursing theories and nursing diagnosis. *Proceedings of the University of Ottawa on Putting It All To-Gether: Nursing Theory Nursing Diagnosis Nursing Intervention*. Ottawa: University of Ottawa.
- Miller, E. (1989). *How to make nursing diagnosis work: Administrative and clinical strategies*. Norwalk, CT: Appleton-Century-Crofts.
- Mundinger, M.O., & Jauron, G.D. (1975). Developing a nursing diagnosis. *Nursing Outlook*. 23(2), 94-98.
- North American Nursing Diagnosis Association (1989). *Classification of Nursing Diagnoses: Proceedings of the Eighth Conference*. (pp. 515-556). St. Louis, MO: J.P. Lippincott.
- Zerr, S. (1986). *Clinical studies in nursing: N302 course and evaluator manual*. Department of Extension and Community Relations. Victoria, B.C.: University of Victoria.
- Ziegler, S.M. (1984). Nursing diagnosis - the state of the art as reflected in graduate student's work. In M.J. Kim, G.K. McFarland, & A.M. McLane (Eds.), *Classification of Nursing Diagnoses: Proceedings of the Fifth National Conference*. (pp. 199-208). St.Louis, MO: Mosby.

RÉSUMÉ

Conception de stratégies pour l'enseignement du diagnostic infirmiere

L'objectif de cette communication est de décrire une étude préliminaire sur les facultés diagnostiques du personnel infirmier. Cette étude a porté sur les travaux de 137 étudiantes en sciences infirmières inscrites à un cours clinique à l'Université de Victoria. L'étude est axée sur les aptitudes des étudiantes à porter un diagnostic infirmier en analysant la structure du diagnostic posé. On a comparé les compétences manifestées lors de l'épreuve de diagnostic aux compétences affichées en pratique clinique. Les résultats de l'analyse révèlent des différences significatives au niveau des compétences diagnostiques entre le plan de soins établi à titre d'épreuve et le plan de soins cliniques. L'analyse des éléments du diagnostic révèle que le changement le plus important s'est produit dans la section "en rapport à". Les résultats de cette étude font ressortir la relation possible entre le diagnostic plus complet et plus précis et l'effet que cela peut avoir sur le choix de l'intervention infirmière. Cette étude préliminaire marque une étape dans l'analyse des compétences diagnostiques en sciences infirmières. La prochaine étape sera l'étude du rapport entre les constituants du diagnostic et la façon dont ils affectent le choix des interventions infirmières.

RENSEIGNEMENTS A L'INTENTION DES AUTEURS

La revue canadienne de recherche en sciences infirmières accueille avec plaisir des articles de recherche ayant trait aux sciences infirmières et aux soins de la santé. Veuillez adresser vos manuscrits à la rédactrice en chef, *La revue canadienne de recherche en sciences infirmières*, Ecole des sciences infirmières, Université McGill, 3506 rue University, Montréal, QC, H3A 2A7.

Modalités: Veuillez envoyer trois exemplaires de votre article dactylographié à double interligne sur des feuilles de papier de 216mm x 279mm en respectant des marges généreuses, accompagné d'une lettre qui indiquera le nom, l'adresse et l'affiliation de l'auteur ou des auteurs. Il est entendu que les articles soumis n'ont pas été simultanément présentés à d'autres revues. Veuillez inclure avec votre article une déclaration de propriété et de cession de droit d'auteur conformément à la formule suivante: "Je déclare par la présente que je suis le seul propriétaire de tous droits relatifs à mon article intitulé ' ' et je cède mon droit d'auteur à l'École des sciences infirmières de l'Université McGill, pour fins de publication dans *The Canadian Journal of Nursing Research*/La revue canadienne de recherche en sciences infirmières. Date _____, Signature _____."

Style de présentation: La longueur acceptable d'un article doit osciller entre 10 et 15 pages. Les articles peuvent être rédigés soit en anglais, soit en français et ils doivent être accompagnés d'un résumé de 100 à 200 mots (si possible, dans l'autre langue). Veuillez remettre l'original des schémas, dessinés à l'encre de Chine et prêts à être photographiés. Les auteurs sont tenus de fournir les références à leurs propres oeuvres sur une feuille séparée et de suivre les consignes énoncées dans le Publication Manual of the American Psychological Association (3rd. ed.), Washington, D.C.: APA, 1983, en ce qui concerne le style et le contenu de leurs articles.

Examen des manuscrits: Les manuscrits présentés à la revue sont évalués de façon anonyme par deux lectrices selon les critères suivants:

Evaluation du fond

Validité interne: Le problème dont traite l'article est-il clairement défini? La forme des recherches ou la structure de l'essai sont-elles appropriées à la question soulevée? Les méthodes statistiques, logiques et les modalités de recherche sont-elles appropriées? Les conclusions peuvent-elles être justifiées à l'aide des données présentées? Les implications de l'article sont-elles fondées sur les conclusions?

Validité externe: Le problème soulevé présente-t-il un intérêt véritable? Ce problème est-il d'actualité? Existe-t-il des problèmes de divulgation ou de déontologie? Les conclusions de la recherche ou de l'article sont-elles importantes? Ces conclusions ou résultats peuvent-ils s'appliquer à d'autres situations? Est-ce que l'article contribue à l'avancement du savoir dans le domaine des sciences infirmières? De quelle façon?

Evaluation de la présentation

L'auteur développe-t-il ses idées de manière logique? Les exprime-t-il clairement? La longueur de son article est-elle appropriée au sujet abordé? Est-ce que le nombre de références ou de tableaux dépasse le strict nécessaire?

Renseignements relatifs à la publication: A la réception du manuscrit original, l'auteur est avisé que le Comité de rédaction prendra une décision au sujet de la publication de son article dans les dix semaines. Lorsqu'un manuscrit est renvoyé à son auteur pour qu'il le remanie, trois exemplaires dudit manuscrit remanié (daté et portant l'inscription "revu et corrigé") doivent être renvoyés à la rédactrice en chef dans les quatre semaines. Les modalités complètes de lecture, de remaniement, d'édition, de composition et d'imprimerie expliquent qu'il s'écoule souvent de six à huit mois avant qu'un article soumis soit publié.

**McGILL UNIVERSITY
SCHOOL OF NURSING**

**GRADUATE PROGRAMS IN
NURSING**

**MASTER OF SCIENCE (WITH THESIS)
MASTER OF SCIENCE (APPLIED)**

These programs have been designed to prepare clinicians and researchers for the expanding function of nursing within the health care delivery system. Preparation for the teaching of nursing or the management of nursing service is also offered.

Admission requirements

Either a Baccalaureate degree in Nursing comparable to B.Sc.(N) or B.N. from McGill; or a Baccalaureate degree comparable to B.A. or B.Sc. offered at McGill (for those with no nursing preparation).

Length of program

Two years for those with nursing degrees;
Three years for non-nurses.

Language of study: English

Further information from:

Associate Director, School of Nursing
Graduate Programs
3506 University Street
Montreal, QC, H3A 2A7

Enquiries regarding **Ph.D. studies**
should also be made to the
Associate Director, Graduate Programs

