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RELATIONSHIP BETWEEN NURSES' EMPATHIC RESPONSES AND PAIN MANAGEMENT IN ACUTE CARE

by

Judith Heather Watt-Watson

A thesis submitted in conformity with the requirements
for the degree of Doctor of Philosophy
Graduate Department of The Institute of Medical Science
University of Toronto

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ABSTRACT

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The purpose of this descriptive, correlational study was to examine the relationship between nurses' empathic responses and management of pain for their patients in acute care settings. Nurses' empathy and pain knowledge-beliefs were compared with analgesic administration, patient pain intensity ratings, and patient pain beliefs. The conceptual framework was developed from the work of Winnicott, Gallop, and Melzack and Wall.

A convenience sample of 225 patients was obtained from four cardiovascular surgical wards in three university-affiliated teaching hospitals. All patients were interviewed on their third postoperative day following their initial, uncomplicated coronary artery bypass surgery. They were given the McGill Pain Questionnaire-Short Form (MPQ-SF) (Melzack, 1987) and the Patient Pain Experience Scale (PPES) to assess prior pain, expectations, and current pain management. A convenience sample of 94 nurses working in the same settings was given the Staff-Patient Interaction Response Scale (SPIRS) (Gallop, 1989) to measure empathy and the Toronto Pain Management Inventory (TPMI) for pain knowledge-beliefs. Data from 203 patients were aggregated and linked with the nurse assigned to them to form 80 pairs.

Patients with more empathic nurses did not report less pain or receive more analgesia than patients with less empathic nurses. Moreover, more empathic nurses did not have much greater pain knowledge than less empathic nurses. Major problems were evident in

pain knowledge and beliefs for all nurses, regardless of their SPIRS and TPMI levels. Most patients reported moderate to severe pain and were undermedicated across all hospital sites. Analgesic practices varied by site, although on average, nurses only gave 47% of the prescribed dose. Nurses were very confident in their knowledge and competency in pain management. However, patients' perceptions of the nurse attending to their pain were not positive and there were discrepancies in nurse and patient perceptions of their interactions in the process of pain management.

The most empathic and knowledgeable nurses in this study had erroneous beliefs about analgesia, patients' role in pain management, and optimal pain intensity levels. Patients also lacked knowledge about these areas. Pain education programmes are needed for both patients undergoing bypass surgery and the nurses caring for them.

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Chapter I

INTRODUCTION AND PROBLEM STATEMENT

Introduction

Effective pain management is problematic. Inadequate pain relief has been repeatedly documented for over 20 years. Patients in acute care settings continue to experience moderate to severe pain in spite of prevalent pain literature, education, and treatment options (Abbott et al., 1992; Carr, 1990; Cohen, 1980; Donovan, Dillon, & McGuire, 1987; Francke & Theeuwen, 1994; Keeri-Szanto & Hearnan, 1972; Marks & Sachar, 1973; Max, 1990; Melzack, Abbott, Zackon, Mulder & Davis, 1987; Miaskowski, Nichols, Brody, & Synold, 1994; Owen, McMillan, & Rogowski, 1990; Ward & Gordon, 1994; Ward & Gordon, 1996; Watt-Watson & Graydon, 1995; Weis, Sriwantanakul, Alloza, Weintraub, & Lasagna, 1983). Melzack and Wall's (1965) emphasis on the subjectivity and variability of people's responses to pain is not reflected in current pain practices.

Pain management is an interactive process. However, patient self-reports of pain and professional caregiver ratings differ (Camp & O'Sullivan, 1987; Grossman, Sheidler, Swedeen, Mucenski, & Piantadosi, 1991; Iafrati, 1986; Paice, Mahon, & Faut-Callahan, 1991; Seers, 1987; Teske, Daut, & Cleeland, 1983; Zalon, 1993). Moreover, prescribed analgesia is not given in spite of patients' reports of moderate to severe pain (Close, 1990; Donovan et al., 1987; Marks & Sachar, 1973; Paice et al., 1991; Watt-Watson & Graydon, 1995). Caregivers do not consider moderate to severe pain for patients in hospital

as problematic (Cohen, 1980; Kuhn, Cooke, Collins, Jones, & Mucklow, 1990; Lavies, Hart, Rounsefell, & Runcimen, 1992; Rankin & Snider, 1984; Watt-Watson, 1987; Weis et al., 1983). Therefore, patients communicating that they have pain either are not being heard, are being disagreed with, or are being dismissed as unreliable sources of information. Not all patients voluntarily disclose that they are hurting (Carr, 1990; Lavies et al., 1992; Owen et al., 1990), and many are satisfied with their management despite moderate to severe pain (Miaskowski et al., 1994; Ward & Gordon, 1994, 1996). Only minimal examination of the nurse-patient interaction in the process of pain management for medical or surgical patients has been documented. Consequently, the degree to which nurses attend to cues from patients and empathically respond to them is not known.

Winnicott (1970) has encouraged caregivers to attend to the subtleties of interpersonal relationships and the quality of caregiving environments (Chescheir, 1985). His notion of facilitating environment suggested that caregivers respond to patients in an empathic, not mechanical way. Caregivers need to possess a capacity for concern in order to provide a facilitating environment that encourages holding of patients in caregiving situations (Winnicott, 1963, 1970). The ideal clinical environment represents a facilitating environment that feels safe, predictable and comforting for patients. In this environment, caregivers attend to what patients are experiencing and respond empathically to their needs. Knowledge can influence whether or not a caregiver will respond empathically (Gallop, 1989) and is important to being confident in one's own care decisions (Winnicott, 1949). The notion of developing an optimal facilitating environment is relevant to patients in pain.

