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FOCUS

Coping & Adaptation

Dr. Judith A. Ritchie

GUEST EDITOR/RÉDACTRICE INVITÉE

LE POINT

Soutien et Adaptation

FALL EDITORIAL

A New and Expanded Format for the Canadian Journal of Nursing Research

This issue marks an important milestone in the *Canadian Journal of Nursing Research* development; the introduction of focus issues. In addition to several research and theoretical articles on the same theme, scholars will be invited to comment on trends, controversial issues, and methodological challenges being debated within the field. Our intent in establishing focus issues is to provide a forum in which different theoretical and methodological approaches to a given content area are shared, new directions for research stimulated, and new forms of dialogue promoted. Each focus issue will be spearheaded by an eminent Canadian nurse-researcher who will serve as its guest editor.

Our new format begins with the focus topic of **Coping and Adaptation**. Coping and adaptation are an integral part of how individuals and families deal with health and illness situations and as such are core concepts in nursing. It is indeed an honour to have Dr. Judith Ritchie from the School of Nursing at Dalhousie University serve as our first guest editor. During the past twenty years, Dr. Ritchie has been studying the coping processes of children and their families

Laurie Gottlieb
Editor

É D I T O R I A L D E L ' A U T O M N E

Nouveau format pour la Revue canadienne de recherche en sciences infirmières

Ce numéro présente un événement marquant pour la *Revue canadienne de recherche en sciences infirmières*: l'introduction de la rubrique «le point». En plus de plusieurs articles théoriques et des recherches concernant un même thème, les spécialistes seront invités à faire leurs commentaires sur les diverses tendances, les controverses et les différents défis au niveau méthodologique qui font l'objet de débats dans leur domaine. Notre intention, en créant cette nouvelle rubrique, est d'offrir une tribune où l'on partagera les différentes approches, tant théoriques que méthodologiques, dans un domaine donné, l'on stimulera des directions nouvelles pour la recherche et l'on mettra en avant de nouvelles formes de dialogue. Pour chaque rubrique «le point», le fer de lance sera un éminent chercheur canadien en sciences infirmières qui fera office de rédacteur invité.

Notre nouveau format commence avec la rubrique : Le soutien et l'adaptation. Le soutien et l'adaptation font partie intégrante de la façon dont les personnes et les familles réagissent face à la santé et à la maladie, et ils sont donc en tant que tels, des concepts fondamentaux en sciences infirmières. C'est un grand honneur que d'avoir pour première rédactrice invitée la docteure Judith Ritchie de l'école des sciences infirmières de l'université Dalhousie. Dre Ritchie étudie depuis vingt ans les processus de soutien aux enfants et à leur famille.

Laurie Gottlieb
Rédactrice en chef

GUEST EDITORIAL

Coping with What, When, Where, How — and So What?

I am delighted to introduce the focus issue on **Coping and Adaptation**. Concepts such as coping and adaptation are key elements in our nursing work—particularly since our goal is to work with people to improve their health. We face constantly the challenge of understanding people's behaviour, and finding ways to help them as they live with illness situations and/or seek to improve their health. Richard Lazarus (1993) introduced a fundamental change in how we define coping, and in how we should pursue coping research. He conceives coping behaviour as a process that changes over the course of a situation. Coping behaviour is dependent on the meaning of the event, the context, and goals of the person in the situation. I believe that nurses find a "good fit" in the Lazarus emphasis on the process of coping. Our values and experience are consistent with his lack of *a priori* judgement about what is "appropriate" or "effective" coping. The fundamental questions in research about stress, coping, and adaptation are "coping with what?", "when?", "in what context?", "how?", and "with what outcome?". Nurse researchers must also ask questions about which nursing approaches are effective in helping people to cope in ways that enable them to achieve health.

Nurses have had a significant focus on coping and adaptation research for nearly two decades. The concepts of stressful situations, coping behaviours, influencing factors, coping outcomes and the relationships among them are complex. Their investigation demands conceptual clarity and sophisticated research methods. The articles in this issue show that complexity and, I think, are quite representative of the "state of the art" in coping research in nursing or about nurses. Jalowiec (1993) and Rice (1993) conducted extensive reviews of nurses' research on stress and coping. They reached the following conclusions: most research has been descriptive and correlational in design; research questions commonly lack specificity in relation to the stressful event; studies often do not make links between the coping behaviours examined and the outcomes of those behaviours. They reported that most studies were based on Lazarus' and Folkman's (1984) theoretical perspective of stress and coping, but very few were designed in ways consistent with that framework—for example, very few studies have longitudinal designs. Lazarus (1993) raises similar concerns about psychologists' and others' research. Gina Browne, in the Designer's Corner of this issue, discusses many of these problems and poses some tantalizing suggestions for their solutions.

In this issue the authors focus on patients' or families' coping with illness-related situations or nurses' coping with job stress. The question

“coping with what?” is the particular focus of Ann Hilton’s new Uncertainty Stress Scale. The other authors in this issue focus more extensively on the context of coping. They place most emphasis on personal psychological variables that influence either the individual’s appraisal of the stressful event, the coping strategies, or the outcomes of interest. These psychological variables include hopefulness, perceptions of self-efficacy or perfectionism, and coping resources of mastery and health, and esteem and communication. Hirth and Stewart and Snowden et al. also examine the influence of external or situational resources such as social support. The findings of all the studies illustrate the impact of a multitude of factors on all phases of the stress and coping process. For example, it is clear that we must carefully examine the meaning or appraisal of the situation and the factors influencing that appraisal. Hilton reports differences in uncertainty scores depending on the nature of the situation and the individual’s stage in the illness trajectory. Snowden et al. reports that the actual demands of the child’s illness or behaviour did not influence outcomes in any significant way. While the authors in this issue raise important questions about appropriate interventions to assist people who are coping with stressful situations, there are very few studies that have assessed the effectiveness of nursing approaches to helping.

Many challenges in stress and coping research remain. Despite the studies reported here, and the multitude reported in other sources, we continue to know relatively little. How do appraisals of health or illness situations change over time and across situations? What is the influence of personal or situational factors on coping behaviour or outcomes? How does coping behaviour change throughout a stressful situation, across situations, with development? What types of nursing approaches are effective in helping people in stressful situations? And, most importantly, do any of these issues make a difference in the individual’s, family’s, or group’s “adaptation”?

Indeed, we have not really clarified what it is we mean by “adaptation”. Duffy (1987) challenges our concept of adaptation as a “benchmark of health”. She raises important, and unsettling, questions that are similar to those Browne raises in this issue. Duffy states “Adaptation is a patriarchal mechanism for controlling society, because the group in control defines the norms. Adaptation is what the controlling group says it is” (p.186). I am reminded of an early mentor’s view of children’s and their families’ behaviour in the difficult illness situations they faced. In response to health professionals’ complaints or worries about “abnormal” behaviour, he always replied—“This is normal behaviour in an abnormal situation. Now what can we do to help with the situation?” Duffy (1987) proposes that we extend our visions, go beyond setting a goal of adaptation as homeostasis, and adopt a transcendence model. The goal in such a model “is to transform the prevailing norms so that transformations are not limited by implicit rules, sociocultural values, or laws of the community” (pp. 188-189). What is the “outcome” of interest in

coping research? For the authors in this issue, the outcomes are "satisfaction" (O'Brien & Page; Snowdon et al.), and the individual's assessment of "coping effectiveness" (Hirth and Stewart). Are these the most important outcomes that nurses should measure? Would the relevant outcomes be different for different disciplines? How shall we decide what outcomes are relevant? Folkman (1991) proposes a solution that includes assessing both relevant outcomes and the "goodness-of-fit" between "(a) the person's appraisal of what is going on (primary appraisal) and what is actually going on, (b) the person's appraisal of coping options (secondary appraisal) and what the options actually are, and (c) the fit between the options for coping and actual coping processes" (p.15). That solution adds another dimension to the complexity of research design in the area of coping and adaptation.

I am certain that coping with the creation of this focus issue of the *Canadian Journal of Nursing Research* has been an "interesting experience" for all involved. My ways of coping certainly changed as the various stages unfolded! But the *CJNR* editor, Laurie Gottlieb, and her administrative assistant, Jill Martis "intervened" by providing extraordinary help, commitment and social support! We all had to find ways of coping with the uncertainty of whether any manuscripts would be submitted and, then, whether revisions could be made by the authors in time to meet publication deadlines. I am grateful to all those who responded to the call for manuscripts, and to those who could make the required revisions in time for publication. They responded to unreasonable time deadlines speedily and with grace. I extend thanks as well to the reviewers who took time from busy summer schedules to help us. I hope that our ways of coping with the first focus issue of the *Canadian Journal of Nursing Research* have been "effective" in producing a useful issue on Coping and Adaptation. Many questions remain, but this issue could serve as a launching pad for the next phase of nursing research on issues of coping and adaptation.

Judith A. Ritchie
Guest Editor

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ÉDITORIAL INVITÉ

Le soutien: Quoi, quand, où, comment? Et après?

C'est avec grand plaisir que j'introduis la rubrique «le point» avec le sujet : le **soutien et l'adaptation**. Des concepts comme le soutien et l'adaptation sont des éléments-clés dans notre travail en sciences infirmières, surtout dans la mesure où notre objectif est d'oeuvrer avec les gens afin d'améliorer leur santé. Nous sommes constamment confrontés au défi de comprendre le comportement des gens et de trouver les moyens de les aider alors qu'ils traversent des périodes de maladie et tentent d'améliorer leur santé. Richard Lazarus (1993) introduisit un changement fondamental dans la façon dont nous définissons le soutien et dans laquelle nous poursuivons nos recherches sur le sujet. Il conçoit le soutien comme un processus qui change en cours de situation. Le soutien dépend de la signification de l'événement, de son contexte et des buts de la personne dans la situation. Je crois que les infirmières trouvent approprié l'accent que met Lazarus sur le processus de soutien. Nos valeurs et notre expérience sont compatibles avec son manque de jugement a priori sur ce qu'est un soutien «adéquat» ou «efficace». Les questions fondamentales dans la recherche sur le stress, le soutien et l'adaptation sont : «soutenir quoi?», «quand?», «dans quel contexte?», «de quelle façon?» et «avec quels résultats?». Les chercheurs en sciences infirmières doivent également poser des questions, à savoir si les différentes approches en sciences infirmières sont efficaces et soutiennent les gens de façon à leur permettre de recouvrer la santé.

Les sciences infirmières mettent l'accent sur la recherche concernant le soutien et l'adaptation depuis presque deux décennies. Les concepts de situations stressantes, de comportements de soutien, de facteurs d'influence, de résultats du soutien et de leurs relations mutuelles, sont complexes. Leur examen exige une clarté conceptuelle et des méthodes de recherche sophistiquées. Les articles du présent numéro montrent cette complexité et sont, à mon avis, tout à fait représentatifs de la primeur de la recherche sur le soutien en sciences infirmières ou concernant les infirmières. Jalowiec (1993) et Rice (1993) ont fait des comptes rendus approfondis des recherches qu'ont effectuées des infirmières sur le stress et le soutien. Leurs conclusions sont les suivantes : la plupart des recherches sont descriptives et corrélatives dans leur conception; les questions manquent généralement de spécificité dans leur relation avec l'événement stressant; les études, bien souvent, ne font pas le lien entre les comportements de soutien examinés et les conséquences de ces comportements. Les deux auteurs ont rapporté que la plupart des études étaient fondées sur la perspective théorique du stress et du soutien de Lazarus

et de Folkman (1984). Un petit nombre d'entre elles, cependant, étaient conçues de façon logique par rapport à ce cadre. Par exemple, très peu d'études étaient conçues longitudinalement. Lazarus (1993) relève les mêmes problèmes pour ce qui concerne la recherche des psychologues et d'autres. Mme Gina Browne, dans «le coin du concepteur» du présent numéro, fait mention de beaucoup de ces problèmes et propose des solutions terriblement tentantes.

Dans le présent numéro, les auteurs se concentrent sur le soutien aux malades ou aux familles qui sont dans des situations liées à la maladie, ou le soutien aux infirmières qui font face au stress de leur travail. La question «soutenir quoi?» est le sujet de Mme Ann Hilton à propos de l'échelle du stress devant l'incertitude. Les autres auteurs s'attachent davantage au contexte du soutien. Ils mettent plus l'accent sur les variables psychologiques personnelles qui influencent soit l'évaluation individuelle de l'événement stressant, soit les stratégies de soutien, soit les résultats de l'intérêt. Ces variables psychologiques comportent l'espoir, les perceptions de l'efficacité personnelle ou du perfectionnisme, les ressources de soutien pour la maîtrise de la situation et la santé, et enfin l'estime et la communication. Hirth, Stewart, Snowden et al. examinent également l'influence des ressources extérieures et situationnelles comme le soutien social. Les résultats de toutes les études montrent l'effet d'une multitude de facteurs dans toutes les phases de stress et du processus de soutien. Il est évident par exemple que l'on doit étudier soigneusement la signification ou l'évaluation de la situation, et les facteurs qui influencent cette évaluation. Hilton rapporte des écarts dans les pointages sur l'incertitude, selon la nature de la situation et le stade où est la personne pendant l'évolution de la maladie. Snowden et al. rapportent que les exigences réelles de la maladie de l'enfant ou de son comportement n'influent aucunement sur les résultats. Tandis que les auteurs du présent numéro soulèvent des questions importantes sur les interventions adéquates pour aider les gens à faire face aux situations stressantes, il existe très peu d'études qui ont évalué l'efficacité des approches en sciences infirmières pour ce qui a trait au soutien.

Il reste encore de nombreux défis à relever dans la recherche sur le stress et le soutien. Malgré les études décrites ici et les nombreuses études rapportées dans d'autres revues, on ne sait que peu de choses sur le sujet. De quelle façon l'évaluation des situations de santé ou de maladie changent avec le temps et dans les situations elles-mêmes? Quelle est l'influence des facteurs personnels ou situationnels sur le comportement de soutien ou ses résultats? De quelle façon le comportement de soutien change au cours d'une situation stressante, dans les différentes situations et comment il évolue? Quels types d'approches en sciences infirmières sont efficaces pour aider les gens qui sont dans des situations stressantes? Et, ce qui est le plus important, est-ce qu'une seule de ces questions fait une différence pour l'«adaptation» de la personne, de la famille ou celle du groupe?

Nous n'avons pas effectivement clarifié ce que nous entendons par «adaptation». Mme Duffy (1987) conteste notre concept d'adaptation comme «repère de santé». Elle soulève des questions importantes et dérangeantes, identiques à celles de Mme Browne dans ce numéro. Mme Duffy écrit : «L'adaptation est un mécanisme patriarcal de contrôle de la société; en effet, le groupe qui contrôle définit les normes. L'adaptation a comme définition celle que le groupe qui contrôle lui donne.» (p. 186). Cela me rappelle le point de vue d'un mentor de la première heure sur le comportement des enfants et de leur famille dans les situations difficiles de maladie auxquelles ils étaient confrontés. En réponse aux doléances ou aux soucis des professionnels de la santé concernant le comportement «anormal», il répondait inmanquablement : «Vous avez là un comportement normal dans une situation anormale. Que pouvons-nous donc faire face à cette situation?» Mme Duffy (1987) suggère que nous étendions notre vision, que nous dépassions l'établissement d'un objectif d'adaptation comme homéostasie et que nous adoptions un modèle de transcendance. Le but d'un tel modèle «est de transformer les normes dominantes afin que les transformations ne soient pas limitées par des règles implicites, des valeurs socioculturelles ou les lois de la communauté.» (pp. 188-189). Quel est le «résultat» de l'intérêt dans la recherche sur le soutien? Pour les auteurs de ce numéro, les résultats sont «la satisfaction» (O'Brien et Page; Snowdon et al.) et l'évaluation que fait la personne de «l'efficacité du soutien» (Hirth et Stewart). Sont-ce les résultats les plus importants que les infirmières doivent mesurer? Est-ce que les résultats pertinents seraient différents dans d'autres disciplines? Comment décidons-nous quels résultats sont pertinents? Folkman (1991) propose une solution qui englobe l'évaluation des résultats pertinents et l'adéquation entre «(a) l'évaluation que fait la personne de ce qui se passe (évaluation primaire) et ce qui se passe vraiment, (b) l'évaluation que fait la personne des possibilités de soutien (évaluation secondaire) et les possibilités réelles et (c) l'adéquation entre les possibilités de soutien et les processus réels de soutien.» (p. 15). Cette solution ajoute une nouvelle dimension à la complexité de la conception de la recherche dans le domaine du soutien et de l'adaptation.

Je suis certaine que soutenir la création de cette rubrique de la *Revue de la recherche en sciences infirmières* fut une «expérience enrichissante» pour tous ceux qui y ont pris part. Mes façons de réagir ont certainement changé au cours des différents stades! Mais la rédactrice en chef de la Revue, Laurie Gottlieb, et la directrice de la diffusion, Jill Martis «sont intervenues» en me prodiguant leur aide extraordinaire, leur engagement et leur soutien social! Nous avons toutes dû trouver des façons de faire face à l'incertitude, à savoir si des manuscrits seraient envoyés et si les auteurs pourraient faire les révisions à temps pour la parution. Je suis reconnaissante à tous ceux qui ont envoyé leurs manuscrits et à tous ceux qui ont pu effectuer les révisions requises à temps pour la parution. Ils ont répondu à des échéances déraisonnables

avec grâce et promptitude. Je remercie également les réviseurs qui ont pris des heures sur leur emploi du temps chargé cet été pour nous aider. J'espère que nos façons de soutenir le premier numéro qui introduit la rubrique «le point» dans la Revue canadienne de la recherche en sciences infirmières furent «efficaces» pour la production d'une rubrique utile sur le soutien et l'adaptation. De nombreuses questions restent mais ce numéro pourrait servir de rampe de lancement pour la phase suivante de la recherche en sciences infirmières sur les questions de soutien et d'adaptation.

Judith A. Ritchie
Rédactrice invitée

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The Uncertainty Stress Scale: Its Development and Psychometric Properties

B. Ann Hilton

Le présent article décrit l'élaboration et la mise à l'épreuve d'une nouvelle échelle : *The Uncertainty Stress Scale* (l'échelle du stress devant l'incertitude). Celle-ci mesure l'incertitude dans les situations liées à la maladie et le stress, les sentiments de menace et les émotions positives qu'entraîne un état d'incertitude. On expose la base théorique et empirique de l'échelle. Les preuves viennent de diverses recherches faites sur des malades en traitement de courte durée et des malades chroniques. Les résultats confirment la fiabilité de l'échelle et de son contenu, et concourent à sa validation. Les diverses idées quant aux révisions possibles sont décrites.

This paper describes the development and testing of a new scale—The Uncertainty Stress Scale—which measures uncertainty in illness-related situations, and the stress, threat, and positive feelings generated from the uncertain state. The theoretical and empirical basis of the scale is presented. Evidence which supports the scale's reliability and its content, concurrent, and construct validity is presented from several studies of people experiencing acute and chronic medical conditions. Descriptions and rationales for revisions are described.

Most living creatures endure some degree of uncertainty, but it can be particularly poignant for those living with medical disorders. It is a major source of stress for acutely and chronically ill individuals and their families (Strauss, et al., 1984), and is a major factor that influences expectations about illness, treatment, and prognosis (Filayson & McEwan, 1977; Mishel, et al., 1984). Uncertainty underscores the fact that the individual is vulnerable, that life is uncertain, and that they may have little control over events that may change life in major respects. One of the most important reasons why uncertainty can be stressful is that it has an immobilizing effect on coping processes. It triggers both coping strategies for anticipating an event's occurrence and those needed to anticipate the event's nonoccurrence, and the two are often incompatible (Gerber, 1974). New medical procedures for cancer raise hope of cure, but improved five-year survival rates and cure are not synonymous. In addition, preparation for alternative outcomes is difficult in uncertain situations because confusion can result from having to consider first one possible outcome and then another. When individuals cannot decide on a path of action and closure is unavailable, fear, excessive worrying and rumination, and eventually anxiety can result (Breznitz, 1971). Heightened anxiety and, or threat is likely to interfere with the cognitive functioning required for appraisal of the situation and makes it more difficult for an individual to cope. Therefore, uncertainty can lead to a long, drawn-out process of

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appraisal and reappraisal, generate conflicting thoughts, feelings, and behaviours, and culminate in feelings of helplessness and eventually confusion. Uncertainty therefore has important implications for patient and family adjustment.

Researchers have a major responsibility to generate knowledge about coping with uncertainty, and develop and test interventions based on this knowledge in order to maintain and enhance the health status of the people they serve. An understanding, and ability to measure uncertainty and its associated stresses and threats would help practitioners to assess and intervene appropriately.

The Mishel Uncertainty in Illness Scale (MUIS) was developed to measure uncertainty in illness for hospitalized individuals, and by 1983, data supported its validity and reliability in that population. The current author used the community version of MUIS to study non-hospitalized women who were coping with breast cancer and had been receiving treatment from one month to 20 years prior (Hilton, 1987, 1988). The study triangulated quantitative and qualitative methods. During the interviews, women revealed uncertainty in coping, in addition to other aspects of uncertainty, which was particularly germane to them and was not addressed in the MUIS. They did not distinguish the uncertainty of their situation from the uncertainty of knowing how to cope with it. All aspects were uncertain for them: not being able to foretell the future, being undecided because things were not definite, being unable to rely on test results and being uncertain about what to do, how to make choices and how to interact with others.

A new scale that measures uncertainty and includes uncertainty in coping was needed; one that measures the stress (emotional strain), threat (danger), and positive feelings that might accompany uncertainty. The current article describes the development and testing of the Uncertainty Stress Scale (USS), which is designed for clinical and research purposes to measure uncertainty in illness-related situations and the stress, threat, and positive feelings generated by the uncertain state. Emphasis in the current paper will be on the uncertainty component of the scale.

