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GUEST EDITORIAL

Alternative Therapies and Symptom Management

Bonnie Stevens

Symptoms, from the perspective of the health professional, indicate that something is amiss. This "something" could simply be our body telling us that we require rest, nourishment, or fluid, or it could be a complex response from an etiology of known or unknown origin. As health professionals, we are compelled to investigate the nature of symptoms when they are presented to us, verbally or non-verbally, by those for whom we provide care. Based on our assessment, we can generate hypotheses that can be further investigated to determine the cause of the symptom. When it is of an objective nature, such as fever, we are able to measure it accurately in well-established measurement units (i.e., degrees) that correctly indicate the degree of severity. The severity of the symptom provides further information that will aid in the search for the cause of the underlying dilemma. However, when the symptom is of a subjective nature, such as pain, fear, or anxiety, accurate measurement can be a problem, particularly if the individual is unable or unwilling to provide an accurate verbal description. Because these subjective symptoms are all somewhat familiar, our assessment of them frequently is laden with personal opinions, beliefs, attitudes, and expectations about what will effectively eliminate them. Unfortunately we often bring these value-laden biases into new patient situations, thus influencing what we hear from and/or see in those we are caring for.

While we are attempting to assess symptoms in an accurate manner, we are also trying to "manage" the symptom using the safest and most efficacious intervention we can. But what do we really mean by "manage"? Ideally, we manage a symptom by instituting an intervention that will eliminate it and prevent its return, or, if this is not possible, by striving to provide a therapy that will relieve, reduce, ameliorate, or simply make whatever is amiss better. Based on this ideology, symptom management should be broad in scope, encompass all types of safe and effective therapies, and be based on the best and most current research evidence available. In reality, however, we frequently

settle for less than the ideal and resort to those interventions, strategies, or therapies that are familiar to us and appear to have worked in practice but may not have been rigorously researched. Unfortunately, as many therapies, particularly alternative therapies, do not have a firm base of evidence, we often indulge our biases in the selection of a particular therapy for symptom management.

The focus of this issue of the Journal is alternative therapies and symptom management. This focus may require some elaboration, so that our message is clear.

First, alternative therapy in this instance means *alternative to traditional management*. For example, in dealing with pain, the type of management traditionally employed involves the use of pharmacologic agents. Alternative therapies, therefore, are those that are not pharmacologic in nature, such as physical therapies (e.g., heat, ice, positioning), behavioural therapies (e.g., relaxation, sucking, music), and cognitive therapies (e.g., guided imagery, thought stopping, preoperative education). The past decade has witnessed increased public awareness and use of alternative therapies for symptom management, the most popular of which include acupuncture, reflexology, aromatherapy, massage therapy, music therapy, spiritual healing, and self-help approaches. Alternative therapies reportedly are used by 20% to 50% of persons in all sociodemographic groups in industrialized countries, with an estimated \$14 billion being spent on such therapies in the United States alone (Margo, 1999). A large number of publications are devoted to alternative therapies, medical and nursing schools are offering courses in them, and funding agencies are making funds available for the systematic investigation of their effects.

Second, alternative therapies and symptom management do not necessarily go hand in hand. We are not inferring that alternative therapies are the optimal, only, or most appropriate method of symptom management. Rather, we are striving to broaden the repertoire of strategies that health professionals consider when faced with the challenge of managing a particular symptom. All too often we rely on traditional therapies exclusively when alternative therapies may be effective either used alone or used in combination with traditional therapies to manage symptoms.

Third, the need for research evidence on which to base practice is the same for traditional and alternative therapies. Nursing research is needed to demonstrate a rational basis for patient care (Hinshaw, 1989). Therefore, nurses need to work within a framework of scientific verification, as opposed to a traditional base, that emphasizes intellectual over

practical knowledge (DiCenso, Cullum, & Ciliska, 1998). Alternative therapies require the same rigorous research as traditional therapies to ensure their safety and effectiveness and to understand their underlying mechanisms of action. This mandate has not historically been adhered to by health researchers and clinicians. Frequently the basis for implementation has been at best anecdotal evidence or the belief that a therapy is either inert or harmless. Therefore, therapies are frequently implemented without adequate evaluation of their effectiveness or safety.

Based on the need for rigorous research and further exploration of research and theoretical issues surrounding symptom management and alternative therapies, we have gathered five unique papers in this issue of *CJNR*. Three of these are research studies that report on the effectiveness of alternative therapies for symptom management in individuals ranging in age from neonates to the elderly. The Discourse addresses the important issue of correctly identifying and labelling the type of management implemented in relation to pain. The research methodology paper focuses on a particularly contentious underlying mechanism, placebo, and the research and theoretical implications for symptom management.

One of the studies focuses on neonatal stress and pain. This age group is particularly challenging for professional and parental caregivers, as we are denied the benefit of subjective report for determining both the severity of the symptom and the effectiveness of the therapy. Butt and Kisilevsky focus on the more global symptom of stress, using multiple physiologic and behavioural response indicators. They target heel lance for blood sampling, the most common and frequent procedure facing the preterm infant in the neonatal intensive care unit (NICU). The authors suggest that the challenge for the clinical researcher is to identify methods of modulating stress during necessary procedures, reducing the potentially negative influence on the preterm infant. They address the effect of a music intervention in reducing the stress associated with heel lance in preterm infants. They use music, which has the potential for use with all premature infants, to mask aversive environmental stimuli in the NICU or to soothe the infant by modulating behavioural state. The results of this study demonstrate that music modulates both physiological and behavioural responses in preterm infants of a particular gestational age following stress-provoking heel lance. These findings may have important implications for the care of preterm infants both in reducing the negative effects of stressful procedures and in promoting the conservation of energy for use in

development. They also add to a body of research evidence on stress reduction during a painful procedure, which is particularly sparse.

The other two research papers focus on the adult and, more specifically, the elderly adult. Watt-Watson, Stevens, Costello, Katz, and Reid were intrigued by the persistent issue of inadequate provision of analgesia for moderate to severe pain after coronary artery bypass graft (CABG) surgery. This study is particularly relevant because cardiovascular diseases are the major cause of death, disability, and illness in Canada and thus have a significant impact on our health-care system. Its purpose was to evaluate a preadmission education booklet with patients undergoing their first uncomplicated CABG. The positive effect of general preoperative patient education on postoperative outcomes has been clearly documented although the impact of perioperative cardiac education has been only minimally examined. A randomized controlled trial (RCT) was undertaken and eligible patients were randomly assigned to receive either a generic hospital booklet and video (control), the control intervention plus a pain booklet, or the control intervention plus a pain booklet and personal interview. Outcomes, including pain, analgesic administration, interference with activities, concerns about asking for help and taking analgesia, and patient satisfaction, were evaluated repeatedly following surgery. Results indicate that analgesic administration was inadequate for all groups despite unrelieved pain. However, patients receiving the interventions received significantly more analgesia than the control group and had fewer concerns about asking for help and taking analgesia. The authors conclude that the problem of post-surgical patients experiencing moderate to severe pain and receiving inadequate analgesia persists. However, changes were evident in the groups who received the interventions. This study clearly emphasizes the need for additional research in the area of post-operative pain management using alternative as well as traditional therapies.

The third study, by Wishart, Macerollo, Loney, King, Beaumont, Browne, and Roberts, evaluated a visiting / walking program for "at risk" elderly persons experiencing cognitive impairments while living at home. This Special Steps Program was designed to enhance quality of life for this group while decreasing the caregiving burden and enhancing quality of life for the caregiver by providing respite. In this RCT, all eligible clients were randomized to receive a volunteer Special Steps visitor as soon as possible (experimental group) or after 6 weeks (control). Outcomes, including patient and caregiver satisfaction, caregiver burden, health expenditures, and quality of life, were evaluated. The experimental group perceived less caregiver burden than the

control group. This study provides the first evidence to support the benefit of a walking program offered by volunteers in the home setting.

Overall, these three studies provide examples of the evaluation of a variety of alternative therapies for symptom management across the life span.

The Discourse in this issue of the Journal addresses the issue of how to describe pain-alleviating interventions that do not involve administration of a drug. Franck eloquently argues that there are extremely important reasons for "saying what we mean and meaning what we say" when we refer to these management interventions. Correct labelling of pain treatments ensures that the symptom is given the importance it deserves by those most competent to assess and manage it. Clear labelling also enhances our understanding of the underlying mechanisms of an intervention, thus minimizing the incorrect application of terms like "placebo." Franck states that we should also be more cognizant of the implied defeatism in such terms as "alleviating," "ameliorating," and "relieving" pain, as they suggest incomplete resolution of the problem. She challenges us to more positively say that we are treating to achieve pain prevention or elimination. Franck concludes by suggesting that if we do not resolve the semantic dilemma regarding pain and interventions to treat pain now, we can be guaranteed that the issue will surface again in the future. She invites discussion and the opportunity for interactive problem-solving around this issue.

Finally, in the methodologic section, Sidani and Stevens suggest that despite wide interest in alternative therapies and the accumulating empirical evidence supporting their effectiveness, some scholars view these therapies with scepticism. They tend to consider them as placebos. In this context, placebo refers to treatments, whether physiological, psychological, or psychophysiological, that are administered for their non-specific, psychological effects, to please or satisfy patients. The arguments for or against viewing alternative therapies as placebos are based on differences in professional paradigms and perspectives on what constitutes a placebo, and subsequently in the theory underlying the therapeutic effects of the treatment or intervention being evaluated. Thus what one professional considers as placebo another views as therapeutic intervention. Sidani and Stevens clarify two perspectives of placebo: the traditional and the alternative. They review the conceptualizations of placebo within each, and the mechanisms underlying the placebo effects. They also discuss the methodological implications of addressing the placebo effects in intervention evaluation research from

the two perspectives. Addressing these effects is essential to enhance the validity of the study conclusions.

In summary, this issue of the Journal provides a fresh look at some of the research, conceptual, methodologic, and practical issues generated around alternative therapies and symptom management. It has been a great pleasure for me to act as guest editor for this issue and I extend my thanks to the *CJNR* editor, Dr. Laurie Gotlieb, my former teacher and always friend and mentor, for giving me this opportunity. Only by bringing key clinical topics and research and theoretical issues to the forefront will we stimulate nurse researchers and clinicians to extend their intellectual curiosity and improve their practice.

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Discourse

Relieving Pain: What's in a Name?

Linda S. Franck

Several years ago I had a conversation with Leora Kuttner, child clinical psychologist and author of the seminal works *The Child in Pain* (Kuttner, 1996) and *No Fears, No Tears: Children Coping with Cancer* (Kuttner, 1986). This conversation changed my thinking and the way I speak about what it is that we do as clinicians to help people in pain. During our conversation, Dr. Kuttner challenged my use of the term "non-pharmacological" when referring to cognitive and behavioural interventions to relieve pain. She said the term indicated a bias towards pharmacological interventions and implied that cognitive and behavioural interventions were inferior.

Since that conversation, I have tried to be meticulous in my choice of words when describing interventions to relieve pain in infants and children. Although the language becomes cumbersome at times, I have tried to avoid the term "non-pharmacological" when I really mean behavioural and environmental interventions. I try to avoid implying that pharmacological interventions are the gold standard for pain relief and that we must choose one kind of intervention over the other. I have argued that environmental and behavioural strategies provide the foundational substrate for neonatal pain management to which pharmacological therapy is additive or synergistic (Franck & Lawhon, 1998).

The Pain Name Game

Nevertheless, I must confess that I am still plagued by the issue of how to describe pain-alleviating interventions that do not involve administration of a drug. Recently, my colleagues and I collaborated on a research project to test the efficacy and safety of three such interventions for preterm newborn infants undergoing painful procedures:

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(a) a pacifier dipped in water (non-nutritive sucking), (b) a pacifier dipped in a 24% sucrose solution, and (c) prone positioning. My inclination was to categorize these interventions as “comfort measures” as they were intended to provide comfort during the painful event. However, during the research I received comments from nursing and medical colleagues that the term “comfort” did not sound as if it would be very effective in relieving *true pain*, nor did it suggest the need for a qualified health-care provider to administer these interventions. We could have labelled the interventions “analgesic,” which would have fitted logically with our theoretical model and hypothesis — that these interventions alter pain transmission patterns and pain responses. However, I received feedback from clinical colleagues that the term implied a pharmacological effect and therefore, to avoid confusion, should not be used when describing other types of interventions. This view was corroborated by the Oxford English dictionary (Pearsall & Hanks, 1998), which defines analgesia as “medication that acts to relieve pain,” although adding that the word originates from the Greek term for “painlessness.”

An informal poll of clinicians further revealed that the term “pain-alleviating interventions” was too benign and the terms “anti-nociceptive” and “anti-algic” too esoteric. Further browsing through the dictionary revealed that the words “alleviating” and “relieving” can be used interchangeably, as both refer to the lessening of pain severity but, importantly, imply that pain is not completely prevented, only reduced. “Ameliorating” is defined as making a bad thing better and “control” is defined as limiting or regulating. However, when either word is coupled with the word “pain” it still leaves unanswered the question of whether or not complete absence of pain is possible or intended. Thus our use of these terms may reveal a bias that pain cannot (or should not) be eliminated. Why are terms such as “pain elimination” and “pain prevention” not more commonly used, especially as advances in pain treatment have made complete pain relief a possibility, if not a reality?

The Semantic Legacy of Pain

Our ambivalence and uncertainty over the centuries regarding the nature and meaning of pain as an entity have received much attention (for reviews, see Caton, 1994; Pernick, 1985; Scarry, 1985). Essays by scholars and clinicians in a recent issue of the journal *Pain Forum* (8[2], 1999) eloquently highlight some of the historical and current biases that impede a common definition of pain. The essays focus our attention on the clinical and ethical implications for populations who cannot com-

municate their pain through language, such as newborn infants. However, although they highlight how the definition of pain influences pain treatment and research, all of the references to pain treatment are specific to pharmacological methods alone (Anand, Rovnaghi, Walden, & Churchill, 1999; Kopelman, 1999; Rollin, 1999). The omission in the debate of any mention of the myriad pain treatments that do not involve the use of medication is, I believe, revealing of pharmacological idolatry in the field of pain.

The late John Liebeskind, who has contributed so much to our scientific and human understanding of pain, proposes that ethical problems and mismanagement of pain often derive from semantic problems and that convenient terms such as "pain stimulus" and "pain response" can be misleading. He states: "We may study nociception *in vitro* by recording from the frog's isolated sciatic nerve. However, if there is pain anywhere in the situation, it is not in the dish but in the garbage pail with the frog!" (Liebeskind, 1991). He and others (e.g., Cassell, 1982; Sullivan, 1995) caution against the tendency to categorize pain as having a psychological or physical origin, reminding us that all pain is "indivisibly a psychobiological unity." These authors warn that the dualistic mind/body categorization of pain leads clinicians to either ignore important psychological aspects of pain or over-emphasize them to the exclusion of important somatic aspects.

Where Is Nursing?

From a philosophical and theoretical perspective, nursing has purposefully avoided reducing the phenomenon of pain to a physical or psychological state. Instead, nurse scholars have sought to explicate the broader and more inclusive term "suffering" (Kahn & Steeves, 1986; Lisson, 1987) and to highlight the implications of the social concept of pain and suffering for particularly vulnerable patient groups such as newborn infants (e.g., Franck, 1997). Professional groups such as the American Nurses Association [ANA] (1985) specifically address the rights of patients and the responsibilities of nurses in the alleviation of suffering. Nevertheless, as much as we pride ourselves on our avoidance of the dualistic mind/body trap, with respect to pain treatment our professional literature reflects the physical/psychological dualism and the pharmacological idolatry in the field of pain. Close inspection of the nursing literature reveals the predominance of pharmacological interventions for pain management. In fact, a CINAHL search of the key words "pain" and "management," "treatment," "interventions," "relief," "reduction," "control," and "therapy" yielded no mapping to

subject headings other than analgesics or drug therapy (curiously, "pain relief" yielded a link to a subheading of electrical stimulation). It is an interesting commentary that the very pain interventions that in large part are under the autonomous control of nursing receive the least attention in the nursing literature.

Several statements by nursing regulatory bodies further illustrate that, despite the rhetoric about holistic nursing, pharmacological management of pain explains the dominance of medication-focused nursing literature, rather than cognitive, behavioural, or environmental interventions. For example, the ANA (1992) Position Statement on Promotion of Comfort and Relief of Pain in Dying Patients focuses almost exclusively on the use of medications. Furthermore, the California Board of Registered Nurses (1994) Pain Management Policy refers briefly to non-drug interventions to "assist in pain alleviation" following an extensive discussion of pharmacological management. Neither of these documents mentions the nurse's independent role in implementing interventions to treat pain. A recent issue of the *Annual Review of Nursing Research* (17, 1999) summarizes and critiques the literature on interventions such as guided imagery and music therapy for the treatment of pain. However, few conclusions about the efficacy of these treatments could be drawn because there were so few studies and many lacked adequate design and outcome measures to provide meaningful conclusions.

One may argue that the controversy regarding the nurse's role in pharmacological management is the impetus behind documents such as these. I would argue that the controversy reveals our own biases with regard to the hierarchy of pain-alleviation strategies. Furthermore, the lack of attention to interventions other than medication has implications for our management of other symptoms experienced by patients. The use of a pharmacological reference point (as in the term "complementary therapies") and the use of pejorative or minimizing terms (such as "alternative" or "adjunctive" treatment) reveal biases and consequences similar to those seen in the treatment of pain.

Invisible Interventions

Most revealing of our bias towards the pharmacological gold standard for pain relief is the lack of documentation of pain-relieving interventions other than analgesics in the patient's medical record. Across all patient populations and settings, one can find a consistent and conspicuous absence of documentation regarding nursing interventions that provide physical, psychological, emotional, social, or spiritual comfort

for patients in pain. This failure to accurately document the full range of patient-care interventions can be explained and condoned only if the prevailing view is that these strategies are unimportant and harmless. This assumption is in stark contrast to how pharmacological interventions are viewed: a nurse's failure to document medications administered to relieve pain is considered negligent and could result in disciplinary action. In many settings, there is not even a designated area in the nursing record for adequate documentation of pain-relieving interventions other than medications.

What does this practice indicate to the patient and to other professionals about the value we place on non-drug interventions? Does it indicate that we believe these measures are ineffective, incidental, and not worthy of notation? At the very least, the lack of adequate documentation by nurses and other health professionals on the full range of interventions implemented for pain inhibits the advancement of the science of pain. This omission fails to make explicit important interventions that may have main effects as well as interactions with the pain interventions under investigation. How many clinical drug trials of analgesics are erroneous in their conclusions because of failure to account for a systematic bias in the application of physical, psychological, emotional, spiritual, or social interventions by nurses or the patients themselves? These interventions may wholly or partially explain the changes observed after drug treatment but were not accounted for because they were not deemed important enough to document or control for in the study design and methods.

Speaking Plainly About Pain for Everyone's Gain

Perhaps the way forward is to simply try to adhere to the adage "say what you mean and mean what you say." For example, when we mean that we intend to eliminate an infant's pain by physical manipulation of the infant's position or activation of the suck reflex, we should label these interventions what they are, physical pain treatments. When we intervene to alter a person's cognitive interpretation of a painful event or their emotive response to a painful stimulus, we should label these interventions specifically as cognitive or emotional pain treatment. Where the physiological mechanism of action of the intervention is understood (i.e., many cognitive and distraction techniques activate attentional and arousal systems [Bushnell, Duncan, & Dubner, 1985; Miron, Duncan, & Bushnell, 1989]), perhaps a mechanistic term such as "anti-algic" should be used. As Sidani and Stevens suggest in their methodological paper on placebo and placebo effects (in this volume),

clear understanding of the underlying mechanism of an intervention minimizes the misapplication of terms such as "placebo."

We should emphatically avoid terms that imply the qualifications necessary to implement an intervention, such as "medical intervention" or "nursing intervention." Perhaps "comfort" is too generic a term, one that will always imply an intervention of limited value that can be attempted by any kindly lay person. We should also be more cognizant of the implied defeatism in such terms as "alleviating," "ameliorating," and "relieving" pain, as they suggest an incomplete redress. We should more positively suggest we are treating to achieve pain prevention or pain elimination.

However we resolve the semantic dilemma regarding pain and interventions to treat pain for the present, we can be guaranteed that the issue will surface again in the future. We must acknowledge that the language of pain, like the experience of pain, has a high degree of plasticity. The terms we use to describe pain will evolve over time to reflect the social and scientific conceptions of cultural groups at any specific point, with acknowledgement of historical ways of thinking. However, we must strive to continually make these conceptions explicit, so that the assumptions will be instructive and not simply a source of bias.

Lastly, the slogan "make pain visible" has been the hallmark of education and intervention related to pain for the past decade (Max, 1990). Nurses would do well to take on this slogan with respect to pain interventions so that pharmacological interventions do not dominate the literature and the consciousness of clinicians and patients alike. Only by making the complete range of pain interventions performed by nurses more visible will we achieve an adequate understanding of the efficacy and mechanisms of pain relief.

I am grateful for Dr. Kuttner's probing of the meaning behind my words when I was discussing pain interventions with her. I hope that this discussion will prompt further questioning and probing regarding the power of our words to promote or obstruct effective research and patient care.

Postscript

The reader may wish to know that we settled on the term "developmentally sensitive interventions" for our study of pacifiers, pacifiers and sucrose, and positioning (Stevens et al., 1999). I am not entirely satisfied that this description captures the essence of the interventions and

I continue the search for a more useful descriptor. I welcome your comments and suggestions to stimulate further discourse on this issue.

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Author's Note

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Music Modulates Behaviour of Premature Infants Following Heel Lance

Michelle L. Butt and Barbara S. Kisilevsky

Les effets physiologiques et comportementaux de la musique pendant le rétablissement suivant un prélèvement par microméthode ont été étudiés chez 14 enfants prématurés, nés 29 à 36 semaines après conception. Des tests ont été effectués dans le cadre de deux situations contrôles : avec musique et sans musique. Chaque situation a été enregistrée sur vidéocassette : avant l'intervention, pendant l'intervention et en période de rétablissement. Pour l'analyse de données, les enfants ont été divisés en deux catégories d'âges : moins de 31 semaines et plus de 31 semaines après conception. Des modèles mixtes d'analyse de variances ont démontré que le prélèvement par microméthode provoquait une réaction de stress (c.-à-d. une augmentation du rythme cardiaque, une diminution de la saturation en oxygène, une augmentation de l'état d'éveil et une augmentation des mouvements faciaux indiquant un état de douleur) chez les deux groupes d'âge. La réaction de stress était plus forte chez les enfants plus âgés. Au cours de la période de rétablissement, le groupe plus âgé a démontré un rythme de rétablissement plus rapide quant au rythme cardiaque, à l'état comportemental et aux expressions faciales de douleur lorsqu'il y a une utilisation de la musique. La conclusion est que la musique constitue un outil d'intervention efficace pour l'unité néonatale des soins intensifs, à la suite d'un stimulus générateur de stress chez les enfants âgés de plus de 31 semaines après conception.

The physiological and behavioural effects of music during recovery from heel lance were examined in 14 preterm infants at 29 to 36 weeks post-conceptual age (PCA). Infants were tested on 2 occasions: during a music condition and during a no-music control condition. Each condition was videotaped during 3 periods: baseline, heel lance, and recovery. Infants were divided into 2 age groups for data analyses: less than and greater than 31 weeks PCA. Mixed model ANOVAs showed that heel lance elicited a stress response (i.e., increased heart rate, decreased oxygen saturation, increased state-of-arousal, and increased facial actions indicative of pain) in both age groups. The stress response was greater in the older group. During recovery, the older group had a more rapid return of heart rate, behavioural state, and facial expressions of pain to baseline levels in the presence of compared to the absence of music. It was concluded that music is an effective NICU intervention following a stress-provoking stimulus in infants older than 31 weeks PCA.

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Advances in medical technology have made survival possible for premature infants of low gestational age and very low birth weight. However, follow-up studies indicate that developmental outcome is often problematic, with 40 to 50% of these infants having major or minor cognitive and/or motor deficits by 5 to 8 years of age (Hack et al., 1993; McCormick, Brooks-Gunn, Workman-Daniels, Turner, & Peckham, 1992; Saigal, Feeny, et al. 1994; Saigal, Rosenbaum, et al., 1994; Saigal, Rosenbaum, Szatmari, & Campbell, 1991). In an attempt to attain more optimal long-term outcomes, the concept of developmentally sensitive care (Als, 1992; Als et al., 1986, 1994) has been introduced into neonatal intensive care units (NICUs). It has resulted in a shift in the focus of care from survival to optimal development, with researchers examining modifications of the environment (e.g., light, sound) and necessary caretaking procedures (e.g., bathing, heel lance) to reduce the stimulation/stress that infants experience in the NICU during their first few weeks or months of life (e.g., Becker, Grunwald, Moorman, & Stuhr, 1991, 1993; Stevens, Petryshen, Hawkins, Smith, & Taylor, 1996; also see review by Oehler, 1993). Towards this end, we examined the effect of a music intervention in reducing the stress associated with a heel lance in premature infants from 29 to 36 weeks post-conceptual age (PCA).

Health professionals in modern NICUs provide highly technological and intensive caregiving to premature infants. Although the care is designed to sustain life and promote growth, researchers (Field, 1990; Peters, 1992, 1998) report a stress response to medical and nursing procedures (Craig, Whitfield, Grunau, Linton, & Hadjistavropoulos, 1993; Fearon, Kisilevsky, Hains, Muir, & Tranmer, 1997; Fitzgerald & Anand, 1993; Grunau & Craig, 1987; Gunnar, Malone, Vance, & Fisch, 1985; Johnston, Stevens, Craig, & Grunau, 1993) and suggest that sophisticated care and the NICU environment are stressful to the preterm infant. Indeed, Peters (1992, 1998) has demonstrated that most NICU environmental stimuli and nursing procedures can result, to a greater or lesser extent, in a stress response.

The concept of stress is defined by Selye (1976) as a biologic response of the body to any demand. Stress can result in the infant exhibiting generalized stereotypic behaviour (i.e., a stress response), including increased heart rate and decreased oxygen saturation. As well, a stress response may include increased intracranial pressure (Field, 1990; Long, Lucey, & Philip, 1980; Peters, 1992), increased facial muscular actions indicative of pain (Craig et al., 1993; Grunau & Craig, 1987; Johnston et al., 1993), increased plasma cortisol levels (Gunnar et al., 1985), and disturbed sleep/wake patterns (Fitzgerald & Anand,

1993). Many studies with newborn or premature infants have focused on issues related to pain (e.g., Johnston, Sherrard, et al., 1999; Johnston & Stevens, 1996; Porter, Wolf, & Miller, 1998, 1999) or interventions to reduce pain (e.g., Johnston, Stremler, Horton, & Friedman, 1999; Stevens et al., 1999). However, pain constitutes only one component of stress. Although both pain and stress have been shown to induce similar physiologic and behavioural responses (e.g., see review by Porter, Grunau, & Anand, 1999), the present study focuses on the more global concept of stress, using multiple response measures including heart rate, oxygen saturation, and behavioural state as well as facial expressions of pain.

Infants in an NICU commonly undergo caretaking routines such as weighing, diapering, and bathing as well as invasive procedures such as subcutaneous or intramuscular injection, intravenous catheter insertion, or heel lance for blood sampling. Werner and Conway (1990) found that infants underwent an average of 58.6 contacts in less than 20 hours. In a study of nursing caretaking routines, Peters (1992) found that infants received 120 to 245 contacts per 24 hours. With regard to invasive procedures, Barker and Rutter (1995) found that 54 infants underwent more than 3,000 invasive procedures between admission and discharge; heel lance for blood sampling was the most common procedure (56%).

Both caretaking and invasive procedures elicit a stress response; infants display crying, increased heart rate, increased body movement, and specific facial indications of pain (Craig et al., 1993; Fitzgerald & Anand, 1993; Johnston et al., 1993). These physiological and behavioural responses result in increased demands on the cardiovascular and muscular systems of the premature infant, which may, in turn, result in an increased amount of energy expenditure necessary to cope with the procedures and a decreased amount of energy available for growth and development. In addition, repeated episodes of increased cortisol levels from a stress response may weaken the infant's immunological status and increase susceptibility to infection (Gunnar, 1989). Many of the stressors to which the premature infant is exposed, such as heel lance for blood sampling, cannot be eliminated. The challenge for the clinical researcher is to identify methods (i.e., interventions) of modulating stress during necessary procedures, thus reducing the potentially negative influence on growth and development. A number of interventions to reduce infant stress have been studied, from sophisticated programs that manipulate multiple factors in the environment and infant caretaking such as developmentally sensitive care (Als, 1992), to simple procedures such as the administration of oral sucrose (e.g., Barr et al.,

1994), swaddling (e.g., Fearon et al., 1997), and music (e.g., Standley, 1998; Standley & Moore, 1995). We have chosen to examine music because it is the least invasive intervention and, theoretically, can be used with all infants.