Deficits in knowledge and refractory beliefs about pain management continue to be

evident for both nurses and physicians (Brunier, Carson, & Harrison, 1995; Clarke et al, 1996; Cohen, 1980; Elliott & Elliott, 1992; Fife, Irick, & Painter, 1993; Fox, 1982; Grossman & Sheidler, 1985; Hamilton & Edgar, 1992; Lander, 1990; Lavies et al, 1992; Marks & Sachar, 1973; McCaffery, Ferrell, O'Neil-Page, & Lester, 1990; Von Roenn, Cleeland, Gonin, Hatfield, & Pandya, 1993; Vortherms, Ryan, & Ward, 1992; Watt-Watson, 1987). The recent proliferation of both pain education programs and research reports in journals and textbooks has not significantly changed the continuing frequency of poor pain relief. Explanations as to why some caregivers are more attentive to patients' cues of pain and the need for optimal pain management are required. The capacity to attend to patients ' cues, often described as therapeutic empathy, may be critical to effective pain management. Gallop, Lancee, and Garfinkel (1989) have defined therapeutic empathy as the wish to know or understand the subjective experience of the patient.

Empathy, which has been discussed for many years as the basis of the therapeutic relationship, nevertheless has remained elusive, both in theory and measurement. Gallop, Lancee, and Garfinkel (1990b) have conceptualized empathy as a three-phased process that is dependent upon the nurse being attentive to expressed meanings and interpretations that patients attribute to their experience. The outcomes of each phase of the empathic process may be influenced by mediators such as nurses' knowledge-beliefs, patients' age, and contextual variables such as hospital site.

From an extensive review of the literature, Gallop (1989) has documented the paucity of valid and reliable scales availabie for use in inpatient wards. In existing scales, empathy has been defined in very broad categories. These categories are confusing, poorly operationalized,

and do not recognize the differing phases of the empathic process (Barrett-Lennard, 1981; Gallop, 1989). Gallop agreed with Gagan (1983), that available measures used in psychotherapeutic contexts, may be inappropriate for the more spontaneous interactions in nursing. Gallop's (1989) conceptualization and operationalization of empathy help to address these difficulties. The Staff Patient Interaction Response Scale (SPIRS) derived from this work is relevant to an examination of the relationship between nurse responses and pain management.

Patients' pain in the acute care setting is not being adequately assessed or acted upon if unrelieved pain continues in spite of ordered analgesia (Abbott et al., 1992; Ferrell, McCaffery, & Grant, 1991; Kuhn et al., 1990; Owen et al., 1990; Paice et al., 1991). Postoperative pain management continues to be very inadequate for many patients in spite of nurses' major role in assessing and managing postoperative pain. The relationship between nurses' empathic responses, and what they know and believe about pain management practices including patient experiences and responses to pain, is unknown. The influence of empathy on patient outcomes related to pain intensity ratings and analgesic administration is also not known. Therefore, nurses' responses to patients in pain, such as in surgical settings, need to be examined. Coronary vascular surgical settings were chosen for this study because of the increasing number of patients undergoing bypass graft surgery and the expressed assumption by clinicians that these patients were "well pain managed".

Cardiovascular diseases, as the major cause of death, disability, and illness in Canada, have a significant impact on our health care system (Reeder et al., 1995). The treatment of cardiovascular disease has accounted for almost 20% of all patient stays in hospital.

Moreover, coronary artery bypass graft surgery (CABG) has increased substantially during the past decade (Reeder et al., 1995). This surgical procedure is increasing particularly in the older population, and the resulting costs are directly related to patients' age and the number of vessels grafted (Krueger, Goncalves, Caruth, & Hayden, 1992). The average cost estimate of coronary bypass surgery in Canada is $22,000 per patient, although there can be considerable variation (Heart & Stroke, 1996; Reeder et al., 1995).

Coronary bypass surgeries, which involve many pain-sensitive structures, most commonly include a median sternotomy with invasion of subcutaneous muscle and visceral tissues. The grafting procedure usually involves several sites. Saphenous leg grafting to harvest veins requires significant leg incisions and is the most common site. As well, many patients receive an internal mammary artery graft that requires manipulation and retraction of the sternum and electrocautery to dissect the artery from the chest wall (Heye, 1991). All of these procedures can result in moderate to severe postoperative pain and CABG patients have identified an average of six locations of pain after surgery (Heye, 1991).

In recent studies, coronary bypass patients report considerable unrelieved pain (Puntillo & Weiss, 1994; Valdix & Puntillo, 1995) and receive inadequate postoperative analgesia (Maxam-Moore, Wilkie & Woods, 1994). Unrelieved pain can precipitate adverse responses including pulmonary and cardiovascular dysfunction (Benedetti, Bonica & Belluci, 1984; Craig, 1981; O'Gara, 1988). For example, Puntillo and Weiss (1994) have documented atelectasis in those patients with greater pain intensity after cardiovascular surgery. Moreover, early postoperative pain for thoracotomy patients was

the only factor that significantly predicted pain 18 months later (Katz, Jackson, Kavanagh, & Sandler, 1996). However, well-managed postoperative pain can result in fewer complications, earlier mobilization, and shorter hospital stays (Finley, Keeri-Szanto, & Boyd, D., 1984; Tuman et al., 1991; Wasylak, Abbott, English, & Jeans, 1990). With escalating costs and fiscal restraints, it is crucial to ensure that patients are sufficiently comfortable, in order to (a) mobilize quickly within shorter hospital stays and (b) be discharged without future complications of unrelieved pain.