Theoretical Basis of the Uncertainty Stress Scale

While ambiguity is often equated with uncertainty, uncertainty is the state of mind created by ambiguity (Norton, 1975). Lazarus and Folkman (1984), for example, define ambiguity as a lack of situational clarity and uncertainty as the person's confusion about the meaning of the environmental configuration. Other authors have not necessarily made a clear distinction between the two. According to Budner (1962), ambiguous situations are characterized by

novelty, complexity, and insolubility, and cannot be adequately structured or categorized because sufficient cues are lacking. Norton (1975) identified eight uses of the term *ambiguous* with one of these being *uncertainty*: multiple meanings (entailing at least two meanings regardless of whether the person was aware and/or clear of them); vagueness, incompleteness, fragmented (if parts of the whole were missing); probabilities; unstructured (when stimulus has no apparent or partial organization); lack of information; inconsistency, contradiction, contrariness (presence of discrepant information); lack of clarity; and uncertainty. Norton stated that the degree of ambiguity is dependent upon both the structure inherent in the physical stimulus and the interpretations of or the responses to the stimulus made by the receiver. He also noted that uncertainty, inconsistency, indistinctness or lack of clarity or structure, are not necessary conditions, but may be sufficient for labelling something as ambiguous. In addition, he emphasized that a person need not see ambiguity in a stimulus for it to be labelled as ambiguous. Duncan (1972) identified three attributes of ambiguity: a lack of information concerning the environment; a lack of knowledge regarding the consequence of a specific decision; and an inability to assign probabilities to the effects of any environmental factor. Ambiguity therefore refers to the attributes of the situation, while uncertainty refers to the person's perception of the situation which, may or may not include ambiguity.

Lazarus and Folkman (1984) emphasize the importance of uncertainty in coping, and describe a coping process in which appraisal is central. They suggest that ambiguity and the resulting uncertainty can generate stress and inhibit effective coping. Appraisal assesses the harmful, threatening or challenging nature of the situation and determines the accompanying stress and coping options available to the person. Appraisal processes are influenced by personal beliefs and values, situational properties such as novelty, predictability, event uncertainty and temporal uncertainty, the coping options and resources available, the likelihood that a given coping option will accomplish what it is supposed to, and the likelihood that one can apply a particular strategy or set of strategies effectively. Under conditions of ambiguity, cues regarding the nature of the outcome and/or extent to which it can be controlled are minimal. Consequently, beliefs have more influence in determining meaning. The greater the ambiguity in a situation, the more inference is required for making judgements about its significance. Ambiguous situations are usually evaluated as threatening because the outcome is unknown, the focus for action is unclear, and there is a limited selection of coping processes available. Uncertainty can limit the person's effective control and sense of control over the danger and thereby increase their feelings of helplessness and stress. However, in some situations uncertainty can reduce threat by allowing alternate interpretations to be considered.

Mishel is refining a middle-range nursing theory of uncertainty in illness that explains how patients cognitively process illness-related stimuli as well as how they structure meaning for those events (1988, 1990). She defines uncertainty as the inability to determine the meaning of illness-related events. It occurs in situations where the decision maker is unable to assign definite values to objects and events and/or is unable to accurately predict outcomes because sufficient cues are lacking. According to the theory of uncertainty, mastery mediates the relationship between uncertainty and appraisal, and coping mediates the relationship between appraisal and emotional distress. It is expected that when uncertainty is appraised as an opportunity, problem-focused coping strategies would be used, whereas, when it is appraised as a danger (implying that the situation is unmanageable), emotion-focused coping strategies would predominate (Mishel & Sorenson, 1991). Various studies have provided empirical support for the theory and the psychometric properties of MUIS (Christman et al., 1988; Herbst, 1986; Mishel, 1981; 1983; Mishel & Braden, 1987; Mishel et al., 1984; Yarcheski, 1988).

The author's phenomenological study of uncertainty for women coping with breast cancer (Hilton, 1987, 1988) assisted in the development of a theoretical definition of uncertainty. Sixteen women who were purposefully sampled from the larger study to reflect a range in demographic, cancer, and cancer treatment characteristics were interviewed. Uncertainty in illness was defined as a cognitive perceptual state that ranges from a feeling of just less than surety to vagueness; it changes over time and is accompanied by threatening and/or positive emotions. Uncertainty is not being able to foretell the future; a lack of clarity about the present; being in doubt; being undecided because things are not definite, clearcut or determined; not being able to rely, count, or depend on someone or something; and having a sense of vagueness about what to do, expect, know and ask. Feelings generated by uncertainty include anxiety, fear, anger, wonder, frustration, helplessness, curiosity, hope, and depression. Less anxiety and fear as well as contentment, relief, peace, confidence, and hope are associated with less uncertainty and more surety. The author's definition includes uncertainty generated by the assessment of the individual's situation and coping responses. It therefore adds the dimension of uncertainty in coping to attributes identified by others.

Scale Development and Testing

Scale Format and Item Development

The USS has undergone three revisions to date. Its goals are to measure uncertainty, the stress of that uncertainty, and the degree to which it is perceived as threatening and/or positive. The scale has three parts. Part A asks participants to rank their level of uncertainty in a number of areas related to their health condition and their coping with it. The items can be general or can be

Uncertainty Stress Scale (selected items for general medical condition)
Version 4

0 50 100

No positive feelings 50 Very high positive feelings

made specific to a disorder or situation by inserting the name of that condition. Part B asks participants to rank their degree of stress related to their uncertainty for those same areas. Part A can be summed to provide an overall indication of uncertainty or sums for each subscale can be calculated. Likewise, Part B can be a summed score. Part C consists of four 10-cm-long visual analogue scales that measure global uncertainty, global stress, global threat, and perception of positive aspects of the respondent's uncertain state (see Figure 1 for the scale format and selected items).

Item development was guided by the theoretical definition of uncertainty described earlier, and its attributes. It was also guided by the theoretical and empirical literature that reflected both general and specific disorders.

Content Validation

Content validity determines whether items in an instrument represent the domain of the construct. Content validity is more likely to be achieved by defining and identifying dimensions of a concept and then developing items that reflect those dimensions.

Another method used in content validation is to ask people who are considered to be experts on the concept to judge the extent to which the items reflect the concept. The USS items were reviewed for appropriateness and clarity by experts including nurses, cancer patients, doctors, psychometricians, and researchers on uncertainty. Based on their feedback, further revisions were made.

Because the phenomenological study consisted of cancer patients and the initial items developed for the USS emphasized uncertainty of coping with cancer, it was important to make sure that the scale would also be relevant for people with other disorders. To do this, additional literature was reviewed, interviews were done with people coping with other medical disorders, the USS was reworded, and a few other items were added. People with medical disorders other than cancer then reviewed the items and judged whether they were appropriate and clear.

Construct Validation Studies

Construct validity is the extent to which an instrument measures the theoretical construct or trait in question. Testing helps to confirm whether relationships that would be predicted to occur among concepts do occur. Support in the predicted direction provides evidence that the instrument measures the construct in question. The following procedures were used to evaluate the construct validity of the scale: factor analysis, multidimensional scaling, tests for convergent validity, hypothesis testing, and contrasted groups.

The initial two versions of the scale were tested with a wide variety of patients reflecting different ages, disorders, and seriousness of those disorders (Hilton, 1992). See Table 1 for a description of the samples used.

Table 1

Characteristics of the patients and their medical conditions in the sample used for testing the three versions of the USS

n	Disorder	Age Range in years (Mean)	% female	Sample characteristics
144	cancer	30-92 (63)	62	Version 1 (N=144) Various cancers, Currently getting treatment—14%. Extent: local—60%, in nodes—27%, elsewhere—11%, Recurrence—26%,
116	cancer	22-81 (60)	51	Version 2 (N=428) Various cancers, Currently having treatment—14%. Extent at diagnosis: local—64%, in nodes—27%, elsewhere—6%. Recurrence—27%. Time since diagnosis: very recent to 6 years
68	cardiac	33-85 (59)	34	Number of MIs: one—54%, more than one—29%. Pacemaker—13%, bypass surgery—16%, valve replacement—12%
27	vascular	45-88 (67)	42	Vascular surgery—94% (aorto-femoral bypass—19%)
96	renal	20-72 (41)	47	One transplant—70%, two transplants—7%. Dialysis: peritoneal—20%, hemodialysis—29%, both—39%
121	heart valve	40-86 (67)	53	Time since implant of biological valve 2–13 years
221	cancer	21-84 (60)	47	Version 3 (N=358) Various cancers. Currently having treatment—8%. Extent at diagnosis: local—60%, in nodes—8%, elsewhere—7%. Recurrence—12%. Time since diagnosis: very recent to 30 years
31			100	Waiting biopsy of suspicious breast lumps
18	renal	36-75 (58)	22	Waiting for kidney transplant
88	renal	27-68 (44)	34	Long-term kidney transplant patients. Time since transplant 3-21 years

Factor Analysis. Factor analysis work with the first two versions of USS was used to assist in scale refinement. Common factor analysis was done to assess whether the factors that emerged reflected the major domains expected. This method was also used because both random and systematic measurement errors were assumed (Ferketich & Muller, 1990). Oblique rotation was done because the factors were not considered to be independent. Items loading .30 or larger on factors were identified with the corresponding scales. The eight factors that resulted from factor analysis of the initial version were: Inclined to disbelief (doubts about choices, treatment, and information); Clarity-comprehension and interpretation of the situation; Indefiniteness about

curability/controllability; Unsettled in opinion and belief about effects on roles; Not being able to foretell the future of the medical situation; Managing the disorder and knowing the options; Reliability/dependability of treatments, symptoms and caregivers; and Doubts about coping with the situation.

It was recommended by Hakstian (R. Hakstian, personal communication, 1988) that the eight factors be reduced to four, where each would have at least 10 items. New items were added and others reworded so that each factor reflected one of the four themes. The refined version 2 was factor analyzed using the same methods as in version 1 with a new sample patients (Table 1). A four-factor solution was identified and the resulting factors reflected the major theoretical themes thereby lending support for construct validity. The

Table 2

**Factor loadings for the two-factor solution of Uncertainty Stress Scale
Version 3**

Item	Loading		Item Content Intent (in whole or in part)
	Factor I	Factor II	
1	.59	-.06	whether changes detected early
2	.81	-.11	stability of condition
3	.27	.00	cause of condition
4	.59	.01	whether maintain present level of functioning
5	.76	-.08	present state of condition
6	.49	.22	what questions to ask medical specialists
7	.45	.24	what questions to ask medical non specialists
8	.22	.16	whether changing diet will help
9	.36	.42	how to make sense of what I am told re situation
10	.47	.11	re effectiveness of surgical treatments
11	.92	-.19	whether condition is under control
12	.45	.17	whether condition will cause me to have symptoms
13	.16	.34	what to say to others re medical situation
14	.30	.35	re differing explanations I have been given
15	.86	-.07	chances to be well
16	.74	-.11	whether condition will be the same in 5 years
17	.58	.20	whether symptoms can be controlled
18	.64	.03	whether condition will interfere with doing usual activities
19	.18	.35	about my medical specialist's abilities
20	.27	.42	about my medical non specialist's abilities
21	.25	.50	how to manage my symptoms
22	.27	.52	choosing the treatments I have had and am having
23	.66	.03	whether disorder will return
24	.43	.27	adequacy of the follow-up
25	.11	.43	my understanding of treatments I have received and am receiving
26	.15	.52	how to approach health care workers about my care
27	.56	.03	whether condition will be involved in my death
28	.24	.48	whether treatments other than any surgery have been effective
29	.55	-.04	whether medical treatments, other than surgery eliminated my disorder
30	.17	.35	whether any change in appearance brought about by the condition affects relationships within my family

factors were: (1) Certainty/clarity/reliability/ dependability, (2) Symptom uncertainty, (3) Doubt regarding present and future state of the condition, and (4) Doubts about coping and understanding.

Although the solution was reasonably clear, it was felt that the *strongly disagree—strongly agree* format was problematic, particularly when items were positively worded. The scales that emerged from the factor analysis contained either all certainty-directed items (e.g. I can rely, I am certain, I can depend) or uncertainty-directed items (I wonder, I am not sure, I doubt). Because of the format, interpretation of some items could have encountered difficulty. In addition, further clarification was needed to differentiate lack of knowledge from uncertainty. Based on these concerns, changes were made to version 2

Item	Loading		Item Content Intent (in whole or in part)
	Factor I	Factor II	
31	.26	.27	whether any change in appearance brought about by the condition affects relationships outside my family
32	.23	.33	whether condition will affect life goals
33	.39	.34	whether what I am doing about my condition will help me
34	.24	.40	whether I can depend on test results as an indicator of my condition
35	.18	.28	whether my condition will affect my sex life
36	.32	.37	whether delays in treatment will influence my chances of successful recovery
37	.40	.37	the seriousness of my condition
38	.41	.19	whether my surgical treatments eliminated my condition
39	.38	.34	my ability to handle my emotions related to the condition
40	.39	.26	unpredictability of symptoms
41	.09	.49	whether eliminating my bad habits will help my condition
42	.23	.46	whether I will have difficulty coping with my condition
43	.12	.57	quality of information I have
44	.39	.34	how long my symptoms will last
45	.08	.72	whether I am being told the truth about my condition
46	.00	.55	whether I would choose to have all the treatments recommended to me
47	.27	.36	what unusual symptoms mean in terms of my condition
48	.49	.17	whether they might find something wrong when I go for a check-up
49	-.23	.79	whether I will be well cared for by the nurses
50	-.11	.67	whether I will be well cared for by the health professionals other than nurses
51	.24	.27	the cause of my symptoms
52	-.21	.76	whether I can depend on people who are important to me to be there when I need them
53	-.25	.68	whether I can get health insurance
54	.02	.38	whether I can get life insurance
55	-.04	.50	whether I can get disability insurance
56	.39	.30	what symptoms I should be aware of
57	.20	.51	about choosing the treatments I will have
58	.20	.50	whether my following the treatment plan recommended to me will help
59	.30	.39	what to look for to check the state of my cancer situation
60	.44	.26	whether treatments I will be having will eliminate the cancer

and a 60-item version 3 resulted. It consisted of a ranking from no uncertainty (1) to a great deal of uncertainty (5). To ensure that respondents were indicating their uncertainty rather than their lack of knowledge or other things, the stem for all items was "I am uncertain." Subjects who assessed the above changes said that version 3 was clearer and more straight-forward and therefore easier to use.

Version 3 was factor analyzed with a sample of cancer patients, women undergoing breast biopsy, kidney transplant patients, and patients on the kidney transplant waiting list. As before, common factor analysis with principal axes factoring and oblique rotation was used (Table 2). Results revealed two factors with 28 items loading on the first factor and 32 items loading on the second factor. Only five items had loadings less than .30 on either of the factors. Two scales (factors) were identified: (1) Indefiniteness/lack of clarity about the present and future state of the disorder (not being clearly defined or precise); and (2) Being unsettled and having doubts about coping (making sense of things, depending on others/tests, knowing what to do). These two components reflected the major themes as expected from the theoretical definition. The factors reflected uncertainty arising from the disorder itself and uncertainty arising from coping with the disorder. Cronbach alpha reliability coefficients were computed for these factors and illustrated that internal consistency reliability was strong at .96 for Factor I and .94 for Factor II. Factor I correlated with Factor II ($r=.57$).

Multidimensional Scaling. Multidimensional scaling procedures (MDS), nonmetric ways of representing the ranking of relationships among data in a spatial way, were also used. A number of iterations are done to decrease the differences and thereby the error to find the best fit. The degree to which the data depart from the model is measured by stress. The closer the stress is to zero, the better the scaling process. The criteria for the number of dimensions are stress level and interpretability. The fewer the dimensions, the more compact the solution (Shepard, Romney & Newlowe, 1972; Schiffman, Reynolds & Young, 1981). One interprets the dimensions by looking at the properties of stimuli at each end of the dimension to determine if there is some attribute that changes in an obvious fashion. The MDS is based on distances between points, whereas factor analysis is based on the angles between vectors, and is presumably harder to interpret. The MDS does not assume linearity and therefore may provide a more interpretable solution of lower dimensionality.

The two-dimensional model of the USS showed two dimensions quite clearly, had a stress factor of .27, and explained 67.9% of the variance. Dimension one was the uncertainty related to clarity of the present and future state of the disorder and includes the effectiveness of treatment. Dimension

two reflected uncertainty about understanding and coping and the impact of the disorder on their functioning and on others. The items falling on each dimension were similar to those identified for the factors that emerged in the factor analysis. For example, the items with higher weightings on the first dimension were numbers 16, 27, 23, 48, 11, 15, 18, 1, 4, 5, 2, 16, 29 and those on the second dimension were items numbers 49, 50, 46, 42, 53, 54, 55, and 58. These same items had the higher factor loadings on the same factors and reflected similar themes.

Convergent Validity. Convergent validity is supported when two or more instruments that theoretically measure the same construct are administered and results reveal positive correlations between the measures. To test for convergent validity of the USS, 286 patients with cardiac, cancer, vascular or kidney disorders responded to Mishel's MUIS. A correlation of .69 ($p=.00$) between the USS and MUIS reflected similarity of concept, but absence of redundancy. Similarly, to test the stress component, some subjects (vascular and cardiac group of Sample 2), responded to the Spielberger State Trait Anxiety Inventory (STAI). The correlation of their state anxiety was .43 ($p=.01$) to the total stress and .63 ($p=.00$) to the stress visual analogue.

Hypothesis Testing. Hypotheses, based on theoretical expectations, can also be used to test for construct validity. Evidence of relationships in the expected direction lend support to the construct validity of the scale. Based on the Lazarus and Folkman (1984) model, it was predicted that uncertainty would be positively correlated with stress/anxiety. Using the summed scores and the visual analogue scores (refer to scale format), this prediction was proven correct ($r=.50$, $p=.00$), and was reflected in several subject groups. In addition, there was a correlation of .65 ($p=.00$) between total uncertainty and their state anxiety according to Spielberger's STAI. In partial agreement with the predictions, uncertainty was consistently associated with stress ($r=.54$, $p=.00$) and threat ($r=.55$, $p=.00$), but showed no relationship with positive assessment.

Multiple regression of total uncertainty with selected illness and demographic variables indicated that recurrence, poorer state of health, shorter time since treatment, and less education were predictive of greater uncertainty. Education is a personal resource variable that assists in accurate assessment and coping (Folkman & Lazarus, 1984). Variance explained totaled 43.7%. Regression on the uncertainty visual analogue indicated that recurrence predicted 20.9% of the variance. Regression on total stress showed that greater uncertainty, poorer expectation of future health, more progressive cancer, and less perception of control predicted 85% of the variance. Regression on perception of uncertainty as positive identified greater sense of control, less threat, and less education as predicting 25.1% of the variance. All results were in the direction predicted.

Because personal characteristics can have a strong influence on perception, a sense of coherence was believed to be negatively correlated with uncertainty (Lazarus & Folkman, 1984). Sense of coherence is a global orientation—a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable, and that there is a high probability that things will work out as well as can reasonably be expected. In a sample of cardiac ($n=68$) and vascular ($n=27$) patients ranging from 33 to 88 years old, total uncertainty was negatively associated with sense of coherence ($r=-.41$, $p=.01$) as measured by Antonovsky's Sense of Coherence Scale (1987).

In addition, it was predicted that as demands pile up uncertainty would increase. This was confirmed in a sample of 307 patients (cancer $n=116$; cardiac $n=68$; vascular $n=27$; renal $n=96$). Responses on the Index of Predominant Concerns, which measures potential sources of distress among people with serious illness (Weisman & Worden, 1977), showed that more concerns were related to greater uncertainty ($r=.27$, $p=.00$).

Further hypotheses were tested with women being diagnosed for a suspicious breast lump ($n=31$). It was hypothesized that these women would have high uncertainty and anxiety prior to receiving their biopsy results and, that these feelings would subside for those where the tumor was diagnosed as benign, but remain high where it was diagnosed as cancer. To test these hypotheses, women completed the USS prior to biopsy, after results were known, after definitive surgery, and then three months later. As one might expect there was no significant difference between the two groups pre-biopsy. But after results were known those with cancer had greater uncertainty ($M=123$, $SD\ 37.1$) than those without ($M=84.6$, $SD\ 17.1$, $t=4.73$, $p=.01$). Similarly, total stress was initially high for all subjects, and dropped significantly for those not diagnosed with cancer ($t=4.59$, $p=.02$). After definitive treatment the mean uncertainty was 116.2 ($SD\ 37.9$) and three months later was still high, although not as high as at initial diagnosis ($M=124$, $SD\ 47.8$).

Ford (1989) described the level of uncertainty for 121 biological valve patients ranging in age from 40 to 86 years. Overall, there was a low level of uncertainty, but not being able to foretell the future generated the most uncertainty. Those who had their transplants in 1976-78 were significantly less uncertain than others who had theirs more recently. Uncertainty was significantly negatively correlated with past, present, and future life satisfaction. Internal consistency reliability of the total scale was .92. There was a significant positive relationship between uncertainty and stress, the stress visual analogue, and threat visual analogue, but not between uncertainty and positive feelings. These findings also show support in the direction expected.

Swanson (1991), studied 88 long-term kidney transplant patients to describe the relationship between uncertainty and the coping strategies used. Moderately low levels of uncertainty were generated primarily from the patients' perceptions of the indeterminateness of their situation (55% had uncertainty levels between 61-100, and 15% had levels above 141). More health problems and lower levels of education were associated with higher uncertainty. As one might expect, positive relationships were found between uncertainty and the use of emotion-focused strategies such as evasive ($r=.37$), fatalistic ($r=.46$) and emotive ($r=.42$) coping (significant at .05 level). The relationship between uncertainty and self-reliance was $r=.20$ ($p=.06$), and between uncertainty and palliative coping, $r=-.19$ ($p=.08$). Significant positive relationships were found between uncertainty and stress, but not between uncertainty and threat or positive feelings. Uncertainty was negatively related to age ($r=-.21$) and education ($r=-.23$). Internal consistency for the total scale was .96.

Contrasted-groups. When the contrasted-groups approach is used, two groups suspected to score extremely high or low on the construct are tested. Validation occurs when results are as expected. Several hypotheses were tested using 221 cancer subjects with various extents and types of cancer. Subjects ranged in age from 21 to 84 years old and, elapsed time since diagnosis ranged from very recent to 30 years. It was expected that severity and instability of the cancer would be related to an increase in the patient's uncertainty, and that those who had recurrent cancer would have higher uncertainty than those who did not. These hypotheses were supported. Those with more extensive cancer had higher uncertainty than those with less extensive cancer ($F=3.3$, $p=.04$); patients with cancer in the lymph nodes or beyond the nodes had higher uncertainty than those with localized cancer ($M=135$, $M=141$, and $M=114$, respectively), and the mean uncertainty for those with recurrence was 157 compared to 111 without ($F = 24.5$, $p=.00$). A further hypothesis that uncertainty would be negatively related to perceptions of control was supported ($r=-.20$, $p=.04$). This was expected because ambiguity hampers coping (Lazarus & Folkman, 1984).