As noted, interventions may be global or specific. Global interventions do not target a specific stressor but rather target the general environment or infant state-of-arousal — for example, developmentally sensitive care (Als, 1992; Als et al., 1994) or skin-to-skin contact (Anderson, 1991; Ludington, 1990; Ludington-Hoe & Swinth, 1996; Ludington-Hoe, Thompson, Swinth, Hadeed, & Anderson, 1994). Music, which has the potential for use with all premature infants, has been used most often as a global intervention to mask aversive environmental stimuli in the NICU (e.g., Standley, 1998; Standley & Moore, 1995) or to soothe infants by modulating behavioural state (Burke, Walsh, Oehler, & Gingras, 1995; Caine, 1991; Collins & Kuck, 1991; Kaminski & Hall, 1996). Generally, exposing infants to music results in increased oxygen saturation (Standley & Moore), decreased agitation and time spent in high-arousal states (Collins & Kuck; Kaminski & Hall), and increased average weight gain (Caine). For example, Caine observed 52 preterm and low-birth-weight newborns in the NICU. Infants in an experimental group received 90 minutes of music stimulation (vocal music, including lullabies and children's music) alternating 30 minutes on with 30 minutes off over a 3-hour period daily from the 4th day after birth until discharge. Infants in the control group received non-contingent auditory stimulation occurring in the NICU environment. In comparison with the control group, the music group had significantly reduced initial weight loss, increased average daily weight, increased formula and caloric intake, and reduced length of NICU stay and total hospital stay. Similarly, Standley and Moore played lullabies through earphones to a total of 20 low-birth-weight infants for 20 minutes on 3 consecutive days. Infants exposed to the music had higher oxygen saturation levels on day 1 but not on days 2 or 3. On days 2 and 3 the infants had depressed oxygen saturation levels when the music was terminated. Subsequently, Standley paired music with a multimodal stimulation provided for 15 to 30 minutes once or twice per week in a group of NICU infants (20 experimental, 20 control) referred for developmental stimulation. Music paired with multimodal stimulation decreased days to discharge for females and increased weight gain/day for both genders. Taken together, these results indicate that music in the environment facilitates growth and development. The mechanism(s) by which music improves outcomes has yet to be identified.

Specific interventions target a particular stressor and focus on modulating the stress response (e.g., heel lance for blood sampling; Fearon et al., 1997 — swaddling; Johnston, Stremler, et al., 1999 — sucrose; Stevens et al., 1999 — EMLA). Only one study (Burke et al., 1995) examining the effectiveness of music following a specific stress-provoking stimulus (i.e., suctioning) was found. Over a 3-month period, Burke et al. studied four preterm infants who required continuous oxygen for respiratory distress. Following endotracheal suctioning, each infant received a total of 18 trials of either: (a) music played for 15 minutes through a Somatron mattress (vibroacoustic condition), (b) music played through a tape player placed at the foot of the crib (acoustic condition), or (c) normal NICU environment (control condition). In comparison to control trials, all four infants experienced a reduction in level of arousal during both experimental music conditions. Also, during the acoustic trials, infants spent more time sleeping compared to the vibroacoustic and control trials. During vibroacoustic trials, three of the four infants spent an increased amount of time in a quiet alert state and had improved oxygen saturation levels. Because the study included only four subjects, the results are more suggestive than conclusive and the present study was designed to further examine the effects of music following a stressor.

Heel lance was chosen as the stressor because this procedure is carried out frequently. A lullaby was chosen as the music because lullabies have been shown to soothe newborn infants (Kaminski & Hall, 1996). Also, because female vocal and instrumental music had been used effectively in other studies, both types of music were included, to determine differential responding.

The following questions were addressed: (1) Does music modulate the physiological and/or behavioural responses of preterm infants when it is played immediately following a stress-provoking event? (2) Are there differences in physiological and/or behavioural responses to music as a function of the type of music played — female vocal compared to instrumental music? (3) Are there differences in physiological and/or behavioural responses to music as a function of PCA? Because the use of music as a global intervention has been shown to decrease the level of agitation and time spent in high-arousal states, we hypothesized that music would have a soothing effect following heel lance — decreasing heart rate, increasing oxygen saturation, facilitating decreased levels of arousal, and reducing facial indications of pain.

Table 1 *Delivery Outcome and Health Status Data of Participants*

Infant	Sex	GA at Birth	Birth Weight	PCA (testing 1)	Weight (testing 1)	Apgar (1 min/ 5 min)	Respiratory Status (testing 1)	Single/Multiple Pregnancy
01	F	31:4	1338g	33:2	1394g	7/9	Room air	Singleton
04	M	32:5	2280g	33:0	—	9/9	Ventilator	Singleton
05	M	29:5	1782g	30:1	1581g	8/9	Ventilator	Singleton
06	M	28:4	1242g	29:5	1117g	7/8	Room air	Singleton
07	F	31:5	1718g	35:2	2160g	5/8	Room air	Singleton
08	M	28:6	590g	30:5	578g	2/7	Ventilator	Singleton
10	F	34:0	1800g	34:2	1754g	6/9	Room air	Singleton
11	F	28:3	1188g	29:6	1143g	5/9	Room air	Twin B
12	M	28:3	1500g	29:6	—	3/1/4	Ventilator	Twin A
13	M	32:0	1459g	32:3	1360g	7/8	Room air	Singleton
18	F	35:6	1589g	36:2	1525g	6/9	Room air	Twin B
20	F	33:1	1741g	33:5	1626g	6/7	Room air	Singleton
24	M	33:6	2195g	34:2	2160g	8/8	Room air	Singleton
28	M	29:5	1219g	30:5	1152g	9/9	CPAP	Singleton

Method

Participants

Sixteen preterm infants were recruited from the NICU of a community teaching hospital in southern Ontario for testing on two occasions. The data for two infants were excluded from analyses because the infants and monitors were obscured and the tapes could not be scored. Table 1 shows the demographic data and health status for the 14 infants included in the analyses. Inclusion criteria were: (1) PCA 29 to 36 weeks, (2) resident in NICU for at least 24 hours, (3) no major congenital anomalies, (4) no history of grade IV intraventricular hemorrhage, (5) no evidence of acute sepsis, (6) not currently receiving paralytic medications or paralytic medications discontinued for at least 24 hours, (7) scheduled to have blood work, and, (8) identified by the staff neonatologist as medically stable. Sample size for this exploratory study was determined from previous perceptual studies in our laboratory (e.g., Easterbrook, Kisilevsky, Hains, & Muir, 1999; Fearon et al., 1997), which clearly demonstrate that data from six infants are sufficient for studies that use experimental and control conditions. The study was conducted with the approval of the University and Affiliated Teaching Hospitals Research Ethics Board. A parent of each infant provided informed written consent prior to participation.

Nursery Environment

The study was conducted in an NICU environment that encompassed Level I to Level III neonatal care. The environment was highly technological, with cardiac monitors at each infant's bedside, environmentally controlled incubators serving as cribs, and computerized pumps for intravenous fluid infusions. Each infant was monitored 24 hours a day by a registered nurse at the bedside. Nursing and medical interventions, including invasive interventions such as heel lance for blood sampling, occurred throughout the 24-hour period.

Although neither consistent nor universal, some aspects of developmentally sensitive care such as covering of incubators to reduce light, nesting of the infant, and lowering of noise levels through limiting loud conversation at the bedside were being implemented by some nursing staff. Noise levels in the NICU varied throughout the day and with activity level. NICU ambient noise levels were measured (average of 3 readings each time) at intervals of 2 to 3 weeks at various times of day during the data-collection period. The average sound level in the NICU ranged from 72 dB during the day to 67 dB during the night or early

morning hours. Music was occasionally but not consistently played by staff nurses and some infants had cassette recorders placed in their isolettes. No infant was noted to have music playing in his/her isolette or cot immediately prior to testing.

Stimuli / Equipment / Instruments

The music stimuli included two 10-minute recordings of Brahms' Lullaby (Op. 49, No. 4; key D flat major) generated for this study — an a cappella version sung by a professional vocalist and a piano version played by a professional pianist. The two lullabies were recorded using the same score and the tempo was kept consistent. The music was played on a Sony cassette player (Model WM-FS400) with a Dolby B Noise Reduction System at an average of 76 dB sound pressure level (SPL). All SPLs were measured using the A-Scale of a Bruel and Kjaer Sound Pressure Level Meter (Type 2235). Music stimuli were delivered through two speakers (Sony Active Speaker System — Model SRS-PC21).

Two closed-circuit video systems (one Quasar and one Hitachi) mounted on a dual-mount tripod were used to videotape the infant and the bedside monitors during testing. A stopwatch was used for timing music/no-music periods.

Brazelton's categories of state-of-arousal (Brazelton, 1973) were modified to determine behavioural state. Brazelton's state 1 — quiet sleep — and state 2 — active sleep — were combined to give one state score — sleep. The two sleep states were combined because regular and irregular respiratory patterns were often difficult to differentiate and could not be identified for infants on ventilators. The modification resulted in a scale of 1 to 5, with increasing numbers representing higher states of arousal (e.g., 1 = sleep, 5 = crying).

The Neonatal Facial Coding System (NFCS; Grunau & Craig, 1987) was used to code facial expressions to determine a pain response. The NFCS has good reliability (Craig et al., 1993) and has been shown to be a valid measure of infant pain following invasive medical procedures in both full-term and preterm infants (Craig et al.; Grunau & Craig; Johnston et al., 1993).

Procedure

The study design is displayed in Figure 1. All infants were tested under two conditions — music and no-music control — on two separate occa-

sions — time 1 (T1) and time 2 (T2). Type of music and stimulus/control condition were randomly assigned within each pair of adjacent infants. At each time, infants were videotaped for 10 minutes prior to heel lance, during the heel lance procedure, which lasted from 4 to 13 minutes, and for 10 minutes after the heel lance (with or without music). Type of music — vocal or instrumental — was also counterbalanced over the infants.

Figure 1 Study Design

Randomly Assigned for the First of Each Pair					
Time 1				Time 2	
Intervention ^a				Control	
Vocal Music (n = 7)		Instrumental Music (n = 7)		No Music (n = 14) ^b	
PCA <31 weeks	PCA >31 weeks	PCA <31 weeks	PCA >31 weeks	PCA <31 weeks	PCA >31 weeks
Observe → (10 min)		Heel Lance → (4–13 min)		Observe → (10 min)	Heel Lance → (4–13 min)
		Music (vocal or instrumental) (10 min)			Observe → (10 min)
^a Vocal or instrumental music were randomly assigned within each pair.					
^b Each of the 14 participants was videotaped in an intervention and a control condition.					

Participants were videotaped in their isolette and the timing of the study coincided with regularly scheduled blood work. One camera recorded the infant to obtain body movements and facial expressions while a second camera, synchronized with the first, recorded the bedside monitor to obtain heart rate, respiratory rate, and oxygen saturation. The cassette recorder and the speakers were positioned in the same manner for music and control conditions: the recorder outside the isolette; the speakers inside the isolette just below the infant's feet, approximately 40 cm from the ears.

Behavioural state-of-arousal was scored at 1-second intervals according to the following scale: 1 = Sleep, 2 = Drowsy, 3 = Quiet Awake, 4 = Active Awake, and 5 = Crying. Subsequently, the predominant state-of-arousal in each successive 15-second interval was determined. Using the NFCS, the presence or absence of each facial action

indicative of pain was scored for each 15-second interval. A facial-expression-of-pain score was calculated by summing the number of facial actions in each interval, with scores ranging from 0 to 9 (Grunau, Johnston, & Craig, 1990). In this study, a score of 2 typically represented an open, stretched mouth, suggesting minimal pain, and a score of 6 typically represented an open, horizontally stretched mouth, tightly squeezed eyes, bulging brow, deepened naso-labial furrow, and a taut tongue, indicative of a high level of pain.

Heart rate and oxygen saturation were recorded from the bedside monitor at 5-second intervals. A 5-second interval was used because it was the smallest time interval that closely reflected the continuous and constantly changing recording displayed on the monitor.

To assess inter-rater reliability, six of the 28 videotaped sessions (21.4%) were randomly selected and independently coded for state-of-arousal and facial expressions of pain by a second trained observer. Percentage of agreement between the experimenter and the observer for state-of-arousal was 78%. Pearson's correlation coefficient for facial expressions of pain was $r = .77, p < .01$.

Data Reduction

One-minute means for each of the dependent measures (heart rate, oxygen saturation, behavioural state-of-arousal, and facial expressions of pain) were calculated separately by summing 12 5-second readings for heart rate and oxygen saturation and summing four 15-second readings for behavioural state-of-arousal and facial expressions of pain. Next, a mean for the first 5 minutes of the baseline period was calculated for each of heart rate, oxygen saturation, behavioural state, and facial pain measures, to serve as a baseline. This mean was subtracted from each of the subsequent 1-minute scores for the baseline period (a total of 5 minutes), the heel lance period (1 minute prior to heel lance, the minute the heel lance occurred, and 2 minutes immediately following heel lance), and the recovery period (10 minutes). These 19 1-minute difference scores were used in all further data analyses. Since the length of the heel lance period varied with the infant, only that period of time in which data were available for all infants (a total of 4 minutes) was used, to allow for the inclusion of all infants in the analyses. The analyses of each of the dependent measures are presented by period — baseline period (5 minutes), heel lance period (4 minutes), and recovery period (10 minutes).

Results

Initially a 3-way ANOVA with one between-factor (Music Type — Vocal, Instrumental) and two within-factors (Condition — Music, Control; Time — 1–10 minutes) was used to determine whether the type of music elicited a differential response in any of the dependent measures (heart rate, oxygen saturation, behavioural state, or facial expression of pain) during the recovery period. No significant main effects or interactions of Music Type were found in any of the dependent measures except behavioural state. Thus Music Type was eliminated from further analyses of heart rate, oxygen saturation, and facial expression of pain, but was included in behavioural state analyses.

For data analyses, infants were divided into two age groups, according to PCA at the time of initial testing. Infants in the younger age group ($n = 6$) ranged in PCA from 29 weeks, 5 days, to 30 weeks, 5 days ($M = 30.2$ weeks, $SD = 0.4$ weeks). The infants in the older age group ($n = 8$) ranged in PCA from 32 weeks, 3 days, to 36 weeks, 2 days ($M = 34.0$ weeks, $SD = 1.3$ weeks). The chronological ages of the two groups at time of first testing were 3 to 13 days ($M = 8.5$ days, $SD = 3.4$ days) and 2 to 25 days ($M = 6.8$ days, $SD = 8.1$ days), respectively.

Overall Analyses

The data for each of the dependent measures were analyzed using ANOVA, with one between factor (Age — younger group < 31 weeks PCA; older group > 31 weeks PCA) and two within factors (Condition — Music, No-Music; Time — 1–19 min.).

The heart rate changes over periods are displayed in Figure 2. The overall ANOVA revealed a significant effect of Time, $F(18, 216) = 13.850$, $p < .01$, as well as Condition by Age, $F(1, 12) = 8.277$, $p < .05$, and Time by Age, $F(18, 216) = 4.831$, $p < .01$, interactions.

For oxygen saturation only a significant main effect of Time, $F(1, 18) = 17.844$, $p < .01$, was found. For all groups, there was a decrease in oxygen saturation during the heel lance period, which returned to baseline level in the recovery period.

Changes in behavioural state scores are shown in Figure 3. An overall analysis of using a 4-way ANOVA with two between (Age — two levels; Music Type — Vocal, Instrumental) and two within factors (Condition — Music, No-Music; Time — 1–19 min.) revealed a main effect of Time, $F(1, 18) = 9.925$, $p < .01$, and Age by Time, $F(1, 18) = 5.351$, $p < .01$, Music Type by Time, $F(1, 18) = 2.092$, $p < .05$, and Age by Music Type by Time, $F(1, 18) = 1.671$, $p < .05$, interactions.

The data for *facial expression of pain* scores are displayed in Figure 4. The overall ANOVA revealed a significant main effect of Age, $F(1, 11) = 6.420, p < .05$, and Time, $F(1, 18) = 21.221, p < .01$, which was qualified by an Age by Time, $F(1, 18) = 8.528, p < .01$, interaction.

Analysis of Each Variable Over Periods

Because Time was significant in all of these analyses, the data for the baseline, heel lance, and post-heel lance periods were examined separately using a 2 between (Age, Condition), 1 within (Time) ANOVA. Post-hoc analyses to explain interactions within periods are included as necessary.

Baseline period. The differences found in the baseline period were confined to *heart rate*, where the older infants were found to have more variability shown by the Condition by Time by Age interaction, $F(4, 48) = 3.146, p < .05$, and *facial expression of pain*, where there was a significant main effect of Time, $F(4, 44) = 3.699, p < .05$. Figure 4 shows that there was increased variability in the pain scores in the older age group.

Heel lance period. Infants showed responses to the heel lance in all measures. For *heart rate*, as seen in Figure 2, the older infants showed a greater increase than the younger infants $F(1, 12) = 49.169, p < .01$. There was also a main effect of Time, $F(3, 36) = 7.901, p < .01$, indicating that heart rate increased following heel lance. *Oxygen saturation* decreased during the heel lance period, $F(3, 36) = 14.455, p < .01$, for both age groups. *Behavioural state* changes are shown in Figure 3. For the vocal music, the older infants responded to the heel lance with more arousal than the younger infants (Age by Time interaction, $F(3, 15) = 34.449, p < .01$). Significant main effects of Age, $F(1, 5) = 329.551, p < .01$, and Time, $F(3, 15) = 87.699, p < .01$, were also present. For the instrumental music, there was a significant main effect of Time, $F(3, 15) = 14.845, p < .01$, but no age effect. During heel lance, *facial expression of pain* scores increased for both age groups, with the older infants exhibiting more expressions of pain than the younger infants, $F(3, 33) = 13.424, p < .01$. Main effects of Time, $F(3, 33) = 29.911, p < .01$, and Age, $F(1, 11) = 22.431, p < .01$, were also present.

Recovery period. For *heart rate*, significant Condition by Age, $F(1, 12) = 9.545, p < .05$, and Time by Age, $F(9, 108) = 2.163, p < .05$, interactions were found. To sort out the interactions, the data for the first and the second 5 minutes of the intervention period were examined separately. In the first 5 minutes, immediately following heel lance, an interaction, Condition by Age, $F(1, 12) = 9.835, p < .05$, was present. In the second 5 minutes a significant main effect of Condition, $F(1, 12) = 5.747,$

Figure 2 Mean Heart Rate Differences as a Function of Music/No-Music

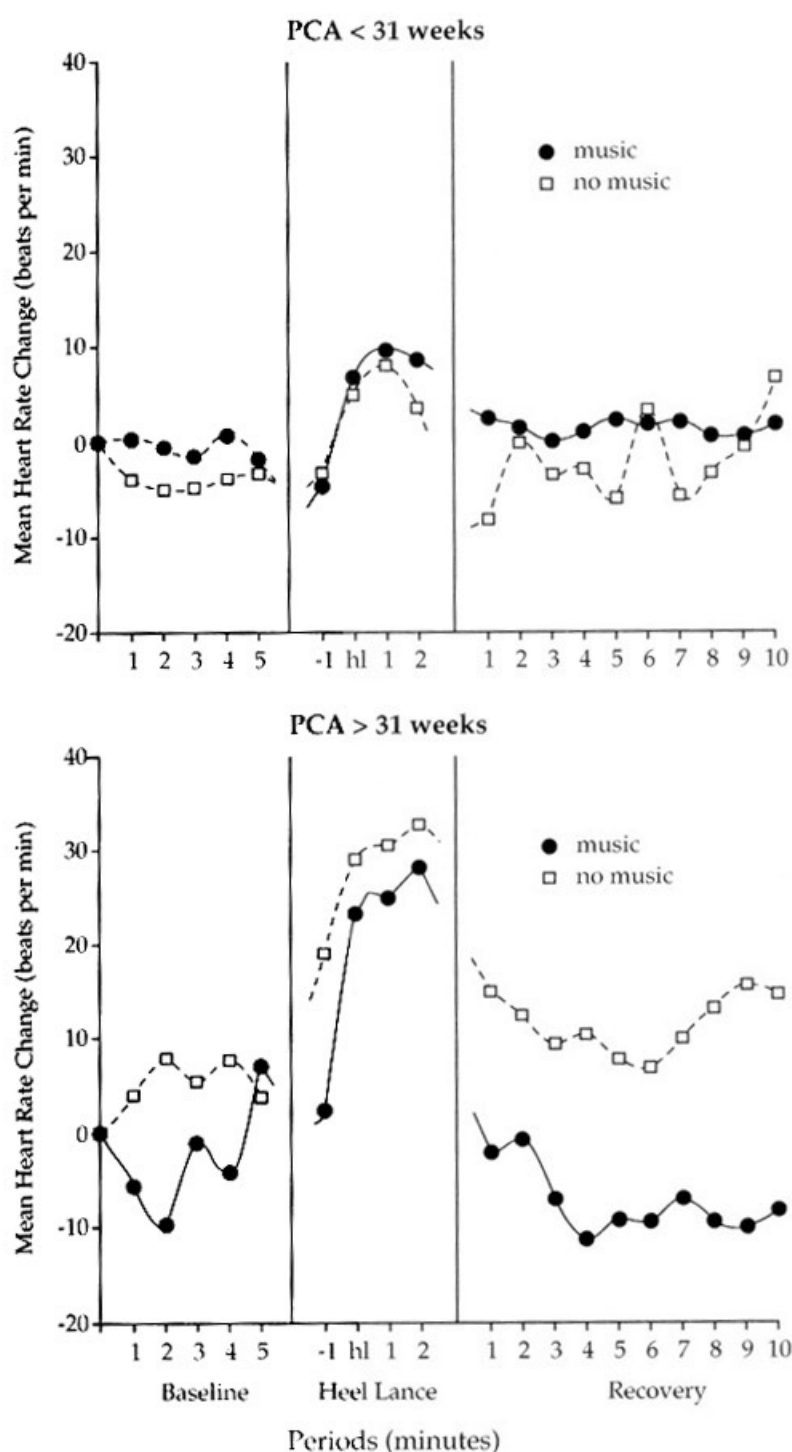


Figure 3 *Mean Behavioural State Differences as a Function of Vocal Music / No-Music and as a Function of Instrumental Music / No-Music*

A) Vocal Music

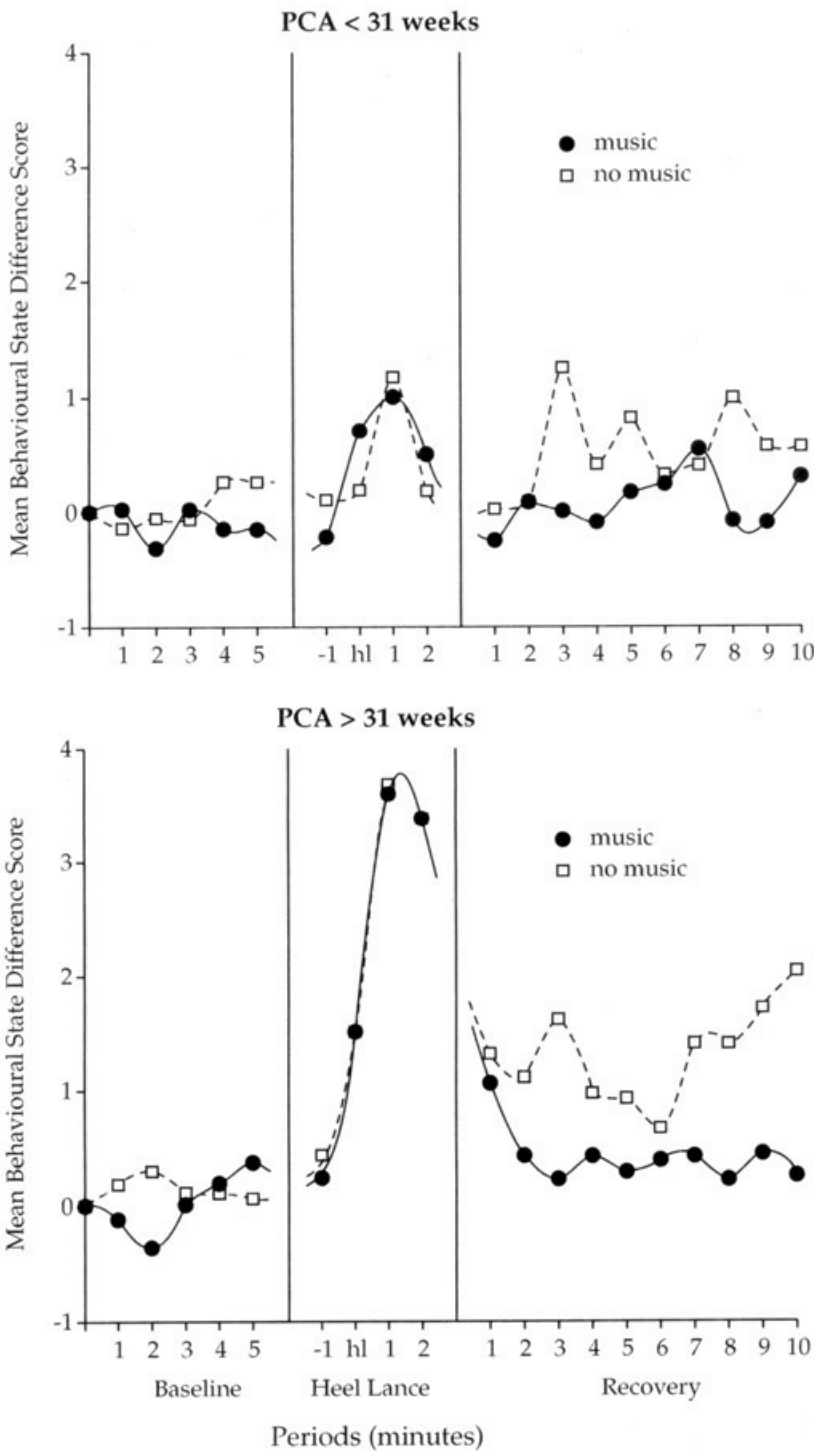


Figure 3 *cont'd*)