The purpose of this study was to examine the relationship between nurses' empathic responses and their pain management approaches as reflected in patients' pain intensity rating and analgesics administered after surgery. Factors which might mediate this process were also examined, such as nurses' pain knowledge and beliefs, patients' age, and the contextual variable of hospital site. Nurses and patients were paired to permit a comparison of nurses' empathy and pain-related knowledge and beliefs with their actual practices for patients following coronary bypass surgery. Winnicott, Gallop, and Melzack and Wall contribute to the conceptual basis directing this study.

Problem Statement

Cardiovascular disease is a major health problem that may require coronary artery bypass surgery. In recent studies, patients after bypass surgery describe inadequate pain relief. Early post-operative pain has been a predictor of long-term pain (Katz et al., 1996). The variability in patients' responses to pain is not recognized by nurses, as patients in a variety of clinical settings report moderate to severe pain. Nurses' lack of knowledge and misbeliefs about pain may contribute to this problem.

In this study, a model of interpersonal process has been used to examine the context of pain management. Therapeutic empathy involves subjective inquiry in order to understand the experience of another (Gallop et al., 1989). Inquiry into patients' pain is crucial to effective management as patient responses to postoperative pain vary considerably (Benedetti et al., 1984). The degree to which nurses are empathic in responding to patients in pain is not known.

Chapter II

REVIEW OF THE LITERATURE AND CONCEPTUAL FRAMEWORK

Pain is subjective and responses to pain are highly variable (Melzack & Wall, 1965, 1973, 1982, 1996). If caregivers are to understand and help patients with their pain experience, they will need to attend to this subjective quality of pain. Empathic care which focuses on the meaning of the individual's experience may be critical to effective pain management. Consequently, the conceptual framework for this research needs to address the creation of an environment that allows for the expression of one's unique pain and related needs.

The conceptual framework is grounded in Winnicott's notion of a facilitating environment. A facilitating environment feels secure and predictable to patients as it is reliable, not in a mechanical way, but in a way that implies empathy (Winnicott, 1960). Central to the construct are the interrelated concepts of caregivers' capacity for concern and holding. Capacity for concern, an essential component of interpersonal relationships, involves the ability to attend to and accept responsibility in relationships. Holding involves empathically responding to patient's needs in the process of protecting patients from unnecessary stress. Caregivers need to possess a capacity for concern to be able to hold clients in a facilitating environment (Winnicott, 1963, 1970). Winnicott defines a facilitating environment as one where caregivers are attuned to individual's unique needs and try to understand another's experience. Gallop et al. (1990a) define this wish to know and understand the experience of the patient as therapeutic empathy. Empathy may be mediated by nurse, patient, and contextual variables.

The conceptual model for this study illustrates the hypothesized relationships between the facilitating environment as operationalized by empathy and the clinical outcomes of patient's pain intensity and analgesia administered.

Literature Review

The literature review examines theories, concepts, and research related to facilitating environment, pain, and empathy. Winnicott's construct of facilitating environment, including its two central concepts of capacity for concern and holding, is discussed for its relevance to empathy and pain management. Empathy is discussed related to its (a) historical development, (b) conceptualization and resulting confusion, (c) conceptual development in major nursing models, (d) research outcomes and mediators, and (e) measures used in the nursing literature including Gallop's (1989). Pain theory is briefly discussed to explain the importance of recognizing the subjectivity and variability in pain and related key measures are described related to their relevance for this study. Research findings underlining problems related to (a) ineffective acute pain relief particularly for cardiovascular patients who are the participants in this study, (b) caregivers' knowledge and beliefs about pain, and (c) the congruency between caregivers' and patients' pain intensity ratings are examined, particularly for nurses. The limitations of the current measures of nurses' pain knowledge and beliefs are discussed as a basis for developing the new measure in this study.

Conclusions are summarized following the review of the literature. Finally, a conceptual framework evolving from this review is proposed to guide this study.

Facilitating Environment

Winnicott (1970) suggests that principles learned from earlier parental care can be applied in the professional work setting to enhance empathic care. Gallop's (1989) mediators such as nurses' birthplace and knowledge or patients' age and expressivity can influence these principles. Whether caregivers are able to move from understanding the patients to actually helping them, depends on mediators that involve the nurse, patient, and/or context. According to Winnicott (1963, 1970), health care professionals need to possess a capacity for concern in order to provide a facilitating environment which encourages holding of patients in care-giving situations. The ideal clinical environment is a facilitating one which feels safe, predictable, and comforting to the patient. In this environment, the caregiver attends to the subjective experience of the patient, and responds to the needs of the patient. These notions are relevant to understanding the creation of an optimal facilitating environment for patients in pain.

A facilitating environment is one where the caregiver adapts to a considerable degree to individual needs and responds in an empathic, non-mechanistic way. In this environment, caregivers are attuned to the feelings being expressed by patients and act as a mirror in reflecting this understanding back to their patients. This reflection can only occur where the other is allowed to be her/himself, accepted as a unique person without being judged (Winnicott, 1960). If caregivers have preconceived ideas of the person and her/his experience, they will be unable to respond empathically to the individual's unique cues. For example, nurses' empathy has been found to vary with the patient's diagnosis (Gallop, 1989; Hughes et al., 1990). Winnicott (1956) suggests that caregivers in a

facilitating environment bring a developed capacity to understand what the other may be feeling in order meet her or his needs. Caregivers who are unable to stand in the other person's shoes are merely technicians (Winnicott, 1970). Researchers suggest that older, experienced nurses may have difficulty responding empathically (Brunt, 1985; Forsyth, 1979; Gallop, 1989, Mynatt, 1985; Pennington & Pierce, 1985; Reid-Ponte, 1992; Sparling & Jones, (1977). The impact of birthplace on one's comfort with empathic inquiry is not known. Nurses educated in the Western countries of Britain, Canada, and the United States have had higher pain knowledge scores than nurses educated in the Philippines (Brunier et al., 1995) and knowledge may influence empathic ability.