The studies done on factor analysis, multidimensional scaling, convergent validity, hypothesis-testing, and contrasted groups supported the construct validity of the scale.

Ongoing Work

Attempts to shorten the scale are continuing. Items are being deleted through examination of frequency of endorsement of each item, discrimination ability, similarity in content, high intercorrelation between items, and low item-total

correlations. Streiner and Norman (1991) suggest that when most people choose the same response to an item this does not improve a scale's psychometric properties, and that item can be deleted. Although some items have a high frequency of no uncertainty responses, this might be because some of these subjects have a more stable condition. For example, in response to the item uncertainty about choosing the treatments I will have, 60% of the longer-term cancer and transplant patients indicated no uncertainty, whereas only 35% of those awaiting results responded with no uncertainty, indicating that the latter group had higher uncertainty levels. The discrimination index was calculated for each item (Streiner & Norman, 1991), but consideration should be given because these were not achievement items where there was a correct answer. Responses of those who had a moderate to great deal of uncertainty on an item were compared to those who scored above and below the median total uncertainty score. According to Streiner and Norman (1991), items with discrimination ability between .2 and .8 should be used. Of the 60 items in the scale, five with indices below .2 will be considered for removal; an additional 12 have indices between .2 and .25. Analysis did not identify any items with correlations above .8, which would suggest redundancy. Item-total correlations indicated that five items had item-total correlations of less than .31.

Several changes have been made to create a refined version of the USS, but it is likely that additional items will be deleted. Items that attempted to discriminate between surgical and medical treatments have been collapsed. Uncertainty regarding financial issues was clarified as well as uncertainty about making choices. In addition, although the author was initially advised not to have a not applicable response column because of difficulty with analysis, this column has now been added. This will help distinguish between those where uncertainty is absent but the item is relevant (i.e., they feel certain) and those where the item is not relevant. Furthermore, it is conceptually clearer to have no uncertainty ranked as 0 rather than 1; the continuum therefore is now 0-4. Also, because fine discrimination was not felt necessary for the stress component, the ranking was altered from 1-4 to 0 (no stress) to 2 (a great deal of stress). Readers may obtain the latest version 4 by writing to the author.

Summary and Conclusion

The development of the USS has proceeded through a number of steps to build a strong foundation and support for its validity and reliability. Data support the content, concurrent, convergent, and construct validity of the USS, and its reliability. At this point, the scale has been tested on a reasonable range of people experiencing acute and chronic medical conditions. Although

efforts to shorten the scale continue, the investigator is hesitant to delete items too quickly. Although an item might not elicit high uncertainty for some patient groups it might be particularly relevant for others. In addition, analysis and interpretation of scores when some items are considered inapplicable will require further attention. The investigator believes that the USS is a useful scale for clinical and research purposes, and encourages others to consider using it in their work and adding their data to the pool for further analysis.

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Hope and Social Support as Coping Resources for Adults Waiting for Cardiac Transplantation

Alexandra M. Hirth and Miriam J. Stewart

On identifie le soutien affectif et l'espoir comme des stratégies importantes pour les personnes qui sont dans l'attente d'une transplantation cardiaque. Cependant, on ne sait que peu de choses sur leurs sources de soutien affectif ou si ce soutien et l'espoir sont des facteurs qui réduisent l'anxiété de la période d'attente. Cette étude décrit les sources d'interaction sociale des personnes qui étaient dans l'attente d'une transplantation cardiaque, et explore si le soutien social et l'espoir leur ont servi de stratégies efficaces. Trente et une personnes dans quatre centres de transplantation au Canada ont rempli des questionnaires sur le soutien social (Norbeck Social Support Questionnaire), l'espoir (Miller Hope Scale), et la façon de se débrouiller (Jalowiec Coping Scale). Des entretiens par téléphone ont fourni des données supplémentaires sur les façons dont les conduites utiles au soutien sont perçues. L'espoir était le seul facteur qui contribuait à la différence dans la façon de se débrouiller ($R^2 = .41$). Les résultats de l'étude indiquent que les sources de soutien social des personnes interrogées (notamment la famille, les ami(e)s, et les professionnel(le)s de la santé) étaient importantes. Les données fournissent un aperçu des conduites qui, selon les personnes qui attendent une transplantation, apportent un soutien, et suggèrent des stratégies pour maintenir l'espoir dans la période d'attente.

Previous research has indicated that interpersonal support and hopefulness are important for people waiting for cardiac transplantation. However, little is known about their supportive networks, or whether support and hope are factors that enable coping during the waiting period. This study described the social networks of cardiac transplant candidates, and explored whether social support and hope contributed to effective coping. Thirty-one individuals in four Canadian transplant centres completed questionnaires regarding social support (Norbeck Social Support Questionnaire), hope (Miller Hope Scale), and coping (Jalowiec Coping Scale). Telephone interviews provided supplementary data about perceptions of helpful support behaviours. Study findings suggest that hope was the only variable that contributed to coping effectiveness ($R^2=.41$) and that respondents' social networks (primarily family, friends, and health professionals) were important sources of support. The data provide insight into the behaviours that transplant candidates find supportive and suggest strategies to maintain hopefulness during the waiting period.

For adults waiting for cardiac transplantation the waiting period may be the most stressful period of time (Kuhn, et al., 1990). Persons with end-stage cardiac disease live with the knowledge that cardiac transplantation is necessary for survival, and may feel anxious, depressed, or helpless (Christopherson, 1987; House & Thompson, 1988; Kuhn, Davis, & Lippman, 1988), or engage in anticipatory grieving (Christopherson, 1976). Research regarding psychosocial adjustment in the waiting period for cardiac transplantation has

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identified hope and interpersonal support as important to an individual's adaptation (Buzzell, 1990; House & Thompson, 1988). However, the existing research is primarily anecdotal and limited to the perspective of the professional caregiver. Further empirical study is warranted to explore hope and support from the perspective of the individual waiting for transplantation, and to describe the relationships among hope, support, and coping in this population. This knowledge may help health professionals to facilitate coping in persons who are waiting for cardiac transplantation.

Social support has been conceptualized as multidimensional (Gottlieb, 1983), and defined as interpersonal transactions with laypersons and professionals that may express positive affect; affirm or acknowledge that one has appropriate beliefs, interpretations, or is engaging in appropriate behaviours; and/or provide direct help or aid (Kahn & Antonucci, 1980). Social support, as coping assistance, may affect an individual's appraisal of the stressful situation by helping them change the situation or the meaning of the situation (Thoits, 1986). Affective support may help a person manage the negative or distressing feelings associated with the waiting period (emotion-focused coping); affirmational support may help a person appraise the situation differently (cognitive reappraisal); and aid may provide practical assistance or information that helps an individual manage problems during the waiting period for cardiac transplantation (problem-focused coping). Furthermore, uncontrollable events, such as illness, are presumed to elicit needs for emotional support and emotion-focused coping (Cutrona & Russell, 1990).

Hope may mediate the consequences of stressful situations by facilitating the appraisal of events as manageable (Lazarus & Folkman, 1984), by maintaining goal-directed behaviour (Stotland, 1969), and by positively affecting coping persistence (Folkman, et al., 1991). Hope was conceptualized as a cognitive process (Korner, 1970; Miller, 1989) and defined as a) the anticipation of a continued good state, an improved state, or a release from a perceived entrapment, and b) the anticipation of a future that is based upon mutuality, personal competence, psychological well-being, and purpose and meaning in life (Miller, 1986). Hopefulness may be partially contingent on supportive relationships (Miller & Powers, 1988).

Effective coping was conceptualized as the prevention or mitigation of distress within a particular situation as perceived by the individual (Lazarus & Folkman, 1984); the stressful situation is not overcome, but there is a balance between management of the problem and regulation of distress. For this study effective coping was defined as the subjective ability of an individual to manage the distress associated with waiting for cardiac transplantation. Social support and hope may enable coping during the waiting period, but these conceptual links have not been tested.

Review of the Literature

During the waiting period for cardiac transplantation, individuals struggle with the threat of further physical deterioration, the fear of dying, and the unpredictable timing of donor organ availability (Christopherson, 1987). One factor which may mediate the stress of the waiting period is social support. The importance of social support in promoting adaptation in people with a cardiac illness is well documented. Studies of people post-MI have shown that support is related to adherence to cardiovascular risk reduction strategies (O'Reilly, & Thomas, 1989) and to enhanced coping with problems and restrictions (Dracup, Meleis, Baker, & Edlefsen, 1984; Garding, Kerr, & Bay, 1988; Schulte, Kester, Pluym, & Sutherland, 1990; Wiggins, 1989). The literature regarding psychosocial adaptation in cardiac transplant populations points to the importance of support to an individual's adaptation in the pre-transplantation period, but inadequately describes the available social support. Studies have reported that families share the emotional burden and provide practical support (McGary-Busé & Pieper, 1990; Mishel & Murdaugh, 1987), and that health professionals provide information (Grady et al., 1993; Buzzell, 1990; Levenson & Olbrisch, 1987) and emotional support (Kuhn, Davis, & Lippman, 1988). Although peer support from previous transplant recipients has been acknowledged (Kuhn, Davis, & Lippman, 1988), it has not been well described. Further research is warranted to understand the specific supportive behaviours available from the social network, including the relative importance of specific sources and types of support.

The maintenance of hope in the waiting period has been identified as a potentially important coping strategy (Christopherson, 1987; House & Thompson, 1988), but has not been empirically examined. Hope has been related to psychosocial adaptation in persons with cancer (Herth, 1989; Hilton, 1989) as well as acute (O'Malley & Menke, 1988) and chronic illness (Foote, Piazza, Holcombe, Paul, & Daffin, 1990; Rideout & Montemuro, 1986). Foote and colleagues (1990) found significant positive correlations between hope and social support as well as hope and self-esteem in a group of multiple sclerosis patients. In studies of individuals with cancer (Herth, 1989; Hilton, 1989), hope has been identified as an important variable in coping. O'Malley and Menke (1988) found no relationship between perceived hope and stress among persons who had experienced a first myocardial infarction.

Interview data from studies involving acute (Miller, 1989) and chronically ill populations (Herth, 1990), have documented factors that promote or threaten hopefulness. Factors that foster hope include having relationships with significant others, receiving reassurance from professional caregivers that the stress of a situation is manageable, using cognitive strategies to decrease

the threat of a situation, exhibiting humor, having conviction in a positive outcome, having goals in life, and having confidence in therapy as well as a sense of personal control. Threats to hope include the physical and/or emotional distancing of significant others, being devalued as a person, and uncontrollable pain (Herth, 1990; Miller, 1989). Some of these factors reflect social support.

One qualitative study documented the experience of waiting from the perspective of a group of individuals ($n=8$) in one cardiac transplant centre (Buzzell, 1990). Support needs appeared to be high upon initial acceptance onto the waiting list, but individuals appeared to cope well and exhibit a positive attitude if the waiting period was less than six months. If the wait exceeded six months, some deterioration in health occurred, coping mechanisms and morale broke down, and individuals again required support.

In summary, the literature documents the potential usefulness of support and hope as coping resources for ill populations, including individuals waiting for cardiac transplantation. However, the specific types of support provided, and the duration and perceived importance of this support, have not been investigated in this population. Furthermore, no study has explored the relationships among hope, support, and coping. One study has suggested that support needs, morale, and coping ability might fluctuate over time (Buzzell, 1990). Further research is indicated to examine whether the length of time waiting for cardiac transplantation influences these factors.

Research Questions

The research questions guiding the study were:

What are the sources, types, and duration of social support for people awaiting cardiac transplantation?

What are the relationships among support, hope, and coping effectiveness for people awaiting cardiac transplantation?

What are the relationships among length of time on the waiting list, coping effectiveness, and the levels of support and hopefulness for people awaiting cardiac transplantation?

Method

A descriptive, correlational design was used to address the research questions. Data were collected through three mailed questionnaires and a telephone interview.

Sample

Self-reported data were collected from a convenience sample of people on the waiting list for cardiac transplantation at four Canadian transplant centres. The following demographic data were collected: age, gender, marital status, and length of time waiting for cardiac transplantation. Participants had been previously evaluated and approved for cardiac transplantation, were waiting in the community served by the transplant centre, were age 18 years or older, and could read, speak, and write English. Those who were waiting in hospital for cardiac transplantation were excluded, as hospitalization is indicative of physiologic instability and these individuals may not have been well enough to participate.

Instruments

The Norbeck Social Support Questionnaire (NSSQ), developed by Norbeck, Lindsey, and Carrier (1981), was used to measure social support. The NSSQ measures three functional aspects of social support (affect, affirmation, and aid) and five structural aspects (network size, source of support, duration of relationships, frequency of contact, and network loss). Individuals were asked to identify members in their social network and to categorize each relationship as spouse, family, friend, health professional, clergy, previous transplant recipient, or other. Respondents then rated each network member on a five-point Likert scale according to the amount of affective, affirmational, and practical support perceived to be available, the length of time the respondent had known them, and the frequency of contact with them. Network losses during the preceding six months were measured by the number of support persons lost and the amount of support no longer available. Internal consistency of the NSSQ is reported to be high, with intercorrelations between all functional items (.72–.97), structural items (.88–.96), and between functional and structural items (.69–.97) (Norbeck et al., 1981). In this sample of people waiting for cardiac transplantation ($n=31$), Cronbach's alpha was .98. The support score in this study was the summative total of affective, affirmational, and aid scores for each respondent due to the intercorrelatedness of the functional items which may not be measurably distinct. One week test-retest reliabilities have been reported from 0.85 to 0.92 (Norbeck, Lindsey, & Carrier, 1983). Concurrent validity is reported through significant positive correlations with the Personal Resource Questionnaire (Brandt & Weinert, 1981). Support scores derived from the NSSQ are reported to buffer life stress as measured by the Life Experiences Survey (Sarason, Johnson, & Seigal, 1978); and therefore have predictive validity (Norbeck et al., 1983).

The Miller Hope Scale (MHS) developed by Miller and Powers (1988) was used to measure: 1. satisfaction with self, others, and life, 2. avoidance of hope threats, and 3. anticipation of a future. It is a 40-item scale, with a

six-point Likert format ranging from 1 (very strongly disagree) to 6 (very strongly agree). Responses are summed into a total score; a higher score reflects greater hopefulness. Cronbach's alpha for internal consistency is .93 with a two-week test-retest reliability of .82 (Miller & Powers, 1988). In the current study (where $n=31$), Cronbach's alpha was .94. The MHS has been positively correlated with the Psychological Well-Being Scale (Campbell, Converse, & Rodgers, 1976), the Existential Well-Being Scale (Paloutzian & Ellison, 1982), and negatively correlated with the Beck Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974).

The Revised Jalowiec Coping Scale (Jalowiec, 1987) was used to measure coping effectiveness. Participants in this study indicated on a Likert scale from 0 (never used) to 3 (often used) how often they used each of 60 coping strategies while waiting for a heart transplant. They then rated how helpful/effective each strategy was in managing the stress of waiting, using a Likert scale from 0 (not helpful) to 3 (very helpful). Jalowiec (1987) grouped the coping strategies into eight coping styles: confronting, evasive, optimistic, fatalistic, emotive, palliative, supportive, and self-reliant. In this study, total effectiveness scores (a sum score of the effectiveness of all coping styles) were used as a measure of coping effectiveness, with higher total scores indicating greater coping effectiveness. The following psychometric properties were reported from an earlier study for a group of cardiac transplant candidates ($n=43$): the three-month test-retest reliability scores $r=.78$, $p<.05$ for total use and $r=.59$, $p<.05$, for effectiveness and the internal consistency coefficient was $r=.92$ for total use and $r=.93$ for effectiveness (Jalowiec, 1987). Total effectiveness scores had predictive validity with respect to self-reported stress ($r=-.89$, $p=.003$) (Jalowiec, 1987). Normative data were not reported. In the current sample ($n=31$), Cronbach's alpha was .89 for total use. An internal consistency score for total effectiveness could not be calculated due to missing values that represented coping strategies not used by respondents.

Procedure

Study questionnaires were distributed by the local coordinator or designate to interested people who met the inclusion criteria. A telephone interview was conducted by the principal investigator approximately one week after the questionnaires were distributed. Completed questionnaires were returned to the principal investigator. Reminder letters were mailed to participants if their questionnaires had not been received by two weeks after the telephone interview.

As the NSSQ is a global measure of support, a supplementary telephone interview was conducted to document the specific supportive behaviours from members of the social network, and to assess why these sources or types of support were helpful. Each person in the study was asked the following

questions about the support persons they listed on the NSSQ: "Thinking only of _____, what does this person do that helps you cope during this period of waiting? Can you tell me why this was/is important to you?" The interviews were audiotaped, transcribed verbatim, and content analyzed using manifest content analysis (Catanzaro, 1988). A unit for coding was considered any phrase, sentence, or passage that referred to the type or source of support. Categories for type of support were based on Kahn's (1979) theoretical conception of social support. The categories for source of support were based on the classification system used by the NSSQ. Inter-rater reliability was established as 85% for units coded and 83% for coding categories. Frequency tabulations were calculated to describe the source and type of support.

Results

The sample ($n=31$) consisted of 27 men and 4 women with an age range of 40 to 63 years ($M=52.4$). Participants were predominantly Caucasian ($n=30$) and married ($n=25$). Length of time on the waiting list ranged from 14 to 540 days (median=90 days). Analysis of variance revealed no significant differences in hope ($F(3,27) = 0.14, p=.93$), support ($F(3,27) = 1.28, p=.30$) or coping effectiveness ($F(3,27) = 2.79, p=.10$) among people waiting in the four transplant centres. There were no significant differences between men and women in support ($t(29) = .77, p=.45$), hope ($t(29) = .11, p=.91$) or coping effectiveness ($t(29) = 1.77, p=.09$), but since the number of women in this sample is small these results should be interpreted with caution. There was no significant difference in support between married and unmarried respondents ($t(29) = .84, p=.40$). Therefore spouses were included in the general support category of family in the analysis.

Source, Type, and Duration of Support

Participants had a median social network size of 11 members (Range: 3 to 27). All participants identified family members, and the majority included friends ($n=23$), and health professionals ($n=24$) as individuals who provided them with support. Only a few participants included previous cardiac transplant recipients ($n=4$), clergy ($n=4$), and miscellaneous others ($n=5$) as members of their network. The length of time respondents had known their network members had a significant positive correlation with support ($r=.89, p=.0001$) and with the amount of contact respondents had with their network ($r=.96, p=.0001$). Most individuals ($n=17$) had not lost anyone from their social network within the last six months.

Interview data provided in-depth information regarding supportive behaviours from the social network. Supportive behaviours were grouped into categories that reflected the three main types of support: affect,

affirmation, and aid. A category of others was created to group additional supportive behaviours that were identified by respondents as helpful or supportive (See Table 1). Respondents described families and friends as providing all types of support, but families provided the most affective and practical support, which were perceived by respondents as important during

Table 1

Type and Source of Support Coded from Interview Data of Persons Waiting for Cardiac Transplantation (n=31)

SUPPORT CATEGORY		DEFINITION	Network Category That Provided The Majority of this Support
MAJOR	MINOR		
AFFECT	Understanding	The effort of the support person, through talking or listening, to share the individual's experiences and/or feelings	Family (42%)*
	Trust	Confidentiality of shared information, belief in the abilities of the individual, or knowledge of the unconditional accessibility of the support person	HCP** (58%)
	Love	Devotion, affection, or interpersonal intimacy	Family (52%)
	Encouragement	Urging the individual to persist in problem resolution, and endure distress or frustration, or reassuring of a positive outcome	Family (55%)
	Concern	Consideration for the importance or severity of the problem's impact, or for the problem itself	Family (65%)
AFFIRMATION	Affirmation	Supporting the appropriateness or rightness of an individual's thoughts, needs, experiences, or feelings	Family (19%)
	Social Comparison	Using other people as sources of information for self-evaluation	Transplant Recipients (13%)
AID	Things	Material good, food, or housing	Family (35%)
	Money	Financial support by lending or donating money, or by securing financial assistance	Family (13%)
	Information	Explanations, suggestions about a problem or situation, or referral to another helping resource	HCP (58%)
	Time	References to non-specific current or future interpersonal contact through visits, by telephone, or by mail	Family (58%)
	Labour	Assistance with household chores and responsibilities including taking care of children and providing transportation	Family (68%)
OTHER	Distraction	Activities that provide stress release or do not involve the problem	Family (29%)
	Support for another	Supporter for another person in respondent's social network	Family (10%)

*Percentage of respondents in this sample that identified this category. **HCP = health care professional.

the waiting period. Although health professionals usually provided information about cardiac transplantation and respondents' health status ($n=18$), they also provided affirmation for respondents' experiences ($n=4$), and aid in the form of housing in the area of the transplant centre ($n=8$). In addition, they gave affective support by reinforcing the benefits of transplantation by reassuring respondents a donor heart would eventually become available ($n=13$), and by being accessible ($n=18$), understanding ($n=6$), and concerned ($n=4$). Physicians and nurses associated with the transplant centre were the primary sources of professional support. Previous cardiac transplant recipients generally provided encouragement ($n=4$) that the waiting period could be survived and physical well-being regained. Their support was also valued because they were understanding ($n=1$), accessible ($n=1$), and provided information ($n=2$), and gave support to spouses ($n=1$). Clergy were characterized as important sources of affective support because they were understanding ($n=2$), concerned ($n=1$), and encouraging ($n=1$).

Relationships Among Hope, Support, and Coping Effectiveness

The mean level of hope for the sample was 185.9 ($SD=25.48$), which is high compared to a score of 164.46 ($SD=16.31$) obtained elsewhere from a sample of 522 healthy adults (Miller & Powers, 1988). The mean total functional support in this sample was 203 ($SD=119$), which is comparable to normative data reporting total functional support as 201.9 ($SD=95.87$) (Norbeck et al., 1983). Coping effectiveness scores ranged from 31 to 128 (maximum possible score=180) with a mean of 72 ($SD=22.12$). Respondents rated the optimistic and supportive styles as most effective, while the evasive and emotive styles were rated as least effective. Table 2 presents the coping styles adjusted mean scores for use and effectiveness. Adjusted means were calculated to correct for the uneven number of items in each coping style.