B) Instrumental Music

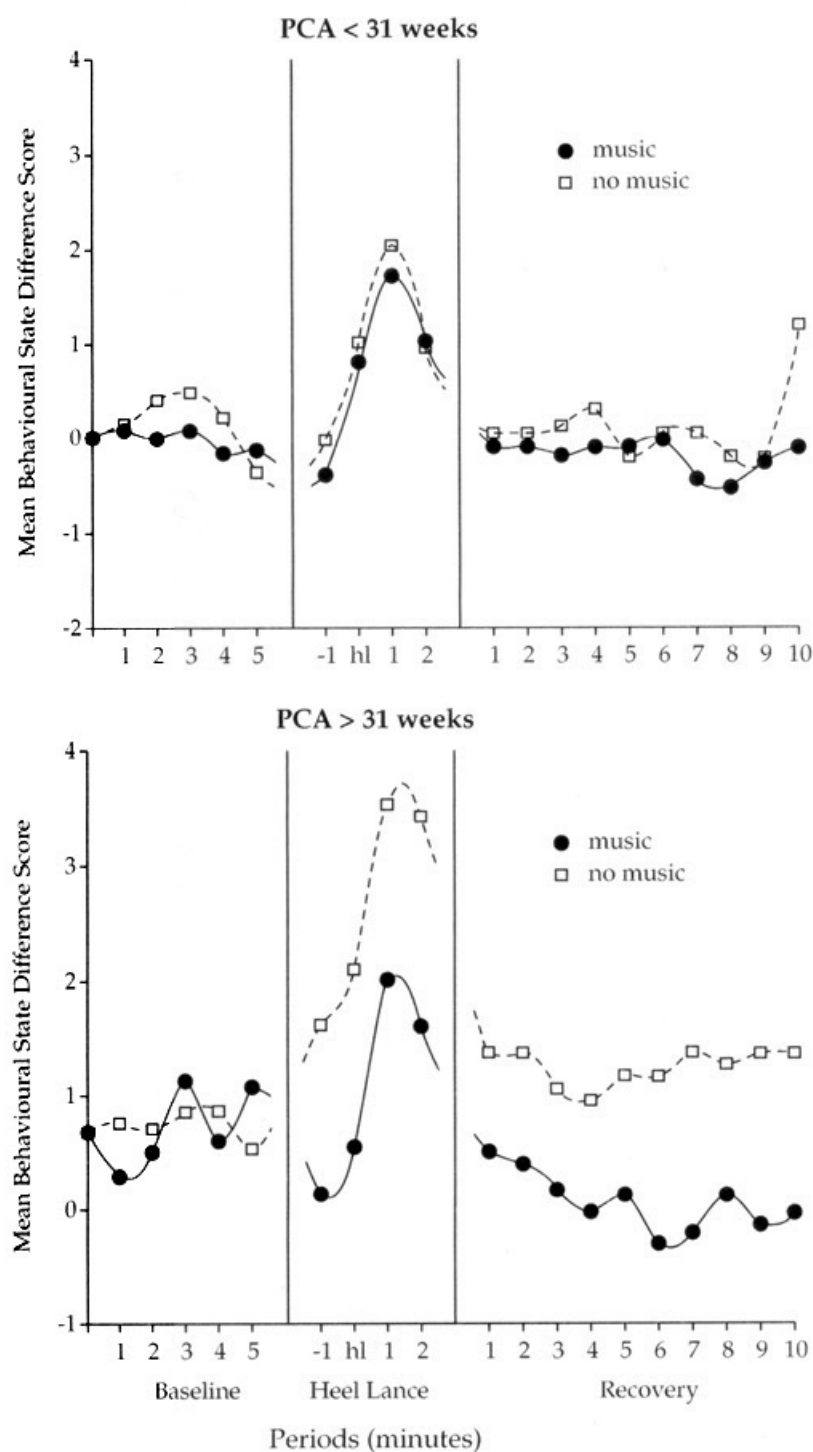
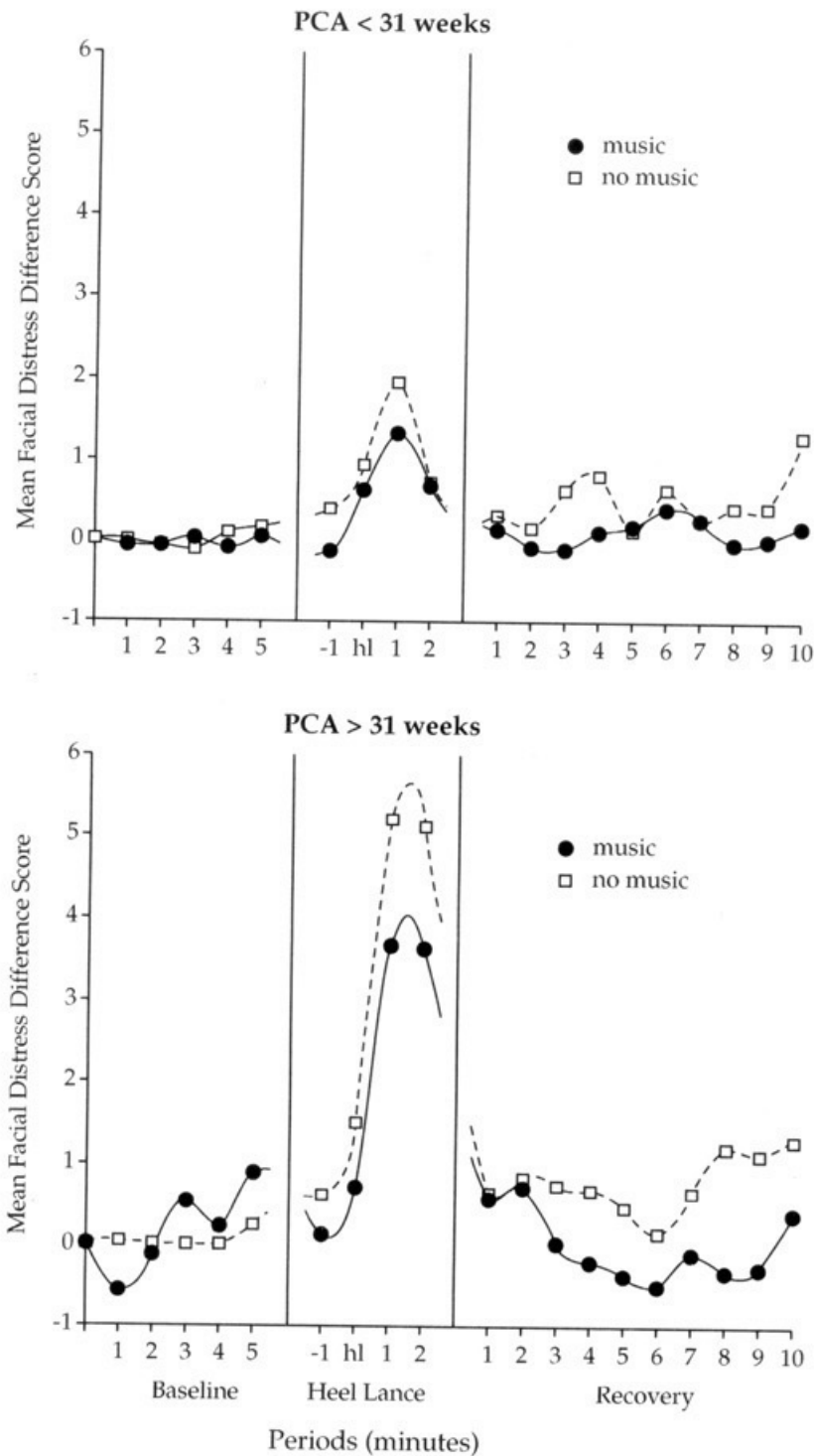


Figure 4 *Mean Facial Expression of Pain Differences as a Function of Music/No-Music*



$p < .05$, and a Condition by Age interaction, $F(1, 12) = 7.403$, $p < .05$, were revealed. As can be seen in Figure 2, during the recovery period the older infants responded with a decrease in heart rate in the music condition while the younger infants showed no effect of music.

The oxygen saturation returned to baseline levels during the first 5 minutes of the recovery period, $F(4, 48) = 6.387$, $p < .01$, for all infants, in both control and music conditions, and did not change in the second 5 minutes of the period.

When behavioural state was considered, there were no significant main effects in the recovery period for either of the two Music Types. Subsequent analyses revealed no significant main effects or interactions in the first 5 minutes. However, in the second 5 minutes of this period there was a Condition by Time interaction, $F(4, 20) = 3.453$, $p < .05$, for the vocal music. Infants were less aroused during the vocal music compared to the no-music control. For the instrumental music, there was a main effect of Time, $F(4, 20) = 3.431$, $p < .05$, and an Age by Time interaction, $F(4, 20) = 3.445$, $p < .05$. Figure 3 shows that older infants in the instrumental music condition were less aroused compared to the no-music condition (Sign Test, $p < .01$), with behavioural state scores below baseline in the second 5 minutes.

For pain, a significant main effect of Time, $F(9, 99) = 2.091$, $p < .05$, and a Time by Age interaction, $F(9, 99) = 2.135$, $p < .05$, were found. Post-hoc examination showed a significant Age by Time interaction, $F(4, 44) = 2.691$, $p < .05$, in the first 5 minutes and a main effect of Time, $F(4, 44) = 4.019$, $p < .05$, and Condition, $F(1, 11) = 4.742$, $p = .05$, in the second 5 minutes. The older infants' facial expressions of pain decreased over time, especially in the first 5 minutes post-heel lance, and remained low in the second 5 minutes for those who experienced music. For those in the no-music group, pain scores remained elevated. The younger infants' facial expressions of pain were similar to baseline.

Discussion

The results of this study clearly demonstrate that music modulates both physiological (heart rate) and behavioural (state-of-arousal, facial expressions of pain) responses of preterm infants older than 31 weeks PCA following a stress-provoking heel lance. The source of the music (voice vs. piano) did not seem to be important for this effect, although some differences were found.

Regardless of PCA, the premature infants responded to heel lance with increased heart rate, decreased oxygen saturation, increased state-

of-arousal, and increased number of facial expressions of pain; these physiological and behavioural changes are well described in the literature as constituting a stress response (Craig et al., 1993; Fitzgerald & Anand, 1993; Johnston et al., 1993). The intensity of the response differed with age, with older infants (> 31 weeks PCA) showing more signs of stress than younger infants (< 31 weeks PCA). Moreover, infants under 31 weeks PCA returned to baseline levels of behaviour within the first minute of the recovery period; in essence they did not sustain a stress response beyond the period of the noxious stimulus. At the present time it is unclear whether younger infants are unable to sustain a stress response because of their immature response systems, or whether they perceive a noxious stimulus as less stressful or less painful because of their immature sensory systems. Evidence for the latter comes from the observation that the magnitude of the stress response was always lower for the younger infants than for the older infants. These findings replicate the work of Fearon et al. (1997), who suggest that younger preterm infants show a lower magnitude of stress response because of their more immature neurological system. These findings are also in keeping with those from fetal studies, which describe a transition period at approximately 28 to 31 weeks gestational age with maturational changes in spontaneous behaviours (e.g., increase in rate of cardiac-body movement coupling [DiPietro, Hodgson, Costigan, Hilton, & Johnson, 1996]) and stimulus-induced responses (e.g., shift from heart rate deceleration to acceleration elicited by vibroacoustic stimulation [Kisilevsky, Muir, & Low, 1992]). If the newborn premature infant behaves like an externalized fetus (for a discussion, see Kisilevsky & Lecanuet, 1999), then a decrease in response magnitude would be expected in premature infants born at less than 31 weeks gestational age when tested shortly after birth.

Music as an intervention in the recovery period had differential effects on the infants, depending on PCA at time of testing. Probably because the younger premature infants did not show as much stress or pain during the heel lance period and returned to baseline levels within the first minute of the recovery period, the intervention showed no effects on any of the measures. Replicating Fearon et al. (1997), who found no effects of swaddling following heel lance in a group of infants of similar age and medical history, there appears to be no need for intervention following the heel lance procedure with this age group.

For the older infants, music in the recovery period had different effects, depending on the response system, indicating a need for multiple response measures. Only oxygen saturation returned to baseline levels in the absence of music. Music was an effective intervention,

modulating the return of heart rate, behavioural state, and facial expressions of pain to or below baseline levels. In the presence of music, the older infants showed a decrease in heart rate to below the baseline level observed prior to the heel lance, while pain scores returned to baseline within 5 minutes. For these measures, no differential effects were noted between vocal and instrumental music. However, for the behavioural state data, there is some suggestion that the older infants were soothed more by the instrumental than the vocal music. The reason for this is not clear, but it could be related to the subjective perception of several adults that the instrumental music seemed to have less variation in tone and intensity than the female soprano voice. Alternatively, it may be that the human female voice has attention-eliciting properties for newborn infants. The study was not designed to examine these issues and no firm conclusions can be reached without further research.

The finding of a lower state-of-arousal during the recovery period in the music compared to the no-music control condition is consistent with Fearon et al.'s (1997) finding that infants of at least 31 weeks PCA who are swaddled following heel lance return more rapidly to baseline levels. It also replicates the findings of Burke et al. (1995), who observed decreased levels of arousal following suctioning in a music compared to a no-music group of premature infants. In the absence of music during the recovery period, the older infants' heart rate, behavioural state, and pain scores remained above baseline levels, indicating greater general arousal. The greater level of arousal in the control condition indicates that infants are required to expend more energy to cope with the stress of a heel lance procedure. The more rapid modulation of the stress response in the music intervention condition indicates that infants are able to conserve energy for expenditure on growth and development.

In conclusion, in this study music appeared to be an effective intervention for use in the NICU following a stress-provoking stimulus such as heel lance for infants older than 31 weeks PCA. It enabled the infants not only to return more rapidly to baseline levels of heart rate, state-of-arousal, and facial expression but to be soothed to even lower levels of arousal. These findings may have important implications for the care of preterm infants in both attempting to reduce the negative effects of medical and nursing procedures and attempting to promote energy conservation for growth and development. Clearly, the soothing effect of music on premature infant behaviour warrants further study, to determine its usefulness as part of a developmentally sensitive care program.

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Impact of Preoperative Education on Pain Management Outcomes After Coronary Artery Bypass Graft Surgery: A Pilot

**Judy Watt-Watson, Bonnie Stevens, Judy Costello,
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Selon des observations, certains patients reçoivent une quantité inadéquate d'analgésiques, et ce malgré la présence de douleurs moyennes ou fortes à la suite d'un pontage aortocoronarien. L'objectif de cette étude pilote était de faire l'évaluation d'une brochure éducative préadmission à l'intention de patients qui vivent pour une première fois et sans complication ce type d'intervention. Une étude sur échantillon aléatoire et contrôlé a été entreprise au plus grand centre de soins cardiovasculaires du Canada. Des mesures ont été prises à plusieurs reprises pour permettre de comparer les données de trois entrevues: au point de départ, au jour trois et au jour 6. À la clinique de préadmission, les patients ont été aléatoirement assignés à l'un des trois groupes, et ce deux à sept jours avant la chirurgie: (1) brochure générique et vidéocassettes sur les procédures d'hôpital (contrôle), (2) contrôle et brochure sur la douleur, ou (3) contrôle et brochure sur la douleur et entrevue; 45 sujets ont participé aux trois entrevues. Le formulaire questionnaire abrégé sur la douleur de McGill et le questionnaire sur les résultats des soins prodigués au patient de la American Pain Society constituaient les instruments de mesure. Tous les groupes avaient eu l'expérience d'un traitement analgésique inadéquat (19,89[13,37] mg d'équivalents morphiniques aux 24 heures) malgré des douleurs persistantes (6,63[2,46], 0-10). Toutefois, les patients qui ont bénéficié des interventions en plus de soins de contrôle ont reçu 46 % plus d'analgésiques que les patients qui n'ont uniquement reçu que des soins de contrôle et étaient plus à l'aise de demander de l'aide ou de prendre des analgésiques. La brochure d'intervention ou les mesures n'ont pas nécessité de changements.

Patients have been found to receive inadequate analgesia despite moderate to severe pain after coronary artery bypass graft (CABG) surgery. The purpose of this pilot study was to evaluate a preadmission educational booklet for patients undergoing their first uncomplicated CABG. A randomized controlled trial (RCT) was undertaken at the largest cardiovascular centre in Canada. Repeated measures were used to compare data from

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3 interviews: at baseline, day 3, and day 5. Patients were randomly assigned to one of 3 groups at the preadmission clinic 2 to 7 days before surgery: (1) generic hospital booklet and videotape (control), (2) control + pain booklet, or (3) control + pain booklet and interview; 45 subjects completed all 3 interviews. Measures were the McGill Pain Questionnaire-Short Form and the American Pain Society Patient Outcome Questionnaire. For all groups, analgesic administration was inadequate (19.89[13.37] mg morphine equivalents/24 hours) despite unrelieved pain (6.63[2.46], 0–10). However, patients receiving the interventions in addition to control care received 46% more analgesia than patients receiving control care alone and had fewer concerns about asking for help and taking analgesia. Changes were not required in the intervention booklet or measures.

Introduction

Cardiovascular diseases, as the major cause of death, disability, and illness in Canada, have a significant impact on our health-care system. The treatment of cardiovascular diseases has accounted for almost 20% of all hospital stays in Canada. Coronary artery bypass graft (CABG) surgery involves many pain-sensitive structures, particularly with internal thoracic artery grafts as conduits. Our recent study with 225 CABG patients found that many reported considerable unrelieved pain and received inadequate analgesia following surgery (Watt-Watson, Garfinkel, Gallop, Stevens, & Streiner, in press). Only 47% of the prescribed analgesia was administered although most patients (83%) reported moderate to severe pain. Despite their pain, patients had concerns about taking analgesia, yet opioid analgesics are the cornerstone of management of moderate to severe postoperative pain (Agency for Health Care Policy and Research [AHCPR], 1992). Patients had prior severe pain and experienced considerable postoperative pain, yet did not seek help for their pain.

CABG education programs have had minimal or no pain-related content. While postoperative analgesic use has been examined to evaluate CABG recovery (Anderson, 1987; Rice, Mullin, & Jarosz, 1992; Schindler, Shook, & Schwartz, 1989), the general-education intervention did not result in a change in analgesic intake by patients. Beggs et al.'s (1998) survey of 300 postoperative CABG patients identified pain expectations as one area for potential improvement in discharge information. However, we found no research that examined the impact of a preoperative pain-education intervention on pain-related postoperative outcomes for CABG patients. The degree to which such an intervention might result in increased analgesic intake, decreased pain and related interference with activities, and fewer patient concerns about seeking help and taking analgesics, is unknown. Therefore, a pilot study was carried out to evaluate the feasibility and clinical value of providing the

booklet *Pain Relief After Surgery* versus standard routine education for preoperative patients undergoing CABG.

Review of the Literature

Inadequate Analgesia and Pain Management

Studies in surgical settings have documented that patients receive the lowest analgesic doses possible (Close, 1990; Donovan, Dillon, & McGuire, 1987; Faherty & Grier, 1984; Owen, McMillan, & Rogowski, 1990; Paice, Mahon, & Faut-Callahan, 1991; Watt-Watson et al., in press; Watt-Watson & Graydon, 1995; Winefield, Katsikitis, Hart, & Rounsefell, 1990) and that inadequate analgesia is administered in the first 3 days after CABG surgery (Maxam-Moore, Wilkie, & Woods, 1994; Puntillo, 1990; Puntillo & Weiss, 1994; Watt-Watson et al., in press). Moreover, recent data indicate that patients in cardiovascular settings, including postoperative CABG patients, have considerable unrelieved pain (Puntillo; Puntillo & Weiss; Watt-Watson et al., in press). Pain ratings have been significantly higher on day 5 for patients with internal thoracic artery grafts (ITA) (6.35 ± 1.77 vs. 3.82 ± 1.98 , $p < 0.0002$, 0–10) (Cohen et al., 1993), and for some patients pain has continued after discharge (Goodman, 1997; Redeker, 1993). In a recent study with 225 CABG patients, we found that many received inadequate analgesia even though they experienced moderate to severe pain after surgery (Watt-Watson et al., in press). On average, patients received 14 mg of morphine equivalents in the previous 24 hours over their 2nd to 3rd postoperative day, which is similar to doses reported for other cardiovascular studies (Puntillo; Puntillo & Weiss). Patients did not voluntarily ask the nurse for analgesia and received only 47% of their prescribed dose. Patients documented both high ratings for pain before receiving medication and inadequate relief after receiving it.

Patients with a median sternotomy incision have demonstrated impaired postoperative pulmonary function, particularly after the more painful ITA graft (Cohen et al., 1993). Moreover, atelectasis after cardiovascular surgery has been found to be greater in patients with higher pain intensity (Puntillo & Weiss, 1994). For most people, opioid analgesics are essential for the relief of moderate to severe postoperative pain (AHCPR, 1992). Wilder-Smith and Schuler (1992) report that patients who expressed concerns about toxicity and drug addiction and who believed in the normality of experiencing pain did not accept analgesia until a nurse pain specialist discussed these issues with them. The authors conclude that discussion of analgesic therapy with patients is an important step in improving postoperative pain relief. Ward et al.

(1993) identified eight concerns of cancer patients that influenced their use of analgesics and reporting of pain. These included fear of addiction, fear of side effects, and a belief that "good" patients do not complain of pain. Undermedicated patients in this sample had significantly higher levels of concern and pain interference. Older and less educated patients were found to be more reluctant both to report pain and to use analgesics, and those with more concerns had higher pain levels. Patients undergoing CABG surgery tend to be older and to be reluctant to disclose their concerns about treatment.

Preoperative Patient Education

Several researchers have clearly documented the positive effect of preoperative general education on postoperative outcomes. Hathaway (1986), in a meta-analysis of 68 studies, found that 67% of patients who received preoperative education had more favourable postoperative outcomes, including physiological outcomes, than patients who did not receive the education; their outcomes were 20% better, with a mean effect size of 0.44. Devine and Cook (1983), in their meta-analysis of 102 studies of psychoeducational interventions with surgical patients, report the positive outcome of hospital stays shortened by 1.31 days ($ES = + 0.39$). As these meta-analyses reviewed evidence from both RCTs and non-RCTs, which were also of varying sizes and designs, caution is needed in drawing conclusions. The importance of including both sensory and procedural information in educating to accelerate recovery has been well established (Devine & Cook; Hathaway; Johnson, Fuller, Endress, & Rice, 1978).

The impact of perioperative cardiac education has been minimally examined (Moore, 1997), although patients being treated for cardiovascular disease often undergo CABG surgery, which in Canada costs about \$22,000 per patient (Heart and Stroke Foundation of Toronto, 1996; Reeder et al., 1995). While postoperative analgesic use has been examined for the purpose of evaluating the influence of education on CABG recovery (Anderson, 1987; Rice et al., 1992; Schindler et al., 1989), the lack of impact may reflect the general nature of the interventions. Beggs et al.'s (1998) survey of 300 postoperative CABG patients did identify pain expectations as one potential area for improvement in discharge information. However, much of the published research on the benefits of educating cardiac patients has focused on exercise programs in the lifestyle rehabilitation process following a myocardial infarct or surgery. For example, Mullen, Mains, and Velez (1992), in their meta-analysis of 28 controlled trials, report positive effects of patient educa-

tion on blood pressure (WAES + 0.51, 28% better), mortality (WAES + 0.24, 19%), and exercise and diet (WAES + 0.19, 14%). Only recently, with fiscal restraints requiring reduced staff, minimal preadmission time, and shorter hospital stays, have researchers begun to examine teaching methods for CABG education perioperatively.

The timing and type of preoperative teaching for CABG patients have been examined only minimally. Preadmission cardiac education using self-instruction booklets or structured interviews has positively influenced recovery. Christopherson and Pfeiffer (1980) report that CABG patients ($n = 41$) who received an educational booklet before surgery had higher postoperative knowledge scores [$t(18) = 2.30$, $P < 0.05$] and fewer days in the intensive care unit (2.82 vs. 4.67 days, $p < 0.05$) than the group who received postadmission informal education. No differences were evident between patients who received the booklet 1 to 3 weeks versus 1 to 2 days before surgery. The content of this 16-page booklet included physiology related to the disease and surgery, preoperative procedures, and postoperative sensations and expected behaviours. Rice et al. (1992) also used a self-instruction booklet preoperatively with CABG patients ($n = 50$). Patients who received the booklet on therapeutic exercises before admission reported more positive moods (27.6 ± 4.7 vs. 24.7 ± 5.5 , $p < 0.05$; scale range: 12–48), did the prescribed exercises more easily (16.9 ± 11.0 vs. 6.0 ± 5.5 , $p < 0.0001$; scale range: 0–34), and required less teaching time (10.2 ± 4.7 vs. 14.2 ± 8.8 min., $p < 0.05$) following surgery than those who received the booklet postadmission. The booklet did not address pain and no differences were evident in analgesic use between the two groups.

Cupples (1990) found that patients who received a single session of preadmission education 5 to 14 days before CABG surgery had better information recall preoperatively than those who received informal education the evening before surgery. These data suggest that one education session can be effective if given at a non-stressful time. As well, patients who received the formal preadmission education had significantly more positive mood states (10.4 ± 20.69 vs. 36 ± 45.09 , $p < 0.03$), more favourable physiologic recovery ($F[1,38] = 5.01$, $p = 0.03$), and earlier discharges (70% by day 6–7 vs. 45% starting at day 7) than the control group.

Overall, these data indicate that structured preadmission education, through either pamphlets or teaching sessions, is more effective than postadmission teaching just prior to surgery. Structured education was more effective using mood, physiological, and hospital-stay outcomes than informal sessions given by whatever staff was available.

However, in none of these programs was pain content discussed or pain assessed. Therefore, the aim of this study was to use a booklet that focused specifically on pain.

Methods

Subjects and Setting

An RCT was used with patients who were attending a standard preadmission education session 2 to 7 days before their elective CABG surgery. All consenting patients were randomized to the usual-care control group or to two intervention groups, using a table of random numbers. Data were collected by a blinded research assistant in four areas of a university-affiliated teaching hospital in Toronto, Ontario. The four areas consisted of the preadmission clinic and the three wings of the 85-bed cardiovascular surgical unit.

Our initial aim was to include both (a) patients for elective CABG surgery attending a preadmission clinic and admitted the day of their surgery, and (b) patients triaged from emergency departments in other hospitals and transferred to the research site the day before their surgery. However, the latter group did not arrive until the late afternoon or evening. They were not included in the trial because investigators felt their anxiety was too high at the time and because the preadmission education in the original hospital was very variable for this group. Therefore, the target population consisted of elective patients who were undergoing their first CABG (no repeat CABG or valve surgery), attending a standard preadmission education session, and able to understand, read, and speak English. The sample of 45 patients was accrued over 10 weeks.

Procedure

Ethical approval was received from the University of Toronto Office of Research Services and the participating hospital. Meetings were held with the nurse managers and staff to explain the study protocol and clarify related concerns.

Eligible patients attending the preadmission session were informed of the study by the cardiovascular nurse coordinator, who obtained their permission to release their name to the research assistant (RA). All patients who agreed were given verbal and written explanations of the study. Patients consenting to participate completed all questionnaires for baseline information prior to randomization. Five of the 50 consent-

ing patients who completed baseline measures were too ill or tired after surgery to complete all measures.

Consenting patients were randomly assigned to the (a) control group, receiving standard preoperative education only ($n = 16$), (b) intervention group receiving booklet ($n = 15$), or (c) intervention group receiving booklet and interview ($n = 16$). Forty-five patients responded at all three periods, as two patients in the intervention booklet-only group were too ill to participate after surgery. All patients were given the McGill Pain Questionnaire-Short Form (MPQ-SF) (Melzack, 1987) at the baseline preadmission clinic and on days 3 and 5 after surgery. The Patient Outcome Questionnaire (POQ) (American Pain Society Quality of Care Committee [APS], 1995), which examines interference with activities, concerns, and patient satisfaction, was also given on day 3 when increased ambulation is usually painful and on day 5 just prior to discharge.

Control group. All patients assigned to the control group received routine cardiovascular education, including a generic booklet and videotape offered 2–7 days before surgery during the standard preadmission session. The booklet and videotape contained general information about the surgery, postoperative care, and recovery, with minimal guidelines for pain management.

Intervention groups. Patients randomized to the two intervention groups received the standard education given to the control group. One group received an additional booklet with instructions to read it before surgery and to bring it to hospital. The other group received the additional booklet with instructions to read it before surgery and to bring it to hospital, as well as an interview by the research nurse, who discussed salient points in the booklet and answered questions.

Intervention manoeuvre. To maintain blinding of the research assistant and staff, all patients received an envelope containing a copy of their consent form and a letter thanking them for their participation. Patients in the two intervention groups also received the booklet *Pain Relief After Surgery*, which was developed by the investigators for this study. Content for this booklet was derived from previous research (APS, 1995; Ward et al., 1993; Watt-Watson et al., in press) and reflects the Canadian Pain Society position statement on pain relief (Watt-Watson, Clark, Finley, & Watson, 1999). The eight-page booklet discusses the importance of pain relief; how and when to ask for help; pain-relief methods, both non-pharmacological and pharmacological, including analgesia; and patients' concerns about seeking help with pain. It suggests optional ways of taking strong analgesia other than by

injection and emphasizes the individuality of pain responses and the importance of good pain relief to recovery. The booklet includes a numerical rating scale (NRS) to describe pain intensity and quality, similar to that used in the more general cardiovascular surgery educational booklet. It addresses common concerns that prevent patients from asking for help and/or taking analgesia. Face and content validity were assessed by pain experts in nursing, psychology, and medicine. The booklet was pretested for readability and understandability at the Grade 6 level.

Measures

Pain intensity and quality were measured using the self-report MPQ-SF, which has well-established reliability and validity (Dudgeon, Raubertas, & Rosenthal, 1993; Melzack, 1987). The MPQ-SF includes 15 verbal descriptors that are summed to obtain scores for the sensory and affective quality of pain. Pain intensity was measured using the Present Pain Intensity (PPI) and an NRS. The NRS measured pain intensity both at rest and on movement, as these ratings have been divergent in previous work (Watt-Watson et al., in press). The "unpleasantness" anchor has been established as a valid and reliable affective label (Gracely, McGrath, & Dubner, 1978).

Analgesic data were collected from the chart on days 3 and 5 by the RA and converted to standardized parenteral morphine equivalents (Reisine & Pasternak, 1996).

Interference with activities was assessed using a subscale of the Brief Pain Inventory 49 (BPI) included in the POQ, which has internal consistency and validity (APS, 1995; Daut & Cleeland, 1982; Daut, Cleeland, & Flanery, 1983; Serlin, Mendoza, Nakamura, Edwards, & Cleeland, 1995). The six items examined whether pain is severe enough to interfere with sleep, mood, and activities such as walking or deep breathing and coughing. The NRS were summed for a total subscale score.

Concerns about seeking help and taking analgesia were examined using a subscale derived from the Barriers Questionnaire (BQ), also included in the POQ, a 27-item instrument that has internal consistency, test-retest reliability, and construct and content validity (APS, 1995). This subset (BQ-SF) has established internal consistency ($\alpha r = 0.72$) and test-retest reliability ($r = 0.85$). The NRS were summed for a total subscale score. In this pilot, Cronbach's alpha was 0.71 for the POQ-BPI

and 0.85 for the POQ-BQ, indicating good to very good internal consistency for these measures.

Patient satisfaction was measured using the three NRS on general satisfaction from the POQ, which were summed for a total subscale score. Extensive evidence for validity of patient satisfaction questions has been established by Ware and colleagues (Ware & Hays, 1988; Ware, Snyder, Wright, & Davies, 1983). Additional questions (APS, 1995) facilitated an understanding of specific issues related to the overall satisfaction score. The stems of the instruction items were modified to reflect an inpatient versus an outpatient setting.

Length of hospital stay data were obtained from the patient's chart.

Data Analysis

The intention-to-treat principle (Newell, 1992) was maintained so that individuals randomized to the intervention group were included in this group even if they did not read the booklet or were unable to complete measures postoperatively. An alpha of 0.05 was the level of significance used for all analyses. Intervention- and control-group data were compared using chi-square analysis for discrete-level data and analysis of variance (ANOVA) for continuous-level data on demographic and pre-intervention variables to assess the comparability of groups at baseline. Descriptive statistics (i.e., averages, standard deviations, proportions) were used to summarize outcome variable data at all time periods.