The consequence of needs being met is a reduction in anxiety and a greater sense of feeling cared for. The patient believes in the reliability of the caregiver as she or he is cared for in a predictable way. A facilitating environment goes unnoticed when the caregiver is able to make the other's world as simple and protected as possible (Winnicott, 1960). A sense of security and stability results from such an empathic environment.

Providing a facilitating environment has major implications for changing current ineffective pain practices. Pain is subjective and complex (Melzack & Wall, 1965, 1973, 1982, 1996). Patients' perceptions and responses to pain are unique and unpredictable. This variability is evident in patients' needs and their expressions of pain. Caregivers need to be attuned to these differences and recognize their importance in providing individualized pain management. However research would suggest that this does not always happen. Nurses do not systematically ask patients about their pain (Donovan et al.. 1987; Graffam, 1970,; Watt-Watson, 1987). Nurses' own pain perceptions may

take precedence over those of patients and patient self-report may not be valued (Dalton, 1989; Ferrell et al., 1991). Therefore, caregivers with preconceived ideas about the pain experience may have difficulty providing a facilitating environment. Their pain strategies may reflect their own perceptions instead of reflecting those of their patients.

Difficulties in recognizing and understanding another's pain are clinically well known. Patients are a crucial source of information in sorting out what they are feeling and possible options for intervention. Problems arise where caregivers problematic beliefs or misbeliefs block the empathic process. Krivo and Reidenberg (1996) conclude that while health professionals are aware of patients' perceptions of their pain, they think that patients overstate their pain. Some caregivers do not believe that patients' pain ratings are accurate and this thinking may explain the caregiver-patient discrepancies in pain assessment and documentation (Camp & O'Sullivan, 1987; Donovan et al., 1987; Grossman et al., 1991; Seers, 1987; Teske et al., 1983). Recognizing these erroneous beliefs or misbeliefs as a basis for practice is a necessary step to effect change in pain management (Watt-Watson, 1992).

Caregivers and patients both vary in their experience and expression of pain. In a facilitating environment, nurses recognize that subjective information from patients is essential to avoid making incorrect assumptions about the pain they are experiencing. Therefore, a safe, predictable environment will occur only where patients' perceptions are valued and incorporated into subsequent planning. Within this facilitating environment nurses possessing a capacity for concern are able to hold or empathically respond to patients.

Capacity for Concern

The capacity for concern is the ability of an individual with a strong sense of self to be caring and to feel and accept responsibility in relationships (Winnicott, 1963). A strong or positive sense of self is acquired by being valued and cared for in a consistent and positive manner in the early mother-infant relationship. Concern is an essential component of all positive interpersonal relationships. In Winnicott's (1960) opinion, an incapacity for concern is rare, although individuals who only partly have developed emotionally and are able to be only partly concerned are not rare. Everyone has an inherent potential which continues to grow into and throughout adult life.

Caregivers have chosen careers which involve metaphorically similar relationships to Winnicott's mother-infant unit. Patients being admitted into an unfamiliar setting, with potentially painful procedures and treatments, are to varying degrees physically and emotionally dependent on caregivers. Patients have to trust that caregivers are concerned about their individual needs. Winnicott cautions against predicting responses based on assumptions instead of recognizing and relating to the uniqueness of each person. Where the work environment becomes increasingly routine, non-reflective responses may replace concern. The degree to which caregivers are able to utilize their capacity for concern in caring for or holding the patient is an important question. Concern is the basic premise of all therapeutic involvement and is reflected in the facilitating environment.

Holding

Winnicott describes the prototype of all care as holding which includes all that the person is and does for the other. The main function of holding is to minimize

impingements or disruptions which are felt as threats to one's personal existence (Winnicott, 1960). If patients' needs for minimal complications are met, they can trust their caregivers and feel secure. A sense of personal identity evolves from holding as the patient receives feedback that he/she has been recognized as an individual and understood (Winnicott, 1970). Patients being cared for by more empathic nurses have demonstrated improved mood and were more satisfied with their care (Brown, 1990; La Monica, Wolf, & Oberst, 1987; Lancee, Gallop, McCay, & Toner, 1995; Williams, 1979).

The process of holding includes several components that are relevant to patients in hospital settings. A holding environment is one which adapts to patients' needs, with caregivers responding to what patients are actually feeling, not what they think patients should feel (Winnicott, 1960). Holding should protect the patient from unnecessary stress, yet for over 20 years, significant numbers of hospitalized patients have experienced unrelieved moderate to severe pain (Marks & Sachar, 1973; Miaskowski et al., 1994; Ward & Gordon, 1996; Watt-Watson & Graydon, 1995). While opioid analgesics are a major component of pain management in acute care, the average dose of opioid analgesics administered has been considerably less than the amount ordered. Patients frequently have received minimal doses of opioid analgesia on their first post-operative day in spite of available written prescriptions (Carr, 1990; Paice et al., 1991). When analgesics have been administered, some patients describe only temporary relief of pain which disappears before the next dose is given (Kuhn et al., 1990; Lavies et al., 1992). Conceptually, the hospital environment can be described as failing to minimize impingements or disruptions and increasing anxiety, thus failing to hold the patient. The

health care environment is not therapeutic if moderate to severe pain is reported because prescribed analgesics are not given, time intervals are inappropriate, or doses are insufficient for satisfactory relief.