Scatter plots were constructed prior to examining the statistical relationships among hope, total functional support, and coping effectiveness. Support was initially calculated as the sum score of affect, affirmation, and aid

Table 2

Adjusted Mean (SD) Use and Effectiveness Scores for Coping Styles ($n=31$)

Use			Effectiveness		
Optimistic	–	2.4 (.4)	Optimistic	–	2.0 (.6)
Self-reliant	–	1.9 (.6)	Supportive	–	1.9 (.7)
Supportive	–	1.9 (.6)	Confronting	–	1.5 (.6)
Confronting	–	1.7 (.5)	Self-reliant	–	1.4 (.6)
Palliative	–	1.4 (.5)	Palliative	–	1.2 (.5)
Fatalistic	–	1.2 (.6)	Fatalistic	–	.7 (.4)
Evasive	–	1.0 (.4)	Evasive	–	.6 (.3)
Emotive	–	.9 (.6)	Emotive	–	.2 (.3)

from all sources, then calculated for the specific sources of family, friends, health professionals, previous transplant recipients, and clergy. Pearson Product Moment Correlation was used to examine relationships between study variables. Hope, support from transplant recipients, and support from health professionals all had significant positive relationships with coping effectiveness (Table 3). A regression model, using forward stepwise multiple regression (Woods, 1988), was constructed with the variables entered in this order: hope, support from transplant recipients, and support from health professionals. Hope was entered first since it was correlated most highly with coping effectiveness, followed by recipient support, and professional support. Hope was the only significant predictor in the model (Table 4).

Table 3

**Pearson Product Moment Correlations Between
Support, Hope, and Coping Effectiveness (n=31)**

(a) Support and Coping Effectiveness	
	Coping Effectiveness
Total Support	.21
Support from Recipients	.46***
Support from Professionals	.42***
Support from Families	.13
Support from Friends	-.11
Support from Clergy	-.12
(b) Hope and Coping Effectiveness	
	Coping Effectiveness
Total Hope	.49***
Hope Scale 1	.46***
Hope Scale 2	.38*
Hope Scale 3	.53***

Note: Hope Scale 1 = satisfaction with life, self & others; Hope Scale 2 = avoidance of hope threats; Hope Scale 3 = anticipation of a future.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4

**Forward Stepwise Multiple Regression on Coping Effectiveness with
Hope, Transplant Recipient Support, and Health Professional Support
as Predictor Variables (n=31)**

Source	df	Sum of Squares	Mean Square	F value	p
Model	3	6062.09	2020.69	6.38	.0021
Error	27	8554.61	316.83		
$R^2 = .41$					
Parameter	Estimate	t value	p		
Intercept	-.15	.01	.99		
Hope	.36	2.77	.01*		
Recipient Support	.53	1.86	.07		
Professional Support	.06	.54	.59		

* significant

Total hope scores did not correlate with total functional support, but the MHS factor Avoidance of Hope Threats had a significant positive correlation with support ($r=.42$, $p=.02$). Total support was not significantly correlated with either of the remaining two MHS factors [Satisfaction with life, self, and others, ($r=.13$, $p=.47$); and Anticipation of a Future, ($r=.04$, $p=.81$)].

Length of Time Waiting, Hope, Support, and Coping Effectiveness

To examine whether there were differences in hope, support, and coping effectiveness according to length of time on the waiting list, respondents were divided into two groups at the median of 90 days waiting. Total functional support, support from friends, and support from families after 90 days on the waiting list significantly declined (Table 5), however, the validity of these results should be interpreted with considerable caution. The use of a cross-sectional design, the non-random sample, and the possibility of multiple sources of unexplained variation between individuals within each time period limits the interpretation of significant findings.

Table 5

Mean Levels of Hope (SD), Support, and Coping Effectiveness Less than 90 Days Waiting and More than 90 Days Waiting for Cardiac Transplantation (n=31)

Variable	Less than 90 days		More than 90 days		t value	p value
Hope	186.9	(20.5)	189.0	(26.2)	.24	.81
Total Support	250.2	(148.2)	164.13	(60.4)	2.08*	.04
Family Support	135.06	(65.1)	97.6	(46.8)	1.79**	.05
Friend Support	63.3	(68.7)	25.7	(22.8)	2.01*	.05
Professional Support	38.7	(45.4)	31.2	(23.2)	.57	.57
Recipient Support	4.8	(18.6)	3.7	(9.2)	.19	.84
Clergy Support	3.4	(10.2)	3.1	(8.3)	.18	.85
Coping Effectiveness	74.1	(22.0)	72.8	(20.9)	.16	.87

Note: Theoretical range: Miller Hope Scale 0-240; Jalowiec Coping Scale 0-180.

*two-tailed t-test; ** one tailed t-test.

Discussion

This study described the types, sources, and duration of support available to a group of people waiting for cardiac transplantation, examined the premise that social support and hope would be related to coping, and described levels of support, hopefulness, and coping in the waiting period. Principal sources of support for respondents were family, friends, health professionals, previous transplant recipients, and clergy. Family and friends were the most commonly identified sources of support, followed by health professionals. This finding is consistent with studies of people with serious illness (Miller, McMahon, Garrett, & Ringel, 1989; Rose, 1990; Winefield & Katsikitis, 1987; Wortman & Conway, 1985). Cardiac transplant recipients and clergy were identified by

only a few respondents as providing support. Social support was associated with both the duration of relationships and frequency of contact with network members. The size of the social network ranged from 3 to 27 individuals, perhaps reflecting differences in support requirements and the availability of specific types of support. The median of 11 persons is consistent with findings by House and Kahn (1985) that networks vary from 5 to 10 persons. There was no difference in support between married and unmarried respondents. This is not consistent with previous research (Wills, 1985), and may be explained by the small number of unmarried respondents. An alternative explanation might be that other members of the social network provided more support at a time when needs were recognized as being high.

In this study, families were frequent sources of affective support and were characterized by respondents as loving, concerned, and encouraging; family members also provided them with opportunities for emotional venting. These supportive behaviours have been identified in research involving other ill populations (Dakof & Taylor, 1990; Gardner & Wheeler, 1987; Dunkel-Schetter, 1984). Individuals seek intimacy and the opportunity to talk about feelings in close relationships where they are likely to reveal personal vulnerabilities and seek support for their emotional reactions to stress (Thoits, 1986). Families also provided most of the practical aid that likely reduced the physical limitations imposed by cardiac disease. Support from families was, however, not significantly associated with coping effectiveness. The success of support as a coping resource depends on how well it meets recipients' stress-related needs (Cohen & Wills, 1985; Shumaker & Brownell, 1984). The threat of further physical deterioration and the uncertainty of donor organ availability are sources of stress in the waiting period (Buzzell, 1990; Christopherson, 1987) that are not amenable to change by family members. Furthermore, Porter et al. (1992) reported having family members worry about them was one of the three most stressful factors identified by people waiting for cardiac transplantation. Emotional over-involvement by the support provider can interfere with problem-solving or be intrusive (Coyne, Wortman, & Lehman, 1988). In the current study, it is possible that families were both a source of support and stress for respondents.

Health professionals were an important source of information regarding the transplant protocol and respondents' health status. This finding is also consistent with previous research in this population (Buzzell, 1990; Grady et al., 1993; Levenson & Olbrisch, 1987). Information is typically provided by health professionals (Dakof & Taylor, 1990) and can be particularly important when environmental stresses exceed a person's available knowledge and problem-solving ability (Wills, 1985). In addition, health professionals provided affective support in the form of encouragement (e.g., reinforcement of the benefits of transplantation, reassurance that a donor heart would even-

tually become available), affirmational support that helped respondents normalize their perceptions, and practical aid in the form of housing near the transplant centre. Professionals were also trusted by respondents.

Interview data suggested that support from transplant recipients was important for those respondents who listed them as part of their social network. Kuhn, Davis, and Lippman (1988) previously documented that transplant recipients can provide valuable support; it is frequently appreciated because such individuals have first hand experiential knowledge of stresses (Dakof & Taylor, 1990; Borkman, 1976). In the current study, transplant recipients were perceived to be understanding, and supported the spouses of respondents. Thoits (1986) argues that empathetic understanding from socially similar others who faced similar stressors is the condition under which coping assistance should be most effective. Transplant recipients may also have served as role models by demonstrating that the waiting period can be survived and transplantation can result in improved physical health. If the study sample had been larger, support from transplant recipients might have explained a portion of the variance in coping effectiveness.

Hope has been related to psychosocial adaptation in acute (O'Malley & Menke, 1988) and chronic illness (Herth, 1989; Hilton, 1989; Rideout & Montemuro, 1986). Findings in this study indicate that hope contributed to respondents' ability to cope while waiting. Aspects of hope such as psychological well-being, positive expectations for the future, and avoidance of hope threats (Miller & Powers, 1988) may help to manage the distress of the waiting period in cardiac transplantation. Although specific factors that sustain hope were not identified in this study, avoidance of hope threats had a significant positive correlation with total social support, suggesting that hope was partially sustained through relationships with the social network. In the current study, most respondents had not lost anyone from their social network, and the principal sources of emotional support were family members, friends, and health professionals. Emotional support and affirmational support can help persons under stress maintain self-esteem and feelings of control, thereby allowing them to persist in coping efforts (Pearlin, Lieberman, Menaghan, & Mullan, 1981). Furthermore, Raleigh (1992) reports that contact with significant others contributes to hopefulness during chronic illness.

Conclusion

Limitations

The cross-sectional design of the study does not permit causal inference. While hope may reduce stress in the waiting period for cardiac transplantation, continued stress can, in turn, decrease hope. The non-random recruit-

ment of respondents, small sample size, and relative homogeneity of the sample used in the current study limit the application of findings to other individuals waiting for cardiac transplantation. The fact that coping effectiveness was not related to support could be due to the global nature of the NSSQ, which might not reflect the full range of supportive behaviours identified from the interview data. The study also used a self-reported measure of coping effectiveness, but did not measure adaptational outcomes.

Implications for Research

This study examined support, hope, and coping at one point in the waiting period for cardiac transplantation. A longitudinal study could examine changes in support needs and resources, hope-inspiring strategies, coping, and adaptational outcomes over time and explicate causal linkages. Further research could also test the impact of possible factors that influence hopefulness (e.g., stress, severity of illness, personal control), and the receipt of support (e.g., coping styles, orientation toward help-seeking). Although this study emphasized supportive behaviours, it is apparent that support is provided at a cost to the support person; there was a decrease in support from families and friends after three months. These individuals provided the bulk of affective and practical support and had the most frequent contact with respondents. Additional research is therefore required to understand the support person's needs.

Implications for Nursing

Individuals with end-stage cardiac illness may wait for up to a year or more for a donor organ, potentially coping for an extended period of time with a stressful situation. The findings of this study suggest that hope can enhance coping during this waiting period. Hope may be most important when stressful situations are uncertain (Korner, 1970), and when the source of stress is not amenable to change by the person. Furthermore, the availability of significant sources of support such as family, friends, health professionals, and cardiac transplant recipients can perpetuate hopefulness. Since research identifies hope and support as important coping resources (Raleigh, 1992), nurses should become familiar with the hope-inspiring strategies documented in studies of people with life-threatening (Miller, 1989), terminal (Herth, 1990), and chronic illnesses (Raleigh, 1992). Finally, strategies that mobilize and enhance the hope and support of these people could be tested.

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Self-Efficacy, Perfectionism, and Stress in Canadian Nurses

Sean O'Brien and Stewart Page

La présente recherche a pour objectif d'examiner le lien entre le stress chez les infirmières et leur degré de satisfaction dans leur travail et dans leur vie. Celle-ci évalue également la validité des construits des théories sur le perfectionnisme et l'efficacité personnelle telles qu'elles s'appliquent à la profession. Les participantes comptaient cent quatre-vingt-seize infirmières travaillant à Toronto et à Windsor en Ontario. Comme variables de prévisibilité, les infirmières ont établi leur niveau de stress, de perfectionnisme et d'efficacité personnelle. Comme variables dépendantes, elles ont établi leur niveau de satisfaction dans leur travail et dans leur vie. En général, les niveaux plus élevés de perfectionnisme socialement exigé et par rapport à autrui, de même que les niveaux plus bas d'efficacité personnelle correspondaient à des niveaux moindres de satisfaction dans le travail. On obtint des corrélations négatives importantes entre le nombre de facteurs d'agression rapportés dans les soins infirmiers et la satisfaction dans le travail. Sont également décrits plusieurs autres facteurs que les infirmières ont indiqués comme étant importants par rapport au stress dans le travail et dans la vie. On présente enfin quelques commentaires et interprétations, et ce qu'impliquent les résultats.

The current study examined the relationship between stress in nurses and their reported levels of job and life satisfaction, while also assessing the construct validity of theories of perfectionism and self-efficacy as these apply to the profession of nursing. One hundred and ninety-six nurses employed in Toronto and Windsor, Ontario completed measures of stress, perfectionism, self-efficacy, and job and life satisfaction as dependent variables. Generally, nurses who reported high levels of socially-prescribed and other-oriented perfectionism, and low levels of self-efficacy, also reported low levels of job satisfaction. Significant negative correlations were obtained between the number of reported nursing stressors and job satisfaction. The data also indicated that higher levels of socially-prescribed perfectionism and higher levels of self-efficacy were strongly related to both job and life stress. Some comments, interpretation, and implications of findings are presented.

According to Aiken (1989), enrollment at many nursing schools has declined in recent years. At the same time, it is also recognized that nurses currently contribute to the provision of health care services in ways that differ substantially from the restricted and more traditional concept of nursing that existed only a few years ago (Jenson, 1989). However, despite this expanded role, financial cutbacks and serious staff shortages are occurring. Many authors have argued that nurses are not only underpaid, but now must work under stress, both of which no doubt contribute greatly to an increased sense of job distress and frustration. For example, Fimian, Fastenau, and Thomas (1988) found that, due to stress-related factors, 60% of a sample of 283 nurses expressed a desire to leave the nursing profession.

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Unfortunately, the specific issue of stress and personality factors within the nursing profession has been largely neglected. Moreover, the existing studies on the subject have several shortcomings. They often use "one-shot" scales, questionnaires, or other psychometric instruments with little demonstrated validity or reliability (Allanach, 1988; Firth, McKeown, McIntee, & Britton, 1987; O'Brien, 1991). Many of them fail to consider personality variables that may moderate the relationship between stress in the work place and its effects upon individuals therein. This problem is reminiscent of Lazarus' (1976) interactionist model, in which the effects of environmental stress depend not only on the magnitude of stress but also upon the individual's perceptions of it. A third problem with the existing theoretical and empirical literature is that it fails to gather data on personality factors from direct and psychometrically sound measures of stress. Firth, et al. (1987), for example, suggested that the effects of stress on nurses could be reduced if they were selected for jobs according to their tendency to direct hostility either inward or outward, and in accordance with their sense of personal accomplishment. However, these authors did not directly measure levels of stress and could not, therefore, assess how it might interact with personality variables. The current study attempted to address these problems by studying the roles of perfectionism and self-efficacy as determinants of both job and life satisfaction in a sample of Canadian nurses.

Perfectionism. Perfectionism can be defined as an overconcern with avoidance of errors and achievement of unrealistically high standards. It has not been previously studied in nurses, although recent research utilizing the newly developed Multidimensional Perfectionism Scale (MPS) (Hewitt & Flett, 1991) has shown that it can predict levels of pathology and coping difficulties in other populations (Hewitt & Flett, 1991). The MPS contains 45 items assessing self-oriented perfectionism (holding standards for oneself that are difficult to attain), other-oriented perfectionism (holding unrealistic standards for others), and socially-prescribed perfectionism (the expectation that others have unrealistic and overly stringent standards for oneself). Indeed, socially-prescribed perfectionism has been frequently associated with coping difficulties, lower levels of self-esteem, and depression. Hewitt and Flett (1991) have hypothesized that an individual's inability to satisfy the perceived behavioural demands of others would result in negative emotional states, and motivation to avoid disapproval. If this were correct, higher levels of socially-prescribed perfectionism would be related to lower levels of job and life satisfaction, and this relationship would be exacerbated by higher levels of perceived stress. Similarly, following a diathesis-stress model (e.g., Flett, Hewitt, & Dyck, 1989) we would expect self-oriented perfectionism to be related to lower levels of job and life satisfaction, and to coping difficulties, particularly under conditions of higher, "ego-involving" stress.

Self-efficacy. Self-efficacy refers to the belief that one can successfully mobilize the motivation, cognitive resources, and behaviours required to meet specific situational demands (Bandura, 1989; Wood & Bandura, 1989). According to Bandura, beliefs regarding one's degree of self-efficacy can have either a positive or negative effect on an individual's thoughts. That is, those who perceive themselves as being generally inefficacious are prone to visualize scenarios in which they fail to perform adequately, while those who view themselves as being generally efficacious visualize more successful scenarios. Bandura has also stated that persons with low self-efficacy generally perceive themselves as having limited career choices and achieve a mediocre level of accomplishment. Unfortunately, few empirical studies have so far examined the construct validity of the self-efficacy notion (Rosenthal & Rosnow, 1984). The current study therefore tested the notion that nurses with lower levels of self-efficacy have lower levels of job and life satisfaction, and further, that this relationship is stronger in persons working under more stressful conditions. It was also speculated that self-efficacy may interact with self-oriented or socially-prescribed perfectionism to predict job and/or life satisfaction scores. For example, less satisfaction with one's job or life might be reported by persons with lower levels of self-efficacy and higher levels of self-oriented perfectionism or socially-prescribed perfectionism.

As a means of assessing the construct validity of the notions of perfectionism and self-efficacy, the current study examined the following six general hypotheses regarding the dependent measures of job and life satisfaction:

1. Nurses reporting high levels of stress report low levels of job and life satisfaction;
2. High levels of socially-prescribed perfectionism are associated with low job and life satisfaction, especially in working conditions involving high perceived stress;
3. High levels of self-oriented perfectionism are related to job and life satisfaction under conditions of high nursing stress;
4. Nurses with low levels of self-efficacy report low levels of job and life satisfaction; further, that this relationship is more pronounced under conditions of high nursing stress;
5. Socially-prescribed perfectionism and self-efficacy jointly (i.e., in interaction) predict job and life satisfaction scores.
6. Self-oriented perfectionism and self-efficacy jointly (i.e., in interaction) predict job and life satisfaction scores.

Method

Sample

Descriptions of the current research and requests to solicit nursing participants were sent to contacts previously established by the first author to 10 hospitals in the Toronto and Windsor, Ontario metropolitan areas. The administrations of three hospitals gave approval to invite participation of nursing personnel. Requests and all research materials were then sent to nursing administrators and managers, who distributed materials to nurses on their units. Five hundred and twenty copies of the materials were distributed in this fashion, of which 204 (40%) were returned.

The final participants were 196 female nurses, solicited from three accredited Ontario hospitals: York Central Hospital, Richmond Hill; Toronto General Hospital, Toronto; and Grace Hospital, Windsor. Each hospital employed nurses of various backgrounds and religious affiliations.

The mean age of the nursing sample was 38.48 years ($SD = 9.49$ yrs., with a range of 22 to 61 yrs.). The mean number of years of nursing experience was 15.38 (range: 3 months to 42 years). One hundred sixty-seven participants were registered nurses and 30 were RNAs. One hundred and sixty-five participants held a nursing diploma or certificate, 31 held the bachelor's degree, and 1 held a master's degree. When the current data were gathered, 88 respondents were employed in medical or surgical units, 21 in obstetrics or gynaecology, 17 in renal units, 17 in emergency services, 7 in coronary units, 2 in OR, 3 in administration, 4 in psychiatry, 10 in chronic care, 19 in ICU, and 9 in other, mixed, or rotated units. Data from seven male nurse respondents were not included.

Written consent for participation was obtained prior to data collection. Consent forms were returned and retained separately from the research data. With permission from nursing supervisors, participants completed the instruments in group sessions at their hospitals, under primary supervision of the first author.

The following information was obtained: age, sex, marital status, nursing classification (i.e., R.N., R.N.A.), level of education, years of experience, usual shifts worked, and perceived likelihood of remaining in the nursing profession. The last item was measured using a 10-point Likert rating scale, ranging from not at all likely to extremely likely.

Independent (Predictor) Variables

Nurses completed, with scales arranged in a pre-randomized order, the Nursing Stress Scale (34 items; Gray-Toft & Anderson, 1981), Multidimensional Perfectionism Scale (45 items; Hewitt & Flett, 1991), Self-Efficacy Scale (23 items; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982), Satisfaction with Life Scale (5 items; Diener, Emmons, Larson, & Griffin, 1985), and Brayfield and Rothe's 18-item (1951) Job Satisfaction Scale.

Nursing Stress Scale. The Nursing Stress Scale is designed to assess the frequency with which nurses experience a number of daily hassles and stressors (e.g., death of a patient, conflict with a supervisor, or conflict with a physician; Gray-Toft & Anderson, 1981). Nurses respond by checking, on a 4-point scale, how often they find each of the items stressful; responses range from never to very frequently. Gray-Toft and Anderson (1981) and others have found test-retest reliability coefficients averaging .81, and four different estimates of internal consistency ranging from .79 (Spearman-Brown coefficient) to .89 (alpha coefficient), indicating that this instrument has high reliability and validity. The Scale has also demonstrated significant correlations with several measures of anxiety and has significantly predicted indices of staff turnover.

Perfectionism. The Multidimensional Perfectionism Scale (Hewitt and Flett, 1991) assesses self-oriented perfectionism (e.g., "I demand nothing less than perfection from myself"; "One of my goals is to be perfect in everything I do"), other-oriented perfectionism (e.g., "Everything that others do must be of top notch quality"; "I have high expectations for the people who are important to me") and socially-prescribed perfectionism (e.g., "The better I do, the better I am expected to do"; "My family expects me to be perfect"). Some items are reverse-keyed to reduce response biases. Factor analytic studies (Hewitt and Flett, 1991) have confirmed the existence of three factors or dimensions with demonstrated high test-retest reliability (three-month test-retest coefficients were found to be .83 for self-oriented perfectionism, .85 for other-oriented perfectionism, and .75 for socially-prescribed perfectionism). Internal consistency (alpha) coefficients have been reported as .86, .82, and .88 for self-oriented, other-oriented, and socially-prescribed perfectionism, respectively.