A mixed repeated measures (RM) ANOVA was performed to determine the efficacy of the pain-education intervention versus standard education on analgesic intake between subjects (treatment vs. control) and within subjects (over time). Separate ANOVAs (treatment vs. control) were performed for each of the following dependent variables: postoperative pain, interference with activity, concerns, satisfaction, and length of stay. A mixed between (treatment vs. control) and within (pre- vs. postintervention) ANOVA was performed for analgesia concerns to determine whether the intervention had a significant impact on patients' misconceptions regarding analgesic use. For significant ANOVAs with all outcomes, post-hoc comparisons using Tukey's Honestly Significant Difference test (Norman & Streiner, 1994) were used to determine the source of the difference. As well, patient gender, age, and preoperative pain (as measured by the MPQ) were considered as covariates.

Table 1 *Characteristics, Length of Stay, and Satisfaction*

Outcome		Control M(SD)	Treatment A Control + Booklet M(SD)	Treatment B Control + Booklet + Interview M(SD)
<i>Characteristics*</i>				
Age (years)		60.13 (11.0)	64.18 (7.44)	57.06 (9.86)
Females		1	2	2
Number of ACB grafts		3.44 (1.03)	3.57 (0.76)	3.69 (0.60)
Pain expected		5.00 (2.31)	5.53 (2.0)	6.24 (2.51)
<i>Length of stay (days)*</i>				
		5.13 (0.99)	5.0 (0.9)	6.06 (1.39)
<i>Satisfaction with care**</i>				
(0–30)	T ₁	20.94 (8.63)	26.71 (9.37)	24.44 (8.36)
	T ₂	25.94 (4.25)	26.50 (4.83)	25.56 (9.75)
	T ₃	24.25 (8.09)	24.01 (6.08)	26.50 (4.05)
* differences not significant ** $p < 0.06$				

Results

Patient characteristics and length of stay were similar for all three groups at baseline (see Table 1). The average patient was a 61-year-old male with 3.5 grafts including an internal thoracic artery (ITA) who remained in hospital for 5 days. Eleven patients were women.

Using ANOVA for RM, we found no differences among the three groups for pain measures at days 3 and 5 after surgery (see Table 2). The mean (SD) levels of the PPI did not change significantly from day 3 [2.43(1.07)] to day 5 [2.29(1.06)] and were not significantly different between groups (see Table 2). As well, the mean (SD) numerical rating for worst pain in the previous 24 hours did not change significantly from day 3 [6.63(2.46)] to day 5 [6.0(2.91)] or differ significantly between groups (see Table 2).

Findings confirmed that patients received inadequate analgesia (19.89 ± 13.37 mg morphine equivalents/24 hours) despite unrelieved pain (6.63 ± 2.46 , 0–10 scale) on days 2 to 3 after surgery. No significant differences using ANOVA-RM were evident between groups for analgesics prescribed or administered at days 3 or 5, probably because of

large standard deviations and small sample size (see Table 2). However, patients receiving the preoperative education intervention received 46% more analgesia in the previous 24 hours at day 3 and 33% more at day 5, compared with the control group. For all patients, the average analgesic dose prescribed in the previous 24 hours using morphine equivalents was closer to the therapeutic range of 50–60 mg/24h at both day 3 [M(SD) = 48.91(16.97) mg] and day 5 [M = 49.60(16.50) mg] than in our previous study [day 3: 33(24) mg].

Table 2 Analgesia and Pain Ratings			
Outcome	Control M(SD)	Treatment A Control + Booklet M(SD)	Treatment B Control + Booklet + Interview M(SD)
Analgesic administration* (morphine equivalents mg/24h)	T ₂ 15.63 mg (12.89)	25 mg (12.67)	20.71 mg (13.83)
	T ₃ 13.13 mg (11.31)	18.92 mg (16.82)	16.79 mg (10.36)
Pain (Present Pain Intensity)	T ₂ 2.35 (1.15)	2.14 (0.86)	2.75 (1.13)
	T ₃ 2.44 (1.36)	2.15 (0.99)	2.25 (0.77)
* differences not significant			

No significant differences were evident between groups for interference in activities because of pain (POQ-BPI) (see Table 3). However, within-intervention group changes were evident with a statistically significant decrease in pain-related interference in activities between days 3 and 5 [$t(df15) = 2.92, p < 0.01$]. Significant decreases were evident, particularly in interference with general activity [$t(15) = 2.9, p < 0.01$], walking [$t(15) = 2.88, p < 0.01$], and deep breathing and coughing [$t(15) = 2.85, p < 0.01$]. Despite these changes, no differences in pain ratings were evident, possibly because of lack of statistical power.

Patients' concerns about asking for help and taking analgesia (POQ-BQ) were significantly reduced at day 5 in the intervention

versus control group ($F_{2,42} = 4.17, p < 0.02$) and tended to be less on day 3 ($F_{2,43} = 2.90, p < 0.07$) (Table 3). As well, a statistically significant decline in concern scores was evident for both intervention groups between baseline and day 5 after surgery. Moreover, the intervention groups showed a significant decrease in concerns about addiction ($F_{2,42} = 6.583, p < 0.003$) and asked for more help with severe pain ($F_{2,42} = 4.72, p < 0.02$). Also, patients in the intervention groups tended to be more satisfied with their pain treatment ($F_{2,40} = 2.96, p < 0.06$).

Table 3 *Interference and Concerns*

Outcome		Control M(SD)	Treatment A Control + Booklet M(SD)	Treatment B Control + Booklet + Interview M(SD)
<i>Interference (POQ-BPI)^a</i> (0–60)				
	T ₂	23.06 (11.30)	27.62 (11.98)	31.36 (8.48)
	T ₃	18.94 (13.54)	19.83 (10.20)	22.86 (10.70)
<i>Concerns (POQ-BQ)^b</i>				
Total Scores (0–70)				
	T ₁	21.25 (13.34)	21.88 (14.86)	26.14 (11.07)
	T ₂	22.31 (11.22)	16.23 (11.96)	14.21 (11.16)
	T ₃	18.56 (12.51)	14.92 (13.10)	8.64 (7.46)**
Addiction Fear (0–10)				
	T ₁	3.63 (3.65)	3.35 (3.69)	6.00 (3.43)
	T ₂	3.50 (3.79)	3.21 (3.60)	2.88 (3.56)
	T ₃	3.56 (3.58)	2.92 (3.77)	1.69 (2.50)**
<p>* differences not significant ** $p < 0.05$ ^a Patient Outcome Questionnaire – Brief Pain Inventory ^b Patient Outcome Questionnaire – Barriers Questionnaire</p>				

Discussion

This pilot study with 45 patients found that analgesic administration is inadequate, similar to the results of our previous study (Watt-Watson et al., in press). While pain ratings and analgesia were not statistically different, the greater analgesia received by the intervention groups versus the control group was clinically significant in the previous 24 hours at days 3 and 5. These results support the hypothesis that patients receive-

ing the booklet would receive more adequate analgesia. The lack of statistical significance in both these outcomes may be related to the small numbers and large standard deviations.

The intervention groups had fewer concerns about asking for help and less fear of addiction than the control group. An additional rating about pain "on average" may be helpful with these patients and has been added in our current study. More than 5 days may be needed to show changes in pain; telephone follow-up after discharge is being used in our current project.

Only minimal changes were required in the RCT manoeuvre; as no significant differences between the two intervention groups (booklet vs. booklet plus interview) were demonstrated, only the booklet group with a brief explanation will be retained. No changes were required in the intervention booklet or measures. Most CABG patients and families read the entire booklet and rated it as helpful.

In conclusion, all patients in this pilot study were experiencing moderate to severe pain and receiving inadequate analgesia, similar to those in our previous study. However, changes were evident in the intervention groups related to addiction concerns and seeking help with pain, despite the small sample size. Clinically significant increases in analgesic administration were also evident for the intervention groups. Therefore, this area warrants further investigation. A larger RCT is now in progress, supported by the Heart and Stroke Foundation of Ontario.

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Authors' Note

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"Special Steps": An Effective Visiting/Walking Program for Persons with Cognitive Impairment

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and Jacqueline Roberts**

On a procédé à l'évaluation d'un programme à l'intention des personnes âgées présentant une déficience cognitive et du personnel soignant, en fonction de l'efficacité et de l'efficience en ce qui touche la charge de travail, la satisfaction et le sentiment de cohérence de même que les coûts pour le système de santé. Ce programme consistait en des visites hebdomadaires de deux heures par des bénévoles, dans le but de faire une promenade. Au cours d'une période de 9 mois en 1997, on a choisi aléatoirement parmi les personnes admissibles un nombre qui aurait accès au programme dès le début de celui-ci (groupe expérimental) et un autre qui serait placé sur une liste d'attente en vue d'y participer six semaines plus tard (groupe de contrôle). Le groupe expérimental dénombrait onze bénéficiaires et membres du personnel soignant et le groupe de contrôle, dix. Tous ont répondu à un questionnaire au moment de l'échantillonnage et à la sixième semaine. L'évaluation de la charge de travail par les membres du personnel soignant du groupe expérimental n'a diminué que de 8 % ($F = 6.8, p = .02$). Celles-ci ont indiqué que le soutien et les moments de répit avaient été appréciés, et que les bénéficiaires avaient pris plaisir à

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la visite et à la promenade. Bien que cette étude n'ait couvert qu'une brève période et porté que sur un petit échantillon, il en ressort que des améliorations ont été notées sur le plan de la charge de travail, le personnel soignant ayant exprimé sa satisfaction à l'égard du programme. Celui-ci n'a représenté aucun coût additionnel pour la structure de la santé et des services sociaux.

A program for elderly persons with cognitive impairment and their caregivers was evaluated for its effectiveness and efficiency with regard to caregiver burden, sense of coherence, satisfaction, and cost to the health-care system. The program consisted of a weekly 2-hour visit and walk by volunteers. During a 9-month period in 1997, all eligible referrals were randomly assigned to receive the service immediately (experimental group) or be placed on a waiting list to receive it 6 weeks later (control group). Eleven caregivers/recipients formed the experimental group; 10 caregivers/recipients formed the control group. All completed questionnaires at randomization and at 6-week follow-up. Perceived burden decreased by 8% only for the caregivers in the experimental group ($F = 6.8, p = .02$). They indicated that they appreciated the respite and support and that the care recipient enjoyed the visit/walk. Although this study was short in duration and small in sample size, improvements were noted in perceived caregiver burden and caregivers expressed satisfaction with the program. The program did not result in additional health and social-service expenditures.

Introduction

Special Steps is a visiting/walking program for "at risk" elderly persons with cognitive impairment who are residing in their private homes. The program consists of in-home care and supervision by a trained volunteer on a regularly scheduled basis. An integral component of each visit is physical and/or psychological stimulation in the form of a walk or outing, depending on the physical capabilities of the client. The program is designed to improve the activities of daily living and the physical and social well-being of the client as well as the emotional health of the caregiver. Its mission is to enhance quality of life for the cognitively impaired elderly living at home and their caregivers, by providing respite and thus decreasing the caregiving burden, to extend the community support network, and to reduce social isolation.

Background

Living with cognitive impairment can be devastating for both the person with the impairment and his/her caregiver, and thus poses a major challenge to the health-care system. Studies on caregiving show that a majority of elderly people with dementia live at home supported by a spouse, relative, or friend. Recent research findings indicate that although families will go to great lengths to avoid institutionalization, they are overburdened in trying to care for their relative with cognitive impairment (Miller, McFall, & Montgomery, 1991). Women make up

about three quarters of all caregivers (Malonebeach & Zarit, 1991; Stone, Cafferata, & Sangl, 1987). Wives and adult daughters provide most of the care and the most difficult types of care, with sons taking on the job of caregiving in the absence of a daughter to fulfil the role (Horowitz, 1985). In addition, a study by Brody, Kleban, and Johnsen (1987) concluded that women are more susceptible to conflict between employment and elder care and often get caught in the middle — sandwiched between caring for their children and caring for their parents (Brody, 1981).

Spousal caregivers are at highest risk of caregiver burden (Cantor, 1983; George & Gwyther, 1986; Tennstadt & McKinlay, 1989), are less likely to receive assistance from secondary caregivers, and may have some functional limitations (Tennstadt & McKinlay, p. 155). Adult sons and daughters are more likely than spouses to refer to stress or burden in the caring role (Johnson, 1983; Johnson & Catalano, 1983).

With increasing knowledge of the extent to which caregivers provide care, research has begun to focus on the impact of caregiving (Tennstadt & McKinlay, 1989, p. 155). Stress and burden are associated with caring for elderly persons with dementia. According to Zarit, Reever, and Bach-Peterson (1980), caregivers of the elderly with dementia often feel isolated, fatigued, and overwhelmed by the demands of caring. These symptoms are often labelled "caregiver burden" (George, 1987; Horowitz, 1985). Caregiver burden can refer to "any negative implications for mental health, for social or recreational involvement, for financial difficulties, and/or for physical health problems" (Chappell, 1992).

Studies consistently show that caregivers experience and report negative effects such as stress, strain, and depression in relation to their helping role (Jackson, Cooney, Walsh, & Coakley, 1991; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Poulshock & Deimling, 1984; Reese, Gross, Smalley, & Messer, 1994; Zarit, Todd, & Zarit, 1986). Their physical health may also be affected (Neundorfer, 1991). These effects, however, are not experienced by all caregivers and, overall, caregivers try to adapt (Horowitz, 1985).

Most of the research on stress and burden associated with the helping role has focused on caring for persons with dementia, documenting the physical, psychological, and social implications of providing care and the importance of interventions (Zarit, Antony, & Boutsellis, 1987). George and Gwyther (1986) conclude that caregivers of persons with dementia feel more burdened than caregivers of the physically frail. Although interventions to relieve caregiver burden

have been recommended, few studies have measured the effectiveness of such interventions using randomized control trial (RCT) methodology. The main finding of a recent review of the literature on the effectiveness of interventions for caregivers of relatives with cognitive impairment was that more research is needed; respite services for clients with cognitive impairment resulted in a reduction in nursing-home placement but little reduction in caregiver burden (Roberts et al., in press).

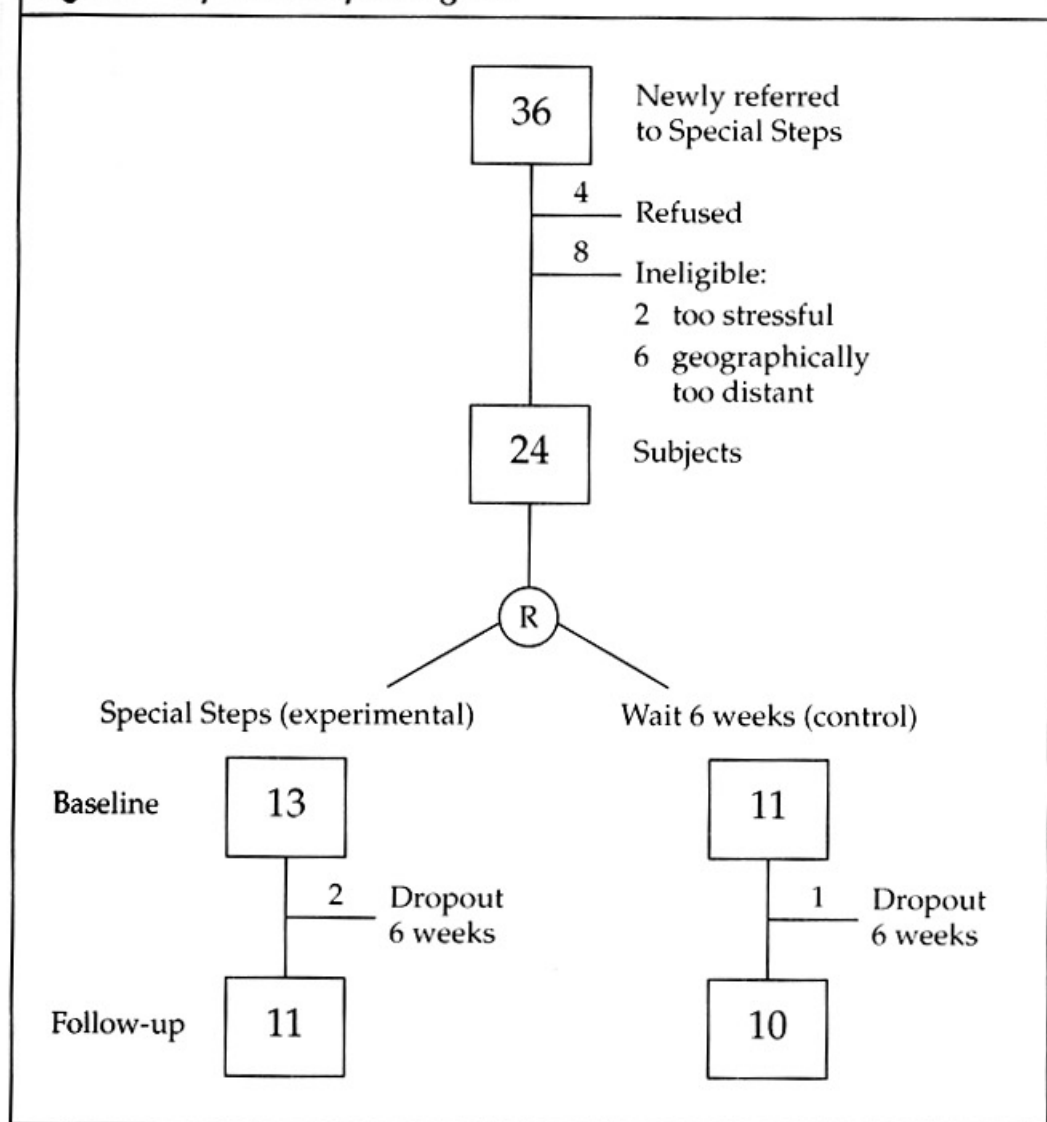
No evaluations of interventions using volunteers in a walking program in a home setting were found. A community-based exercise and walking program has been initiated, but efficacy results have not been published (Teri et al., 1998). Two studies evaluated walking programs in long-term-care facilities. Using an RCT design, Friedman and Tappen (1991) concluded that a walking and conversation program was beneficial for maintaining communications skills in patients with Alzheimer's disease in nursing homes. An institutionally based walking program was found to be effective, using a pre-post test design, in reducing the number of aggressive events by the client (Holmberg, 1997).

This trial was initiated to evaluate a community-based visiting/walking program provided by volunteers to reduce caregiver burden among those caring for relatives with cognitive impairment. Since few studies have documented health-care costs, it was also intended to measure health-care utilization, which involves identifying the use of health and social services and their associated costs.

Methodology

All clients with cognitive impairment referred to the Special Steps Program by community agencies, health professionals, or their family during the 9-month evaluation period were randomized to receive a volunteer visitor as soon as possible, usually within 2 weeks (experimental group), or later, after 6 weeks (control group). Questionnaires were completed by their caregivers at baseline and at 6 weeks (Figure 1). Randomization was carried out by computer-generated random assignment to group, and group numbers were placed in sealed opaque envelopes. Grouping was blocked after every four assignments so that groups would not differ greatly in sample size. Clients were eligible for the program if they had a caregiver, had a cognitive impairment, and were able to go on outings. Those consenting to complete the questionnaires and to participate were included in the trial.

Figure 1 *Special Steps Program*



Research Questions

1. Is there a difference in mean change score (baseline to follow-up) in caregiver burden, social support, and health-care expenditures between experimental and control groups?
2. Are informal caregivers of persons with cognitive impairment satisfied with the Special Steps Program?

Special Steps Volunteers

The volunteer's role was to provide assistance and companionship to an elderly person with a cognitive impairment and/or a related disorder.

der through a visiting/walking program. The volunteer was expected to make a commitment to the client of 2 hours each week, as well as to attend two 3-hour training sessions prior to being matched with a client and to attend monthly meetings with program staff. The Victorian Order of Nurses (VON) provided ongoing support and information and were available at all times should the volunteer have any concerns or any changes to report. The two training sessions covered education in cognitive impairments, including Alzheimer's disease, and behavioural changes; the volunteers were specifically trained in walking with clients with cognitive impairments and engaging them in conversation.

The Special Steps Program was designed as a pilot project but has become part of the regular services offered by the community health agency. The volunteer continues the weekly visits for as long as the caregiver finds them beneficial. For the purposes of this study, however, the intervention was evaluated over the first 6 weeks only.

Experimental Group

Thirteen clients randomized to the experimental group were matched with volunteers. Matching was based on interests and geographic proximity. The volunteers were mostly women. One third were college students; the remainder were seasoned community volunteers. The volunteers visited once a week for 6 weeks, the visits averaging 2.5 hours (*range* = 1–3 hours) in duration. Activities consisted of crafts, outings, and walks tailored to the client. All caregivers completed baseline measures; 11 completed the 6-week measures. Two clients with cognitive impairment did not complete the program: one died and one became too ill to participate.

Control Group

The caregivers of the 11 clients randomized to the control group completed baseline measures; 10 completed the 6-week measures. Clients in the control group were placed on the waiting list for a visitor in 6 weeks, at which time five of them began the program.

Measurements

All questionnaires were completed in written format and sent to the university for analysis. All 24 caregivers completed the questionnaire at baseline (before randomization); 21 completed it 6 weeks after the inter-

vention. However, two caregivers did not complete the social-support questionnaire.

Sociodemographic questionnaire. Client data on age, gender, education, culture, income, living arrangements, and caregiver support characteristics were collected via an interview. These questions were specifically developed for this study.

Health and social service utilization. The health and social service utilization outcome variable was measured using an inventory developed by Browne (Browne, Arpin, Corey, Fitch, & Gafni, 1990) based on Spitzer's methodology. It consists of questions about the respondent's use of direct health services: primary care; emergency room; hospital episodes and days (irrespective of episode); other health professionals; and laboratory services. Psychometric information for this inventory has not been published. Inquiries were restricted to a 6-week recall span. To calculate annual utilization costs, the various spans of time were extended per category of health service and multiplied by the dollar value of the service to yield a per person/per annum cost for health and social services.

Social support. The 8-item Duke-UC Functional Support Questionnaire measures the functional aspects of supportive relationships on a 5-point scale under the headings *confident support* (5 items) and *affective support* (3 items), with response options ranging from "as much as I would like" to "much less than I would like." Criterion validity is considered good and test-retest reliability is $r = .66$ (Broadhead, Gahlback, deGruy, & Kaplan, 1988).

Client satisfaction. This 8-item questionnaire was completed by the caregiver on a scale of 1 to 4, indicating dissatisfaction or satisfaction with global and specific aspects of the program. The questionnaire was given a total score. Content, construct, and predictive validity have been reported as satisfactory, and it has good split-half reliability and high internal consistency ($\alpha = .84$) (Nguyen, Attkisson, & Stegner, 1983).

Caregiver burden. This interview questionnaire has 22 items and a 5-point scale evaluating the subjective impact of caregiving. Internal consistency using Cronbach's alpha has been estimated at .88, test-retest reliability at .71 (Zarit et al., 1986; Zarit, Orr, & Zarit, 1985).

Analysis

Experimental and control clients and caregivers were described and compared on variables at baseline. Change scores on outcome variables were compared using analysis of variance statistical analysis (ANOVA). The alpha level was set at .05 using the SPSS 8.0 computer program. At baseline, members of the control group were of a higher educational level. Since it was thought that level of education might have an effect on caregiver burden and as the sample was small, ANCOVA was used to equate the two groups on this important variable (Munro, 1997).

Results

Sample

Of the 36 caregivers approached, four refused to participate because they did not have the time to complete the questionnaire and eight were ineligible (six did not live close by and two were too stressed). Thus 13 caregivers were randomized to the experimental group and 11 to the control group. At 6 weeks there were three dropouts due to death or illness, two in the experimental group and one in the control group.

Two caregivers did not give their age. The remainder had a mean age of 58 years; the majority were daughters or daughters-in-law; most had a high school education; all spoke English. They spent an average of 14 hours per day with their relative; 67% lived with the relative. Care recipients had a mean age of 80 years; 80% were women; approximately one half had an adequate income. There was equal distribution of severity of condition, with one third having mild, one third moderate, and one third severe dementia (Table 1). The two groups of caregivers were compared at baseline. A statistically significant difference was found in educational level, with the control group having more years of education ($t = 2.63, p = .02$) (Table 1).

Satisfaction

The 11 caregivers in the experimental group were very satisfied with the program, indicating that the quality of the service was excellent and they would recommend it to a friend. Mean satisfaction score was 3.62 ($\pm .32$) out of 4 (with 4 indicating very satisfied) (Table 2).

Table 1 *Description of Caregiver and Care Recipient Characteristics*

	Total (<i>n</i> = 21)		Special Steps		Control		Statistic	
	Mean		Mean	SD	Mean	SD	<i>t</i>	<i>P</i>
Caregivers								
Age in years (<i>n</i> = 20)	57.6		58.2	12.4	56.8	15.5	.22	.83
Education in years	14.3		12.9	2.4	15.8	2.7	2.63	.02*
Hours spent with relative (<i>n</i> = 20)	14.0		16.9	8.7	11.9	01.8	.96	.35
Care Recipients								
Age in years (<i>n</i> = 20)	80.2		81.4	8.1	78.7	7.6	0.76	0.46
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	χ^2	<i>P</i>
Caregivers								
Sex: Female	2e + 17	86	1e + 13	91	9e + 12	80	.51	.48
English only language		76		73		80	.15	.70
Relationship								
Husband		19		27		10	2.37	.50
Wife		14		9		20		
Daughter		62		64		60		
Other		5		0		10		
Live with		67		73		60	.38	.54
Income								
Low		38		55		20	4.49	.21
Medium		57		45		70		
High		5		0		10		
Severity of illness								
Mild		33.3		27		40	1.53	.47
Moderate		33.3		27		40		
Severe		33.3		46		20		
Care Recipients								
Sex: Female (<i>n</i> = 20)	16	80	8	73	8	89	.81	.37

Table 2 *Client Satisfaction with Program*

	Excellent		Good		Fair		Poor	
	N	%	N	%	N	%	N	%
Quality of service	10	91	1	9	0		0	
Kind I wanted	8	73	3	27	0		0	
Met my needs	4	36	6	55	1	9	0	
Recommend to a friend	9	82	2	18	0		0	
Satisfied with help	7	64	3	27	0		1	9
Helped me deal with problems	7	64	4	36	0		0	
Generally satisfied	7	64	4	36	0		0	
Would come back	10	91	1	9	0		0	

Caregiver Burden

The statistical assumptions for ANOVA (data normalcy and homogeneity of variances) were met for the burden change score. Since there was a difference in educational level between the groups at baseline, education was used as a covariate. There was a difference of 2.5 in the burden change score, and using ANCOVA there was a statistically significant difference between groups ($F = 6.8, p = .02$), with those in the experimental group lowering their burden by 8% and those in the control group increasing their burden by 3% (Tables 3 and 4). The confidant social support improved for the experimental group and decreased for the control group; however, there was no statistical difference in social support change between groups (Table 3).

Health and Social Service Utilization

Annualized average health expenditures for the two groups were compared at 6 weeks. Average expenditures for services were \$2,575 per caregiver and \$11,667 per care recipient. Interestingly, the majority of expenditures were for homemaker services. There was no statistically significant difference between the two groups.

Table 3 *Comparison Between Groups of Mean Change Scores in Social Support and Burden*

Variable	Special Steps			Control			Statistic	
	N	Mean	SD	N	Mean	SD	t	P
Social support change score								
Confidant support	9*	1.10	2.3	1010	-.20	2.9	1.11	.28
Affective support	9*	-.44	2.9		.00	2.4	.37	.72
							<i>F</i>	<i>P</i>
Burden	11	-4	6.8	10	1.51	9	6.76	.02

* 2 subjects did not answer questionnaire.

Table 4 *ANCOVA: Differences Between Experimental and Control Group in Caregiver Burden When Education Level Controlled*

Variable	df	ms	F	P
Covariate: Education	1	241.9	4.63	0.045
Main Effect: Groups Effort	118	353.4 52.3	6.78	0.018

Conclusion

Caregivers in the experimental group were extremely thankful for and satisfied with the Special Steps Program, perceiving less caregiver burden than those in the control group. Quantitative results show a significant decrease in perceived caregiver burden with the program. This finding was supported by qualitative comments by the caregivers, which were collected in an unstructured interview by the research assistant. Although no formal analysis was made of these comments, they raise interesting points. The benefits of the program are described eloquently by two of the caregivers: "As the volunteer is skilled and aware of behaviours, I have not had to worry about attending with the volunteer and it has eased my feelings of responsibility." "She helped me bear and share the shock of the change my mother-in-law was going

through and it is very comforting to know that someone was visiting her without judging her in any way." The volunteers found the training worthwhile and indicated that they enjoyed the experience, as expressed by one of the volunteers: "It is satisfying to know you have made someone's day a little brighter." Open-ended comments by clients and volunteers indicate that the program director, a VON nurse, was important to the success of the program.