Holding should take into account the patient's lack of knowledge about the unfamiliar world of being a patient, including the right for optimal pain relief and the available options for pain management. Caregivers need to realize that patients bring their own beliefs about pain and treatments, some of which preclude effective pain management (Ward et al., 1993; Watt-Watson, 1992). Many patients have stated they would like total relief or as much relief as possible (Carr, 1990; Kuhn et al., 1990; Owen et al., 1990). However, two-thirds of patients in several studies would wait until their pain was severe before asking for help or would wait for the caregiver to ask them about their pain (Carr, 1990; Lavies et al., 1992; Owen et al., 1990). In Seers' (1987) nurse sample, 68% felt that patients would ask them if they needed analgesics but 42% of patients expected the nurse to know that they were in pain. The majority of patients in several studies did not expect to have their pain relieved (Carr, 1990; King, 1985; Lavies et al., 1992; Owen et al., 1990), although 64% of a pre-operative coronary bypass sample did report concern about anticipated postoperative pain (King, 1985).

Winnicott (1956) suggests that caregivers need to examine ways of providing a professional setting of trust in order to be more than technicians implementing remedies in a mechanistic manner. Holding through effective pain management provides a more secure and less anxiety-provoking environment within which patients are able to recover. Patients are in dependent positions requiring caregivers to be reliable in their overall

empathic attitude. The prevalence of moderate to severe pain as the norm for patients does not reflect a holding environment.

Empathy

For many years, empathy has been discussed in most nursing literature as an essential basis of a therapeutic relationship; yet the concept remains elusive. A variety of definitions exist, often related to the various instruments used to measure empathy. In attempting to understand the complexity of empathy, various writers have examined fragmented components of this concept, such as affective or cognitive behaviour. Empathy frequently has been reduced to a communication skill or a personality characteristic without there being any discussion of the empathic interaction and/or the factors influencing it. This reductionistic approach precludes the very essence of empathy, that of the experience of the self, the other, and the interaction between the two.

While major developments in nursing's conceptualization of empathy have recently been published (Gallop, Lancee, & Garfinkel, 1990a; Wheeler, 1988; Williams, 1990), there is no generally accepted theory concerning the nature of empathy in nursing (Wheeler, 1988). Minimal data exist that demonstrate the benefits of empathy in facilitating effective care. Gould (1990) suggested there was an urgency to explore what empathy is, along with both how it succeeds or fails to be therapeutic. Therefore, it is essential that the nature of empathy, the relationship between empathy and therapeutic outcomes, and the instruments nurse researchers use most frequently to measure empathy, be examined from a nursing perspective.

Nature of Empathy

Historical development. Empathy is a relatively new concept that was limited to the psychoanalytic field earlier in this century (Morse et al., 1992a). In the 1950s, Carl Rogers' (1951) client-centred focus began to influence nursing and his paper published in the American Journal of Nursing (1956) presented "sensitive empathy" as a part of the therapeutic relationship. He stressed the importance of "sensing" the client's private world "as if it were your own, but without ever losing the 'as if' quality - this is empathy, and this seems essential to therapy" (Rogers, 1957, p.99). The term empathy had been introduced earlier to the nursing literature by Peplau (1952) in a brief reference to its importance in the infant-mother relationship. Speroff (1956) defined empathy as both a process and an ability (see Appendix A, Table 1). While he differentiated empathy from identification, projection, and sympathy, Speroff considered the latter to be a valuable part of empathizing with others.

In the 1960s, many nursing writers (Henderson, 1964; Kozier & Du Gas, 1967; Orlando, 1961; Wiedenbach, 1964) underlined the importance of knowing the patient's perception but they did not describe this directly as empathy (Peitchinis, 1990). Several psychologists began to emphasize the importance of empathy in therapy, to develop tools to measure it (Barrett-Lennard, 1962; Carkhuff, 1969; Truax & Carkhuff, 1967), and to look for the effects of empathy on client outcomes (Gladstein 1970, 1977).

In the 1970s, nurses most frequently described empathy as an intrapsychic phenomenon, as the ability to understand the experience of another "as if" it were one's own (Stetler, 1977; see Appendix A, Table 1). When defining patterns of knowing,

Carper (1978) described empathy as an important mode in the aesthetic pattern of knowing. By 1983, Gagan stated that the most common definition in the nursing research literature included the ability to perceive the meaning and feelings of another along with the interactional component of communicating that understanding to another (Forsyth, 1980; Kalisch, 1971a; La Monica, 1979; Layton, 1979; Sparling & Jones, 1977; Stetler, 1977).

From the delineation of empathy into both sensing and communicating this understanding, further conceptualizations and definitions of empathy have developed (see Appendix A, Table 2). In all conceptions of empathy, both feelings and cognitions are present, although an emphasis on one or the other significantly changes the concept (Olsen, 1991). Several nurse researchers have contributed to the evolution in theory development of dividing empathy into stages (Gallop, 1989; Kunst-Wilson, Carpenter, Poser, Vennohr, & Kushner, 1981; La Monica, 1981). Gallop (1989) was influenced by Barrett-Lennard (1962); she developed a three-phased process model which moves from experiencing another's expressivity, through a matching phase, to the actual helping of the other when therapeutic empathy is present.