Self-Efficacy. The Self-Efficacy Scale assesses an individual's perception of self-efficacy (e.g., "When I make plans I am certain I can make them work"; "If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me") (Sherer et al., 1982). Respondents rate agreement with each item on a 5-point Likert scale ranging from strongly disagree to strongly agree. Some items are reverse-keyed to reduce response biases.

Research evidence has so far shown strong support for the Self-Efficacy Scale in terms of reliability and validity. The available psychometric and research literature thus clearly supports the use of the Self-Efficacy and Perfectionism Scales for research purposes.

Dependent Measures

Job Satisfaction. Each item of job satisfaction was measured on a 5-point Likert scale. Evidence to date indicates that the Job Satisfaction Scale is useful in research contexts, and possesses adequate reliability and validity. Its original split-half reliability coefficients averaged .87. Validity data have shown that the scale correlates highly with other measures of job and work satisfaction (e.g., Ronen, 1977), and with reports of having thoughts related to quitting one's job (e.g., Mobley, Horner, & Hollingsworth, 1979).

Life Satisfaction. Global life satisfaction was assessed with the Satisfaction with Life Scale (Diener et al., 1985). This scale measures life satisfaction and not other related constructs such as loneliness or positive affect, and has shown strong reliability and validity. Test-retest and alpha coefficient reliabilities have averaged .82 and .87 respectively. The Scale has also shown appropriate significant correlations with related measures, such as ratings of satisfaction in other domains, for example, in health, love life, and relationships with friends, and other measures of well-being. More detailed information regarding the scale's psychometric properties has been described (O'Brien, 1991).

To identify practical concerns related to the issue of stress, participants also answered three open ended questions: "How could your job be made more satisfying?" "What promotes or inhibits the development of a high level of staff morale?" and "What are two significant factors contributing to the current nursing shortage?"

Results

Prior to formal data analysis, frequency distributions and scores on the measures of stress, perfectionism, self-efficacy, life satisfaction, and job satisfaction were examined using the SPSS-X programs' Frequencies, Regression, and Scattergram, to confirm that the distributions met the assumptions of multivariate normality which are necessary for multivariate analysis (Tabachnick & Fidell, 1989). Through analysis of Mahalanobis distance, one case was identified as a multivariate outlier, at $p < .001$; this outlier was deleted from the data set.

Utilizing Pearson r correlation nursing stress scores were uncorrelated with life satisfaction, but were significantly correlated with job satisfaction ($r(196) = -.16, p < .05$). (Table 1). Neither self- nor other-oriented perfection-

ism alone correlated significantly with either job or life satisfaction; however, socially-prescribed perfectionism was significantly correlated (negatively) with both life satisfaction ($r(196) = -.31, p < .01$) and job satisfaction ($r(196) = -.22, p < .001$). Self-efficacy was also significantly correlated with both life satisfaction ($r(196) = .26, p < .01$) and job satisfaction ($r(196) = .27, p < .01$).

Table 1

**Correlations Between Predictor and Dependent Variables
in 196 Nurse Respondents**

	1	2	3	4	5	6	7
Stress (1)	1.00						
Self-oriented perfectionism (2)	.14	1.00					
Other-oriented perfectionism (3)	.02	.51**	1.00				
Socially-prescribed perfectionism (4)	.22**	.51**	.38**	1.00			
Self-efficacy (5)	-.08	.03	-.02	-.34**	1.00		
Life Satisfaction (6)	-.10	-.04	.06	-.31**	.26**	1.00	
Job Satisfaction (7)	-.16*	-.01	.02	-.22**	.26**	.47**	1.00

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

Regression Analyses

Using the SPSS-X REGRESSION program, a series of hierarchical multiple regression analyses were performed to assess how well job and life satisfaction scores could be predicted by the measures of stress, perfectionism, and self-efficacy. Separate regression equations were computed to assess the degree to which job satisfaction and life satisfaction were related to stress, perfectionism, and self-efficacy. The predictor variables were entered into the regression equations in steps. To assess both individual and any additive effects, the predictors concerning self-efficacy, perfectionism, and stress, were entered into the first block. Each possible effect was examined after adjusting for all other effects, independent of order of entry. Within each block, the variables were assessed to determine how well they could predict values on the dependent variable. Once these variables were entered into the equation, interactions between the predictors (e.g., stress and self-efficacy) were entered into a second, separate predictor block (Evans, 1991) to determine if they could account for additional variance in the dependent variable. The interaction effects, where significant, are indicated below, in relation to the hypotheses outlined earlier.

The following section summarizes the main results, that is, those involving individual predictors, additive (variables considered together), or interaction effects, that were significant at an alpha level of $p < .05$.

Job Satisfaction Scores. In the first equation for the job satisfaction dependent measure, nursing stress and socially-prescribed perfectionism together were a significant predictor ($F = 6.44, p < .01$). Socially-prescribed perfectionism was the only significant individual predictor ($F = 7.54, p < .01$). In the second equation, no individual, additive, or interaction effects, involving self-oriented perfectionism or nursing stress, were significant. In the third equation, nursing stress and self-efficacy each showed a significant effect ($F = 4.20, p < .05$, and $F = 13.08, p < .001$, respectively). Nursing stress and self-efficacy taken together were also significant predictors of job satisfaction ($F = 9.28, p < .001$). In the fourth equation, both socially-prescribed perfectionism ($F = 4.31, p < .05$) and self-efficacy ($F = 8.22, p < .01$) showed significant effects. These predictors, together, also showed a significant effect ($F = 9.34, p < .001$). In the fifth equation, self-oriented perfectionism and self-efficacy together were a significant joint predictor ($F = 7.06, p < .001$). Self-efficacy was also a significant individual predictor ($F = 14.10, p < .001$).

Life Satisfaction Scores. In the first equation for the life satisfaction scores, nursing stress and socially-prescribed perfectionism together showed a significant effect ($F = 10.54, p < .001$). Socially-prescribed perfectionism was also a significant individual predictor ($F = 19.15, p < .001$). In the second equation, nursing stress and self-oriented perfectionism were not significant predictors of life satisfaction scores. In the third equation nursing stress and self-efficacy together showed a significant effect ($F = 7.71, p < .001$). The interaction between nursing stress and self-efficacy was also significant ($F = 5.55, p < .05$). In the fourth equation socially-prescribed perfectionism and self-efficacy together showed a significant effect ($F = 13.12, p < .001$). Both socially-prescribed perfectionism ($F = 12.54, p < .001$) and self-efficacy ($F = 6.08, p < .05$) were also significant individual predictors. In the fifth equation self-oriented perfectionism and self-efficacy together showed a significant effect ($F = 7.36, p < .01$). Self-efficacy was also a significant individual predictor ($F = 14.36, p < .001$).

In relation to the hypotheses presented earlier, the results thus indicated that:

1. Partial support was obtained for the hypothesis that high levels of nursing stress are related to low levels of job and life satisfaction (i.e., significant correlations were obtained between the number of stressors reported and job satisfaction scores);
2. Support was obtained for the hypothesis that high levels of socially-prescribed perfectionism are related to low levels of satisfaction, although the interaction between nursing stress scores and socially-prescribed perfectionism was not significant;

3. No support was obtained for the hypothesis that self-oriented perfectionism alone predicts levels of satisfaction. This occurred only if there was an interaction between self-oriented perfectionism and nursing stress;
4. The hypothesis that low levels of self-efficacy are related to low levels of job and life satisfaction was supported. Partial support was obtained for the hypothesis that self-efficacy interacts with nursing stress, since this interaction term accounted significantly for additional variance in the case of life satisfaction scores;
5. No support was obtained for the hypothesis that the interaction between self-efficacy and socially-prescribed perfectionism predicts levels of satisfaction;
6. No support was obtained for the hypothesis that the interaction between self-efficacy and self-oriented perfectionism predicts levels of satisfaction.

Best Predictive Models

To examine the most powerful or best predictive model, a stepwise regression equation, providing for examination of both individual and interactional effects, was computed for each dependent measure. Each equation in these analyses included the main predictor variables, but also included the various demographic variables provided by the nurses, as described previously.

For job satisfaction scores, of those variables accounting for a significant amount of the job satisfaction score variance ($p < .05$), the best predictor was the likelihood of remaining a nurse; the second best was self-efficacy; and the third best was the interaction between socially-prescribed perfectionism and nursing stress.

Of those variables accounting for a significant amount of the life satisfaction score variance, the best predictor was socially-prescribed perfectionism; the second best was other-oriented perfectionism; the third best was the likelihood of remaining a nurse; the fourth best was the interaction between other-oriented perfectionism and self-efficacy. Professional status or degree of nursing experience were unrelated to job or life satisfaction scores.

Subjective Analysis

In response to the question "How could your job be made more satisfying?" 17.4% of respondents reported that improved relations with administration and more flexible scheduling were their primary concerns. The need for more staff and for higher wages were mentioned by 15.3% and 14.8%, respectively.

For the question "What promotes and/or inhibits a high level of staff morale?" respect from administration was the most frequently cited problem, reported by 38.3%. Other common responses were: degree of cooperation

among other nurses (36.7%), workload and staffing levels (19.4%), relationships with physicians (8.7%), and flexibility of scheduling (8.2%).

In general, many nurses indicated in their comments that they would be more satisfied with their jobs if they received greater acknowledgement and respect from administrators directly above them (e.g., unit managers and nursing directors) or indirectly above them (e.g., hospital administrators and directors). Many nurses indicated that personality conflicts and interpersonal difficulties, frequently exacerbated by supervisors or managers, are often a major source of morale problems. Many also indicated that they felt it often was necessary to compromise the quality of care provided in order to complete assigned duties, again with this problem often aggravated by staff shortages.

To the question "What are two significant factors contributing to the nursing shortage?" low wages was cited most often (44.4%), followed by inflexibility of hours (28.6%), low prestige (20.4%), too much work with too few staff (18.9%), and lack of respect from administration (12.8%). Nurses frequently expressed frustration that outsiders view nursing as a relatively low prestige career despite the fact that nurses perform many procedures requiring high levels of skill.

Discussion and Implications

The current results yielded little support for the hypotheses that high levels of nursing stress are correlated with low levels of life satisfaction. The correlational and other analyses showed that nurses who experienced a higher number of work-related stressors did not necessarily report less satisfaction in their lives generally, but did report lower levels of satisfaction with their job and work situations.

The regression analyses showed support for the hypotheses that perfectionism is related to job and life satisfaction. High levels of socially-prescribed perfectionism were related to lower levels of job and life satisfaction. These findings are consistent with Hewitt and Flett's (1991) view that high levels of socially-prescribed perfectionism are associated with failure experiences and negative emotional states. Overall, socially-prescribed perfectionism was a better predictor of job and life satisfaction than was nursing stress. This suggests that nurses' attitudes and beliefs about the expectations of others may be more important than the magnitude of the stressors they experience.

Responses to the open-ended questions identified factors contributing to the perception of perfectionistic social standards in the workplace. Many nurses believed that their employers viewed their home and social schedules as less important than their work schedules. Two of the major factors contrib-

uting to high levels of socially-prescribed perfectionism appear to be the nurses' perception that they lack control over their work schedules, and their belief that they are expected to complete too many duties during a shift. These observations, together with other implications of results from the open-ended questions, will hopefully be a focus for future action-oriented research.

The hypotheses associating higher levels of self-oriented perfectionism to job and life satisfaction were not clearly supported, nor were the hypotheses involving interactions between self-oriented perfectionism and nursing stress. However, this study does provide support for Bandura's theory of self-efficacy (Bandura & Wood, 1989; Wood & Bandura, 1989). Higher levels of self-efficacy were consistently related to increased job and life satisfaction. This appears to be consistent with Bandura's suggestion that individuals with higher levels of self-efficacy generally anticipate more positive experiences, and choose career paths and job options that are particularly challenging and rewarding (Bandura, 1989). Under high levels of nursing stress, nurses with lower levels of self-efficacy typically reported the least life satisfaction. This finding again would appear to support the construct validity of the notion of self-efficacy. Participants with higher levels of self-efficacy generally perceive that they can control threatening events, persevere during adversity, and remain task-oriented during periods of stress (Bandura, 1989). Research is required to evaluate more directly the apparent implication, namely, that procedures designed to enhance self-efficacy can to some degree protect nurses against the adverse effects of stress. We recognize that additional research would also to further assess the generalizability and external validity of the current results, especially research utilizing different types of job and life satisfaction measures. The current sample of nurses was drawn only from hospitals in Ontario. While it may have been less than totally representative, this sample was important and highly relevant.

The current findings provide general support for the validity and meaningfulness of the perfectionism and self-efficacy constructs in various aspects of the nursing profession. These notions appear to be significant in nurses' adjustment to the many stressful and frustrating aspects of that profession and, to some extent, of their lives generally. As earlier mentioned, perhaps training procedures could be developed to enhance personal and professional self-esteem, work adjustment, and morale. Action research with the goal of developing data-based but pragmatic strategies for enhancing life and job satisfaction in nurses may be worthwhile.

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Relationships Between Stress, Coping Resources, and Satisfaction with Family Functioning in Families of Children with Disabilities

Anne W. Snowdon, Sheila Cameron, and Katherine Dunham

L'objectif de cette étude descriptive de corrélation est d'examiner les liens entre le stress, les ressources de soutien et la satisfaction quant au fonctionnement de la famille chez les familles qui s'occupent à domicile d'enfants souffrant de retards de développement. L'enquête portait sur cinquante familles qui ont utilisé les services d'un programme de soins de relève afin d'étudier les relations entre les caractéristiques des enfants (problèmes de comportement et situations handicapantes), les ressources de soutien (la maîtrise de la situation et la santé, l'estime et la communication, la tolérance de la famille et le soutien social), et la variable principale de l'intérêt portait sur la satisfaction quant au fonctionnement de la famille. Les conclusions énoncent que les familles qui ont des enfants souffrant de retards de développement connaissent des facteurs d'agressions importants en termes de situations handicapantes et de gravité des problèmes de comportement de leur enfant. Elles mentionnent cependant des ressources de soutien satisfaisantes, à savoir la maîtrise de la situation, la santé, la tolérance, l'estime et la communication. Bien que les pointages de soutien social soient moins élevés que les pointages normatifs, les pointages de soutien social pour les conjoints et les amis prédisaient de façon significative la satisfaction quant au fonctionnement de la famille. On étudie les conséquences par rapport aux praticiens.

The purpose of the current descriptive correlational study was to examine relations between stress, coping resources, and satisfaction with family functioning in families caring for children with developmental disabilities at home. Fifty families who used the services of a respite care program were surveyed to examine relationships among child characteristics (behavioral problems and handicapping conditions); coping resources including mastery and health, esteem and communication, family hardiness, and social support; and the primary outcome variable of satisfaction with family functioning. Families of children with developmental disabilities experience significant stressors in terms of the severity of their child's handicapping conditions and behaviour problems. However, they reported satisfactory coping resources such as mastery and health, hardiness, and esteem and communication. Although they were lower than normative scores, social support scores for spouses and friends were related to satisfaction with family functioning. Implications for practitioners are discussed.

As health care policy mandates that increasing numbers of children with developmental disabilities be cared for in the community, the impact of expanding families' responsibility for long-term caregiving is not well understood. Further, factors that enable family caregivers to manage their child's

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care effectively at home are not clearly evident, but one of the factors they identify as essential is the availability and use of respite care. Although it is limited, research on the effects of respite care suggests that it is beneficial to families of handicapped children (Botuck & Winsberg, 1991). Halpern (1985) reported that respite care positively affected family functioning, but that study focused primarily on preservation of family stability. The current study will examine child characteristics and parental coping resources to determine which factors are most significant in predicting satisfaction with family functioning.

Families caring for sons and daughters with disabilities at home have been found to experience a number of stressors. Behaviour problems and the presence of multiple conditions add to the stress experienced by families (Cameron, Armstrong-Stassen, Orr & Loukas, 1991; Quine & Pahl, 1985). Furthermore, alleviation of behaviour problems may be difficult, especially when neurological deficits make the behaviour difficult if not impossible to change. In addition, a multiplicity of handicaps often result in significant, long-term dependence of the child on the parent for caregiving needs that range from basic to complex. Consequently, the overall stress experienced by parents may become significant and can affect family functioning (Crnic, Friedrich, & Greenberg, 1983; Fewell, 1986; Power & Dell Orto, 1980).

A wide body of literature has examined coping resources and their links to stress. Lazarus and Folkman (1984) identified a number of resources that may assist individuals in dealing with stress, including health and energy, problem-solving skills, perceptions of situations, family relationships, and social support. Many studies have revealed the importance of the family's support system and coping resources (Kirkham, Schilling, Norelius, & Schinke, 1986; Wilcox & Vernberg, 1985; Young, 1981). In studies of families of children with mental handicaps, mothers' coping resources were found to influence the stress they experienced. Friedrich, Wilturner, & Cohen, (1985) found that marital satisfaction, maternal depression, locus of control, and quality of family social climate all predicted maternal stress. McCubbin and Comeau (1987) reported that the family resources of esteem/communication and mastery/health were negatively related to family conflict. Further, these two resources were positively related to child health outcomes (McCubbin, 1988). Failla and Jones (1991) found that family hardiness, functional support, family stressors and parental age accounted for significant differences in satisfaction with family functioning in families caring for young children with developmental disabilities. Frey, Greenberg, and Fewell (1989) found that the family social support network and problem-solving abilities contributed to positive outcomes for parents of young children with handicaps. Based on several studies, Dunst, Trivette, Gordon, and Pletcher (1989) posited that social support is very important to families caring for handicapped children, and reported several benefits including positive family interactions and child outcomes.

Some families with children with handicaps may have access to social support in the form of respite care. Respite services are designed to provide parents with temporary relief from caregiving demands, maintain family integrity, and reduce institutionalization of handicapped individuals (Schwartz, 1993). Parents sometimes turn to friends or relatives for respite care, but they often lack the skills necessary to care for handicapped children, so parents turn to professional respite services (Gafford, 1987). Studies of the effects of respite care suggest it may relieve parents' depression and stress, increase their sense of well-being, improve their attitude toward and relations with the handicapped child, and provide more free time for work, social or leisure activities (Botuck & Winsberg, 1991; Halpern, 1985; Marc & MacDonald, 1988; Rimmerman, 1989).

Parents of children with disabilities experience high levels of stress relative to the multiplicity of their child's handicapping conditions and problem behaviours, which may in turn affect family functioning. Coping resources may also influence parental stress and family functioning, but the specific relations among these variables are unclear. More specifically, the influence of internal versus external coping resources on parents' ability to manage their child's care effectively and preserve family functioning needs to be examined.

Purpose and Research Questions

Thus, the purpose of this study was to examine stressors, (child conditions and behaviours), internal (hardiness, mastery/health, esteem/communication) and external (social support) coping resources, and satisfaction with family functioning of families caring for children with developmental disabilities. The research questions included:

1. What is the relationship among family and child characteristics, internal and external coping resources, and satisfaction with family functioning of families of children with developmental disabilities?
2. What do families perceive as being the difficult and helpful aspects of caring for a child with a developmental disability?

Method

Sample

A convenience sample of families who met the following criteria were approached to participate in the study: All spoke English, had one or more children with a developmental/cognitive and/or physical disability living at home, and used the services of a publicly funded respite care program at least once a year in a moderate size urban area. This program provided in-home or out-of-home respite care according to parents' requests. The duration of respite was also governed by family needs; some preferred short periods of respite (e.g. two half days per week), while others asked for weekend or vacation

relief. Families received an average of 20 to 24 days of relief annually. Fifty families (52.1% response rate) agreed to participate in the study by completing a demographic questionnaire, and measures of internal and external coping resources and satisfaction with family functioning. One member of each family completed the measures; 97% of respondents were mothers.

The majority of families (84%) had at least one other child living at home. The mean age of the developmentally disabled child was 11.7 years (range = 2 to 37 yrs.); 58% of these were female, and 90% were diagnosed with either developmental disabilities or neurological injuries and illnesses. The childrens' handicapping conditions and behaviour problems are listed in Table 1. Children were described as having an average of 3 to 4 handicapping conditions, and over half ($n = 30$) of these children had four or more conditions. In addition, more than half of the children were reported to have problematic behaviours.

Table 1

Characteristics of Children with Disabilities (N = 50)

Conditions	n	%
Delayed Development	46	92
Hyperactivity	17	34
Physical Handicap	26	52
Severe Behavioural Problems	29	58
Severe Emotional Problems	16	32
Severe Hearing Problems	18	36
Severe Visual Problems	20	40
Seizures	13	26
Other	14	28
Behaviours		
Physical Harms Others	18	36
Harms Self	17	34
Destroys Property/Objects	14	28
Interferes with Sleep	26	52
Sexually Aggressive	1	2
Irritates Others in House	24	48

The majority of the parents were married (72%) and ranged in age from 28 to 64 years (fathers $M = 42.0$ yrs.; mothers $M = 39.9$ yrs.). The majority of fathers (86%) and less than half of the mothers (48%) were employed. Thirty-two percent of fathers and 28% of mothers had completed high school education, and 44% of fathers and 58% of mothers had completed college or university level education.

Procedure

Families were informed of the general purpose of the study through a newsletter published by the respite program. Surveys were mailed to each family; consent was indicated by return of the completed questionnaire. A second mailing was conducted four weeks following the initial mailing, and two reminder notices were sent two weeks after each mailing.

Instruments

The Family Inventory of Resources for Management (FIRM) measures a family's repertoire of resources that include family strengths, extended family social support, and financial well-being (McCubbin & Thompson, 1987). For the purpose of this study only the 35 questions related to family strengths (i.e., mastery and health, esteem and communication) were used to measure internal coping resources. The esteem and communication scale assesses support resources in the areas of family esteem, communication, mutual assistance, optimism, problem-solving, and encouragement of autonomy among family members (McCubbin & Thompson, 1987). The mastery and health subscale describes support resources along three dimensions: the sense of mastery over family events and outcomes, family mutuality, and physical and emotional health. McCubbin and Thompson (1987) reported internal reliability levels of .85 for both of these subscales as well as studies that support the validity of FIRM subscales. Test/re-test reliability was not reported.