Discussion

The results of this study indicate that the informal caregivers of older adults with dementia can benefit from a regular walking program provided by trained volunteers. This program was developed and coordinated by nurses at a community agency, who recruited, trained, and provided ongoing support to the volunteers. The volunteers were recruited through college programs, agencies such as the Alzheimer Society, and newspaper advertisements and mall displays. Most were female. They were either students, retired women, or part-time workers. Most had previous volunteer experience. The elderly clients and their caregivers were recruited on the basis of whether they were likely to benefit from the program. The Special Steps Program is relatively easy to set up and is administered through community access centres.

This study provides preliminary evidence of the benefits of a walking program provided by volunteers in the home setting. The last several years have seen the development of many formal day programs to help the elderly with dementia maintain their skills and functioning by offering them the opportunity to participate in meaningful activities. Many of these programs have not been evaluated. Results from the limited number of methodologically sound evaluations that do exist support the benefits of a variety of purposeful activities such as the walking and conversation program described in this paper (Bach, Bach, Bohmer, Gruhwalk, & Grik, 1995; Friedman & Tappen, 1991; Koh et al., 1994). For a recent review of the effectiveness of activity programs for older adults, see Occupational Therapy Evidence-based Practice Research Group, McMaster University (1999).

The results of this pilot study should be interpreted with its limitations in mind. The study, although an RCT, had the following design limitations: small sample size, relatively short intervention period, and no direct measure of the effects on the client with cognitive impairment. Of interest would be physical and emotional clinical outcomes. Despite these limitations, which affect the generalizability of results, this study

provides preliminary evidence to support the benefits of reducing caregiver burden through a relatively inexpensive program coordinated by community nurses.

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Designer's Corner

Alternative Therapies and Placebos: Conceptual Clarification and Methodologic Implications

Souraya Sidani and Bonnie Stevens

The past decade has witnessed increased public awareness and use of alternative therapies for the management of diseases and symptoms (Schwartz, Chesney, Irvine, & Keefe, 1997). Spiro (1997) relates the increased use of alternative therapies to the need for personal connection, belonging, and comfort. A variety of biochemical, psychophysiological, and psychological therapies are available, including homeopathic preparations such as sulphur for dermatoses (Linde et al., 1997), acupuncture, reflexology, massage therapy, therapeutic touch, and self-help approaches. Margo (1999) reports that alternative therapies are used by 20% to 50% of persons in industrialized countries, with some \$14 billion being spent on such therapies in the United States. A large number of publications have been devoted to alternative therapies (e.g., *Journal of the American Medical Association*, 280, 1998); medical and nursing schools are offering courses in alternative therapies; and funding has been made available to systematically investigate the effects of alternative therapies (e.g., National Institutes of Health) (Kwekkeboom, 1997).

Despite the interest in alternative therapies and the accumulating empirical evidence supporting their effectiveness, some scholars view these therapies with scepticism. Many consider them as placebos (Linde et al., 1997; Shapiro & Shapiro, 1997). The arguments for or against considering alternative therapies as placebos are based on differences in professional paradigms and perspectives on what constitutes a placebo

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(Brody, 1985) and in the theory underlying the therapeutic effects of the treatment being evaluated (Grunbaum, 1985). Thus, what one professional considers as a placebo another views as a therapeutic intervention (Spiro, 1997). In this paper we will clarify two perspectives of placebo: the traditional and the alternative. We will review the conceptualizations of placebo within each perspective and the mechanisms underlying placebo effects. We will also discuss the methodological implications of addressing placebo effects in intervention evaluation research from the two perspectives. Addressing these effects is essential to enhancing the validity of the study conclusions.

Definitions

The term *placebo* was introduced in medicine, and later in psychotherapy, to refer to *sham* treatments. Sham treatments consist of inert substances, preparations, or pills given by physicians, or innocuous interventions delivered by therapists, to please or satisfy patients rather than to benefit patients in relation to the specific ailment or symptom being treated (Harrington, 1997; Peck & Coleman, 1991; Straus & Cavanaugh, 1996). Although placebos are assumed to be inert and harmless, they have the power to produce actual clinical improvement in the patient's condition (Sullivan, 1993). The effectiveness of placebos ranges from 15% to 58%, depending on the patient population and the conditions or symptoms presenting (Elander & Hermeren, 1995; Ilnyckyj, Shanahan, Anton, Cheange, & Bernstein, 1997; Jospe, 1978; Quitkin, 1999; Shetty, Friedman, Keiburtz, Marshall, & Oakes, 1999).

The term *placebo effects* refers to changes in the patient's condition or symptom that are produced by the placebo (Grunbaum, 1985; Peck & Coleman, 1991). It can be reflected in favourable outcomes such as improvement in the patient's condition, or in unfavourable outcomes such as worsening of the condition or development of side effects (for details, see Hahn, 1997).

The classic example of a placebo in the field of medicine is a sugar pill or saline injection given for pain relief. Studies have found that placebos are effective in reducing pain intensity by about half in approximately a third of patients who experience severe pain (Evans, 1985; Jospe, 1978). The examples of placebo in the field of psychotherapy are limited. Wilkins (1985) provides two: (1) pre-therapy — conducting an initial interview and psychological assessment but not providing any form of psychotherapy, and (2) pseudotherapy — involving the patient in general conversation during the scheduled session(s) but not addressing the patient's actual problems.

Placebo is, therefore, any treatment that is used in the same way as an active treatment; it may produce therapeutic effects similar to those expected of an active treatment (Ross & Buckalew, 1985). The similarity in the therapeutic effects achieved by a placebo and an active treatment is perplexing. Both types of treatment have been shown to produce clinical improvement in the patient's physiological and psychological functioning (Harrington, 1997; Jospe, 1978). These observations raise some fundamental theoretical questions: What distinguishes a placebo from an active treatment? How can the therapeutic effects of a placebo treatment be explained? Can an active treatment include a placebo treatment? If yes, how validly can we attribute the observed therapeutic effects to the causal effects of the active treatment?

Conceptualization of Placebo Treatments and Effects

Clinical observations and results of studies have led scholars to acknowledge the healing power of placebos. Scholars, however, differ in their conceptualization of placebo treatments and effects. Some view placebos as innocuous treatments and contend that placebo effects are non-specific noise, or nuisance; they dismiss these effects from further consideration since, in their opinion, they defy scientific explanation. Other scholars view placebos as aspects of any treatment and contend that placebo effects are clinically important processes that warrant further investigation (Harrington, 1997; Peck & Coleman, 1991; White, Tursky, & Schwartz, 1985). We label the first view the traditional perspective and the second the alternative perspective of placebo.

Traditional Perspective

The traditional conceptualization of placebo as innocuous treatment and its effects as nuisance is consistent with the traditional, reductionistic, mechanistic paradigm of science. This paradigm is dominant in contemporary medicine and guides investigation of the effectiveness of medications. Medicine is focused mainly on the bio-physio-chemical processes underlying a disease, and on treating these ailments with medications. Medications contain active ingredients or substances, which, when administered, initiate a series of bio-physio-chemical mechanisms that ultimately lead to resolution of the disease and to clinical improvement in the patient's condition. Within this paradigm, the therapeutic effects observed following the administration of an active medication are the direct results of the mechanisms initiated by the active ingredients of the medication. In contrast, the therapeutic effects observed following the administration of a placebo cannot be attributed

to the bio-physio-chemical mechanisms, since, by definition, a placebo is an inert substance that does not contain the active ingredients capable of initiating these mechanisms. Rather, placebo effects refers to phenomena outside the boundaries of specific, active, bio-physio-chemical causes; they are the result of psychosocial factors associated with the "pill-taking ritual" (Kirsch, 1997; Wilkins, 1985). The psychosocial factors relate to the patient's beliefs and expectations; the physician's attitudes, expectations, and beliefs; and the physician-patient relationship that develops during the treatment period. These psychosocial factors could also be present, and have been recognized as taking place, during the administration of active medications. They may, however, confound the therapeutic effects expected of the active medications, because they have been shown to produce the same therapeutic effects. Thus, it becomes difficult to claim, validly, that the observed therapeutic effects are the direct and sole result of the bio-physio-chemical mechanisms initiated by the active ingredients of the medication. Medical research is geared towards demonstrating that the therapeutic effects are a direct result of the bio-physio-chemical mechanisms initiated by the active ingredients of the medication, and not a consequence of the psychosocial factors; the latter factors present major threats to the construct validity of the study.

While attributing placebo effects to psychosocial factors is admissible in medicine, where the primary focus is the bio-physio-chemical processes, it is not acceptable in the field of psychotherapy (Wilkins, 1985). By definition, these psychosocial factors and their associated effects are the primary focus in psychotherapy. Many psychotherapists argue that placebo effects, as conceptualized above, are psychological processes representing aspects of psychotherapy and cannot be viewed as placebo (Shapiro & Shapiro, 1997). In psychotherapy, placebo treatment has been redefined as: (1) any therapy prescribed knowingly or unknowingly by a healer, or used by a layman, for its therapeutic effects on a symptom or disease, but which actually is ineffective or not specifically effective for the symptom or disorder being treated (Shapiro & Shapiro); and (2) an intervention for which there is no clearly defined mechanism of action (Ilnyckyj et al., 1997).

The elements that characterize a placebo are lack of specificity of the placebo therapy to the condition or symptom for which it is given, and lack of understanding of the mechanisms that explain the changes in the patient's condition observed following the administration of placebo. The two elements relate to the notion that placebo therapy, compared to active therapy, lacks specific components that are presumed to initiate the mechanisms responsible for producing the thera-

peutic effects; therefore, the placebo exerts its effects through alternative, non-specific processes that are not known.

Alternative Perspective

The alternative conceptualization of placebos as aspects of any treatment and their effects as clinically important, favourable outcomes is consistent with the emphasis on the bio-psycho-social, holistic view of health, and with the recognition of the complexity of clinical reality. In this perspective, patients are viewed as complex beings, actively interacting with their environment. The complex nature of human beings demands multidimensional treatments that address the multiple domains of health. Treatments are delivered to and received by individuals who interact with each other within a socio-cultural context. The therapeutic effects of treatments result from a complex system of multiple factors (Hegyvary, 1991; Paul, 1985). Consequently, all factors that influence the expected outcomes of an intervention need to be identified based on the theory underlying the intervention effects, and empirically investigated (Sidani & Braden, 1998).

Placebo effects are considered an integral part of a patient's treatment. They represent the non-specific aspects of any treatment, whether the treatment is an active medication or psychotherapy, but produce specific effects (Kirsch, 1997; Ross & Buckalew, 1985; Straus & Cavanaugh, 1996; Sullivan, 1993). Grunbaum (1985) clarifies this conceptualization of placebo effects. He proposes that any treatment consists of two categories of factors: characteristic and incidental. Characteristic factors refers to the specific or unique ingredients or components of the treatment that are presumed to initiate the mechanisms known to produce the intended changes in the disorder or symptom being treated. Incidental factors refers to the non-specific or generic ingredients or components of the treatment that also produce the intended therapeutic effects. Incidental factors involve aspects or procedures performed as part of the treatment that influence outcome either directly or indirectly. The indirect influence can take two forms: through specific mechanisms (i.e., a series of changes leading to the intended outcomes), or by moderating (i.e., strengthening) the effects of the characteristic factors on the outcomes. The theory underlying the treatment delineates the characteristic and incidental factors, and specifies how the factors produce the therapeutic effects (Borkovec, 1985; Grunbaum; Straus & Cavanaugh). Thus, what is considered a placebo depends on the intervention theory, and placebo effects are not necessarily artifacts (Peck & Coleman, 1991; Sullivan). For instance, the patient's beliefs and

expectancies, considered as nuisance in the traditional perspective, could be viewed as important factors mediating the effects of a medication, and should be taken into consideration, rather than controlled for, when the effectiveness of the medication is being determined. Evans (1985) summarizes this perspective: "The placebo effect should be considered as a potent therapeutic intervention in its own right, rather than merely a nuisance variable. The placebo can be understood as if it were another active agent whose effects can be independently evaluated and whose mode of action is worthy of independent investigation" (p. 215).

Mechanisms Underlying Placebo Effects

The exact mechanisms explaining placebo effects are not yet well known. Several psychological and psycho-physiological processes have been suggested as mediating placebo effects, which could be psychological and/or physiological in nature.

Endorphins

The placebo effects specific to pain may be mediated by the release of endorphins (Hrobjartsson, 1996; Peck & Coleman, 1991). Kirsch (1997) explains the release of endorphins after the administration of placebo by the following processes: The effects of placebo medications generally mimic those of active drugs. Taking the placebo engenders expectancies of improved outcomes; these expectancies may produce some feature of the expected physiological response and may be accompanied by the release of endogenous opioids in the brain. The findings of studies testing the role of endorphins in mediating the placebo effects have been inconsistent (Jospe, 1978; Kwekkeboom, 1997).

Expectancies

The concept of expectancy is central to cognitive theories. Cognitive theories propose that the therapeutic effects of a treatment are mediated by the expectancies of the individual. Two expectancies are of interest: (1) outcome expectancy, which is the belief that a given treatment will lead to improvement; and (2) efficacy expectancy, which is the belief that one can successfully execute the treatment. Expectancies are developed in different ways, including previous experience with the treatment, previous learning, provision of information, and persuasion. Outcome expectancy is frequently assumed to be responsible for placebo effects (Bootzin, 1985; Peck & Coleman, 1991); the expectation

that a condition or symptom will improve results in actual improvement in the condition or symptom, regardless of how the expectation was developed (Kirsch, 1997). Results of several studies provide evidence supporting the contribution of expectancy to placebo effects (e.g., Price et al., 1999), particularly in pain management (Jospe, 1978; Price & Fields, 1997).

Suggestion

Suggestion consists of the practitioner or researcher providing the patient with information about the treatment, such as its nature, mode of action, and anticipated effects, and emphasizing its benefits. Suggestion is believed to influence the individual's perception of the treatment and expectancy for improvement (Jospe, 1978; Kwekkeboom, 1997). The effects of suggestion have been investigated in few studies, with no consistent relationship between suggestion and placebo effects being found (Evans, 1985).

Conditioning

Conditioning refers to learning through previous experience or association, as proposed by classical and operant conditioning theories. If a patient experiences repeated instances of a treatment having positive effects, those same positive effects tend to occur when the treatment is given again (Hrobjantsson, 1996; Peck & Coleman, 1991; Straus & Cavanaugh, 1996). Although results of studies provide evidence that previous exposure to an effective treatment enhances placebo effects, Price and Fields (1997) and Kirsch (1997) contend that such experience is not a necessary or contingent condition for the occurrence of placebo effects. Rather, they propose that conditioning leads to the formation of expectancy improvement, which, in turn, contributes to the placebo effects.

Motivation

Motivation is defined as the degree to which individuals desire to experience an improvement in their condition (Price et al., 1999). The influence of motivation on placebo effects has been demonstrated in laboratory studies of pain, which have found that with increased pain there is a greater need and desire for relief, and therefore greater placebo effects (Price & Fields, 1997). Thus, patients experiencing distressing symptoms may exhibit a strong desire for relief and consequently increased

placebo effects. Motivation (i.e., desire for treatment to relieve pain) was not found to contribute significantly to placebo effects when tested against expectancy (i.e., expectation that pain will be relieved) in an experimental study of pain (Price et al.).

Reduced Anxiety

Reduced anxiety has been suggested as a mechanism underlying placebo effects. The experience of alteration in health condition or development of a symptom is associated with increased anxiety, which adversely affects health and symptom perception and experience. Seeking treatment, speaking with a health-care provider, receiving attention from the health-care provider, and receiving treatment (even if it is a placebo treatment) are believed to alleviate anxiety and subsequently to improve the individual's condition or symptom (Evans, 1985; Quitkin, 1999). The influence of reduced anxiety and the exact mechanism underlying its influence on placebo effects have not been investigated and remain unclear (Kwekkeboom, 1997).

Meaning Model

Brody (1985, 1997) developed the meaning model to explain the placebo effects in a clinical context. The model proposes that positive placebo effects are likely to occur when the meaning attached to an illness or treatment experience by a patient is altered in a positive manner. Alteration of meaning occurs when the patient is provided an understandable and satisfying explanation of the illness or treatment experience and is supported by caring health-care providers, and when the patient's sense of mastery and control over the illness is enhanced. These alterations take place within the physician-patient relationship. The contribution of this relationship to the development of placebo effects has been recognized by several scholars and clinicians (Finkel, 1985; Margo, 1999; Peck & Coleman, 1991; Straus and Cavanaugh, 1996).

While several mechanisms have been proposed to explain placebo effects, there is insufficient empirical evidence to support them or to favour one over the other. This "state of affairs" endorses the complexity of placebo effects in that they can be attributed to multiple, interrelated factors and mechanisms. The contributing factors are associated with the patient, the therapist, the therapist-patient relationship, and the treatment itself.

Methodological Implications

Theoretical and empirical knowledge related to placebo treatments and effects has developed over the years. Placebo effects are acknowledged; they are likely to occur with the delivery of any treatment, to any patient population, by any therapist, in either a clinical or a research context. Nonetheless, our understanding of placebo effects remains limited. This knowledge gap could be partly associated with the traditional conceptualization of placebo treatments and effects that has dominated scientific endeavours and that has influenced the design of intervention evaluation studies.

The traditional conceptualization acknowledges placebo effects but considers them as artifacts or threats to the construct validity of the study, as they are confounded with treatment effects (Cook & Campbell, 1979). Studies aimed at evaluating treatment effectiveness should be carefully designed to minimize these potential threats and/or to allow for dismantling the placebo from the intervention effects. The double-blind, placebo-controlled, randomized-clinical-trial design is viewed as the gold standard design for evaluating the effectiveness of an intervention (Margo, 1999; Quitkin, 1999). It is extensively used in drug-effectiveness studies (Straus & Cavanaugh, 1996). Eligible patients are randomly assigned to receive the medication that contains the active ingredients (treatment group) or an inert substance (placebo group). The active and placebo medications should have identical properties to maintain the double-blind condition, whereby the patients and the therapists are unaware of the nature (i.e., active vs. placebo) of the medications being given. The double-blind condition minimizes hypothesis-guessing and/or expectancies in the patient, and minimizes bias, enthusiasm, and expectancies in the therapist. The statistical analysis involves comparison of the post-test outcomes between the two groups. A statistically significant difference, in which the intervention group shows more improvement in the outcomes than the placebo group, indicates the effectiveness of the active medication (Peck & Coleman, 1991; Quitkin; Wilkins, 1985).

Designing and conducting double-blind, placebo-controlled trials can be challenging. "Blind" conditions cannot be maintained if the active and placebo medications are not identical in all their properties (such as label, form, mode of administration, dosage, effects, and side effects). Differences between the two medications in dosage, onset of effects, and development of side effects have been reported because of the difficulty in finding a placebo that mimics the active medication

(Ross & Buckalew, 1985; Straus & Cavanaugh, 1996). Such differences can be noticed by either the patient or the therapist, or both.

In the field of psychotherapy it is very difficult to find identical or equivalent treatments. Pre-treatment activities and pseudotherapy have been proposed as placebo treatments. The delivery of placebo psychotherapy is entrusted to a therapist who can easily differentiate a placebo from an active therapy. Therefore, it is impossible to keep the therapist unaware of which therapy is being delivered to which patient. The blind condition is breached. The therapist's awareness of the type of therapy being delivered may influence the patient's response, intentionally or unintentionally (Wilkins, 1985).

In addition, the double-blind, placebo-controlled design has been criticized for its limited utility in minimizing other threats to the validity of the study conclusions. These threats include regression to the mean in studies of severe pain (Straus & Cavanaugh, 1996) and Hawthorne effects (Weihrauch & Gawler, 1999). Finally, this design has been criticized on ethical and theoretical grounds. It is considered unacceptable to provide placebo treatment for conditions for which there are therapies that are deemed safe and effective (Margo, 1999; Straus & Cavanaugh). These trials do not entirely eliminate mechanisms that are believed to contribute to placebo effects, such as: expectancy that treatment will be delivered and improvement gained through participation in research; knowledge of the treatment, its effects, and its side effects acquired through the process of obtaining informed consent (Elander & Hermeren, 1995; Peck & Coleman, 1991; Weihrauch & Gawler); spontaneous or natural recovery from the illness (Hrobjartsson, 1996; Margo); and influence of the context or environment (Paul, 1985).

Modifications of the double-blind, placebo-controlled clinical trial have been suggested to address some of the above-mentioned limitations of this design. For example, a third, no-treatment, control group could be incorporated into the double-blind, placebo-controlled design. Any changes in the outcomes observed in the no-treatment control group will be spontaneous and related to natural recovery, or will be a result of the patient's guess of the investigator's hypothesis about the anticipated changes in outcomes (Peck & Coleman, 1991). The difference between the placebo control group and the no-treatment control group provides an estimate of the placebo's impact. A waiting-list control group design could be used to overcome the ethical issue and/or to generate a placebo treatment in psychotherapy research. In this design, patients are randomly assigned to (a) receive the treatment immediately, or (b) a waiting list. Patients assigned to the waiting list

serve as a placebo control group, since they have been involved in a study and received initial assessment. They are given the treatment after taking the post-test measures from the immediate-treatment group (Hrobjantsson, 1996).

The alternative conceptualization considers placebos as part of the treatment and their effects as clinically important. The incidental factors of the treatment that contribute to the placebo effects are identified by the theory underlying the treatment. Once identified, these treatment factors can be incorporated into a study designed to evaluate the treatment of interest, and their influence on outcomes determined. The mechanisms underlying the placebo effects presented earlier are examples of incidental factors of treatments. They can be incorporated into the design of a treatment evaluation study as suggested by Peck and Coleman (1991). These authors propose a balanced placebo design. In this factorial design, half the patients are told they will receive the treatment while the other half are told they will not. In each of the two groups, half the patients actually receive the treatment while the other half do not. This factorial design enables the researcher to disentangle the effects of expectancy from those of treatment. The authors also recommend the use of a within-subject design, in which patients are given first the active treatment, then the placebo treatment. This design allows for testing of the mechanism of conditioning that explains the placebo effects. A more complex design involving three groups — active treatment, waiting-list control, and active treatment followed by control condition — is proposed by Schwartz et al. (1997). The theory-driven approach to intervention evaluation research is another strategy for investigating placebo effects. This approach is consistent with the alternative conceptualization of placebo treatments and effects, which advocates: (1) identifying factors related to the patient, therapist, setting, and intervention that affect the achievement of outcomes expected of the intervention, based on the theory underlying the intervention; (2) measuring these factors; and (3) determining the influence of these factors through multivariate statistical analyses (for details, see Sidani & Braden, 1998).

Conclusions

Placebo treatments have been traditionally defined as non-specific causes that result in therapeutic effects. As long as the characteristic ingredients or components, as well as their mechanisms of action, remain unclear, they will be looked at unfavourably and considered as artifacts or nuisance, since they confound the treatment and its effects.

Such confounding presents threats to the validity of the claim that the treatment is effective in producing the expected outcomes.

Alternative therapies may be viewed as placebos because their characteristic components and their mechanisms of action are not well articulated or understood. Delineating the components and mechanisms underlying the effects of alternative therapies is an essential step in the process of clarifying this misconception and establishing their value. Future research should be guided by the theory underlying alternative therapies and identifying their characteristic and incidental factors, and should be directed towards testing the theory. This approach to research is advantageous and useful for any intervention evaluation study, as it allows for dissociation of the therapeutic effects of the intervention from those effects resulting from the incidental factors (placebo) and understanding which aspects of the intervention are characteristic and which are incidental.

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Balancing Relationship and Discipline: The Pressing Concern of Mothers of Early-Adolescent Girls

Elizabeth Diem

Les mères de jeunes adolescentes (10-14 ans) éprouvent souvent de la difficulté à gérer les rapports avec leurs filles. Cette étude explore la relation mère-fille du point de vue des mères, dans le but d'identifier la plus grande préoccupation de celles-ci et les stratégies qui peuvent les aider à traiter cette question. Une grille qualitative fondée sur une approche participative féministe a été utilisée auprès de deux groupes de mères demeurant dans des zones socioéconomiquement défavorisées (SES) d'une petite ville de l'Ontario, au Canada, pour une période de 10 semaines. La préoccupation dominante des deux groupes était l'adoption d'un équilibre entre la dimension relationnelle et la discipline. Par le biais d'un questionnaire destiné à explorer les thèmes qui les touchaient, les mères ont acquis le soutien, les connaissances, les compétences et la confiance nécessaires pour traiter avec leurs filles. Cette étude d'introduction devrait favoriser la compréhension qu'ont les infirmières de la relation mère-fille vécue dans le cadre de l'adolescence et offre une stratégie prometteuse à l'intention de petits groupes qui pourrait aider les mères à traiter des questions qui les préoccupent.

Mothers of early-adolescent girls (10-14 years) often experience difficulties in dealing with their daughters. This study explored the mother-daughter relationship from the perspective of the mothers, to identify their most pressing concern and the strategies that might help them address this concern. A qualitative design employing a feminist participatory approach was used with 2 groups of mothers living in low socioeconomic status (SES) areas of a small city in Ontario, Canada, over a 10-week period. The most pressing concern of both groups was balancing relationship and discipline. Through the use of questioning to explore their issues, the mothers gained the reassurance, knowledge, skill, and confidence to deal with their daughters. This introductory study should contribute to nurses' understanding of the mother-daughter relationship during adolescence, and it offers a small-group strategy that shows promise in assisting mothers to address their concerns.

The changes experienced by both mothers and their 10- to 14-year-old daughters identify early adolescence as a transitional stage. During puberty, girls experience the convergence of many changes that affect their feelings about themselves and how they relate to others, especially

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their mothers. Mothers often react with confusion and frustration to their daughter's altered and frequently angry behaviour. The relationship suffers, leaving the daughter more susceptible to risk behaviours, such as taking up drinking and smoking, that are associated with adolescence. Nurses who have a deep understanding of both the mother-daughter relationship during this transitional period and the strategies that might be used to strengthen the relationship are better able to provide appropriate assistance.

Researchers working in developmental and health psychology have found that parental support can protect adolescents from risk behaviours and promote healthy development (Baumrind, 1991; Keating, 1990; Steinberg, 1990). Parents, especially mothers, with few financial resources are in even greater need, since poverty is associated with increased risk behaviours and reduced parenting ability, mental health, and social support (Klebanov, Brooks-Gunn, & Duncan, 1994).

In attempting to address this deficit in the provision of support to mothers of adolescent girls, I used a participatory research approach with two groups of mothers living in low socioeconomic status (SES) areas. The goal was to foster a change in their roles and relationships and to identify a group process that might encourage such a change. This paper focuses on three aspects of the larger study (Diem, 1996-97): (a) the most pressing concern presented by mothers of early-adolescent girls, (b) the strategies used to encourage the women to address this concern, and (c) the implications for nurses working with the mothers of adolescent girls.

Background

At early adolescence, girls face multiple changes and restraints that make it difficult for them to negotiate new relationships within the family, especially with their mother (Brooks-Gunn & Reiter, 1990; Gilligan, 1987; Simmons & Blyth, 1987; Steinberg, 1990). Yet there is a scarcity of studies that seek either to explicate the difficulties from the perspective of mothers or to assist mothers in supporting their daughters.

Early Adolescence as a Transitional Stage for Girls and Their Mothers

Although the relationship of mothers with their early-adolescent daughters is described as affectively charged and characterized by high levels of closeness and discord (Steinberg, 1990), studies tend to dwell on the discord rather than the closeness. For example, several studies

have found that squabbles and "perturbations" are part of the mother-daughter relationship at adolescence and are upsetting to both parties (Collins, 1990; Hill, Holbeck, Marlow, Green, & Lynch, 1985; Smetana, 1991; Steinberg, 1990). The following statements by mothers will serve to illustrate: "We can argue over whether the sky is blue"; "We fight ten times a day over the most ridiculous stuff. It is like being nibbled to death by minnows" (Pipher, 1994, pp. 65-66). A study conducted with mothers and daughters in Britain and the United States found that mothers tended to interpret the conflict as a need for their daughters to separate, while the daughters viewed it as a means of readjusting the connections to accommodate for their growth (Apter, 1990). The need for complete separation as presented by early developmentalists has now been refuted in favour of the need for open communication leading to a renegotiated relationship (Steinberg, 1990), especially for girls (Gilligan, 1982).

Some of the anger and discord can be traced to the developmental and relational changes confronting adolescent girls and their mothers. All early adolescents are faced with a convergence of physical, cognitive, emotional, and social developmental changes (Montemayor & Flannery, 1992). In particular, their newly acquired, and therefore undeveloped, cognitive skills render their understanding of themselves and their relationships erratic and make reasoning with them difficult (Keating, 1990; Pipher, 1994). However, girls face a greater burden of physical and psychological changes at adolescence than boys. They experience puberty 1 to 2 years earlier (Malina, 1990) and must deal with the task of redefining themselves as separate from but related to their mother, a task that boys complete when they are toddlers (Chodorow, 1978).

As well, societal pressures are much greater for girls than for boys. Girls are confronted with a sudden emphasis — on the part of parents, peers, teachers, and the media — on gender role, femininity, and goodness (Brooks-Gunn & Reiter, 1990; Simmons & Blyth, 1987). Girls' cognitive and self-identity changes make them particularly susceptible to societal pressures. Since they can no longer rely on their own patterns of thinking and are altering their relationship with their mother, everything is in turmoil. They become extremely self-conscious and sensitive to the reactions of their peers and others, concerning not only themselves but also their mothers.