Conceptualization of empathy. No consensus exists on how empathy should be defined or measured. MacKay, Hughes, and Carver (1990), Wheeler (1988), and Morse et al. (1992a) reviewed nursing and other literature to determine the major conceptual approaches to empathy and have some variation in their subsequent conclusions. Forsyth (1980) used concept analysis to identify the criteria necessary for empathy to exist, and Williams (1990) examined four major conceptualizations from the nursing literature.

MacKay et al. (1990) suggested that practitioners and scientists conceptualize empathy fundamentally in three ways: as behaviour, as a personality predisposition or attitude, and as experienced emotion. With the behavioural approach of observing client-professional interactions, behaviours are assumed to be indicative of empathy. The behaviour may be perceived and described by an independent observer (Aspy, 1975; Carkhuff, 1969; Rogers, 1975), by the person involved in the interaction (Barrett-Lennard, 1962; Kunst-Wilson et al., 1981), or by peers (Kalisch, 1971b; La Monica, 1981). Many psychologists and human relations researchers viewed empathy as a personality dimension (Dagenais & Meleis, 1982; Davis, 1983; Hogan, 1969, 1975), although this conceptualization was problematic, and there was no consistency in the dimensions chosen. To Mehrabian & Epstein (1972), empathy was an emotion derived from experiencing the imagined emotions of others, based on their observed behaviour.

Wheeler (1988) chose several broad models identified by Marks and Tolsma (1986) as relevant to the nature of empathy. The consistency model, from the psychoanalytic literature, is focused on the therapist's intrapsychic process of understanding what the other is feeling (Berger, 1987). In the contextual/behavioural model, roles, norms and structure influenced behaviour as the individual considered his or her actions in relation to consequences for others (Forsyth, 1979; MacDonald, 1977; Mynatt, 1985). The cognitive/perceptual model is focused on affective sensitivity of the individual to describe the feelings of another (Brunclik, Thurston & Feldhusen, 1967; Kunst-Wilson et al, 1981; Northouse, 1979). Most nursing studies were based on the fulfilment/ phenomenologic model which is focused on communicating understanding within

interpersonal relationships (Clay, 1984; Gallop, 1989; Kalisch, 1973; La Monica, 1981; Layton, 1979; Rogers, 1986; Stetler, 1977; Williams, 1979). In the latter model, Wheeler (1988) identified difficulties because of incongruencies in conceptual and operational definitions. She suggested that empathy was a complex concept, which should be explored in a unified model and not as fragmented parts.

Williams (1990) focused on the nursing literature and identified four major conceptualizations of empathy: Baumgartner (1970), Zderad (1969), Forsyth (1980), and Wheeler (1988). Baumgartner (1970) and Zderad (1969) heavily reflected psychoanalytic theory, and both included emotional and cognitive components in their concept. Baumgartner (1970) analyzed the process of empathy in sequential steps, from acceptance of self through full participation with the patient's feeling in its contextual relation to his or her life situation. Zderad (1969) divided clinical empathy into three phases of the empathic process. In Phase I, internalization, the empathizer identified in a temporary, affective way with the other. Phase 2 or inner response involved a vicarious experiencing or reverberation with the other, including physical sensation. Phase 3 or objectification involved a detachment from the other's world and reentry into one's own world to deliberately withdraw from subjective involvement and break identification with the other person. Both approaches focused on the patient and emphasized the need to examine patients' expressed data objectively.

Forsyth (1980), influenced by Carkhuff (1969), used concept analysis to define eight criteria necessary for empathy to exist. Consciousness included awareness of oneself and the other and also the experience of each. Temporality was the "here" and "now", that

required a response, and relationship included the response, interaction, and reciprocity in attending to the other. Validation included seeking feedback about one's perception of the situation, and accuracy involved clarification of the meaning of the person's experience from his or her internal framework. Intensity described the degree of empathic reflection of the other's expressed feeling. Finally, the need for objectivity and freedom of evaluation were cited as important in differentiating between empathy and related concepts of sympathy, pity, and compassion. Forsyth's (1980) criteria reflected both emotional and cognitive components of empathy and the need to validate perceptions objectively.

Morse and colleagues (1992a) identified four components of empathy, namely moral, emotive, cognitive and behavioural. Although the authors stated that these components were identified from both psychological and nursing literature, their nursing sources were minimal. The moral component was described as not "clearly delineated or defined as a separate component of the concept" (p.273), although earlier measures with a moral perspective such as Hogan's (1969) were referred to. The emotive component was derived from Rogers' (1957) sense of perceiving the feelings of another. Empathic ability was assumed to be a natural inherited potential that developed with maturity. The authors suggested that a person's emotional empathy influenced the subsequent cognitive and behavioural empathy. Their suggestion that the empathizer was conscious of responding to the other's cues is debatable. The cognitive component included perspective taking from an objective stance and the behavioural component was the ability to communicate empathic understanding and concern. Morse et al. (1992a)

criticized nurse authors for emphasizing the cognitive and behavioural components of empathy and discouraging emotional involvement with patients. Unfortunately, they did not include the three most recent nursing empathy models in their critique.

Wheeler's (1988) concept of empathy as a process or unique human field pattern versus the usual multicomponent concept of empathy was not discussed by Morse et al. (1992a). They cited William's model (1990) but did not discuss her notion of oscillation between emotion and cognition with mature empathy. Williams emphasized that failure to synthesize emotion and cognition results in either overemotional responses or intellectualization and distancing. Gallop et al.'s (1990a) paper was not mentioned, although their model addressed some of the problems that Morse et al. (1992a) identified.