The Family Hardiness Index (FHI) is a 20-item scale that measures hardiness as a family characteristic that buffers the family from the effects of stressors and demands thereby facilitating family adjustment and adaptation over time (McCubbin & Thompson, 1987). Satisfactory reliability ($\alpha = .82$) and construct validity were reported by McCubbin and Thompson (1991). Test/re-test reliability was not reported.

The Norbeck Social Support Questionnaire (NSSQ) uses a nine-item scale to measure functional support, social network, and network loss. In addition, source scores can be obtained (i.e., the amount of functional support from spouse, friends, relatives, etc.). Evidence for construct validity was demonstrated through significant correlations between NSSQ and two similar interpersonal constructs. Test/re-test results indicated a high degree of stability over a seven-month period (Norbeck, Lindsey, & Carrieri, 1983). The NSSQ was selected for its ability to assess not only functional properties of social support, but also the network of social relationships on which families of handicapped children rely for support. It assesses three types of functional support: affect, affirmation, and aid. These categories were derived from Kahn (1979), who defined affect as social support that expresses liking, love, respect or admiration; affirming social support as expressions of agreement

with one's actions or statements; and aid as direct assistance. Kahn (1979) defines social support as transactions involving one or more of these properties.

The frequency of use of respite care was assessed to determine its unique impact on satisfaction with family functioning. Program records for the previous year were examined by the respite program director and families' use of respite care was scored as low frequency (less than 5 days per year), moderate frequency (6 to 25 days per year) or high frequency (26 or more days per year).

The Feetham Family Functioning Survey (FFFS) is a 25-item questionnaire that measures family satisfaction in three areas of functioning: (a) the relationships between the family and larger social units such as the community; (b) subsystems such as the division of labour; and (c) the relationships between the family and individual with particular attention paid to the parent-child relationship and the husband-wife relationship (Feetham & Humenick, 1981). For each statement, the respondent is asked three questions: (a) to what degree does a given function exist in your family, (b) how much do you believe that function should exist in your family, and (c) how important is that function is to you. A discrepancy score is obtained by calculating the difference between the degree to which a function exists, and how much the subject believes it should exist. High discrepancy scores reflect low levels of satisfaction with family functioning. Alpha coefficients for the total scores of how much the function exists was .66, for how much should it exist, .75 and for the discrepancy score was .81. Construct validity has been reported, and the test/re-test reliability was .85 (Feetham & Humenick, 1981). In addition, the instrument includes two open-ended questions designed to elicit families' perceptions of two issues: "What is most difficult for you now?", and "What is most helpful for you now?"

Data Analysis

The completed questionnaire data were analyzed both quantitatively and qualitatively. First, individual instruments were scored according to the directions provided by the authors of the instruments and then descriptive statistics including range, means, and standard deviations were calculated. The second phase of the data analysis involved correlation analysis and regression in order to examine the relationships between the demographic data, the measures of coping, social support, and family functioning.

Finally, the qualitative data from the FFFS were subjected to content analysis. Answers to the open-ended questions were reviewed for commonly occurring themes and patterns. Using an inductive approach to category development, similar statements were labelled and grouped into mutually exclusive topical categories, and then further grouped into conceptual cate-

gories (Corbin, 1986). Each statement that described a parent's experience was coded only once and placed into one of the major categories. Fifteen per cent of the surveys ($n=8$) were randomly chosen to determine inter-rater reliability for coding, using Cohen's kappa, which is particularly sensitive to nominal data (Hollenbeck, 1978). The inter-rater reliability for the present study was .90.

Results

The means and standard deviations for all measures are presented in Table 2. The internal coping resources assessed were hardiness, mastery and health, and esteem and communication. The scores for each of these internal resources are in the normal range, although the hardiness scores and the mastery/health scores are at the lower end of the normal range (McCubbin & Thompson, 1991).

The external resource of social support was measured by the NSSQ. The total functional score for these families was lower than normative data ($M = 119.8$ vs. 201.90), as was the total network score ($M = 48.65$ vs. 107.68). The total loss score was slightly higher, ($M = 3.02$ vs. 2.86) (Norbeck, Lindsey & Carrieri, 1983). In the current study scores were calculated by separately summing the item ratings for the six functional support items. However, since the method for calculation of support from individual sources is not clear in previous studies no normative data are available for comparison with

Table 2

**Range, Means, and Standard Deviations of Measures
in Families of Children with Disabilities (N = 50)**

Measure	Mean	SD	Range
Child Conditions	3.78	1.66	1-7
Child Behaviour Problems	2.74	1.70	0-6
Family Hardiness Index	41.10	8.68	12-58
FIRM			
Esteem and Communication	34.67	5.85	19-45
Mastery and Health	30.27	12.26	5-51
NSSQ			
Functional Support	119.80	44.79	24-232
Social Network	48.65	16.12	9-81
Network Loss	3.02	3.67	0-16
Source of Support			
Spouse	26.33	4.23	16-30
Family	21.94	6.32	5-30
Friends	21.26	6.09	7-30
Work Colleagues	15.44	5.55	6-28
Others	11.54	4.02	6-16
Feetham Family Functioning			
Discrepancy Score	33.17	14.96	10-76

Note: Theoretical ranges: Family Hardiness Index 0-80; FIRM [Subscales: Esteem and Communication 0-45, Mastery and Health 0-60]; NSSQ-Functional Support 0-270; Feetham Family Functioning 0-150.

Table 3

Zero-Order Correlations Between Measured Variables in Families with Disabilities (N=50)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Child-Parent Characteristics																	
1. Child's Age	1.00																
2. Child's Behaviour	.23	1.00															
3. Child's Condition	.20	.28	1.00														
4. Mother's Age	.71***	.18	-.18	1.00													
5. Father's Age	.68***	.11	-.15	.94***	1.00												
Resources - (Internal)																	
6. Esteem	.04	.15	-.42**	.05	.09	1.00											
7. Mastery	.10	.05	-.37**	.25	.16	.46**	1.00										
8. Hardiness	.03	-.10	-.36**	.08	.06	.03***	.59**	1.00									
Resources - (External)																	
9. Total Function	.14	.20	.11	.12	.15	.29*	.16	.40*	1.00								
10. Total Network	-.03	.19	.28	-.01	-.04	.16	.01	.28	.89***	1.00							
11. Total Loss	-.23	-.14	.17	-.20	-.21	.06	-.17	-.01	.13	.17	1.00						
12. Frequency of Respite	.19	-.05	-.05	.20	.25	-.08	-.04	-.08	.19	.21	-.27	1.00					
Resources - (Sources)																	
13. Spouse	.15	-.03	-.08	.03	.02	.51**	.46**	.53**	.40*	.30	.03	-.03	1.00				
14. Family	-.04	-.10	.14	.05	.17	.20	.07	.36*	.56***	.47**	-.04	.31*	.39**	1.00			
15. Friends	-.17	-.09	-.06	-.11	-.05	.26	.18	.31*	.51***	.38*	-.15	.06	.38*	.42**	1.00		
16. Co-workers	-.12	.26	.09	.03	.12	.56**	.22	.56**	.72***	.50*	.06	-.19	.43*	.50**	.61**	1.00	
Dependent Variables																	
17. Family Functioning Discrepancy Score	-.24	.05	.21	-.17	-.18	-.26	-.56***	-.39*	-.30	-.09	.11	-.009	-.61***	-.14	-.35*	-.12	1.00

*p<.05; **p<.01; ***p<.001

these scores. The frequency of use of respite care was reported as low for 29% of the sample, moderate for 40%, and high for 31%.

Satisfaction with family functioning scores were similar to those from other similar populations ($M = 33.2$ vs. 29.83) (Failla & Jones, 1991). Respondents reported high discrepant scores (i.e., low levels of satisfaction) and high importance scores for items that described family functions involving children (i.e., number of problems with children, and number of times children missed school).

Correlations between child and parent characteristics, internal and external coping resources including frequency of respite use, and satisfaction with family functioning are summarized in Table 3. None of the child or parent characteristics, coping resources, or satisfaction with family functioning correlated significantly with families' frequency of use of respite services. Hierarchical regression analyses were performed on satisfaction with family functioning scores, using child characteristics, and internal and external coping resources (excluding frequency of use of respite service) as predictors (Table 4). The variables were entered in three blocks: first, the handicapped child's age, and number of conditions and behaviours were entered as indicators of stress; next, internal coping resources (namely esteem and communication, mastery and health, and hardiness) were entered; lastly, the external resources of social support from each of four categories of persons in the social network (the

Table 4

Hierarchical Regression of Satisfaction with Family Functioning in Families of Children with Disabilities

Variables	Beta ^a	F	R ² change
Child Characteristics			
Child Age	-.12	.94	.05
Conditions	.02	.01	
Behaviours	-.04	.09	.02
Coping Internal			
Hardiness	-.10	.32	
Mastery/Health	-.33	5.13*	
Esteem/Communication	.14	.61	.25**
Coping External			
Sources of Social Support			
Spouse	-.48	12.62**	
Family	.07	.32	
Friends	-.35	6.10*	
Co-worker	.18	1.59	
other	.22	2.83	.24**

$R^2 = .57$

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

^aBeta coefficients are from the regression equation with all the variables entered.

spouse, family, friends, and co-workers) were entered. These were the primary sources of support identified by these families. The ratings of support from individual sources of support were entered in the analysis because they correlated with satisfaction with family functioning discrepancy scores, whereas total scores for functional support, social network, and network loss did not.

This model accounted for 57% of the variance in satisfaction with family functioning. Child characteristics made no significant contribution to the model. However, both the internal and external coping resources added significantly to the variance accounted for in the family functioning discrepancy scores. More specifically, parents reporting higher levels of mastery and health reported greater satisfaction with family functioning (low discrepancy scores). In addition, the degree of support from spouse and friends were negatively related to discrepancy scores, indicating that higher levels of satisfaction with family functioning were significantly associated with higher levels of support from these sources.

In the open-ended FFFS items, families reported five common areas of difficulty. These included emotional and mental health concerns relative to parents' coping with day-to-day routines and stresses (i.e., "having too much to do"); isolation of either the child and/or family (i.e., "my child with special needs is never invited"; "she is so disruptive we usually stay at home to avoid embarrassing situations"); the child's behaviour and caregiving demands (i.e., "the needs increase and there does not seem to be a light at the end of the tunnel"); and vacations and family outings. When asked what is most helpful, the majority of these families reported that respite services in the home were the most helpful, followed by support from family and friends.

Discussion

This study clearly illustrates the importance of internal and external coping resources in families caring for children with developmental disabilities. These families face significant stressors arising from the experience of caring for children with multiple and varied handicapping conditions. Surprisingly, the child's conditions and behaviours were not significantly related to satisfaction with family functioning. In spite of these challenges, families reported satisfactory internal coping resources such as hardiness, mastery and health, esteem and communication, and satisfaction with family functioning even when social support was limited. The question becomes, how do families grow and develop such strengths when stress is high and outside assistance is limited?

One possibility is that the experience of parenting a child with developmental handicaps is an opportunity for growth in these families. Previous

studies have found that parents do report positive experiences, including personal and family growth, in such circumstances (Summers, Behr & Turnbull, 1989). Perhaps internal coping resources such as family hardiness are strengthened by families' experiences. Although hardiness was not a significant predictor of satisfaction with family functioning in our model, it did correlate significantly with child conditions, other internal coping resources, and sources of social support, which suggests that it does play a role in the coping process. Future research might address the concept of growth as an outcome of the emotional experiences these families face, and examine how families learn to develop resilience in response to such extraordinary challenges.

The scores for total functional support were low relative to the normative scores reported by Norbeck, Lindsey and Carrieri (1983), but were consistent with those of Failla and Jones (1991) who studied a similar population. Why do families of children with developmental handicaps experience such low levels of functional and network social support throughout their children's early childhood and young adult years? Perhaps caregiving demands are so high that families have little time or energy to develop strong, long-term social networks. Future research is needed to better understand which family and/or social network characteristics contribute to families' abilities to develop and maintain strong, supportive social networks.

There was a significant correlation between all sources of support and the internal coping resource of hardiness. Specifically, families who reported high levels of support from spouse, family, and friends also reported higher levels of hardiness. Failla and Jones (1991) suggested that hardiness acts as a resistance resource that minimizes the effects of stress and increases the families' use of social support. Our regression analysis indicates that a significant portion of the variance in family functioning (discrepancy) scores was predicted by the variables of mastery and health and social support from spouse and friends. These findings are consistent with the work of Dunst, Trivette, and Cross (1986) who reported that satisfaction with support and the numbers of sources of support were significant predictors of parent and child well-being in families caring for children with disabilities. Hardiness may have an indirect effect on satisfaction with family functioning via its influence on social support. Future research could explore this issue.

In the current investigation child and parent characteristics, and coping resources did not correlate with the frequency of use of respite services. Nor was the frequency of use of respite service related to satisfaction with family functioning. These unexpected findings could have been due to the fact that only one source of respite care was measured. Respite can also be provided through relatives, friends, and child programs. Future research needs to consider all types of respite support available. Yet, it was clear that respite was an

important resource for these families; when asked what was most helpful to them, parents most frequently answered "respite service at home".

The results of the current study cannot be generalized to other populations because the sample was obtained by convenience. Although the sample was relatively small, using Cohen's (1992) table for power analysis, it approximates that necessary for sufficient statistical power with the number of predictors used in the current study.

Implications for Practice

Interventions can be designed to extend and enhance individual and family coping. Nurses and other professionals can provide support through facilitation of personal networks, development of self-help groups, and community empowerment. In addition, Stewart (1993) suggests that nurses can play an important role in enabling families to develop and maintain resources of support. Summers, et al. (1989) suggest that professionals should encourage parents to maintain an optimistic and yet realistic view of their child, to recognize progress they and the child are making, and to be involved in decisions regarding their child's care. In addition, it is important that respite services be designed to meet the needs of families (Neef & Parrish, 1989). These efforts will foster the development of mastery and esteem in parents, which are important coping resources. Families caring for children with disabilities might benefit from such interventions.

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Une méthode pour faire valider la traduction d'une questionnaire

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This paper describes Haccoun's (1987) technique for validating a translated questionnaire. This method is based on the idea that if a questionnaire is well translated, bilingual subjects will provide equivalent responses to questions in either language. A single group of bilingual subjects is given both language versions of the questionnaires at two different times in random order. Subsequently: 1) test-retest reliability coefficients are computed for the original and translated versions; 2) correlation coefficients between the original and translated versions of the instrument are computed and compared (simultaneous correlations between languages); 3) the correlations between the original version at time 1 and the translated version at time 2 and vice versa are computed and compared (cross-correlations); and 4) the cross-correlations are compared to the test-retest reliabilities within each language. The final step indicates whether the translated version of the instrument is equivalent to the original. The authors use Haccoun's technique to demonstrate that a French translated version of Alcock et al.'s (1990) questionnaire on nurses' perceptions of nursing research is reliable and statistically equivalent to the original.

Le but de cet article est de démontrer les étapes d'une méthode pour valider la traduction d'un questionnaire. Les auteurs utilisent comme exemple le questionnaire d'Alcock et al. (1990) examinant les perceptions des infirmières à l'égard de la recherche infirmière. On part de l'hypothèse que les mêmes sujets bilingues fournissent des réponses équivalentes indépendamment de la langue. La première étape est de s'assurer que l'instrument mesure le phénomène recherché et que l'instrument original est valide et fidèle. Subséquentement, on utilise la méthode inversée de traduction (back-translation) pour corriger les questions ambiguës qui diffèrent d'une langue à l'autre. Les coefficients de consistance interne, les alphas de Cronbach, sont une façon d'offrir un indice de la fidélité du questionnaire traduit. La technique utilisée pour valider statistiquement la traduction du questionnaire a été développée par Haccoun (1987). Elle nécessite d'administrer à un seul groupe de sujets bilingues les deux versions du questionnaire avec un intervalle de temps entre les deux administrations. Les autres étapes consistent à : 1) vérifier les coefficients de stabilité intra-langue, 2) examiner les coefficients de stabilité entre la langue originale et la traduction (corrélations simultanées inter-langues), 3) comparer les corrélations croisées et 4) comparer les corrélations croisées aux coefficients de stabilité intra-langue. Cette dernière comparaison permet de démontrer si la traduction de l'instrument est fidèle à l'original. Les résultats de cette étude démontrent que la traduction française de la version originale anglaise du questionnaire de Alcock et al. (1990) est valide et fidèle.

Les chercheurs en sciences infirmières s'intéressent à divers phénomènes humains. Bien que certains instruments de mesure soient disponibles, ils sont généralement en langue anglaise et ont été validés auprès d'une population

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américaine. Au Canada, il existe une population francophone imposante habitant le Québec, le Nouveau-Brunswick, l'Ontario, le Manitoba et l'Alberta. Puisque le chercheur doit utiliser des instruments de mesure adaptés à la population étudiée, il a le choix de créer son propre instrument ou d'en traduire un qui existe déjà. Créer un instrument de mesure est une tâche laborieuse qui nécessite des ressources financières et techniques ainsi que l'administration expérimentale à un grand nombre de sujets. Il est donc souvent plus avantageux de traduire un instrument de mesure et de le revalider auprès de la population cible dans le cadre d'une étude pilote.

Contrairement aux attentes de plusieurs chercheurs, traduire un instrument est un processus complexe. Le but principal de la traduction est de pouvoir comparer des concepts parmi des répondants de différentes cultures et langues. Cela exige que le chercheur infère et par la suite examine si le sens conceptuel de la mesure développée est préservé dans les deux cultures (Hulin, Drasgow, & Parsons, 1983).

Il existe quatre types de traduction. Ils sont du genre pragmatique, esthétique-poétique, ethnographique et linguistique. Le but de la traduction pragmatique est de communiquer avec précision dans une autre langue le contenu de la langue originale. L'objectif d'une traduction esthétique-poétique est d'évoquer des humeurs, des sentiments et des affects identiques dans une autre langue. La traduction ethnographique vise à garder le sens et le contenu culturel. Dans ce cas, le traducteur doit connaître les subtilités des deux langues et cultures. La traduction linguistique vise à présenter des formes grammaticales possédant un sens équivalent. La traduction d'un instrument se fait généralement de façon ethnographique (Hulin et al., 1983). Haccoun (1987) nomme ce genre de traduction équivalence inférentielle, où les inférences issues des résultats de la forme anglaise correspondent à celles de la forme française, par exemple.

Le but de cet article est de démontrer systématiquement comment un chercheur peut valider la traduction d'un questionnaire en utilisant la technique par groupe unique de Haccoun (1987). Cette technique a été choisie pour plusieurs raisons. Premièrement, elle offre un indice indépendant d'équivalence. Deuxièmement, Lemay (1991) a démontré qu'elle est supérieure à la méthode par rang (rank method) et à la technique de Brislin pour détecter les erreurs de traduction. Troisièmement, elle est facile à appliquer et à interpréter. L'exemple utilisé est le questionnaire développé par Alcock, Carroll et Goodman (1990) sur les perceptions des infirmières de la recherche en sciences infirmières¹. L'hypothèse de départ est que les mêmes sujets bilingues

fournissent des réponses équivalentes indépendamment de la langue dans laquelle le questionnaire leur est administré.

Démarches préalables

Avant de procéder à la traduction d'un questionnaire, le chercheur doit s'assurer que l'instrument répond au phénomène d'intérêt. Dans cette étude on voulait utiliser un questionnaire qui décrivait les perceptions des infirmières à l'égard de la recherche en sciences infirmières. Le questionnaire de Alcock et al. (1990) comprend les sept sections suivantes : section A) Données démographiques; section B) Perception de la valeur de la recherche en sciences infirmières (cinq questions évaluées par une échelle de Likert de quatre points); section C) Perception du rôle de l'infirmière dans la recherche infirmière (10 questions évaluées par une échelle de Likert de quatre points); section D) Intérêt à l'égard de la recherche (huit questions évaluées sur une échelle de quatre points); section E) Expérience en recherche (13 questions répondues par «oui» ou «non»); section F) Perception du climat de la recherche dans votre organisme de soins de santé (neuf questions évaluées sur une échelle de Likert de quatre points); section G) Connaissance du support disponible pour la recherche infirmière (sept questions répondues par «oui», «non» ou «je ne sais pas»).

En premier lieu, les chercheurs doivent examiner les caractéristiques psychométriques du questionnaire original. La validité du contenu de chaque section du questionnaire de Alcock et al. (1990) a été initialement évaluée par huit experts en sciences infirmières en milieu hospitalier et en recherche. Après l'administration du questionnaire à 178 infirmières ontariennes, les valeurs de consistance interne (alpha de Cronbach) de chaque section étaient toutes élevées, soit entre 0,71 et 0,87. La consistance interne indique le niveau avec lequel les énoncés mesurent la même dimension. Strictement parlant, la consistance interne est un indice de la stabilité minimale de l'instrument de mesure mais, elle peut aussi offrir le début d'une démonstration d'une éventuelle validité. Le questionnaire de Alcock et al. (1990) démontrant des niveaux acceptables de consistance interne et étant un instrument important pour les sciences infirmières, nous avons décidé de nous en servir dans nos recherches et de procéder à la traduction.

La traduction

Un service de traduction a initialement traduit le questionnaire original de l'anglais au français. Par la suite, un expert en sciences infirmières bilingue a retraduit le questionnaire du français à l'anglais. Cette dernière version anglaise a été comparée à l'original anglais par deux collègues en sciences infirmières. Des modifications ont été apportées, au besoin, à la version

française après comparaisons des deux versions anglaises. Les questions corrigées ont été traduites à nouveau. Cela a permis d'atténuer la perte de nuances dans le passage d'une langue à l'autre (Streiner et Norman, 1991). Cependant, cette technique, appelée la méthode inversée (back-translation), ne peut pas assurer que les propriétés psychométriques de l'instrument (ex. : validité et fiabilité) demeurent les mêmes (Sechrest, Fay, & Hafeez Xaidi, 1972). Prenons, par exemple, la question anglaise suivante : «I have changed my nursing practice based on research findings» qui a été traduite initialement par «J'ai changé ma pratique infirmière pour refléter les résultats de la recherche». Cette phrase amenait un manque de congruence dans les réponses aux différents moments d'évaluation. Elle a été modifiée par : «J'ai changé ma pratique infirmière suite aux résultats de la recherche». La première traduction reflète une traduction linguistique (équivalence sémantique, c'est-à-dire des formes grammaticales similaires), tandis que la deuxième se rapproche plus du contenu de l'énoncé (équivalence inférentielle). Le simple fait de se servir de la méthode inversée ne peut pas assurer la qualité de la traduction puisque, après tout, elle dépend du degré de bilinguisme du chercheur ou du service de traduction. Il faut avoir un indice indépendant d'équivalence.