In addition, as girls come to realize the oppressed condition of women, they can grow even more critical of any submissive act on the

part of their mothers (Gilligan, 1987; Herman & Lewis, 1989). Brown and Gilligan (1992) found that at adolescence many girls begin to believe that women will like them only if they are quiet and demure, since that is the demeanour of women. In these cases, the daughters might argue and quarrel with their mothers because they are angry at them for not asserting themselves and worry that they will be expected to behave in a similar way.

Their mothers respond to these changes by feeling rejected and experiencing a sense of loss. They feel rejected because they do not understand the source of their daughter's antagonism (La Sorsa & Fodor, 1990; Pipher, 1994), and they experience a great sense of loss because they see their daughter go from being a lively, affectionate girl to being a sad, angry, complicated young woman (Pipher). Parker (1995) explains that mothers' self-esteem depends on feeling love for their child. When, during disagreements, they instead feel maternal hatred, the self-esteem engendered by mother love is transformed into anguished self-doubt. The mothers then move to protect their self-esteem by trying to control either their children or themselves, or vacillate between the two forms of control (Parker).

In contrast to the ample descriptions and explanations of discord found in the literature, little has been written about the closeness of mothers and daughters. Surrey (1991) introduced the concept of self-in-relation after observing the mutual empathy and empowerment that arises from the mother-daughter relationship as each party becomes highly responsive to the feeling states of the other. Yet the close relationship of mother and daughter during childhood (Chodorow, 1978) tends not to continue in adolescence. Brown and Gilligan (1992), in their longitudinal study with girls at a private school, found only two who had close, confiding relationships with their mothers.

Studies to Support Mothers of Adolescent Girls

The support needed by mothers of adolescent girls is not a matter of information alone, although information is a necessary component of support. Since societal pressure is part of the problem, the mothers must be encouraged to think critically and to become empowered. One technique, based on the work of Freire (Wallerstein & Bernstein, 1988), uses questioning within a group to elicit concerns and refine them into a theme or subtheme. Once the reason for the existence of the theme is identified, a manageable problem can be addressed, and, finally, the issue acted upon.

I reviewed a variety of programs in my search for critical thinking and empowering strategies relevant for mothers of adolescent girls. I found programs in the areas of parenting, mutual support groups, community organizing, and participatory research, but no studies that used empowering strategies exclusively with mothers of adolescent girls. However, I did find eight studies that included women or parents, used a small-group process, and were focused on improving communication, social support, or empowerment. The major characteristics of the programs are presented in Table 1.

Two programs did not meet their empowering goal of having participants continue on their own. Both of these programs lacked two components: (1) questioning of assumptions, and (2) early or ongoing evaluation. In contrast, the programs that were able to survive independently of facilitators promoted the posing of critical questions. Overall, programs were likely to succeed if they had the following characteristics: (1) used a clear format such as feminist process (Wheeler & Chinn, 1984), (2) shared the leadership role, (3) developed skills that could be used at home, (4) used ongoing process evaluation, and (5) used problem-posing or asked critical questions.

The five short-term programs met six to 13 times, but for the most part six weekly meetings (Simoni & Adelman, 1993) was not considered sufficient for the groups to develop the confidence to function on their own. Ten to 12 weekly meetings would likely be sufficient if the other characteristics were evident. In addition, the three successful short-term programs involved more than one group. Although not stated directly, it was apparent that the use of two or more groups would facilitate the identification of common issues and processes.

Method

The qualitative methodology used in this study is feminist participatory research (Maguire, 1987). This approach encourages a change in thinking by the women and the researcher and an increase in knowledge and skills that can be used outside the group.

Participants

The study involved mothers of early-adolescent girls living in the two lowest SES areas of a small city in Ontario, Canada. The women were recruited through an explanatory letter distributed to their daughters through the schools. Ten percent responded to the letter. Twenty-three women attended at least one meeting, 19 attended more than one

Table 1 *Characteristics of Programs*

Authors	Number/ duration of meetings	Definite format	Sharing of leadership role	Skills that could be used at home	Ongoing process evaluation	Problem-posing/ critical questioning	Goals reached
Bond, Belenky, & Weinstock (1993)	weekly for 8 months	yes		group problem- solving		yes	yes
Butler & Wintram (1991)	10 weekly meetings for 2 hours		yes	group problem- solving		yes	yes
Flick, Reeses, Rogers, Fletcher, & Sonn (1994)	over 2 years		yes			yes	yes
Maguire (1987)	13 meetings, every 2 weeks	no, but recommended	no	no	no, but recommended	no, but recommended	no
McFarlane & Fehir (1994)	5 years	feminist process	yes	yes	yes		yes
Meredith (1994)	10 weekly meetings for 2 hours		no, but recommended			no, but recommended	no
Simoni & Adelman (1993)	6 weekly meetings — 12 recommended	yes	yes	group problem- solving			not completely
Unger & Nelson (1990–91)	11 weekly	yes	yes	yes	no, but recommended		yes

meeting, and 15 remained at the end of the 10 meetings. The characteristics of the 19 women who attended more than one meeting were: (a) 10 (53%) stated their cultural background as Canadian; the other cultures were Ojibwa, French, Polish, Italian, and Finnish; (b) 10 (53%) had one or two children; the remainder had three or more; and (c) 32% had not completed high school; 32% had completed high school or had some college education, 26% had a college diploma, and 10% had a university education.

A group was formed in each of the two low-SES areas. The women in each group were typical of the population in their area in terms of cultural background and education; however, they had lived in the area longer than the average resident. The women who remained in the study had lived in the area longer than those who left.

The two groups had similar proportions for the following characteristics: (a) number and type of cultural backgrounds, (b) range of educational levels, and (c) number of children. The two groups differed in the age of the women: in one group the average age was 38 years, in the other 41 years.

Procedure

An ethical review was completed by two universities and two school boards. An explanatory letter was distributed in the two lowest SES areas of the city (Statistics Canada, 1992). I met with the women who had responded to the letter, either individually or in pairs, to describe the study and obtain their informed consent. I explained that each meeting would be audiotaped and that pseudonyms would be used in all written material. I left them with the question "What would you like from the group?" to consider for the first meeting.

Each group had 10 scheduled weekly meetings. The first group began meeting at the beginning of April 1995, the second group 3 weeks later. Most meetings followed a set format: (1) announcements, (2) review of how each person is feeling, (3) review of previous meeting, (4) selection of topics for discussion, (5) group discussion, and (6) summary by each woman of the help she received or would like to receive and comments about the group process (Simoni, 1990; Wheeler & Chinn, 1984). The review of the previous meeting included playing excerpts of the audiotapes and reading a portion of the transcripts or a verbal summary by one of the mothers or me (Bond, Belenky, & Weinstock, 1993).

Analysis

The preliminary analysis to determine the most pressing concern of the women began during the 10 scheduled meetings. Between meetings, I selected a short passage from the transcript to be played back to the group at the next meeting and I prepared questions to encourage discussion of the passage. I tested emerging themes by reflecting them back to the women and comparing them to issues raised in subsequent discussions (Graham, 1984; Reinharz, 1983; Stevens, 1989; Thompson, 1992) and to issues raised in the other group.

I defined a theme as a group of similar concerns or issues raised in both groups over more than one meeting. I defined a critical idea as an emancipatory change in thinking or a liberating change in a relationship that occurred as a result of group discussion. A critical idea was identified in the transcripts when a woman declared that she had learned something from the group, made a statement indicating that her views had changed, or described a situation that had altered over the course of the meetings.

Validity

Lincoln and Guba's (1986) criteria for authenticity are consistent with an empowerment agenda (Rappaport, 1990). Lather (1991) builds on the work of Reason and Rowan (1981) and earlier work by Lincoln and Guba to reconceptualize validity appropriate to a more just social order. I expanded on Lincoln and Guba's definitions to include the points made by Lather. Lincoln and Guba's five criteria for authenticity are: fairness, ontological authentication, educational authentication, catalytic authentication, and tactical authenticity. The only criterion I did not follow was educational authentication. I present my use of tactual authenticity as an example for the remaining criteria.

Tactual authenticity is reported in the evaluation of the women's critical ideas and any feelings of increased control or empowerment that they may have had. Evidence of empowerment is provided by the women reporting changes in their thinking or their lives as a result of the group discussions. It is also evidenced by recycling the descriptions, emerging analysis, and themes through at least a subsample; they responded with a click of recognition and a "yes, of course" reaction instead of a "yes, but" one (Lather, 1991). Lather cautions that face validity may be impeded by false consciousness or a willingness to please the researcher but should be considered a necessary if insufficient approach to establishing data credibility. For example, I did feel

that the women were trying to please me in the first data-analysis meetings and were overwhelmed by the amount of information I presented. I changed my approach to one of asking them questions in order to elicit their input rather than providing an abundance of information at any one time.

Results

The concern that had brought mothers to the first meeting was the changed and confusing behaviour of their daughters. After they heard each other's concerns, they started to deal with the difficulties they were experiencing.

The Most Pressing Concern

Once the women had introduced themselves at the first meeting, they were asked the question they had been left with at the preliminary interview: "What would you like from the group?" After very little prompting, the difficulties they were having with their daughter came pouring out. This continued to be the most frequent topic in the first few meetings. The difficulties related to their daughter's anger and changed behaviour, their uncertainty about dealing with their daughter, and their desire to have a calm, enjoyable mother-daughter relationship. The following statements illustrate the altered behaviour of their adolescent daughters:

Communication — how she's changed! Like, she went from this innocent little girl to just, I don't know, I can't describe it.

Are all teenage girls dizzy? ...she's off in la la land. You'll talk to her and she'll be sitting there... Five minutes after I told her... "Did you load the dishwasher?" "Oh, I forgot."

Their own feelings of uncertainty:

...learn how to deal with mouthiness...I don't know if it's mouthiness.

Anger on the part of their daughters:

...how angry she was, not angry but she...but she's a wonderful kid until she gets in that mood...

...she won't take no for an answer; it's got to be her way.

Marg, a mother of two adolescent girls, gave the following description of the anger, variability, and change that she faced on a daily basis:

One will have a good day. One will get up in the morning, she's the sweetest thing that hit the floor. The other one, she's just...no, no way, like

she crawled out of bed and hit the wall...you can't please her, nothing. Like, the socks aren't right, the shirt's not right — "Where are my jeans? I don't want those jeans. Where are the other ones? Didn't you wash them?" Meanwhile...I do four loads of laundry a day. No, she's never satisfied. Then the other one...when they come home from school I'm prepared for the one that left like the Wicked Witch of the West. She comes in...smiles, absolute angel. The other one comes in...grrrr, like she's going to take a strip off the cat and everybody else in the way. And then, uh, whoa — like, what happened? I was prepared for you, not her. But it's, oh, it's fun. One of these days I'll catch them both in a good mood at the same time and I won't know what hit me!

As the mothers described it, their daughter's altered behaviour and anger could arise for no apparent reason or in response to a request by her mother. Such requests usually revolved around clothing, household tasks, or homework. The mothers felt they had a right to make these requests but were apprehensive because they did not know what response they would get. They felt they should discipline the girls for their behaviour but were uncertain about where and how to do so.

Despite the difficulties, the mothers wanted to be able to talk to and have a closer relationship with their daughter. The following conversation exemplifies this desire:

Lee: Maybe we'll be able to learn to communicate better here and be able to, you know, without hollering...

Marg: Without the tears and the slamming of doors and the "I hate you's"? Like, that would be nice.

Kris: Wouldn't it! Wouldn't it be wonderful?

In the example above and in other conversations, the mothers used the word *communicate* to mean more than merely exchange information. To them, when they could communicate freely with their daughters they would also have a meaningful relationship with them.

Strategies for Addressing the Concern

When a mother presented a difficulty with her daughter, I would ask questions to encourage her to explore the situation and to encourage the other mothers to share their experiences. The mothers soon followed my example and began questioning each other. The following statements were made as they began to recognize similarities:

We have common problems, you know, and it's nice to actually hear that your kids are suffering from the same thing mine are. It's not me making...

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I don't feel so bad, like my kids are so useless, any more.

But I think the nice thing to know is that everybody has the same sort of problem, like with discipline...

When the mothers recognized that their concerns were similar, they began to explore the reasons for the altered relationship by questioning their attitude, ways of communicating, and discipline. For example, one group held a long discussion about getting the girls to do what their mother wanted, such as wearing a cap and mittens or cleaning their room. Betty responded by saying, "Don't sweat the small stuff, 'cause bigger steps come along." This statement became a mantra for the group. The other group discussed the difficulty of enforcing their rules for being home on time when they had trouble with punctuality themselves. Both groups were questioning the need for rigid control. As a result, at different times and in different ways they began to experiment with relaxing control, and they enjoyed reporting their successes back to the group:

Marg: Since I've been coming here I've lightened up a bit.

Pam: I'm more relaxed. I've been trying not to say, "Do you have homework?"

A natural evolutionary step from the questioning strategy I encouraged was group problem-solving. The women first engaged in group problem-solving, then arrived at the principle of logical consequences for behaviour, and finally used the principle in situations with their children:

Betty: I have a younger daughter who's almost impossible to move in the morning. Sarah said to tell her that she goes in pyjamas, unfed. I did that. Now she's really good and ready to go.

Marg: Well, they were late for soccer last Tuesday because they didn't clean up when they were told. They didn't get to go on right away...like on the first line. They were not happy. Well, I thought it was perfect. That worked out even better, because lots of times there's not enough kids and they have to, like...so there's no consequences.

The aim and process of finding logical consequences gave the women a sense of authority and direction in their relationship with their children. They also were excited by the critical idea that they could help each other.

A critical idea that emerged more slowly than difficulties was that they needed to recognize and share the positive experiences they had had with their daughters. At the first meeting one mother mentioned

the importance of focusing on the positive experiences. Others eventually followed suit. This conversation occurred at the fourth meeting:

Kris: Part of my Mother's Day gift was a poem — two poems, actually — that she had written for me that I couldn't read aloud...because I cried, really choked up. And that was what she wanted for a response. And it's funny how the things that they think of on their own are so much right from their heart, you know. They're so much more special.

Liz: I was remembering Betty. Getting the gift for her daughter that she just loved, you know.

Belle: It was like our having the dance on the lawn. It's the connection. It was there, and I felt that nothing could have been better than that right there.

These moving experiences emphasize the thrill the women got from sharing with the group a positive experience with their daughter.

The mothers' interest in discipline and connection decreased dramatically by the fourth or fifth meeting, when they had begun to have successes at home. Yet the changes continued. At a later meeting one mother reported that her daughter had called her "cool," and at the final evaluation another mother said that she was finally able to say "no" to her daughter without then changing her mind. Based on their statements, it became clear that three mothers in each group experienced a definite change in their relationship with their daughter.

Discussion

The mothers in this study displayed the same concern and frustration with their daughters' attitude and behaviours as documented in the literature. They reacted to their daughter's anger by feeling rejected and trying to control her but were uncertain about their response (Parker, 1995; Urwin, 1985). The daughters sensed the mother's desire to please and became even more demanding (Gilligan, 1987; Herman & Lewis, 1989), even when she was trying to please them. Attempts at strict control were not effective either in getting the girls to comply with their wishes or in promoting the mother-daughter relationship. When the mothers heard similar stories from others, they broke through the myth of a "perfect," anger-free mother-relationship. The commonality allowed them to consider other reasons for their daughter's hostility, such as her developmental stage, rather than blaming themselves. By not feeling compelled to monitor their daughter's every movement, the women could be more open to listening and responding to their daughter rather than trying to control her.

Although they relaxed their control, the women did not relinquish their control entirely. Through questioning and group problem-solving, they learned how to determine and apply logical consequences of disruptive behaviour. By choosing important issues with logical consequences, they were successful in having their rules obeyed. At the same time they seemed to gain respect from their daughters.

The mothers also explicated the positive aspects of their relationship with their daughters that were not apparent in the literature. Although the difficulties were compelling at first, they soon recognized the importance of the enjoyable times they shared with their daughters. The group meetings provided them the opportunity to share their moments of enjoyment along with examples of their changed attitude and enhanced ability to discipline.

Several critical ideas led to a better balance between discipline and connection. The mothers gained reassurance, knowledge, skill, and confidence. This allowed them to view situations with their daughters more dispassionately, consider different options, and reach decisions that they were more comfortable with and that allowed their children more choice. The women's relationship with their daughter improved, not just because they were provided an opportunity to vent, but also because they were encouraged to question and use critical thinking.

Implications for Nursing

Two aspects of this study are important for nursing. First, it contributes to an understanding of the most pressing concern of mothers of early-adolescent girls. With this understanding, nurses can encourage mothers to share their experiences, consider the multiple challenges facing them and their daughter, and question their present attitudes and approaches. Approaches such as relaxing control, using logical consequences for disruptive behaviour, and seeking positive experiences could be offered.

Second, the study describes a strategy for helping mothers to share their concerns with others in the same situation. The women were drawn to the group because they wanted to talk about their daughters. They stayed because they could address issues that were important to them. Through ongoing evaluation, I found that the following elements of the strategy were important to the women: (1) initial individual interview before the meetings were begun; (2) a format that fosters openness, support, and exploration; and (3) opportunities to learn and apply problem-solving and group skills that can be used at home. I found that

three characteristics of the meetings encouraged the women to empower themselves and the group: (1) a democratic or feminist format that allows women to identify and explore their own concerns for at least a portion of the meeting, (2) a questioning approach to their concerns, and (3) a method or methods for re-examining issues and concerns from previous meetings. The role of a facilitator is important in the beginning, to establish the three characteristics.

Although this introductory study shows promise for working with mothers of early-adolescent girls, there is a need for further research using the approach with mothers in different locations, in order to identify the empowering aspects that are applicable across settings. Both for the mothers' emerging theme and for group process, the use of the two concurrent groups was invaluable as a means of cross-validation.

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Besoins cognitifs et psychosociaux de femmes ayant subi un infarctus du myocarde et en phase II de leur réadaptation cardiaque

Gisèle Richard et Sylvie Robichaud-Ekstrand

The goal of this study was to determine the perceived cognitive and psychosocial needs of post-myocardial infarction women during phase II cardiac rehabilitation and to identify nursing priorities for the development or modification of teaching and support programs. The sample comprised 40 women aged 39 to 82 (mean age = 68). Participants completed an instrument developed by the first author. A needs-analysis inductive approach was used to identify 19 nursing priorities. Cognitive needs included information about cardiac disease, what physical and psychological changes to anticipate during rehabilitation, and improved quality of teaching. Psychosocial needs included support from a nurse, doctor, or family member — including help in allocating family responsibilities. Women under 65 were more concerned with cognitive needs, those 65 and older with psychosocial needs. Educational and income levels did not influence perception of needs. A larger study with French-speaking women of different age groups and cultures is warranted to further examine the cognitive and psychosocial processes that facilitate adaptation after a cardiac event.

Le but de cette étude était de décrire les besoins cognitifs et psychosociaux de femmes ayant subi un infarctus du myocarde (IM) lors de la phase II de leur réadaptation cardiaque et d'identifier des priorités d'actions infirmières conduisant à l'élaboration ou à la modification de programmes d'enseignement et de soutien. L'échantillon se composait de 40 femmes âgées de 39 à 82 ans, avec une moyenne d'âge de 68 ans (ET = 8,9 ans). Le taux maximal de l'enzyme CPK lors de l'IM était de 1394 ± 1135 U/L en moyenne, produisant une fraction d'éjection de 49 ± 8 %. Les participantes ont complété un instrument traitant des besoins des patientes cardiaques. Les alphas de Cronbach de cet instrument étaient de 0,69 pour l'importance des besoins et de 0,80 pour les besoins comblés. Une approche inductive d'analyse de besoins a permis d'identifier 19 priorités d'actions infirmières. Les besoins cognitifs regroupaient l'information à recevoir sur la maladie cardiaque, les changements à anticiper lors de la période de réadaptation et la qualité de l'enseignement offert. Les 9 besoins psychosociaux concernaient le soutien que les femmes désiraient obtenir provenant soit d'une infirmière, d'un médecin ou des membres de leur famille dans le but de partager leurs émotions et de planifier le partage des responsabilités familiales. Certaines caractéristiques personnelles ont influencé le degré d'importance et de satisfaction des besoins. Les besoins cognitifs étaient plus importants

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que les besoins psychosociaux chez les femmes de moins de 65 ans ($p = 0,02$); tandis que les femmes plus âgées ont indiqué un degré inférieur de satisfaction quant à leurs besoins psychosociaux ($p = 0,03$). Les niveaux d'éducation ($p = 0,81$) et de revenu ($p = 0,34$) n'ont pas influencé la perception des besoins. Une étude est suggérée auprès d'un plus grand nombre de femmes de langue française provenant de différents groupes d'âge et de diverses cultures qui examinerait les processus cognitifs et psychosociaux améliorant l'adaptation à la suite d'un événement cardiaque.

Introduction

La maladie coronarienne est la cause principale de mortalité et de morbidité au Canada (Health Report, 1995). En 1992, 20 143 Canadiennes et 37 310 Canadiens ont subi un infarctus du myocarde (IM) aigu. Les taux de morbidité se situent ainsi, à 145 pour les femmes et à 276 pour les hommes par 100 000 habitants (Health Report, 1995). Depuis les cinq dernières années, le taux d'IM chez les femmes âgées de plus de 55 ans a augmenté plus rapidement que celui chez les hommes, soit de 7,6 % et 5,9 %, respectivement (Health Report, 1990, 1995). Malgré l'ampleur de la maladie coronarienne chez les femmes, peu d'études concernant la réadaptation cardiaque ont été entreprises auprès de cette clientèle (Beery, 1995; Benson, Arthur et Rideout, 1997; Hirsch et Meagher, 1984; Moser, Dracup et Marsden, 1993; Murdaugh et O'Rourke, 1988; Sharpe, Clark et Janz, 1991).

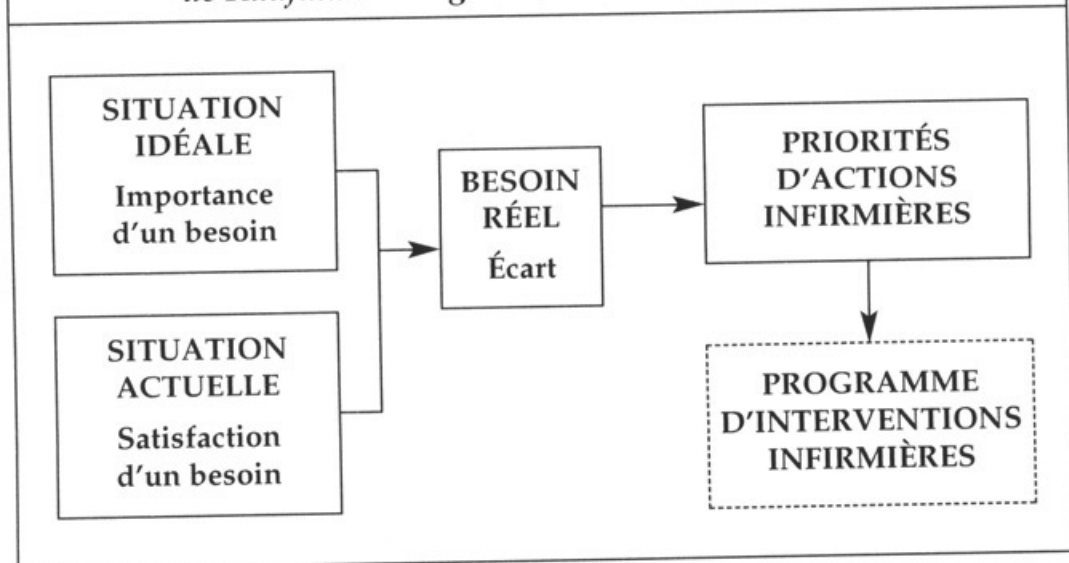
Les écrits scientifiques concernant les caractéristiques physiques des femmes qui ont subi un IM rapportent que celles-ci ont tendance à développer plus de complications cardiovasculaires et présentent plus de limites physiques que les hommes (Wenger, 1989; Young et Kahana, 1993). Leur risque d'être victime d'un second IM est deux fois plus grand (Harrison, 1992). Elles démontrent des taux plus élevés d'insuffisance cardiaque, de rupture cardiaque et d'accidents cérébraux (Wenger; Young et Kahana). Les femmes présentent aussi plus de symptômes d'angine, de palpitations, de dyspnée et de fatigue (Canistra, Balady, O'Malley, Weiner et Ryan, 1992; Shanfield, 1990; Young et Kahana). Conséquemment, leur tolérance à l'effort en est réduite (Rankin, 1990; Sharpe et al., 1991). Souvent, elles ne peuvent marcher que de courtes distances et évitent de monter des escaliers (Sharpe et al.). Elles présentent donc généralement plus d'invalidité cardiaque que les hommes (Nickel et Chirikos, 1990; Parchert et Creason, 1989; Sharpe et al.).

Les caractéristiques psychosociales et comportementales des femmes sont aussi différentes comparativement à celles des hommes (Nickel et Chirikos, 1990; Sharpe et al., 1991). Les perceptions de leur

état de santé et de leur capacité physique, leur sentiment de culpabilité, leur niveau de détresse émotionnelle ainsi que leur efficacité personnelle perçue sont les facteurs psychologiques qui influencent le plus la réadaptation cardiaque des femmes (Low Graft, 1993). Habituellement, les femmes se perçoivent comme étant plus malades que les hommes (Mickus, 1986). Étant donné qu'elles présentent généralement plus d'invalidité cardiaque suite à l'IM, la reprise des activités quotidiennes requiert plus de temps et d'énergie. Elles développent ainsi un sentiment de culpabilité puisqu'elles ressentent de la difficulté à maintenir leurs rôles multiples (épouse, mère [grand-mère], ménagère, employée) (Hamilton et Seidman, 1993; Murdaugh et O'Rourke, 1988). Afin d'atténuer ce sentiment inconfortable, elles diminuent l'importance de leurs symptômes et réorganisent leurs tâches domestiques tout au long de la journée pour atteindre les mêmes buts (Johnson et Morse, 1990). Par contre, les femmes maintiennent leurs mêmes responsabilités familiales, reprennent leurs activités domestiques à moins d'une semaine après le congé de l'hôpital et refusent souvent d'être aidées dans leur travail à la maison (Hamilton et Seidman; Kuhn et Rackley, 1993). On remarque également une diminution de leur motivation, de leur participation et de leur fidélité aux programmes de réadaptation cardiaque, possiblement puisque ceux-ci ont été généralement développés pour répondre spécifiquement aux attentes des hommes (Low Graft; Young et Kahana, 1993). Quant aux facteurs qui influencent la détresse émotionnelle, ils sont reliés au pronostic plus sombre des femmes, à la présence de symptômes plus fréquents ou accentués, à leurs attentes personnelles élevées ou imposées par leur entourage, au manque de soutien social et conjugal ainsi qu'à une plus grande instabilité financière (Canistra et al., 1992; Loose et Fernhall, 1995). Les caractéristiques identifiées spécifiquement chez les femmes suscitent des interrogations au sujet de leurs besoins cognitifs et psychosociaux qui surviennent lors de leur réadaptation cardiaque.

Selon Kaufman et English (1979), le besoin est défini comme étant un écart entre la situation idéale et la situation actuelle. La situation idéale est ce qui devrait être pour les individus, c'est-à-dire, l'importance accordée à un besoin; tandis que la situation actuelle reflète ce qui est; la satisfaction des personnes vis-à-vis ce besoin. L'écart entre l'importance et la satisfaction d'un besoin crée un besoin réel qui amène à l'identification des priorités d'actions infirmières. Par la suite, ces priorités d'actions permettent d'élaborer ou de modifier les programmes d'interventions infirmières. Le modèle inductif de Kaufman et English a été utilisé dans la présente étude.

Figure 1 *Modèle inductif d'analyse de besoins de Kaufman et English (1979)*



L'objectif principal de ces programmes d'interventions infirmières vise à augmenter les connaissances et à apporter un soutien aux participants (Mills, Barnes, Rodell et Terry, 1985; Raleigh et Odtohan, 1987; Steele et Ruzicki, 1987). Cependant, les témoignages récents de femmes victimes d'IM démontrent que l'information offerte par les infirmières, dans les enseignements actuels en réadaptation cardiaque, ne reflètent pas leurs besoins et leurs préoccupations (Benson et al., 1997). Elles déplorent le manque d'écoute de la part des intervenants ainsi que de ressources disponibles pour satisfaire leurs besoins spécifiques. Elles ont le sentiment de vivre dans un monde d'hommes et qu'un protocole de routine est suivi. Il est donc important de s'assurer que le contenu des enseignements soit aussi adapté d'après les besoins spécifiques des participantes.