In summary, nurses have utilized the thinking and empathic measures developed in the psychoanalytic and counselling field. Therefore, their thinking reflects the diversity evident there. The earlier conceptualizations have tended to compartmentalize empathy into components such as behaviours and characteristics or emotions, particularly differentiating between an affective or cognitive focus. Hornblow (1980) suggested that conceptualizations differ in other ways. The emphasis on attitudinal, intra-psychic or covert aspects as emphasized by Rogers (1975) in his client-centred psychotherapy was in contrast to Truax and Carkhuff's (1967) observable, behavioural and overt focus. Hogan (1969) defined empathy as a trait with potential innate determinants. Gallop (1989) included trait as only one mediator, along with state and contextual variables, that influence the process of empathy. Thus, there is no one established conceptualization of

empathy but many different operationalized definitions, that have been borrowed by nurses from the psychoanalytic and counselling literature.

While these broad conceptualizations of empathy differ, there are some commonalities. They suggest that empathic behaviour results from emotional awareness of the other and cognitive understanding of this affective sensitivity. Both personality predisposition and communication skills are included in being empathic (MacKay, Carver, & Hughes, 1990). A combining of both emotional and cognitive components is evident in the most recent models (Gallop et al., 1990a; Wheeler, 1988; Williams, 1990) although this has not been uniformly accepted (Morse et al., 1992). Gallop and colleagues' (1990a) conceptualization is unique in that it builds on previous work to address some of the existing confusion and controversy.

Conceptual confusion. The conceptual fit of empathy for nursing practice has been challenged by Morse et al. (1992a). Part of the problem which they identified, is the body of confusing literature surrounding the meaning and components of empathy, compounded by contradictory views of researchers. Morse et al. (1992a) attributed this confusion to the subjectivity of empathy, the complexity of its process, and conceptualizations that have been uncriticized and sometimes incomplete. Pike (1990), also critical, described empathy as an "elusive and mysterious" concept (p. 235).

An examination of definitions of empathy in the nursing literature (see Appendix A, Table 1) has pointed to confusion and\or disagreement around two major issues. Opinion falls on a continuum related to the appropriate objective-subjective balance of the therapeutic relationship and is often polarized into sympathy versus empathy. Secondly,

some definitions move beyond understanding feelings and meanings to include the need for both communicative and behavioural responses. In the objective-subjective debate, the degree of acceptable involvement with others ranges from maintaining one's identity and emotional distance to losing oneself and merging with the client's experience. The word sympathy was the word primarily used prior to empathy to describe nurse interactions with patients, and distinctions have not always been clearly understood or discussed (Ehmann, 1971; McKay et al., 1990; Morse et al., 1992a).

Several authors have challenged the utility of therapeutic empathy in all areas of nursing practice. Morse et al.'s (1992a) concern about patients needing to "learn to accept reality" takes precedence over their receiving empathic responses (p.277). Morse et al. (1992a) and others (Ehmann, 1971; Travelbee, 1963) also have queried whether nurses can be empathic with all clients. Diers (1990) cautioned that empathy "is a dangerous notion if it is thought to be mindless, experiential, existential connectedness" and is not helpful if the clarity of the concept is obscured by too broad a definition (p. 241). While every patient-encounter requires one to be open to the other's experience, Diers (1990) suggested that not every encounter will benefit from empathy. She described an affective-cognitive dichotomy in her premise, that some encounters will require theory, applied experience, translation, or consultation instead of empathy.

Morse et al.'s (1992a) premise, that empathic approaches are not realistic in acute care, confuses empathy with psychological counselling. Empathy does not require the "30 minutes or longer listening to one patient" (p.278) that they suggested. Empathy is a sensing of any person's experience, whether simple or complex, that is not restricted to a

time frame. Empathy has a timeless quality and can occur in a brief interaction of minutes or over a period of years (Gallop et al., 1990a; Wheeler, 1988).

The second issue in the conceptual confusion is focused on whether empathy is also an intervention or learned skill. Empathy has been defined on two levels, as a way of being with another person and as a measurable and teachable communication skill (see Appendix A, Table 2). Northouse (1979) delineated two primary viewpoints for investigating nursing research related to empathy: that of interpersonal accurate perceptions and/or the ability to communicate these accurate perceptions to the other. The latter viewpoint led to the development and evaluation of communication techniques and training programmes in order to facilitate nurses' empathic skills.

An important question to examine is whether communicating sensing or empathic understanding to another is a component of empathy or an outcome of an empathic exchange. Kalisch (1973) suggested that for empathic perceptions to be useful, they must be effectively communicated to the other, but she did not include this latter aspect in her definition of empathy. Validation of the accuracy of one's understanding was underlined by Rogers (1975) and identified as a criterion whenever empathy exists by Forsyth (1980). Does this validation need to be taught and does it require techniques?

Morse et al. (1992b) are critical of therapeutic empathy as deliberate strategies which include cognitive and behavioural components but not the emotional component in nurse responses. They argue, that empathy has been reduced to a mechanistic patter or standardized learned approaches, which caregivers use to decrease their emotional responses to clients. Can empathic responses be mechanistic or rote (Morse et al.,

1992b)? Gallop et al's (1989) definition of therapeutic empathy as the wish to know or understand the subjective experience of another suggests that empathy is not ritualistic.