Les comparaisons des valeurs de consistance interne du questionnaire (administré auprès de 23 infirmières bilingues) par section et dans son ensemble, en français et en anglais, pour les deux moments d'évaluation, sont représentées au tableau 1. Elles sont toutes sensiblement similaires aux résultats de Alcock et al. (1990). La seule exception semble être la version anglaise de la section G administrée au deuxième moment (0,66). Il est probable qu'un plus grand nombre d'items par section aurait augmenté le degré de consistance interne de cette section.

Tableau 1

Tests de fidélité (alphas de Cronbach) par section, langue et moment d'administration (N=23)

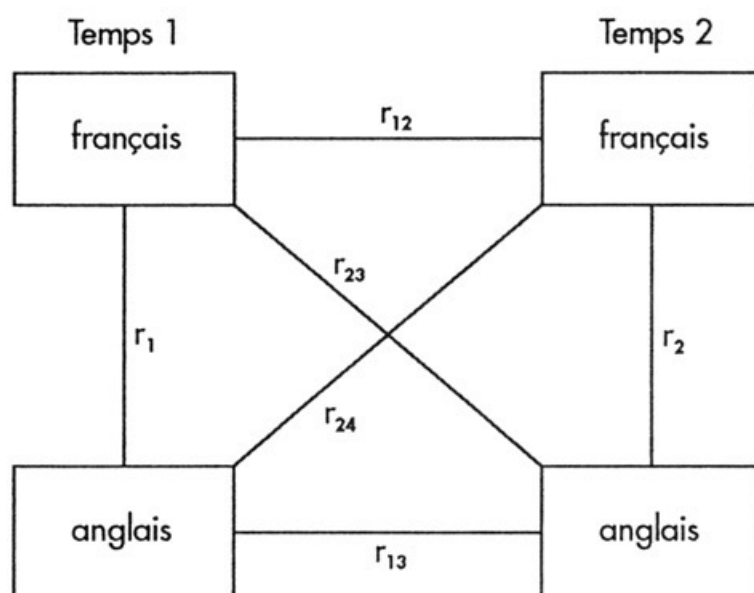
Section	Alpha de Cronbach			
	Français 1	Anglais 1	Français 2	Anglais
B	0,71	0,81	0,76	0,70
C	0,81	0,85	0,88	0,89
D	0,86	0,84	0,86	0,84
E	0,83	0,88	0,89	0,90
F	0,75	0,74	0,83	0,73
G	0,74	0,82	0,71	0,66
Total	0,90	0,93	0,90	0,90

La technique par groupe unique de Haccoun

Logiquement, le niveau de similarité entre la version originale et la traduction indique la qualité de la traduction, ce qui s'indexe par un coefficient de corrélation. Toutefois, cette corrélation peut être inférieure à 1,0 même si la traduction est parfaite. Ceci est le cas lorsque la mesure n'est pas parfaitement fidèle dans le temps. Il faut donc évaluer la qualité de la traduction compte tenu de cette fidélité, qui s'estime par le test-retest. La corrélation entre les langues doit donc être calculée en incluant la dimension du temps afin d'estimer la stabilité du phénomène étudié. Une démonstration que la traduction est parfaite serait que dans le temps les deux versions changent de la même façon. La technique par groupe unique de Haccoun (1987) propose donc de comparer la corrélation intra-langue avec la corrélation croisée. Cette dernière est la corrélation inter-langue entre les deux temps d'administration du questionnaire. L'intervalle de temps dont les deux questionnaires sont administrés doit être une période que n'affecte pas les variables dépendentes, soit ici, les perceptions, les attitudes et les connaissances des infirmières. C'est pourquoi, dans cette étude, un intervalle de temps de deux semaines a été considéré approprié. Le schéma de la technique par groupe unique est représenté à la figure 1.

Figure 1

Schéma expérimental de la technique à groupe unique de Haccoun



Coefficients de corrélation :

r_{12} = coefficient de stabilité intra-langue (français, temps 1 — temps 2)

r_{13} = coefficient de stabilité intra-langue (anglais, temps 1 — temps 2)

r_{23} = corrélation croisée (français, temps 1 — anglais, temps 2)

r_{24} = corrélation croisée (anglais, temps 1 — français, temps 2)

r_1 = coefficient de stabilité inter-langues et simultané (français-anglais, temps 1)

r_2 = coefficient de stabilité inter-langues et simultané (français-anglais, temps 2)

Cette technique, par groupe unique, nécessite d'administrer à un seul groupe de sujets bilingues les versions française et anglaise de l'instrument avec un intervalle entre l'administration des deux tests. La moitié des sujets (choisis de façon aléatoire) reçoivent le questionnaire en français la première fois et en anglais ensuite. L'autre moitié des sujets reçoivent la version anglaise en premier et la version française en deuxième.

Les sujets devant être parfaitement bilingues, ce sont les administrateurs de la Direction des soins infirmiers d'un hôpital desservant une clientèle anglaise et française qui ont choisi les infirmières qui ont participé à cette étude. Ils se sont assurés que la moitié des infirmières nommées étaient de langue maternelle anglaise, tandis que l'autre moitié étaient francophones. Le nombre de sujets ($N = 23$) a été déterminé par des raisons pratiques et de disponibilité. Lemay (1991) a démontré que des résultats stables peuvent être obtenus avec un N aux alentours de 25.

Dans la présente étude, la version originale anglaise du questionnaire développé par Alcock et al. (1990) et la traduction française ont été administrées à 23 infirmières bilingues habitant la même région. Le contexte culturel est donc le même. Deux semaines plus tard, les versions française et anglaise du questionnaire ont été réadministrées, en ordre inverse, à ces mêmes infirmières.

La technique de Haccoun permet d'évaluer la similarité entre la version originale et la version traduite du questionnaire dans son ensemble, ainsi que de chaque section et de chaque question (ou item) individuelle. Cependant, la fidélité d'un seul item est plus basse que celle du groupe incorporant cet item. Afin de réduire la possibilité de commettre une erreur de type II, il est essentiel d'augmenter la puissance statistique en diminuant le niveau de l'alpha à chaque fois que l'unité d'analyse pour le test statistique devient plus petite. Par contre, jusqu'à maintenant, aucune simulation n'a été faite de façon empirique afin d'établir le niveau du pouvoir approprié pour déterminer la similarité entre une traduction et la version originale d'un instrument de mesure. C'est pourquoi nous suggérons ici d'utiliser $p < 0,10$ pour l'instrument dans son ensemble, $p < 0,05$ pour les sous-sections et $p < 0,01$ pour les items individuels.

Les étapes à suivre pour interpréter les résultats sont les suivantes : 1) vérifications des coefficients de stabilité intra-langues entre les temps 1 et 2; 2) examen des coefficients de stabilité entre la langue originale et la traduction, à chaque moment d'administration (corrélations inter-langues simultanées); 3) comparaison des corrélations croisées; et 4) comparaison des corrélations croisées aux coefficients de stabilité intra-langues. Ces étapes peuvent être exécutées par section ou par item (question).

Vérification des coefficients de stabilité intra-langues

Les stabilités de mesures intra-langues à deux moments différents indiquent la qualité métrologique de l'instrument. Si les coefficients de stabilité temporelle sont faibles dans les deux versions durant un intervalle où il ne doit pas y avoir de changements de perception ou d'attitude, l'instrument ne produit pas une estimation stable du phénomène, et il faut donc le retravailler. Si les coefficients de stabilité sont adéquats dans la version originale mais faibles dans la version traduite, il faut alors examiner les coefficients de stabilité entre la langue originale et la traduction.

Tableau 2

Coefficients de corrélations de Pearson intra-langues, inter-langues et simultanées, et croisées par section (N=23)

Section	Coefficient de corrélation par section					
	Intra-langue		Inter-langue et simultané		Croisée	
	F ₁ vs F ₂	A ₁ vs A ₂	F ₁ vs A ₁	F ₂ vs A ₂	F ₁ vs A ₂	A ₁ vs F ₂
	r12	r13	r1	r2	r23	r24
B	0,85	0,74	0,86	0,91	0,80	0,76
C	0,82	0,85	0,83	0,95	0,75	0,87
D	0,87	0,82	0,92	0,94	0,86	0,86
E	0,91	0,94	0,93	0,94	0,89	0,89
F	0,78	0,65	0,81	0,87	0,63	0,82
G	0,63	0,80	0,90	0,98	0,65	0,79

F₁ = français, temps 1 F₂ = français, temps 2 A₁ = anglais, temps 1 A₂ = anglais, temps 2

Afin d'établir si les sections du questionnaire sont similaires dans les deux versions, il faut d'abord déterminer le score moyen; c'est-à-dire additionner les réponses des items et les diviser par le nombre d'items par section. Les moyennes de ces scores deviennent ainsi des données continues qui peuvent être corrélées par le coefficient de corrélation de Pearson. Les résultats de la présente étude démontrent qu'en moyenne, les coefficients de corrélation intra-langue par section représentent une bonne qualité métrologique du questionnaire (voir le tableau 2). De plus, pour déterminer l'égalité statistique, Haccoun (1987) propose d'utiliser l'équation développée par Ferguson (1976, p. 185), présentée à la figure 2. Puisque le but est de considérer trois différentes mesures (intra-langue, inter-langue, croisée) prises auprès d'un seul groupe, il est essentiel d'utiliser une équation examinant la différence entre les deux coefficients de corrélation pour des échantillons paires. Ici, les tests de t paires entre les coefficients de corrélation intra-langue de chaque section sont tous non significatifs ($p > 0,05$) (voir le tableau 3).

Figure 2.

Équation examinant la différence entre deux coefficients de corrélation pour des échantillons paires.

$$t = \frac{(r_{12} - r_{13}) \sqrt{(N-3)(1+r_{23})}}{\sqrt{2(1-r_{12}^2 - r_{13}^2 - r_{23}^2 + 2r_{12}r_{13}r_{23})}}$$

r_{12} = coefficient de stabilité intra-langue (français, temps 1 — temps 2)

r_{13} = coefficient de stabilité intra-langue (anglais, temps 1 — temps 2)

r_{23} = corrélation croisée (français, temps 1 — anglais, temps 2)

r_{24} = corrélation croisée (anglais, temps 1 — français, temps 2)

$N-3$ = degrés de liberté (23-3=20)

* r_{23} et r_{24} sont interchangeables

Afin de comparer le choix des réponses de chaque item (ou question) intra-langue dans les deux versions, on emploie les coefficients de corrélation de Spearman pour les sections B, C, D et F, puisqu'elles consistent en données ordinales (échelle de Likert de 1 à 4). On calcule les corrélations de Kappa pour les sections E et G qui comprennent des données nominales («oui», «non», «je ne sais pas»). On remarque que la traduction de la question B2 est problématique ($t = 3,20$, $p < 0,01$). La version anglaise de cette question «Research does not promote accountability for practice» a été initialement traduite par «La recherche ne promeut pas la responsabilité professionnelle dans la pratique». Elle a été traduite à nouveau pour devenir «La recherche infirmière ne favorise pas la responsabilité professionnelle dans la pratique». La question C6 semble également poser un problème ($t = 3,62$, $p < 0,05$). Cette question donne l'apparence d'être moins stable en anglais ($r_{13} = 0,50$) «Be involved in collecting data for non-nursing studies» qu'en français ($r_{12} = 0,87$) «Participer à la collecte de données autres qu'en soins infirmiers».

Examen des coefficients de stabilité entre la langue originale et la traduction

Si les coefficients de stabilité entre les langues diffèrent, une version contient plus d'aléas que l'autre ou bien l'échantillon est plus faible dans l'une des deux langues (Haccoun, 1987). Si ces corrélations sont semblables et les échantillons égaux, l'instrument se comporte de la même manière dans les deux langues. Les coefficients de stabilité inter-langues et simultanés par section (au même moment d'administration) étaient tous plus élevés que 0,81 (voir le tableau 2). En comparant les items individuellement entre les langues

anglaise et française, on s'aperçoit que ceux-ci réagissent généralement de la même façon au même moment d'administration.

Comparaison des corrélations croisées

Tel que décrit dans la section «La technique par groupe unique de Haccoun», les corrélations croisées représentent les relations temporelles inter-langues et offrent ainsi un indice de la qualité de la traduction. Les deux corrélations croisées devraient être statistiquement égales. Une inégalité indiquerait une interaction entre le délai et la langue originale de l'instrument. Il se peut, par exemple, que la formulation traduite soit plus facilement oubliée d'une application du test à l'autre (Haccoun, 1987).

Excepté pour la section F ($t = 2,19$), tous les tests de t pairés indiquent que les corrélations croisées sont similaires ($p > 0,05$) (voir le tableau 3). On constate au tableau 2 que les corrélations croisées de la section F (0,63 vs 0,82) démontrent effectivement un écart assez important et que la version anglaise temps 2 semble être problématique. Par contre, pour ce qui est des énoncés, toutes les valeurs des tests de t sont inférieures à 2,845, donc non significatives. Cela implique l'existence d'une légère faiblesse dans l'ensemble de la section F plutôt qu'une faiblesse spécifique à certains énoncés.

Tableau 3

Tests de t pairés des corrélations de Pearson des moyennes par section (N=23)

Section	Test de t pairé							
	Intra-langue		Croisé		Intra-langue et croisé			
	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8
	r_{12} vs r_{13} (r_{23})	r_{12} vs r_{13} (r_{24})	r_{23} vs r_{24} (r_{12})	r_{23} vs r_{24} (r_{13})	r_{12} vs r_{23} (r_{12})	r_{12} vs r_{24} (r_{13})	r_{13} vs r_{23} (r_{24})	r_{13} vs r_{24} (r_{23})
B	1,58	1,46	0,60	0,48	0,71	1,20	-0,87	-0,26
C	-0,36	-0,45	-1,85	-1,99	1,04	-0,84	1,40	-0,39
D	0,97	0,98	-0,02	-0,01	0,18	0,16	-0,80	-0,81
E	-0,95	-0,94	0,13	0,16	0,58	0,75	1,53	1,68
F	1,10	1,49	-2,19	-1,80	1,27	-0,49	0,17	-1,98
G	-1,50	-1,87	-1,27	-1,62	-0,13	-1,79	1,36	0,09

dl = N-3; 23-3 = 20

$t_c = 2,086$ ($p = 0,05$)

$t > 2,086$ suggère une différence entre les coefficients de corrélation ($p \leq 0,05$).

Comparaison des corrélations croisées aux coefficients de stabilité intra-langues

Si les coefficients des corrélations croisées sont similaires aux coefficients de stabilité intra-langue, la traduction de l'instrument est adéquate. Cette analyse est au coeur même de la technique de Haccoun puisqu'elle considère la qualité de la traduction, en tenant compte de la dimension du temps puisque la fidélité plafonne la relation possible entre la mesure originale et sa version traduite.

En utilisant l'équation présentée à la figure 2, les coefficients de stabilité intra-langue (r_{12} et r_{13}) sont comparés aux corrélations croisées (r_{23} et r_{24}) (voir le tableau 2). Tous les tests de t des sections sont inférieurs à 2,086, démontrant une bonne traduction (voir le tableau 3). Par contre, les tests de t par item des questions B3, C6 et E13 sont plus élevés que 2,845. Cela implique une faiblesse dans la traduction de ces trois énoncés. En revanche, les différences entre les corrélations croisées et les coefficients de stabilité des sections étant petites, nous pouvons conclure que les faiblesses notées pour ces trois énoncés ne sont pas suffisamment importantes pour affecter la qualité de la traduction de chacune des sections auxquelles ils appartiennent. On peut donc conclure que la traduction française du questionnaire de Alcock et al. (1990) est aussi valide et fidèle que la version originale anglaise.

La technique par groupe unique de Haccoun permet d'obtenir beaucoup d'informations pour valider la traduction d'un questionnaire. Une limitation de cette technique est que, contrairement à une personne peu bilingue, le sujet parfaitement bilingue peut plus facilement saisir le sens d'un énoncé mal traduit (Haccoun, 1987).

En résumé, la méthode inversée de traduction accompagnée de la technique d'évaluation de la traduction par groupe unique de Haccoun permet de vérifier si l'instrument se comporte de la même façon, temporellement et d'une langue à l'autre. À la suite de cette évaluation, l'instrument doit continuer d'être utilisé auprès d'une même population en conservant les mêmes consignes. Afin de contrer la pénurie d'instruments de mesure développés en français, pour évaluer des phénomènes humains en sciences infirmières, cette technique permet d'assurer statistiquement la validité de la traduction.

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Designer's Corner

Methodological Challenges in Coping and Adaptation Research

**Gina Bohn Browne, Carolyn Byrne,
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Investigators concerned with peoples' ability to cope and adapt to their life circumstances are faced with a multitude of methodological challenges. Many of these challenges have been discussed at length by Lazarus (1993). The following discussion highlights these and other challenges at each step of the research process.

Assumptions and Values

Investigators of coping and adaptation processes and outcomes are often theoretical purists. While the test of one theory may advance understanding, this purity of perspective leaves alternative explanations unexplored. A theoretical pluralist would advocate an explanation of a person's predicament from a variety of theoretical vantage points (coping and adaptation, biological and sociological) in search of the variables which combine with coping variables to explain adjustment outcomes. For example, in research we have conducted, poorly adjusted chronically ill persons with poor problem solving capacity who lived alone or with low levels of purpose-in-life, were the patients most likely to benefit from nurse counselling in addition to usual physician specialist clinic care. If they were poorly adjusted yet able to solve problems and lived with someone, they did just as well with physician care alone (Roberts, et al., 1994). Moos (1992) has also advocated the study of these interactions between pretreatment life context variables and amount and type of treatment. Imagine how much less we would know if we took a pure versus pluralistic theoretical perspective.

Inherent in most of coping research is an assumption that subjects under study are experiencing stressful, traumatic, or burdensome circumstances. It is also assumed that the context of the situation along with a person's resources shapes the appraisal. The net appraisal shapes the response, the thoughts, emotions and/or behaviours (Lazarus & Folkman, 1984). Generally, it is believed that these thoughts, behaviours, and/or emotions are modifiable if the individual can engage in alternative appraisals which are assumed to be

under a person's control (Meichanbaum, 1991). The field of coping and adaptation research largely ignores the possibility that the "appraisal" process itself might be altered by biological and/or neurochemical disturbance, depressive and mood disorder states (Michels & Marzuk, 1993). These physiological disturbances are not always under a person's control and may require remediation before the results of self control and reappraisal could be expected.

Much of coping and adaptation research focuses on the individual or family system and ignores the interplay between the person/family circumstance and the larger intersectoral service system or surrounding environment. Moos (1992) offers a framework for the integrated study of the interaction among these variables. Such knowledge is a prerequisite to the careful tailoring of treatment strategies to a person's whole circumstance.

Most of the knowledge we have about how people cope with adversity comes from research done on North American clinic samples. There is little cross cultural research with the exception of the work of the late Antonovsky (1993). North American coping and adaptation research ignores people with similar or worse circumstances, who are non-users of formal services or in vastly different cultural circumstances. How does one cope and adjust in Rwanda?

Much of the literature assumes that there are more or less effective patterns of thinking or behaviour when faced with adversity, and one has to ask effective from whose point of view? A colleague investigated the nutrition habits of some mothers on welfare which got worse after the social work intervention compared to a control group. As one mother explained, "you taught us not to steal, so the kids eat hamburger and macaroni rather than steak". While the nutritional value may be comparable, the mother perceived her situation as worse.

The whole field of coping and adaptation is premised on the notion that accepting challenging circumstances is a good thing. Well, when is not adjusting, not tolerating circumstances even in North America, ultimately the more wholesome state of affairs? Consider children acting out because of marital disharmony or abusive circumstances at home. The way they cope and their failure to adjust can bring immediate harm to themselves personally, but unwittingly in time this coping strategy can also bring attention to the whole family. Not coping with circumstances is not always a failure but merely a step in the pathway of life for people who live with and/or in chronic circumstances. There are a dearth of prospective longitudinal studies which document how these trajectories unfold.

The Question

Coping is a complex process which most commonly is conceptualized as a response to a person-environment relationship. Because different experiences may elicit different coping efforts, it is necessary to assess behaviours as they occur in response to a particular situation. Studies often are limited by their failure to identify the specific coping domain for which behaviours are reported. Subsequently, coping is not analyzed as a stressor-specific response.

Moreover, the phase of the stressful event rarely is addressed so it is not apparent at what the reported coping efforts are being directed. Coping can occur in anticipation of a stressful event, during exposure, and during the aftermath; each phase has a different potential repertoire (Stone, Greenberg, Kenney-Moore, & Newman, 1991). Research questions must clearly specify the context of coping as well as the phase(s) of the coping process, if interpretation of data is to be meaningful.

The vast majority of coping and adaptation research consists of cross-sectional studies of association. There are few longitudinal studies or rigorous evaluations of interventions designed to strengthen the person's capacity to cope with adversity which also control for the bias inherent in the attention or the social support derived from the intervention itself. When intervention research is done, it usually is addressing questions about: "Does the intervention or treatment strategy work?" The more important question is For Whom? Under what circumstances? Who benefits? Who worsens? What mix of strategies collectively strengthen versus harm people's capacity to live with their circumstances? In Roberts et al. (1994a,b), chronically ill out-patients who lived alone and had poor problem-solving coping behaviour at baseline benefitted from counselling whereas those who lived with someone and had good problem solving behaviours at baseline, got worse with counselling. This latter question generates research more relevant to these times of restraint and the need to more carefully target clientele likely to benefit from our services. Research studies that deal with these issues are now being completed (Roberts, J., Browne, G., Streiner, Gafni, A., Pallister, R., et al., 1994a,b; Byrne, C., Brown, B., Voorberg, N., Schofield, R., Browne, G., Gafni, A., Schuster, M., 1993-95; Browne, G., Byrne, C., Roberts, J., Steiner, M., Links, P., Boyle, M., Gafni, A., Watt, S., Offord, D., 1994-1999; Hay, I., Browne, G., Chambers, L., Gafni, A., Roberts, J., Muir-Gray, J.A., Sackett, D., Macpherson, A.S., 1991-94; Roberts, J., Browne, G., Milne, C., Spooner, L., Gafni, A., Watt, S., Drummond-Young, M., LeGris, J., LeClair, K., 1994-1996).