Certains écrits scientifiques ont identifié quelques besoins cognitifs et psychosociaux de patients victimes d'un IM, mais surtout auprès des hommes (Moser et al., 1993; Orseck et Staniloff, 1987). Les besoins cognitifs des hommes font référence à l'acquisition de connaissances favorisant leur compréhension et leur adaptation face à leur état de santé. Par exemple, les hommes cardiaques désirent être renseignés sur : leur condition cardiaque actuelle; l'évolution de leur maladie; les problèmes à anticiper durant leur réadaptation; les changements à apporter à leur mode de vie et les moyens pour les réaliser; la conduite à suivre en cas d'urgence; et les comportements à adopter afin de diminuer leur anxiété et celle de leur conjointe (Moser et al.; Orseck et

Staniloff). Ils désirent recevoir l'information dans un langage simple et facile à comprendre. Par contre, ils sont moins intéressés à recevoir de l'information sur la reprise des activités sexuelles et à discuter de leurs problèmes financiers (Moser et al.). Pour leur part, les besoins psychosociaux comprennent l'ensemble des attitudes, des émotions et des comportements aidant à la réadaptation. Les besoins psychosociaux rapportés par les hommes sont les suivants : l'espoir de préserver une bonne qualité de vie ; d'être respecté ; de préserver une bonne estime de soi ; de sentir que les personnes significatives ont leur bien-être à cœur et qu'elles respectent leur liberté en ce qui concerne la reprise de leurs activités (Moser et al.). Contrairement aux femmes, participant à l'étude de Moser et al., les hommes identifient leurs besoins cognitifs comme étant plus importants que leurs besoins psychosociaux.

Une des rares études réalisées uniquement auprès de femmes ayant subi un IM aigu ($N = 14$) rapporte que les relations interpersonnelles occupent une place primordiale pendant leur réadaptation cardiaque (Benson et al., 1997). Cependant, ce besoin est considéré aussi important que celui de connaître les approches à utiliser pour le traitement et le diagnostic de la maladie cardiaque. De plus, les femmes souhaitent que leur conjoint et les autres membres de la famille soient guidés afin de pouvoir les soutenir adéquatement. Elles mentionnent que l'information reçue avant le départ de l'hôpital ne leur permet pas de se préparer à leur convalescence à domicile, ni de connaître les ressources dans la communauté. Les types et l'ordre de priorité de besoins entre les femmes et les hommes victimes d'un IM diffèrent assez pour que les infirmières adaptent leurs programmes d'interventions.

Plusieurs auteurs ont également rapporté que l'ordre de priorité des besoins des patients cardiaques se modifie durant les différentes phases de la réadaptation cardiaque (Karlik et Yarcheski, 1987 ; Wingate, 1990). Dans la présente étude, nous avons choisi de décrire les besoins de femmes durant la phase II de la réadaptation cardiaque ; la période de convalescence à domicile, entre la sortie de l'hôpital et 12 semaines suite à l'IM. Le choix de cette phase est important puisque la durée du séjour hospitalier est de plus en plus réduite. Les infirmières requièrent donc davantage de connaissances sur les priorités d'actions à entreprendre pour combler les besoins spécifiques de femmes en phase II de la réadaptation cardiaque.

La maladie coronarienne est donc de plus en plus importante chez les femmes. Leurs caractéristiques physiques, psychosociales et comportementales permettent de croire qu'elles auront aussi des besoins cognitifs et psychosociaux différents de ceux des hommes lors de leur

réadaptation cardiaque. Étant donné que les interventions infirmières actuelles ne semblent pas répondre aux besoins spécifiques de ces femmes, nous devons donc les identifier en examinant la situation actuelle et la situation idéale perçues selon la perspective de femmes victimes d'un IM. Le modèle de Kaufman et English (1979) a été choisi puisqu'il permet d'analyser les écarts entre la situation idéale (importance d'un besoin) et la situation actuelle (satisfaction d'un besoin). Suite à cette analyse, les infirmières pourront identifier leurs priorités d'actions afin d'adapter leurs interventions aux besoins des femmes victimes d'un IM en phase II de la réadaptation cardiaque.

Le but de l'étude

Le but de l'étude est de décrire les besoins cognitifs et psychosociaux de femmes victimes d'un infarctus du myocarde et en phase II de leur réadaptation cardiaque et d'identifier les priorités d'actions infirmières conduisant à l'élaboration ou à la modification de programmes d'enseignement ou de soutien.

Les questions de recherche

Quel est le degré d'importance des besoins cognitifs et psychosociaux perçu par des femmes ayant subi un IM en phase II de la réadaptation cardiaque? Quel est le degré de satisfaction des besoins cognitifs et psychosociaux perçu par des femmes ayant subi un IM en phase II de la réadaptation cardiaque? Selon le degré d'importance et de satisfaction des besoins cognitifs et psychosociaux mesurés auprès de femmes ayant subi un IM et en phase II de la réadaptation cardiaque, quels sont les priorités d'actions infirmières qui peuvent être suggérées? Les caractéristiques personnelles des participantes à l'étude ont-elles un effet explicatif sur le degré perçu d'importance des besoins cognitifs et psychosociaux et sur la satisfaction de ceux-ci?

L'échantillon

Il s'agit d'une étude descriptive et interprétative. Les participantes de l'étude étaient des femmes ayant été victimes d'un IM aigu. L'IM aigu était documenté selon les critères suivants: élévation de l'enzyme créatine-phosphokinase avec fraction MB positive; avec ou sans histoire de douleur thoracique prolongée caractéristique d'un infarctus du myocarde aigu; avec ou sans apparition de nouvelles ondes Q à l'électrocardiogramme; avec ou sans changement évolutif du segment ST (DeBusk et al., 1986). Afin d'éviter les problématiques de santé reliées à

l'insuffisance cardiaque, ces femmes devaient présenter une fraction d'éjection égale ou plus élevée que 30 %. Si elles avaient subi une chirurgie de revascularisation coronarienne depuis les derniers 6 mois, présentaient une pathologie chronique débilitante, un déficit cognitif ou une atteinte psychologique grave documentés dans les notes médicales, celles-ci étaient exclues de l'étude. Elles devaient résider à leur domicile depuis moins de 12 semaines à la suite de leur IM. De plus, elles devaient être capable de lire et de comprendre le français. Toutes les participantes devaient signer un formulaire de consentement approuvé par les Comités internes de la recherche ou d'éthique des quatre hôpitaux du Montréal métropolitain participant à l'étude.

Les participantes

Entre le 20 octobre 1996 et le 20 mai 1997, soixante-quatorze femmes ont été rencontrées pour participer à la présente étude. Elles étaient traitées pour IM aigu, dans quatre centres hospitaliers de la région du Montréal métropolitain. Parmi celles-ci, 34 (45,9 %) n'ont pu y participer puisque : 5 (6,8 %) devaient subir une chirurgie de revascularisation coronarienne, 7 (9,5 %) avaient une fraction d'éjection inférieure à 30 %, 7 (9,5 %) souffraient de problèmes psychologiques importants, 2 (2,7 %) avaient des maladies neurologiques graves, 3 (4,1 %) sont décédées et 10 (13,5 %) ont refusé de participer à l'étude.

L'échantillon final de convenance réunit 40 femmes âgées de 39 à 82 ans avec une moyenne d'âge de 68 ans ($ET = 8,9$ ans), dont 31 (78 %) étaient âgées de plus de 65 ans. Cet échantillon représente 18,4 % de toutes les patientes qui ont subi un IM aigu et qui ont été traitées dans les centres hospitaliers participants (0,8 % de la population québécoise féminine sont victimes d'un IM annuellement [4 875 femmes ont subi un IM en 1992 au Québec]). La plupart des femmes étaient mariées (52,5 %) ou veuves (40 %). Certaines avaient terminé leurs études au niveau primaire (50 %) et d'autres aux niveaux secondaire (35 %), collégial (12,5 %) et universitaire (2,5 %). Soixante-cinq pour cent des sujets avaient un revenu annuel inférieur à 20 000 \$. Seulement quatre (10 %) femmes occupaient un emploi rémunéré avant leur IM. Au moment de l'entrevue, aucune n'était retournée à leur travail (entre 4 et 11 semaines post-IM).

La majorité des sujets de l'échantillon avaient subi un IM au territoire inférieur du cœur (67,5 %) avec onde Q (55 %). L'étendue de l'IM était de 1394 ± 1135 U/L (valeur normale de CPK = 20-230 U/L), produisant une fraction d'éjection de $49 \% \pm 8 \%$ et permettant une capacité fonctionnelle avant le départ de l'hôpital de $4,7 \pm 1,1$ METS. Les

médicaments pris au moment de l'évaluation (entre 4 et 12 semaines suite à l'IM) comprenaient les suivants : bêtabloquants (70 %), antagonistes du calcium (27,5 %), nitrates (30 %), inhibiteurs de l'enzyme de conversion (25 %), médicaments antidépresseurs ou antianxiolytiques (65 %), hypocholestérolémians (25 %) et hypoglycémians (22,5 %).

Définitions théoriques

Les besoins cognitifs. Ce sont l'ensemble des connaissances perçues comme nécessaires par les patients victimes d'un IM lors de la phase II de leur réadaptation cardiaque. Ce sont des connaissances sur les facteurs de risque de la maladie coronarienne, les effets physiques et psychosociaux reliés à l'IM ainsi que les modifications à apporter au mode de vie.

Les besoins psychosociaux. Ce sont l'ensemble des attitudes, émotions et comportements perçus comme essentiels durant la phase II de la réadaptation cardiaque.

L'importance d'un besoin. C'est la perception que détient un sujet de la nécessité d'un besoin (ce qui devrait être) pour la réussite de sa réadaptation cardiaque. Une échelle de type Likert de 1 (aucune importance) à 5 (très important) a été utilisée pour déterminer le degré d'importance d'un besoin. C'est-à-dire, selon la moyenne des scores d'importance d'un besoin pour l'ensemble des sujets, un besoin est considéré d'une importance faible ($1 \leq x < 2,5$), modérée ($2,5 \leq x < 3,5$) ou élevée ($3,5 \leq x \leq 5$).

La satisfaction d'un besoin. C'est la perception que détient un sujet de son degré de satisfaction d'un besoin (ce qui est). Chaque besoin est évalué sur une échelle de type Likert de 1 (non comblé) à 5 (comblé). Si la moyenne des scores de satisfaction d'un besoin de l'ensemble des sujets est entre ($1 \leq x < 2,5$), celui-ci est considéré non comblé ou légèrement comblé, tandis que si elle se situe entre ($2,5 \leq x < 3,5$) il est modérément comblé et entre ($3,5 \leq x \leq 5$), il devient presque complètement comblé ou comblé.

Le besoin réel. C'est l'écart entre ce qui devrait être (importance d'un besoin) et ce qui est (satisfaction d'un besoin). C'est la moyenne de chaque besoin perçu par toutes les participantes détenant une importance faible ($1 \leq x < 2,5$), modérée ($2,5 \leq x < 3,5$) ou élevée ($3,5 \leq x \leq 5$), mais qui est soit, non comblé ou légèrement comblé ($1 \leq x < 2,5$), modérément comblé ($2,5 \leq x < 3,5$) et presque complètement comblé ou comblé ($3,5 \leq x \leq 5$).

Les priorités d'actions infirmières. Ce sont les actes d'enseignement et de soutien que les infirmières doivent intégrer dans leurs programmes d'interventions pour satisfaire les besoins réels des participantes. Ces priorités sont déterminées d'après l'interaction des scores moyens de l'importance et de la satisfaction d'un besoin cognitif ou psychosocial. Ceux-ci se retrouvent dans les secteurs I, II, III et IV du tableau cartésien, expliqué dans la section du plan de l'analyse de données et présenté dans le tableau 2. Le secteur I du tableau cartésien est celui des priorités d'actions démontrant le plus grand écart, tandis que le secteur IV est celui avec le plus petit écart. Cette façon de procéder suit la méthode d'analyse de besoins du modèle inductif de Kaufman et English (1979).

Les instruments de mesure

La collecte de données a été réalisée à l'aide d'un instrument de mesure « Les besoins des patientes cardiaques » (Richard, 1996) et d'un questionnaire de données sociodémographiques et médicales. Il s'agit de la traduction française du *Needs of Cardiac Patients*, de Moser et al. (1993).

Les besoins des patients cardiaques. L'instrument *Needs of Cardiac Patients* de Moser et al. (1993) est utilisé pour identifier les besoins de patients cardiaques lors de leur réadaptation à la suite d'un IM. Il est composé de 27 énoncés représentant 11 besoins cognitifs et 16 besoins psychosociaux identifiés par les patients lors de leur retour à domicile suite à un IM. Le type de besoin (cognitif ou psychosocial) est identifié à côté de chaque énoncé dans le tableau 1. Sur une échelle de type Likert, le sujet situe le degré d'importance d'un besoin entre 1 (aucune importance) et 5 (très important) et identifie si ce dernier est comblé (5) ou non (1).

La validité de la version originale. Les qualités psychométriques de l'instrument de Moser et al. (1993) ont été analysées auprès de 20 répondants composés de patients cardiaques et de leur conjoint. L'index de validité de contenu entre informateurs clés est excellent, soit de 0,97. La cohérence interne de l'instrument est élevée avec un alpha de Cronbach de 0,89. En ce qui a trait au coefficient de stabilité temporelle, le test de vérification contre-vérification effectué à un intervalle d'une semaine varie entre 0,82 ou plus élevé pour chacun des énoncés.

L'instrument « Les besoins des patientes cardiaques » (Richard, 1996). La méthode inversée inspirée de Vallerand (1989) a été utilisée pour traduire l'instrument de mesure de l'anglais au français. L'investigatrice, qui est bilingue, a réalisé une première traduction. Par la suite,

une personne bilingue et dans le domaine de la traduction l'a comparé à l'original anglais. Des modifications ont été apportées à la version française après avoir comparé les deux versions anglaises. Ainsi, quatre énoncés modifiés ont été traduits de nouveau. Cette technique permet, entre autres, d'atténuer la perte de nuances dans le passage d'une langue à l'autre (Streiner et Norman, 1991). La simplicité des énoncés du test et le fait que les traducteurs appartenaient à la même culture que les patientes de l'échantillon permettent toutefois de considérer l'atteinte d'un niveau de précision adéquat entre les deux versions (Lemay, 1991 ; Robichaud-Ekstrand, Haccoun et Millette, 1994).

L'étude prétest. Un prétest auprès des dix premières patientes cardiaques hospitalisées a permis d'évaluer la clarté des énoncés, le temps requis pour répondre au questionnaire et les commentaires généraux des patientes par rapport à l'instrument. Les patientes ont suggéré d'apporter des précisions à quatre questions. Ainsi, l'investigatrice a inséré des exemples précis reflétant les énoncés concernant les changements psychologiques (numéro 5, voir tableau 1), les changements physiques (numéro 16, voir tableau 1), les caractéristiques relatives à l'état de santé (numéro 7, voir tableau 1) et les frustrations et les colères (numéro 23, voir tableau 1). Toutes ces précisions ont été écrites, entres parenthèses à côté de chaque énoncé problématique, produisant l'instrument final utilisé dans la présente étude. Le temps requis pour compléter l'instrument était de 20 minutes.

La fiabilité. La cohérence interne de l'instrument « Les besoins des patientes cardiaques » (Richard, 1996) s'est avérée bonne puisque les alphas de Cronbach pour l'importance des besoins et la satisfaction de ces derniers étaient de 0,69 et 0,80, respectivement (Burns et Grove, 1993). De même, les alphas de Cronbach pour l'importance des besoins cognitifs ($\alpha = 0,53$) et des besoins psychosociaux ($\alpha = 0,58$) ainsi que des besoins cognitifs comblés ($\alpha = 0,80$) et des besoins psychosociaux comblés ($\alpha = 0,62$) représentent une cohérence interne acceptable pour chacune des catégories respectives. Aucun test de validité n'a été effectué. Aucune question additionnelle n'a été ajoutée à part des besoins identifiés par les participantes. Puisque les participantes complétaient une seule fois l'instrument, la stabilité temporelle de la version française de l'instrument n'a pu être établie.

Le questionnaire de données sociodémographiques et médicales. Le questionnaire recueillant diverses données sociodémographiques et médicales a permis de décrire l'échantillon. Il a été complété lors de l'entrevue à domicile. Parmi les caractéristiques sociodémographiques,

les variables suivantes ont permis d'effectuer des sous-analyses, soit l'âge, les niveaux de scolarité et de revenu.

Le déroulement de l'étude

Le recrutement des femmes s'est effectué à l'unité de soins coronariens de quatre centres hospitaliers de la région de Montréal avant leur départ de l'hôpital. L'approche pour recruter les participantes était normalisée. Cependant, les membres du comité d'éthique de deux centres hospitaliers ont exigé que l'infirmière chercheuse demande la permission au cardiologue traitant de pouvoir approcher leurs patientes. L'investigatrice a par la suite consulté les registres des patients admis aux unités de soins afin d'établir l'éligibilité des sujets pour l'étude. L'infirmière soignante a effectué le premier contact avec les sujets éligibles. Elle leur a demandé si elles consentaient à rencontrer l'investigatrice afin qu'elle leur explique son projet de recherche. Les femmes intéressées à participer à l'étude ont signé, au moment de cette rencontre, le formulaire de consentement. Ces dernières étaient avisées que leur participation à ce projet de recherche était volontaire, non rémunérée et qu'elles pouvaient s'en retirer en tout temps sans que la qualité des soins futurs ne soit affectée.

Une visite à domicile par l'investigatrice a été fixée ultérieurement lors d'un appel téléphonique dans les 12 semaines suivant l'IM. La veille de la visite, l'investigatrice communiquait par téléphone avec les sujets pour leur rappeler leur rendez-vous. Au moment du rendez-vous, les sujets ont complété l'instrument « Les besoins des patientes cardiaques » (Richard, 1996). Dans certains cas, l'investigatrice lisait à haute voix les énoncés. La participante ou l'investigatrice y inscrivait la réponse à côté de chaque énoncé.

Le plan d'analyse des données

La description de l'échantillon s'est effectuée à l'aide de distributions de fréquence et de mesures de tendance centrale et de dispersion. Ainsi, des analyses de variance à un critère de classification (One-way ANOVA) ont été utilisées pour examiner les données des variables de revenu et du niveau d'éducation qui présentaient une distribution normale. De plus, le test de Mann-Whitney a permis d'analyser les données de l'âge qui démontraient une distribution dissymétrique. Tous les tests statistiques ont été effectués au seuil de signification de 0,05.

L'analyse des besoins s'est faite de la façon suivante : pour chacun des 27 besoins, les moyennes des scores de l'ensemble des sujets reliées

à l'importance de chaque besoin (entre 1 et 5) et la satisfaction de ceux-ci (entre 1 et 5) ont été calculées. Dans le but d'établir des catégories pour les moyennes des scores, l'échelle de 1 à 5 a été divisée en trois parties. Une moyenne entre 1 et moins 2,5 signifie que le besoin identifié est soit d'une faible importance et/ou n'est pas ou est légèrement comblé. Une moyenne des scores entre 2,5 et moins de 3,5 indique que le besoin est d'une importance modérée et/ou est modérément comblé. De même, une moyenne de 3,5 à 5 signifie que le besoin est d'une importance élevée et/ou qu'il est presque complètement comblé ou comblé.

Un tableau cartésien a été créé pour identifier les priorités d'actions infirmières en évaluant l'interaction entre l'importance d'un besoin et si celui-ci a été comblé (voir le tableau 2). À partir des deux axes de ce tableau, l'ordonnée (ordonnée verticale) représente l'importance d'un besoin, tandis que l'abscisse (ordonnée horizontale) représente le degré de satisfaction d'un besoin. Conséquemment, les besoins identifiés se répartissent dans neuf secteurs délimités par les deux axes. La numération des secteurs indique leur ordre d'importance.

En premier, tous les besoins sont présentés par ordre d'importance indépendamment s'ils sont comblés ou non. Par la suite, ils sont regroupés par catégories, les besoins cognitifs et les besoins psychosociaux, selon leur ordre d'importance. Les priorités d'actions infirmières sont celles qui apparaissent dans les secteurs I, II, III et IV du tableau cartésien. Le secteur I est celui des priorités d'actions démontrant le plus grand écart, tandis que le secteur IV est celui avec le plus petit écart.

Les résultats

La première question de recherche vise à déterminer le degré d'importance des besoins cognitifs et psychosociaux de femmes en phase II de la réadaptation cardiaque. Le tableau 1 illustre, par ordre d'importance, les moyennes des scores accordés à chaque besoin et leurs écarts types respectifs pour l'ensemble des sujets. Il se dégage 22 besoins ayant une importance élevée ($3,5 \leq x \leq 5$), 4 besoins avec une importance modérée ($2,5 \leq x < 3,5$) et seulement 1 détenant une faible importance ($1 \leq x < 2,5$). Nous remarquons parmi les 10 premiers besoins, 7 besoins cognitifs et 3 besoins psychosociaux. La moyenne générale de l'importance des besoins de l'instrument dans son ensemble pour tous les sujets est de 4,28 ($ET = 0,40$). La moyenne de l'importance de la catégorie des besoins psychosociaux ($x = 4,29$, $ET = 0,50$) est similaire à celle des besoins cognitifs ($x = 4,28$, $ET = 0,46$).

Tableau 1 *Besoins cognitifs et psychosociaux par ordre d'importance (N = 40)*

Numéro ^a	Besoin	Type	\bar{x}	ET
Importance élevée				
2	Obtenir des explications en des termes compréhensibles	C	5,00	0,00
9	Savoir que les autres ont son bien-être à cœur	P	4,96	0,32
15	Recevoir de l'information sur ses soins	C	4,95	0,32
16	Être informé(e) des changements physiques à anticiper	C	4,92	0,66
6	Connaître les phases de développement de la maladie	C	4,90	0,44
4	Avoir du temps pour soi-même	P	4,90	0,38
5	Être informé(e) des changements psychologiques à anticiper	C	4,88	0,46
1	Être informé(e) des changements dans son mode de vie	C	4,85	0,70
7	Connaître les caractéristiques de son état de santé	C	4,85	0,66
3	Avoir une famille bien renseignée en cas d'urgence	P	4,80	0,88
17	Avoir une bonne perception de sa qualité de vie	P	4,80	0,88
10	Parler à une infirmière ou à un médecin	P	4,70	0,94
12	Avoir de l'aide pour les courses, la maison, la cuisine	P	4,65	1,08
24	Obtenir du soutien des membres de sa famille	P	4,63	1,10
13	Être informé(e) des moyens pour changer son mode de vie	C	4,63	1,00
14	Échanger avec la famille sur ses inquiétudes	P	4,50	1,15
20	Ressentir de n'être pas seul(e) à vivre ces émotions	P	4,30	1,38
25	Confier ses craintes	P	4,30	1,47
11	Parler de ses peurs et de ses inquiétudes avec sa famille	P	4,25	1,48
27	Parler de ses émotions à quelqu'un	P	4,00	1,69
26	Parler à d'autres personnes cardiaques	P	3,85	1,69
23	Parler de ses frustrations et de ses colères ressenties	P	3,80	1,71
Importance modérée				
8	Obtenir de l'information sur les groupes de soutien	C	3,43	1,90
21	Rendre visite à des ami(e)s sans son conjoint	P	3,23	1,97
19	Entreprendre des activités sociales sans son conjoint	P	2,98	1,95
18	Obtenir de l'information sur les finances	C	2,50	1,90
Faible importance				
22	Recevoir des directives précises pour le retour à la vie sexuelle	C	2,00	1,75
Note : C = cognitif ; P = psychosocial. ^a Numéro du besoin retrouvé dans l'instrument de mesure « Les besoins des patientes cardiaques » (Richard, 1996).				

La seconde question de recherche porte sur le degré de satisfaction des participantes de leurs besoins cognitifs et psychosociaux. Les moyennes des scores des besoins comblés et non comblés démontrent 7 besoins comblés ou presque complètement comblés ($3,5 \leq x \leq 5$), 12 besoins modérément comblés ($2,5 \leq x < 3,5$) et 8 besoins faiblement comblés ($1 \leq x < 2,5$) (voir le tableau 2). Les 10 premiers besoins comblés ou presque ($3,5 \leq x \leq 5$) concernent uniquement les besoins psychosociaux, alors que les cinq besoins faiblement comblés ($1 \leq x < 2,5$) sont tous d'ordre cognitif. Les besoins cognitifs sont légèrement moins comblés ($x = 2,50$, $ET = 0,52$) que les besoins psychosociaux ($x = 2,86$, $ET = 0,46$).

Afin de répondre à la troisième question de recherche concernant les priorités d'actions infirmières, un tableau cartésien a été élaboré (tel que décrit précédemment). Nous avons disposé leurs moyennes d'importance respectives par secteur pour l'ensemble des sujets et si ces besoins avaient été comblés ou non comblés. Ainsi, les priorités d'actions infirmières se retrouvent dans les secteurs I, II, III et IV du tableau cartésien, indiquant l'interaction entre le degré d'importance et de satisfaction des besoins.

Tableau 2 <i>Tableau cartésien utilisé pour l'identification des priorités d'actions infirmières</i>			
Importance élevée ($3,5 \leq \bar{x} \leq 5$)	I ^a 5, 6, 7, 26	II ^a 1, 2, 10, 13, 14, 15, 16, 17, 20, 23, 27	V 1, 4, 9, 11, 12, 24, 25
Importance modérée ($2,5 \leq \bar{x} < 3,5$)	III ^a 8, 18, 19	IV ^a 21	VI
Faible importance ($1 \leq \bar{x} < 2,5$)	VII 22	VIII	IX
	Besoin non comblé ou légèrement comblé ($1 \leq \bar{x} < 2,5$)	Besoin modérément comblé ($2,5 \leq \bar{x} < 3,5$)	Besoin presque complètement comblé ou comblé ($3,5 \leq \bar{x} \leq 5$)
Note : ^a Les priorités d'actions infirmières se retrouvent dans les secteurs I à IV. Le secteur I est celui des priorités d'actions démontrant le plus grand écart, tandis que le secteur IV est celui avec le plus petit écart. (Les chiffres à l'intérieur des fenêtres du tableau représentent les numéros des énoncés du questionnaire.)			

Nous retrouvons 19 priorités d'actions infirmières pour les femmes en phase II de la réadaptation cardiaque (voir le tableau 3). Le secteur I, indiquant les priorités d'actions avec le plus grand écart, comprend trois besoins cognitifs et un besoin psychosocial. Le secteur II regroupe 11 besoins, dont 5 besoins cognitifs et 6 besoins psychosociaux. Le secteur III contient deux besoins cognitifs et un besoin psychosocial. Finalement, le secteur IV n'a qu'un seul besoin et il est de type psychosocial.

Afin de répondre à la dernière question de recherche, des analyses ont été effectuées, *a posteriori*, avec certaines données sociodémographiques. Puisque la distribution des données de l'âge était dissymétrique, le test de Mann-Whitney a été utilisé pour déterminer si l'âge influençait l'importance des besoins et si ces derniers étaient perçus comme étant comblés. Dans la catégorie d'âge de moins de 65 ans ($n = 9$) et de 65 ans et plus ($n = 31$), des différences significatives sont observées pour l'importance de l'ensemble des besoins ($U(40) = 75,00$, $p = 0,04$) et des besoins cognitifs ($U(40) = 65,50$, $p = 0,02$), mais non pour l'importance des besoins psychosociaux ($U(40) = 99,50$, $p = 0,19$). Ces résultats sont confirmés lorsque les corrélations entre l'âge et les types de besoins sont examinées. En effet, il existe des corrélations négatives significatives entre l'âge et l'importance des besoins dans son ensemble ($r(40) = -0,32$, $p = 0,05$) et l'importance des besoins cognitifs ($r(40) = -0,33$, $p = 0,04$), mais non avec l'importance des besoins psychosociaux ($r(40) = -0,24$, $p = 0,14$). Les plus jeunes femmes (< 65 ans) accordent une importance supérieure pour l'ensemble des besoins et pour les besoins cognitifs que les femmes plus âgées (≥ 65 ans).

En ce qui concerne le fait de savoir si l'âge a un effet sur les besoins comblés, les tests de Mann-Whitney indiquent, pour la catégorie d'âge de moins de 65 ans (39 à 64 ans) et de 65 ans et plus (65 à 82 ans), des différences significatives entre les besoins comblés ($U(40) = 71,0$, $p = 0,03$) et les besoins psychosociaux comblés ($U(40) = 68,0$, $p = 0,02$), mais non pour les besoins cognitifs comblés ($U(40) = 91,5$, $p = 0,11$). De même, les corrélations entre l'âge et les besoins comblés (dans leur ensemble) et celle avec les besoins psychosociaux ($r(40) = -0,35$, $p = 0,03$) sont négatives et significatives. Ceci signifie que les femmes plus âgées présentent un degré inférieur de satisfaction de leurs besoins psychosociaux comparativement aux femmes plus jeunes.

Quatre analyses de variance à un critère de sélection (ANOVA) ont été effectuées pour vérifier l'effet du niveau de scolarité et du revenu sur l'importance et la satisfaction des besoins. Aucune d'entre elles n'a permis de démontrer que les groupes formés des trois niveaux de

Tableau 3 *Besoins cognitifs et psychosociaux (par secteur du tableau cartésien) en ordre décroissant pour les priorités d'actions infirmières (N = 40)*

Numéro ^a	Besoin	Type	Importance		Comblé	
			\bar{x}	ET	\bar{x}	ET
Secteur I						
6	Connaître les phases de développement de la maladie	C	4,90	0,44	2,13	1,20
5	Être informé(e) des changements psychologiques anticipés	C	4,88	0,46	1,97	1,21
7	Connaître les caractéristiques de son état de santé	C	4,85	0,66	2,35	1,27
26	Parler à d'autres personnes cardiaques	P	3,85	1,69	2,25	1,70
Secteur II						
2	Obtenir des explications en des termes compréhensibles	C	5,00	0,00	3,25	1,69
15	Recevoir de l'information sur ses soins	C	4,95	0,32	3,25	1,33
16	Être informé(e) des changements physiques à anticiper	C	4,93	0,66	2,80	1,56
1	Être informé(e) des changements dans son mode de vie	C	4,85	0,70	2,53	1,47
17	Avoir une bonne perception de sa qualité de vie	P	4,80	0,88	3,48	1,48
10	Parler à une infirmière ou à un médecin	P	4,70	0,94	2,70	1,60
13	Être informé(e) des moyens pour changer son mode de vie	C	4,63	1,00	3,03	1,59
14	Échanger avec la famille sur ses inquiétudes	P	4,50	1,15	3,48	1,62
20	Ressentir de n'être pas seul(e) à vivre ces émotions	P	4,30	1,38	3,35	1,75
27	Parler de ses émotions à quelqu'un	P	4,00	1,69	2,78	1,79
23	Parler de ses frustrations et de ses colères ressenties	P	3,80	1,71	2,70	1,76
Secteur III						
8	Obtenir de l'information sur les groupes de soutien	C	3,43	1,90	1,93	1,21
19	Avoir des activités sociales sans son conjoint	P	2,98	1,95	2,40	1,81
18	Obtenir de l'information sur les finances	C	2,50	1,90	2,05	1,65
Secteur IV						
21	Rendre visite à des ami(e)s sans son conjoint	P	3,23	1,97	2,58	1,88
Note: C = cognitif; P = psychosocial. ^a Numéro du besoin retrouvé dans l'instrument de mesure « Les besoins des patientes cardiaques » (Richard, 1996).						

scolarité (primaire [$n = 20$], secondaire [$n = 14$], collégial et universitaire [$n = 6$] et par la suite formés de quatre niveaux de revenu ($< 10\,000\ \$$ [$n = 4$], $10\,000\ \$$ à $19\,999\ \$$ [$n = 22$], $20\,000\ \$$ à $29\,000\ \$$ [$n = 9$] et $> 30\,000\ \$$ [$n = 5$]) perçoivent de façon différente l'importance de leurs besoins ($F(2,37) = 0,21$, $p = 0,81$; $F(2,32) = 1,10$, $p = 0,34$, respectivement) et la satisfaction de ces derniers ($F(2,37) = 2,40$, $p = 0,10$; $F(2,32) = 2,27$, $p = 0,12$, respectivement).

La discussion

Les résultats reliés à l'importance des besoins révèlent que les besoins cognitifs des femmes en phase II de la réadaptation cardiaque se classent parmi les plus importants. Le premier besoin cognitif d'importance élevée consiste à recevoir des explications claires de la part des intervenants de la santé sur la maladie coronarienne et ses conséquences. Parmi les autres besoins cognitifs, les femmes désirent être informées sur la progression de leur maladie coronarienne et les changements physiques et psychologiques à anticiper lors de leur convalescence à domicile. Ces résultats sont similaires à ceux des études de Orzeck et Staniloff (1987) et de Moser et al. (1993). En effet, ces deux études avaient également fait ressortir sept besoins cognitifs parmi les 10 premiers besoins comblés et perçus de haute importance. L'âge est aussi un facteur particulièrement important à considérer lors de l'analyse de besoins puisque les plus jeunes femmes (âgées de 64 ans et moins) accordent une importance supérieure aux besoins cognitifs comparativement aux femmes plus âgées. Conséquemment, les infirmières doivent incorporer plus de renseignements durant leurs classes d'enseignement destinées aux plus jeunes femmes ayant subi un IM qu'aux femmes plus âgées.

Les besoins psychosociaux les plus importants de femmes victimes d'un IM dans la présente étude consistaient à établir un climat de confiance entre elles et les intervenants de la santé, à bien renseigner les membres de leur famille et à percevoir une bonne qualité de vie à la suite de leur IM. Les autres besoins psychosociaux jugés importants se réfèrent surtout à leurs relations interpersonnelles avec les membres de leur famille, à l'expression ouverte de leurs émotions (craintes, peurs, colère) et à la présence d'un soutien pour les aider à modifier leur mode de vie. Cependant, les femmes ont besoin d'entreprendre des activités sociales sans la présence de leur conjoint et de recevoir des renseignements concernant leurs finances et la reprise de leurs activités sexuelles.

Certains besoins psychosociaux de femmes de cette étude se sont avérés différents de ceux des hommes de l'étude de Moser et al. (1993).

Par exemple, les femmes se soucient davantage à ce que les autres aient leur bien-être à cœur; elles souhaitent avoir plus de temps pour elles-mêmes et obtenir de l'aide pour faire les courses, entretenir la maison et cuisiner. Les hommes perçoivent ces besoins comme étant de moindre importance. Ces différences s'expliquent puisque les femmes reçoivent moins d'aide que les hommes pour les activités domestiques durant la phase II de la réadaptation cardiaque (Angus, 1996). Les femmes de notre étude et celles de l'étude de Boogaard et Briody (1985) ont rapporté reprendre leurs activités domestiques à moins d'une semaine après leur IM. Elles ne semblent pas être conscientes de la somme d'énergie totale engendrée par ces activités. De plus, Hamilton et Seidman (1993) soulignent que les femmes reçoivent moins de directives concernant les activités domestiques que les hommes.

Les résultats se rapportant à la satisfaction des femmes de leurs besoins indiquent que leurs besoins psychosociaux sont plus comblés que leurs besoins cognitifs. Ils regroupent les besoins en relation avec le sentiment de bien-être, les relations familiales et le partage des émotions. De plus, les besoins d'avoir du temps pour soi-même et une famille bien renseignée en cas d'urgence ont été presque comblés chez les femmes participantes de cette étude. Ces mêmes besoins n'ont pas été comblés chez les hommes cardiaques dans l'étude de Moser et al. (1993) et ils les considéraient moins importants. Le fait que les besoins psychosociaux soient plus comblés s'expliquent puisque les femmes ont rapporté recevoir du soutien de leur conjoint, d'une personne significative ou des membres de leur réseau social durant leur convalescence. Par contre, les hommes cardiaques rapportent que leurs besoins concernant l'information reçue sur leur état de santé, l'évolution de leur maladie, les changements psychologiques à anticiper à la suite de leur IM, la disponibilité des groupes de soutien et le retour à une vie sexuelle active étaient plus comblés même si jugés moins essentiels comparativement aux femmes de la présente étude. Ainsi, l'information offerte lors des classes d'enseignement s'adresse surtout aux hommes puisqu'elle est basée sur leurs caractéristiques pendant la réadaptation cardiaque (Mirka, 1994). Les sujets féminins de l'étude de Benson et al. (1997) ont également évalué que l'information reçue à l'hôpital n'est pas adéquate puisqu'elle ne répond pas à leurs besoins particuliers. Même si le facteur âge joue un rôle important au niveau des besoins comblés, il est important de considérer l'interaction entre l'importance du besoin et si ce dernier est comblé. Étant donné qu'il n'existait qu'une petite variance dans les niveaux de revenu et de scolarité, les analyses statistiques *a posteriori* n'ont pu démontrer un lien entre les types de besoins.

L'analyse de besoins a permis d'identifier 19 priorités d'actions que les infirmières doivent porter une attention particulière dans leurs programmes d'interventions. Les besoins cognitifs les moins comblés se retrouvent parmi les 10 premiers. Les besoins cognitifs concernent surtout l'information sur la maladie cardiaque et les changements qu'elle apporte et la qualité des renseignements. Les besoins psychosociaux englobent une bonne perception de la qualité de vie, la possibilité de parler à un médecin ou à une infirmière, les échanges avec les membres de sa famille et le partage des émotions. Benson et al. (1997) ont aussi rapporté que le besoin le plus important et le moins comblé était celui de la socialisation avec d'autres femmes coronariennes. Nous avons remarqué que les femmes coronariennes acceptaient de participer à l'étude puisque la visite de l'investigatrice offrait une opportunité de parler et d'obtenir du soutien provenant d'une autre femme. Seulement les femmes qui connaissaient personnellement des personnes cardiaques dans leur entourage ont pu combler partiellement ce besoin. Il est intéressant de noter que le besoin de parler à une autre malade cardiaque était jugé comme très important mais n'a été que légèrement comblé comparé aux hommes de l'étude de Moser et al. (1993), dont le besoin fut modérément comblé bien qu'il était évalué comme étant moins important. Une explication plausible est que les femmes participent moins aux programmes de réadaptation cardiaque que les hommes (Low Graft, 1993). Elles ont donc moins de chances de rencontrer d'autres personnes cardiaques.

Les besoins psychosociaux tels, parler de ses frustrations, de ses colères et de ses émotions, tous jugés très importants par les femmes de cette étude, ont été modérément comblés. Chez les hommes, ces besoins évalués comme moins importants ont été aussi modérément comblés puisque les hommes reçoivent déjà un soutien émotionnel plus adéquat de la part de leur conjointe, à la suite de leur IM, leur permettant ainsi d'exprimer davantage leurs émotions (Angus, 1996).

Il est essentiel de noter que les sept besoins d'ordre psychosocial contenus dans le secteur V du tableau cartésien, c'est-à-dire, ceux possédant une importance élevée mais qui ont été presque comblés, représentent des éléments que l'on doit continuer d'inclure dans l'enseignement et le soutien aux femmes coronariennes. Ils concernent le fait d'obtenir du soutien des membres de la famille (aide pour les courses et l'entretien de la maison), connaître la conduite à suivre en cas d'urgence et partager ses craintes, ses peurs et ses inquiétudes. Bien que le besoin d'assistance a été comblé pour les femmes de cette étude, il faut s'assurer d'évaluer les ressources existantes à plus long terme. Ainsi, l'aide apportée doit dépasser la période de convalescence et

favoriser des arrangements plus permanents afin de redistribuer les responsabilités familiales des femmes coronariennes. En ce qui concerne le partage des émotions et des inquiétudes, les femmes s'expriment davantage en présence d'autres femmes. Elles ressentent aussi le besoin d'être écoutées par le personnel de la santé (Benson et al., 1997). Le besoin de discuter du retour à la vie sexuelle active était considéré d'une faible importance et cependant n'était pas comblé (secteur VII). L'âge des femmes de cette étude et l'absence d'un conjoint chez plus de 47 % d'entre elles nous incitent à vérifier la pertinence d'inclure ce besoin auprès de cette population. Dans son enseignement, l'infirmière doit bien connaître sa clientèle car il arrive souvent que les femmes qui aimeraient retourner à une vie sexuelle active soient trop gênées pour en parler ou trop craintives pour entreprendre des relations sexuelles.

Il semble que l'information offerte lors de la période d'hospitalisation (en phase I de la réadaptation cardiaque) soit insuffisante ou présentée à un moment de stress élevé qui ne permet pas la rétention. L'investigatrice a remarqué que plusieurs femmes ne se souviennent pas d'avoir eu ces renseignements. De plus, même si les femmes confirment avoir reçu le livret *Vivre après l'infarctus* (Département de Santé Communautaire de l'Enfant Jésus, 1994), elles rapportent que l'information offerte est tellement générale qu'elles ont de la difficulté à comprendre comment celle-ci s'applique directement à elles-mêmes. Ce rapport est aussi confirmé par les femmes coronariennes de l'étude de Benson et al. (1997).

Cette analyse de besoins a donc permis d'obtenir de l'information quant aux écarts existants entre les situations actuelle et idéale perçues par les femmes victimes d'un IM et de choisir les priorités d'actions infirmières. Ainsi, le choix des interventions sera relié aux besoins plutôt qu'aux problèmes relevés (Kaufman et English, 1979).

Les limites de l'étude

L'utilisation d'un échantillon de convenance dans quatre centres hospitaliers peut entraîner certains biais. Le premier vient du fait que chaque personne qui a la possibilité de se trouver à un endroit prédéterminé et à un moment choisi a une probabilité non nulle d'être sélectionnée (Condandriopoulos, Champagne, Potvin et Denis, 1989). De plus, les quatre centres hospitaliers sélectionnés dans cette étude ne sont peut-être pas représentatifs des autres en terme de pratique infirmière. Cependant, les perceptions des femmes pourraient être biaisées par un niveau de stress ou d'anxiété post-IM. La petite taille de l'échantillon peut également affecter la validité interne de l'étude. Conséquemment,

certaines relations entre les variables n'ont probablement pu être détectées. De plus, le fait que les femmes sont exposées à différents types d'enseignement dans chaque centre hospitalier peut influencer leurs opinions.

Les recommandations pour la recherche

Une étude similaire pourrait être conduite auprès d'un plus grand nombre de femmes de langue française qui ont subi un IM, provenant de différents groupes d'âge, de diverses cultures et ayant des niveaux d'éducation et de revenu différents. L'étude des processus cognitifs et psychosociaux qui mènent à l'ajustement des femmes atteintes d'un IM permettrait d'aller au-delà de l'identification des besoins. Lors des entrevues à domicile, l'investigatrice a remarqué que plusieurs femmes avaient des questions concernant la reprise des activités physiques et la médication. Elles désiraient recevoir un appel téléphonique d'une infirmière pour répondre à leurs questions et déploraient le manque d'écoute de la part du médecin. Il serait aussi intéressant d'examiner, à l'aide d'un instrument de mesure, les besoins uniques de ces femmes (p. ex. : l'hormonothérapie) qui incluraient aussi d'autres expériences vécues. De plus, l'évolution des besoins aux différentes phases de la réadaptation cardiaque et si un service téléphonique de l'infirmière était instauré pourraient être examinés.

Les recommandations pour la pratique infirmière

Cette étude souligne le besoin chez les femmes coronariennes de recevoir une information adaptée lors des programmes d'enseignement pendant la phase II de la réadaptation cardiaque. Plus spécifiquement, les infirmières doivent expliquer les changements physiques et psychologiques à anticiper à la suite de l'IM lors du retour à domicile. Les infirmières doivent aussi apporter une attention particulière à l'âge des femmes puisque les femmes âgées de moins de 65 ans demandaient plus d'information et les plus âgées de 65 ans rapportaient que leurs besoins psychosociaux étaient moins comblés. L'enseignement pourrait être offert à la fin de la période de l'hospitalisation suivi d'appels téléphoniques de l'infirmière pour renforcer l'information, clarifier les idées erronées et offrir du soutien après le départ de l'hôpital. Des rencontres planifiées entre une infirmière et d'autres femmes ayant vécu des expériences positives à la suite de leur IM faciliteraient les échanges et le partage des expériences communes. D'autres rencontres avec certains membres de la famille ou d'une personne significative permettraient de soutenir les femmes coronariennes lors de moments difficiles pendant

leur réadaptation et de planifier le partage des responsabilités familiales à long terme.

Conclusion

Cette étude a permis d'identifier 19 priorités d'actions infirmières auprès de femmes victimes d'un IM récent et lors de la phase II de leur réadaptation cardiaque. Parmi celles-ci, 10 étaient associées à des besoins cognitifs et 9 à des besoins psychosociaux. Les besoins cognitifs étaient parmi les plus importants et les moins comblés. Ceux-ci comprenaient l'information à recevoir sur la maladie cardiaque, par exemple, les changements physiques et psychologiques à anticiper lors de la réadaptation cardiaque, les moyens pour adapter son mode de vie à la suite des modifications de l'état de santé, les causes et l'évolution de la maladie cardiaque. Cette information doit être offerte dans un langage simple et facile à comprendre étant donné que ce besoin était identifié le plus important par les sujets de cette étude. Les besoins psychosociaux concernaient le soutien que les femmes désiraient obtenir provenant soit d'une infirmière, d'un médecin ou des membres de leur famille dans le but de partager ses émotions et de comprendre comment mieux partager les responsabilités familiales. L'âge était aussi un facteur qui déterminait le type de besoin perçu. Conséquemment, lors de la planification d'un plan de départ de l'hôpital, les infirmières doivent en tenir compte. Cette analyse de besoins apporte donc des changements positifs à la pratique infirmière. Elle permet l'identification des besoins de femmes coronariennes et aide à déterminer les priorités d'actions infirmières conduisant à l'élaboration ou à la modification de programmes d'enseignement ou de soutien.

Les recommandations qui complètent cette étude ouvrent la porte à de nouvelles recherches qui permettront de généraliser les résultats en examinant d'autres groupes de femmes de langue française victimes d'un IM. Une étude plus approfondie sur les processus cognitifs et psychosociaux offrirait des connaissances à la discipline afin d'améliorer l'adaptation des femmes à la suite d'un événement cardiaque. Conséquemment, la modification éventuelle des programmes d'enseignement pour cette clientèle rendra possible l'assistance physique, psychologique et sociale dont les femmes coronariennes semblent avoir besoin. Les infirmières pourront donc se servir des résultats de cette étude pour adapter leur approche, en écoutant soigneusement les femmes coronariennes, en favorisant des discussions ouvertes et en individualisant le plus possible l'enseignement nécessaire à la réussite de la réadaptation cardiaque.

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Book Reviews / Critique de livres

Intervenir en santé mentale

Bruno Fortin

Québec: Éditions Fides, 1997. 342 pp.

ISBN 2-7621-1949-9

Compte rendu par Cynthia Baker

Cet ouvrage contribue à la réflexion et à la formation des intervenants en santé mentale. Il se divise en trois parties dont la première a pour but de stimuler le lecteur pour l'amener à mieux se connaître en tant qu'intervenant. La deuxième partie offre des stratégies d'intervention individuelles. La dernière traite des stratégies d'intervention orientées vers l'aspect relationnel.

Les chapitres axés sur la connaissance de soi incitent le lecteur à examiner sa définition de la santé mentale, à reconnaître les difficultés auxquelles les intervenants font face et à regarder l'effet de son histoire personnelle sur ses propres stratégies d'adaptation. Le lecteur est aussi invité à se pencher sur la qualité du soutien dont il a besoin dans l'exercice de sa profession et à identifier ses critères d'estime de soi.

On retrouve, dans la deuxième partie du livre, une démarche à suivre pour intervenir en santé mentale. Le thérapeute initie le processus en établissant un lien avec le client. Il définit aussi le cadre de ses interventions en précisant entre autres le but visé, la durée de chaque rencontre, la durée du suivi et les limites de la relation. Une fois le contact établi, le thérapeute aide le client à cerner le problème qu'il veut aborder, à clarifier ses buts, à chercher des solutions et à évaluer les résultats. Différentes stratégies sont présentées pour aider le client à nuancer ses pensées, à gérer ses émotions et à travailler avec ses images internes durant le processus de résolution des problèmes.

La troisième partie du livre porte sur les interactions du client avec autrui. Fortin propose des stratégies d'intervention qui ont pour but d'encourager le client à mieux communiquer et à s'affirmer. Il aborde aussi la façon dont on peut influencer sur la vie conjugale à travers le membre du couple qui recherche de l'aide. Il suggère également des stratégies pour réunir la famille du client et pour animer une rencontre familiale de façon efficace. Le livre se termine avec une discussion autour des questions éthiques touchant la relation entre le client et l'intervenant.

L'ouvrage reflète la synthèse personnelle d'un psychologue qui œuvre dans le domaine depuis plusieurs années. À maintes reprises,

Fortin se sert de brèves études de cas inspirées de son expérience professionnelle afin d'illustrer les stratégies proposées. Souvent aussi, il incite le lecteur à porter son regard sur lui-même pour approfondir sa compréhension des concepts présentés. À l'exception d'un bref commentaire dans l'introduction faisant référence à l'intérêt de l'auteur pour « l'approche cognitive-béaviorale, entre autres » (p. 10), les racines théoriques de ses stratégies ne sont pas mises en évidence. Le livre réussit donc à alimenter la réflexion du lecteur mais l'étudiant aura de la difficulté à situer les approches présentées dans un contexte intellectuel.

Intervenir en santé mentale permet au lecteur d'apprécier l'étendue du domaine d'intervention en santé mentale. Un chapitre fournit des suggestions pour des clientèles particulières comprenant entre autres les personnes délirantes, les personnes agressives et celles qui vivent un problème organique. Les stratégies d'intervention suggérées dans ce chapitre tiennent compte d'un raisonnement envahi par des troubles de la pensée. Or, la démarche d'intervention déjà présentée par Fortin est axée sur l'intentionnalité du client et sur la notion d'un contrat éclairé entre celui-ci et le thérapeute. Malheureusement, on ne retrouve pas comment l'intervenant peut intégrer les stratégies d'intervention proposées pour les clientèles particulières dans le cadre de cette démarche.

Fortin spécifie que son ouvrage s'adresse à « tous ceux qui se considèrent comme des étudiants dans le domaine de l'intervention en santé mentale » (p. 9). Le livre comprend à la fois des stratégies d'intervention de base et des questions qui présument que le lecteur détient des connaissances ou des expériences antérieures dans le domaine. Il semble donc y avoir deux objectifs qui ne sont pas toujours compatibles, soit l'introduction au domaine pour les étudiants et l'incitation des professionnels à ré-évaluer leur pratique.

Dans son ensemble, cet ouvrage constitue une ressource valable pour ceux et celles qui œuvrent en soins infirmiers psychiatriques et en santé mentale. *Intervenir en santé mentale* présente aux cliniciennes et cliniciens plusieurs façons concrètes d'aider les personnes à identifier et à modifier les pensées et croyances qui risquent d'être sources de problèmes. En suscitant chez eux une réflexion, il peut contribuer au développement de leur répertoire d'interventions et de leur identité professionnelle.

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***Evaluating Nursing Interventions:
A Theory-Driven Approach***

Souraya Sidani and Carrie Jo Braden

Thousand Oaks, CA: Sage, 1998. 190 pp.

ISBN 0-7619-0315-1 cloth; 0-7619-0316-X pbk.

Reviewed by Anita J. Gagnon

The evaluation of nursing interventions is a timely topic. It is generally felt that all health-related interventions, including those performed by nurses, need to be rigorously evaluated to ensure that society is wisely investing its health-care dollars. Methods of determining causal links between interventions and outcomes (effectiveness or outcomes research) have been in existence for several decades and have been improved over time. The title of this book suggests an approach to evaluating nursing interventions that differs from the norm — but how different is it?

In a clearly written chapter, the authors describe what they mean by a theory-driven approach to effectiveness research. In such an approach, they explain, the researcher specifies: (1) the condition that the intervention is intended to treat, as well as the population that is to be treated and the conditions under which the treatment is to be carried out; (2) the characteristics of the intervention that are necessary to achieve the desired effect; (3) the mediating processes that will bring about the desired effect; (4) the expected outcomes, the anticipated timing of their occurrence, and their interrelationship; (5) the contextual and client characteristics likely to affect the treatment process; and (6) the resources required to carry out the intervention.

Throughout *Evaluating Nursing Interventions: A Theory-Driven Approach* the authors present potential flaws in the conceptualization of effectiveness research. They then suggest that such flawed research is equivalent to and representative of effectiveness research. The theory-driven approach is, the authors urge, the preferred alternative. I agree that the six items they specify as being incorporated in a "theory-driven approach" are preferred to poorly conceived effectiveness research, but I would have to disagree with the notion that poorly conceived effectiveness research is the norm.

The authors call a well-conceptualized study one that has a *theory-driven approach*. They coin a phrase to refer to what many researchers might simply term *good-quality* or *rigorous* research. Sidani and Braden state that the purpose of their book is to expand methods of clinical

effectiveness research. I found no expansion of methods but rather a regrouping of some important points. Unfortunately, the sweeping generalizations concerning effectiveness research detract from the important points — for example, clearly defining which contextual and client characteristics are likely to lead to variations in the effectiveness of the intervention being studied.

I believe we can all agree with the authors that “clinicians need to know which intervention components, at which dosage, under what circumstances, and with which clients, result in which outcomes. This kind of information is essential for expanding the knowledge base for practice and for assisting clinicians in selecting and prescribing the most appropriate intervention to their clients” (p. vii). However, we might also agree that the only way to achieve these goals is through rigorously conducted research, regardless of how it is labelled.

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Revue canadienne de recherche en sciences infirmières

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The Canadian Journal of Nursing Research is indebted to the persons below who served as reviewers for Volume 31. They gave generously of their time and shared their knowledge, and in so doing have contributed greatly to the editorial process and to the development of nursing knowledge.

La Revue canadienne de recherche en sciences infirmières est reconnaissante envers les personnes ci-dessous nommées pour avoir révisé son volume 31. Ces personnes ont généreusement donné de leur temps et ont partagé leur savoir. Ce faisant, elles ont largement contribué au processus éditorial et au développement des connaissances en sciences infirmières.

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Focus Topics, Deadlines, and Publication Dates**

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Primary Health Care

Submission deadline: October 15, 1999

Publication date: June 2000

Philosophy / Theory

Submission deadline: January 15, 2000

Publication date: September 2000

Chronicity

Submission deadline: April 30, 2000

Publication date: December 2000

Abuse and Violence

Submission deadline: July 15, 2000

Publication date: March 2001

VOLUME 33

Economics of Nursing Care

Submission deadline: October 15, 2000

Publication date: June 2001

Home Care

Submission deadline: January 15, 2001

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Submission deadline: April 15, 2001

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Health Resource Planning

Submission deadline: July 15, 2001

Publication date: March 2002

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Submission deadline: October 15, 2001

Publication date: June 2002

Ethics, Values, & Decision-Making

Submission deadline: January 15, 2002

Publication date: September 2002

Addiction

Submission deadline: April 15, 2002

Publication date: December 2002

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Submission deadline: July 15, 2002

Publication date: March 2003

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Publication date: June 2003

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Submission deadline: January 15, 2003

Publication date: September 2003

Health Promotion

Submission deadline: April 15, 2003

Publication date: December 2003

Continuity & Transitional Care

Submission deadline: July 15, 2003

Publication date: March 2004

Chronicity

December 2000 (vol. 32, no. 3)

Rapid changes in health-service delivery, advances in technological-care options, and continual reconceptualization of the roles of health professionals present challenges in providing nursing care for persons affected by chronic illness. Because chronic illness typically involves changes that span the physical, the social, the practical, and the existential, nurses have come to recognize chronicity as an inherently complex phenomenon and one in which nursing care can make a significant difference to both individuals and populations. Chronicity implies dynamic learning and adaptation processes, complicated social and health-care negotiation, and challenging decision-making processes. For this issue on chronicity, papers are invited that address research into any of these aspects of the chronic illness experience or into their application in treating individuals with a chronic disease. Although the primary focus will be chronic illness in a general sense, papers reflecting research on a specific chronic disease will be welcomed. Priority will be given to papers that discuss the clinical or theoretical significance of knowledge about chronicity.

Guest Editor: Dr. Sally Thorne

Submission Deadline: April 30, 2000

Abuse and Violence

March 2001 (vol. 32, no. 4)

In nursing and other disciplines, research on violence and abuse and their health consequences has increased rapidly over the past decade. This issue will focus on all aspects of this phenomenon as it intersects with nursing practice in the entire range of health-care settings. We are interested in both the perpetration of violence and its victimization, family and non-family violence, abuse across the lifespan, physical and mental health outcomes, and prevention and intervention. We are particularly interested in areas that have received insufficient recent nursing research attention such as child and elder abuse, youth violence, rape and sexual assault (especially against males), cultural and cross-cultural influences in the perpetration of violence and the responses to it, and the testing of nursing interventions. We hope to publish mainly research reports but will also consider papers on theory development and testing. We welcome investigations that use qualitative or quantitative data or a combination of the two.

Guest Editor: Dr. Jacquelyn C. Campbell

Submission Deadline: July 15, 2000

Please send manuscripts to:

The Editor, *Canadian Journal of Nursing Research*,
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3506 University Street, Montreal, QC H3A 2A7 Canada
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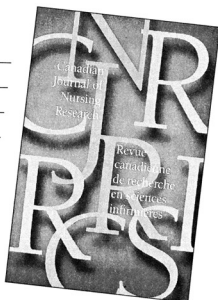
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Procedure: Three double-spaced typewritten copies of the manuscript on 8 1/2" x 11" paper are required. Authors are requested not to put their name in the body of the text, which will be submitted for blind review. Only unpublished manuscripts are 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, *Canadian Journal of Nursing Research*, School of Nursing, McGill University, 3506 University Street, Montreal, QC H3A 2A7. E-mail: jtoti@po-box.mcgill.ca

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La *Revue canadienne de recherche en sciences infirmières* est publiée quatre fois par année. Son mandat est de diffuser la recherche en sciences infirmières qui a trait au développement des connaissances dans la discipline et l'analyse de la mise en pratique de ces connaissances. La revue accepte également des articles de recherche liés à l'éducation, à l'histoire de même que des articles liés à la méthodologie, la théorie et l'analyse critique qui favorisent le développement des sciences infirmières. Nous vous invitons à nous faire parvenir également vos commentaires sur les articles publiés.

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