Methods

i) The Setting/The Sample

As noted previously, coping and adaptation research is largely conducted on non representative, convenience samples of people attending health or helping facilities. These users of formal service can differ significantly from non users of service in important ways which affect our conclusions. Users of services "notice" symptoms and stressors and thus, their tendency to appraise a situation as harmful, or frightening is more likely than in a group of non users of formal services (Hay, W.I., Browne, G., Roberts, J., & Jamieson, E., 1994; Milne, C., Saaco, C., Celinski, G., Browne, G., & Roberts, J., 1994).

ii) The Design

There are all too few well controlled studies of interventions designed to strengthen people's resourcefulness in challenging circumstances. We need to study the more relevant questions of mix of interventions in ways that minimize attention or placebo biases through the use of 3-arm versus 2-arm trials. For example, in the Hay, Browne (1991-94) study, seniors who screen positive for a treatable circumstance are randomly assigned to be I) a case not found, II) a case found and measured but not treated, or III) a case found, measured and treated. In this way, the effects of measurement can be separated from the effects of attention and both further separated from the effectiveness of treatment. Examples of studies which control for the attention bias are Roberts, J., Browne, G., Streiner, Gafni, A., Pallister, R., et al., 1994a,b; Byrne, C., Brown, B., Voorberg, N., Schofield, R., Browne, G., Gafni, A., Schuster, M., 1993-95; Browne, G., Byrne, C., Roberts, J., Steiner, M., Links, P., Boyle, M., Gafni, A., Watt, S., Offord, D., 1994-99; Hay, I., Browne, G., Chambers, L., Gafni, A., Roberts, J., Muir-Gray, J.A., Sackett, D., Macpherson, A.S., 1991-94. These times of economic restraint are perfect opportunities to "ration" services randomly as agency policy (Browne, G., Byrne, C., et al., 1994-99), thus minimizing the biases associated with client consent to services and increasing the generalizability of results beyond volunteers. The idea that subjects do not consent to specific interventions, but instead just to the study is an ethical decision that may be difficult for some.

iii) Measures

A variety of tools to measure context-specific coping have been developed. The popularity and ease of administration make these self-report questionnaires attractive research instruments, but problems inherent in their use limit the quality of data gathered. The use of questionnaires assumes that individuals are aware of their coping efforts but behaviours are not necessarily deliberate and conscious, and may be part of daily routine (Cohen, 1987; Kessler, Price, & Wortman, 1985). Thus self reports may not accurately reflect the scope of coping responses. Further-

more, because respondents usually are asked to reflect retrospectively on coping, social desirability, and recall bias can create additional measurement error. Finally when self report is used to measure both coping processes and adjustment outcome, the possibility increases that antecedents and consequences have been confounded (Lazarus, 1993).

The research on coping and adaptation is moving toward concepts and measures of resilience and resourcefulness (Antonovsky, 1993; Mangham, C., Reid, G., McGrath, P., & Stewart, M., 1994), in opposition to measures of deficiency. This is an "either/or battle" for the correct measure of outcome in studies of the "human" predicament. An integrated perspective assumes that one is, at once, deficient and resourceful or paradoxically, strong because of his/her deficiency. Most research adopts the deficient or resourceful framework when in reality a comprehensive assessment of outcome would acknowledge both of these states exist simultaneously. What conclusion do you make with data that show 34% of clinic outpatients are not well adjusted to their illness yet 67% of these have observed improvements in their adjustment to illness since their diagnosis (Arpin, et al., 1990)? Coping and adaptation research needs to be placed within the larger framework of a person's life, motives, and beliefs so as to make sense of apparently divergent findings.

iv) **The Sample Size and Analysis**

Future analyses need to capture the myraid of strategies a person uses simultaneously when faced with adversity. More complex questions with more complex factorial designs assume some interaction between person characteristics and treatment strategy (Roberts, Browne, Streiner, et al., 1994a,b). Sample size is more difficult to calculate in this situation. Do we always examine our data for interactions among variables prior to testing hypotheses of difference? If this step is ignored, one can erroneously conclude "no difference" between groups when, in fact treatment benefits resulted for people with certain characteristics and a worsening occurred for people with the opposite characteristic. Thus the worsening masked the benefits (Roberts, Browne, Streiner, et al., 1994a,b).

Conclusions/Interpretation

Different points of view taken by providers versus investigators can affect the interpretation of the same data. For example, what should we conclude from recent studies—34% are poorly adjusted to their chronic illness or should we say 66% are coping with little change in their life in spite of their illness (Roberts, Browne, Streiner, et al., 1994b; Arpin, Fitch, Browne, et al., 1990)?

Interpreting data involves operating from assumptions about what is important to emphasize and reflect the values of the parties involved. In our

study of shared clientele that were receiving service from two agencies, (Browne, Roberts, Byrne, et al., 1994), one interpretation of the data was that 47% of public health nurse visits (N=4600) are to clients on social assistance. From the point of view of social assistance providers, only 4 to 5% of those on social assistance in our region (N=100,000) receive the help from public health nurses.

As investigators involved in coping and adaptation research, we have a new appreciation for the proposition that there is no such thing as value-free knowledge (Browne, Watt, Roberts, Gafni, & Byrne, 1994). Many points of view are required for a comprehensive understanding of issues under scrutiny.

Recommendations

In summary, a pluralistic perspective is advocated for nurses conducting coping and adaptation research. The pluralistic perspective seeks to explain a person's predicament from a variety of points of view, the real meaning of the concept of rival hypotheses.

Mental health nurses are in a unique position to study coping in situations where the appraisal process itself may be altered by biological alterations. An integration of this perspective within coping and adaptation research is warranted. In addition, nurses could exhibit more questioning of when not accepting or not adjusting to a person's circumstances is, in fact, the more healthy response.

In studies of prognosis, coping research in the future should control for the stage of the stressful event, including people at early and uniform points in time. Repeated measures of coping with changing circumstances could inform our understanding of intra-individual variation and the mix of characteristics, strategies and circumstance which mold favourable outcomes. Coping research is moving toward reconceptualizations of people as resourceful and resilient. Much more is needed to be known about these persons who are probably not frequent users of formal services. New community based settings are needed for our research. Interdisciplinary and intersectoral service perspectives are required to educate the myraid of interpretations that can be made of the same data.

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Happenings

A System-Linked Research Unit on “Health and Social Service Utilization”

**Gina Bohn Browne, Susan Watt, Jacqueline Roberts,
Amiram Gafni, and Carolyn Byrne**

History

The McMaster System-Linked Research Unit on “Health and Social Service Utilization” has been in operation since 1991. It is funded by the Ontario Ministry of Health and is in alliance with 16 community health and social service partner agencies. Partner agencies who help shape the relevant research agenda include visiting nurses, family practices, regional departments of social services and public health as well as the District Health and Social Planning Councils from the two regions of Hamilton-Wentworth and Halton, Ontario.

Rationale for Unit Emphasis

The reasons for the emphasis of this unit on the effectiveness and efficiency of new versus existing models of health and social service are as follows: A major portion of health service is currently consumed by a small proportion of patients, regardless of the country, method of organizing, or financing of that service. Seniors, adults and children with multiple chronic conditions (stresses of illness and/or family and finances, coupled with social disadvantages and unfavourable attitudes) are routinely cited as “expensive” groups.

The use of health services by the chronically ill has been shown to be independent of the type or severity of disease, prognosis, and treatment status. Rather, use of health resources is more closely related to disability, patient demand, and poor adjustment to illness. A combination of patient social and cognitive characteristics in interaction with the supply, organization and financing of insured services explain the high use of multiple health and social services.

Objectives of the Unit

A forum was needed to disseminate existing and new information to planners and agency providers.

Planners and providers need information about client characteristics in combination with the characteristics of a system of health and social insurance which explain the high utilization of these services. From this information, ideas are generated regarding the potential for "new" interventions. In addition, providers and planners need evaluations of innovative ways of pooling their resources to serve the clientele with co-existing problems who are often shared among agencies. Peoples' problems can be expressed in medical and social dysfunction and sometimes reinforced by current health and social service delivery models. "System" characteristics include provider characteristics as well as legislated structures (eg., fee schedules, segregated funding, policies governing eligibility) which create reactive versus preventive services. Service evaluations address the clinical effectiveness, the economic implication of resources used (cost-effectiveness of the intervention), and policy implications of the future implementation of such interventions. The unit strengthens the capacity of partners to evaluate their own services.

Finally, in order to create and facilitate the implementation and co-ordination of interventions found to be effective and efficient as local service policy, there is a need for active involvement of a consortium of community agency partners simultaneously involved in the provision and planning of regional community care services.

An Intersectoral Perspective

The effectiveness and efficiency of proactive joint service ventures are being tested for people evidencing co-existing chronic circumstance: chronic illness, poor adjustment, functional disability, school problems, poverty, joblessness, psychiatric disturbance, poor problem solving capacity, care of cognitively impaired relatives to name but a few. Projects already funded investigate coordinated, intersectoral interventions aimed at improving the coping ability of the chronically ill, the functional capacity of elderly attending family physicians, children's adjustment within schools, and the functional outcomes of disabled receiving community rehabilitation services.

The innovative and linked service strategies coordinate previously somewhat segregated services. In the unit's projects, autonomous services have often been coordinated with each other. Proposals have been submitted to coordinate social services with emergency department services; public health services with a spectrum of social assistance services; children's mental health services with primary education services; in-home nursing services with counselling services; hospital services replaced with community home services.

Initial Findings

A synthesis of new information from partner agency alliances enables us to specify more of what? is more effective and less expensive? for whom? with what combination of circumstances? Common measures and methods across intersectoral studies allow the synthesis.

One study in one of our regions illustrated that from the point of view of public health, 47% of 4646 clients visited by nurses were also receiving social assistance and were thus shared clientele. On the other hand, from a point of view of social services, only 5% of their 45,000 clients received visits from the public health nurse.

Three other local studies have documented the relationship between adjustment to chronic illness and expenditures for services used. Neither the degree of adjustment nor the use of services was adequately explained by the nature, type, or severity of illness. In these three studies, poor adjustment to chronic illness exceeded the importance of disease severity and levels of disability in explaining a disproportionate level of expenditures for a subgroup of ambulatory chronically ill (34% to 55%) attending specialty medical clinics. The cost of augmented treatment for this group was less than the dollars expended in maintaining their poorly adjusted state by conventional clinic care alone. The implications for targeting clients who may benefit from counselling is being discussed with partners.

Five more of the unit's studies were designed to quantify the well-being outcomes and expenditures associated with different community approaches to the care of the person's chronic condition when all of the approaches are covered under a system of national health insurance. Expenditures for insured services provided to clients while waiting for or declining a specified proactive community-based service were compared to expenditures for clients engaged or enrolled in the specific service. In comparison to non-enrolled caregivers or clients, client and/or their caregivers enrolled in a comprehensive, preventative, ambulatory community services exhibited equivalent or superior well-being while consuming fewer per patient annual dollars of health and social service. In this system of single payer government insurance, it appears to be equally or more effective and less expensive to society as a whole to treat people with a more complete, preventative, proactive community treatment rather than have them wait for treatment often using expensive yet insured hospital resources.

During a three year trial, operative in 27 medical outpatient clinics, 293 newly referred, consenting and representative chronically ill subjects with fair to poor levels of psychosocial adjustment to their physical illness were

randomly allocated to receive either experimental problem solving counselling intervention, or additional phone call support provided by nurses, or conventional clinic medical care alone over a six month period. The effectiveness of the three types of health interventions was related to specific combinations of psychosocial characteristics of the person treated: their coping methods, purpose-in-life, and living situation.

Policy Implications

Studies of the unit consistently support the proposition, in a system of insured services, that it is equally or more effective and less expensive to offer certain people proactive care upon referral. Existing resources might be better allied and deployed to target more complete, proactive, preventative versus reactive, piecemeal service. More can be done with less. It appears that many people will attempt to get what services they need to maintain their well-being. What type of service they get service can be more or less expensive for the system.

Further downsizing of staff in community agencies can lead to piecemeal versus complete attempts to serve clients. Our evidence highlights that the expenditures associated with not engaging clients and under servicing the poorly adjusted chronically ill outpatients with co-morbid circumstances or in need of rehabilitation are greater than expenditures associated with serving them more completely in the first place.

Future Directions

Future research of the unit involves eight externally funded randomized trials of the effectiveness and efficiency of intersectoral mixes of interventions tailored to meet more of the needs and coping styles of people in high risk circumstances versus any one intervention alone. The randomized trials involve chronic psychiatrically ill in lodging homes, caregivers of cognitively impaired relatives living at home, single parent mothers and their children receiving social assistance, well elderly in an ambulatory H.S.O., cultural sensitive training for in-home providers, group problem solving for nursing staff resourcefulness, poorly adjusted chronically ill out-patients, to name but a few. The whole of this research unit's structure, strategy, style, streams and systems allows for spontaneity of our "travel" on many roads at once, the snowballing of service alliances, and for the synthesis of observations across samples, settings, sectors, and services. Already we have similar observations about clients from a variety of community settings with a myriad of co-morbid circumstances. Intersectoral service alliances are a way of doing more with less.

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Upcoming Focus Issues:

CALL FOR PAPERS

Family Health

Spring 1995 (vol. 27, no.1)

Topics such as families across the life cycle, transitional phases within family life, and families dealing with acute or chronic illness in one of its members are welcomed. Priority will be given to research reports; however, review articles also will be considered.

Guest Editor: Dr. Kathleen Rowat

Submission Deadline: January 15, 1995

Philosophy/Theory

Summer 1995 (vol. 27, no.2)

Manuscripts which have the potential to stimulate discussion of issues/problems that face the discipline of nursing in the areas of philosophical thought and theory development are sought. Research/scholarly papers are invited that address critical issues/problems of a philosophical, conceptual, theoretical, or methodological nature related to the advancement of the discipline of nursing.

Guest Editor: Dr. June Kikuchi

Submission Deadline: February 15, 1995

History of Nursing

Fall 1995 (vol. 27, no.3)

We invite submissions of manuscripts in the field of nursing history. Priority will be given to historiography, manuscripts on historical methods in nursing research, and historical biography.

Guest Editor: Dr. Ina Bramadat

Submission Deadline: May 15, 1995

Acute Care

Winter 1995 (vol. 27, no.4)

Topics such as the individual's and families' response to illness, new approaches to care, the impact of new technology, and interdisciplinary approaches are welcome. Priority will be given to research reports. However, review articles will also be considered.

Guest Editor: Dr. Louise Gagnon

Submission Deadline: August 15, 1995

Please send manuscripts to:

The Editor,

Canadian Journal of Nursing Research,

McGill University School of Nursing,

3506 University Ave., Montreal, Qc H3A 2A7

Prochains Numéros:

ARTICLES À PUBLIER

La famille et la santé

publication: printemps 1995 (vol. 27, no.1)

Vous êtes invité à nous soumettre des articles sur la santé familiale. Les sujets comprendront la famille dans les différents cycles de la vie, les phases de transition dans la vie de la famille et la famille aux prises avec la maladie aiguë ou chronique de l'un de ses membres. Les rapports de recherche auront la priorité. Cependant, les articles critiques seront également pris en considération.

Rédactrice invitée: Dre Kathleen Rowat

Date limite pour les soumissions: le 15 janvier 1995

Philosophie/Théorie

publication: été 1995 (vol.27, no.2)

Le but de cet appel est d'obtenir des articles pouvant provoquer la discussion sur des questions ou des difficultés que rencontrent les sciences infirmières dans les domaines de la pensée philosophique et de l'élaboration théorique. Vous êtes invité à écrire des articles de recherche érudits qui concernent les questions ou les difficultés importantes de nature philosophique, conceptuelle, théorique ou méthodologique et qui sont liés au progrès des sciences infirmières.

Rédactrice invitée: Dre June Kikuchi

Date limite pour les soumissions: le 15 février 1995

Historique des sciences infirmières

publication: automne 1995 (vol.27, no.3)

Nous vous invitons à soumettre vos manuscrits sur l'histoire des sciences infirmières. On donnera la priorité à l'historiographie, aux manuscrits traitant des méthodes historiques dans la recherche en sciences infirmières et à la biographie historique.

Rédactrice invitée: Dre Ina Bramadat

Date limite pour les soumissions: le 15 mai 1995

Soins Aigus

publication: hiver 1995 (vol. 27, no.4)

Vous êtes invités à nous soumettre des articles portant sur les soins aigus. Les sujets peuvent concerner, entre autres, l'existence de nouvelles approches de soins, l'impact de nouvelles technologies, les réactions à la maladie, l'implication du malade et de la famille et la collaboration interdisciplinaire. Les rapports de recherche auront la priorité. Cependant, les articles critiques seront également pris en considération.

Rédactrice invitée: Dre Louise Gagnon

Date limite pour les soumissions: le 15 août 1995

Prière de faire parvenir les manuscrits à la :

Rédactrice en chef

Revue canadienne de recherche en sciences infirmières

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Qualifications include: a doctoral degree in nursing or a related science, a masters degree in nursing, interest and expertise in teaching at the undergraduate and graduate levels, publications in peer reviewed journals, a strong commitment to research, and the ability to work collaboratively with community health nurses, nurse researchers, and researchers from other disciplines.

Please send your curriculum vitae, letter of application, and names of two referees to:

Dr. Dorothy Pringle, Dean
Faculty of Nursing
University of Toronto
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At least one continuing appointment for a two- or four-year period, with the possibility of reappointment. Minimum requirements are a Master's degree, preferably in Nursing, a strong clinical background, preferably in community nursing, and teaching experience, preferably in a university. There is a possibility that one of these positions may be based in Vancouver or the Lower Mainland.

Applications should be received by **January 15, 1995**, accompanied by a curriculum vitae and the names of three referees, and should be addressed to:

Dr. Anita Molzahn, Director
School of Nursing, University of Victoria
Human and Social Development Building
P.O. Box 1700, Victoria, B.C. V8W 2Y2

The University of Victoria is an employment equity employer and encourages applications from women, persons with disabilities, visible minorities and aboriginal persons. In accordance with Canadian immigration requirements, the advertisement for Senior Instructors is directed to Canadian citizens and permanent residents. Others are encouraged to apply but are not eligible for appointment until a Canadian search is completed and no appointment made.

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University of Windsor School of Nursing

401 Sunset Avenue, Windsor, Ontario
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Information for Authors

The Canadian Journal of Nursing Research is a quarterly journal. Its primary mandate is to publish nursing research that develops basic knowledge for the discipline and examines the application of the knowledge in practice. It also accepts research related to education and history and welcomes methodological, theory and review papers that advance nursing science. Letters or commentaries about published articles are encouraged.

Procedure: Three double-spaced typewritten copies of the manuscript on 8½ x 11" paper are required. Articles may be written in French or English. Authors are requested not to put their name in the body of the text, which will be submitted for blind review. Only unpublished manuscripts are accepted. A written statement assigning copyright of the manuscript to *The Canadian Journal of Nursing Research* must accompany all submissions to the journal. Manuscripts are sent to: The Editor, *The Canadian Journal of Nursing Research*, McGill University, 3506 University Street, Montreal, Qc H3A 2A7.

Manuscripts

All manuscripts must follow the latest edition of the *Publication Manual of the American Psychological Association*. Research articles must follow the APA format for presentation of the literature review, research questions and hypotheses, method, and discussion. All articles must adhere to APA guidelines for references, tables and figures. Do not use footnotes.

Title page: This should include author(s) name, degrees, position, information on financial assistance, acknowledgements, requests for reprints, address, and present affiliation.

Abstract: Research articles must include a summary of 100-150 words containing information on the purpose, design, sample, findings, and implications. Theory and review papers must include a statement of the principal issue(s), the framework for analysis, and summary of the argument.

Text: The text should not exceed 15 double spaced typed pages. References, tables, and figures should follow the text.

References: The references are listed in alphabetical order, double spaced and placed immediately following text. Author names and journal citations must be spelled out in full.

Tables and Figures: Tables and figures should only appear when absolutely necessary. They must be self explanatory and summarize relevant information without duplicating the content of the text. Each table must include a short title, omit abbreviations and be typed on a separate page. Figures must be in camera-ready form.

Review process and publication information: *The Canadian Journal of Nursing Research* is a peer-reviewed journal. Manuscripts are submitted to two reviewers for blind review. The first author will be notified following the review process which takes 12 weeks to complete.

Electronic copy: Authors must provide satisfactory electronic files of the accepted final version of the manuscript.

Renseignements à l'intention des auteurs

La revue canadienne de recherche en sciences infirmières paraît quatre fois par année. Son mandat est de publier la recherche en sciences infirmières qui développe les connaissances de base dans la discipline et qui analyse la mise en pratique de ces connaissances. La revue accepte aussi des articles de recherche reliés à l'enseignement, l'histoire, et accueil des articles ayant trait à la méthodologie, la théorie, et l'analyse qui promouvoit le développement des sciences infirmières. Les soumissions de lettres et de commentaires sur des articles publiés sont aussi encouragées.

Modalités: Veuillez envoyer trois exemplaires de votre article dactylographié à double interligne sur des feuilles de papier de 216mm x 279mm. 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.

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Manuscrits

Tous les manuscrits doivent se conformer à la plus récente édition du *Publication Manual of the American Psychological Association*. Les articles de recherche doivent suivre les consignes énoncées dans le "APA" en guise de présentation de la littérature, des questions de recherche et d'hypothèses, de la méthode, et de la discussion. Tous les articles doivent obéir au manuel "APA" pour les références, les tableaux, et les schémas. N'employez pas de notes au bas de la page.

Page titre: Elle devrait inclure le nom, l'adresse et l'affiliation de l'auteur ou des auteurs, les diplômes obtenus, information sur l'aide financière obtenue, remerciements, demande de copies.

Résumé: Les articles de recherche doivent être accompagnés d'un résumé de 100 à 150 mots, incluant l'objet de la recherche, la conception, l'échantillon, les résultats et les implications. Les manuscrits de théories et de critiques doivent inclure une déclaration des arguments principaux, la structure d'analyse, et un résumé de la discussion.

Texte: La longueur acceptable d'un article n'excède plus que 15 pages. Les articles peuvent être rédigés soit en anglais, soit en français.

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