Major Nursing Models of Empathy

Recently, three major conceptualizations of empathy have been published in the nursing literature. Wheeler's (1988) model used a systems paradigm and was the most removed from psychological and psychoanalytical underpinnings. Williams (1990) and Gallop (1989) both used previous writing from a variety of disciplines in developing their models. Gallop's concept of empathy as a three-phase time-sequenced process has been operationalized in a measurement tool (1989).

Wheeler. Wheeler (1988) proposed that Martha Rogers' (1970) systems paradigm provides a unifying model for the concept of empathy. Empathy was conceptualized as an energy field pattern emerging from the continuous interaction between people and their environment. In this spiralling non-repeating pattern of empathy, emotional harmony and objective intellectual evaluation are closely connected. More empathic people are able to differentiate to a greater degree between the self and the other. Empathy as a connecting link between energy fields is not bound by time. Empathy may occur within a brief interaction (i.e. minutes) or be an ongoing response for years.

Wheeler (1988) did not fragment empathy into a personality trait, a learned skill or an emotional factor. Instead, she focused broadly on the process of a resonating interchange between two people, each of whom is a total person both in his/her own context and in the one they share. Nurses were described as resonating instruments who share and reflect patients' needs and emotions through the empathic process. This process

implied an ongoing openness to people and not a process of selected empathy for some and not others. She described this model as a beginning effort to explore the nature of empathy using a nursing science approach instead of borrowing concepts from psychological models. Operationalization and measurement of empathy within Wheeler's model were not developed. Research is needed to explicate variables associated with the empathic process and to identify factors necessary for empathy to occur.

Williams. Williams (1990) described empathy as a multidimensional phenomenon and as a unitary construct with emotional, cognitive, communicative and relational components. Each individual has a genetic biological tendency to react to emotions in others that can be influenced by both cognitive and emotional components of the situation. Cognitive empathy is a synthesis of inferential and intuitive processes, much of which occurs at a preconscious level; it requires the use of knowledge of the other, memories of personal experiences and theoretical knowledge along with a detachment from the emotional component. Emotional empathy is the vicarious experiencing of the emotion of the other. Whether this occurs by direct transmission of emotion between people or through reading verbal and non-verbal cues is unclear. Communicative empathy is the ability to translate a conceptualization of the other's experience into meaningful verbal and nonverbal language. Relational empathy describes the interpersonal experience of empathy and is enhanced by physical and psychological proximity.

Williams (1990) addressed the empathy-sympathy issue, suggesting that the absence of adequate cognitive functioning and reality testing results in experiencing the empathized emotion as one's own. In mature empathy, emotional and cognitive processes interact and

are synthesized; otherwise either overemotional reactivity or intellectualization and distancing occur.

This model reflected considerable complexity leading to the interpersonal experience of empathy. Williams (1990) included the genetic empathic tendency which was mediated by developmental experiences, personality development, and arousal level. The need to examine contextual variables was included and several examples were given. Her emphasis on the interaction and synthesis of emotional and cognitive processes in mature empathy was an advance from the previous fragmentation. However, Williams' (1990) model focused on components of the empathizer and included very little development of what actually occurred with empathic insight and communication, other than to say it always occurred in the context of a relationship. She did not examine the process of interaction between two people who each bring their unique context to the relationship. She concluded by indicating that the complexity of her construct did not allow adequate measurement with existing instruments and the researcher would need to focus on parts of the construct.

Gallop. Gallop (1989) conceptualized empathy as a process rather than as a multidimensional or multicomponent phenomenon. This heuristic model was developed with three phases that are repeated in a cycle - inducement, matching, and participatory-helping phases. Each phase has its own set of patient, contextual, and staff mediating variables which determine whether the empathic process continues or stops. Existing conceptual and empirical work has been the source for many of these mediators and particular attention has been given to situational or contextual mediators of empathy. As

empathy is mediated by numerous influences, it can be viewed as a context-dependent variable. Gallop (1989) suggested that contextual variables that can be modified need to be identified in order to change the clinical environment. She reported that existing models are not adequate to examine issues such as the nature of the empathic process with inpatient or clinic settings or situational influences on the therapeutic dyad.

The inducement phase is the beginning of empathy when an observer experiences another person who is personally expressive. There are three possible outcomes in this phase, that of being uninterested, of being overwhelmed by one's own affective response, or becoming engaged and attending to the observed. The cycle continues only if the observer becomes engaged and has a conscious or unconscious wish to proceed. The mediators in this phase relate to the observer, the event, and the observed. The observer's affective sensitivity in being receptive to cues, state factors of mood and cultural beliefs, and role can interact to influence engagement. The similarity of the event context and actual or perceived similarities between individuals such as gender will contribute to engagement. The outcome is also mediated by the expressivity of the observed and whether distress is conveyed in a contextual and culturally relevant way. The observer is unlikely to attend to unexpressed meaning unless this is an expectation of her or his role.

In the matching phase, the engaged observer consciously and unconsciously generates hypothetical situations with associated affect. If a match is made with the actual affect of the observed, this phase ends and the observer continues to the next phase. The empathy process ends if the following occur: (a) overidentification or loss of self/other differentiation, where the observer has to deal with his or her own associated distress and

can't help the observed (b) a perplexed state, where hypotheses do not match the observed content and affect or (c) a defensive observer, who is reliving conflicted unresolved experiences and his or her need for self-protection supersedes the wish to help. The process continues with a nondefensive engaged observer who has found an adequate match and wishes to help.

The mediators of the matching phase involve mainly the observer. Trait qualities include the observer's ability to fantasize and generate hypothetical situations and to take the perspective of another. These qualities are partly determined by early affective sensitivity and partly by cognitive-affective development. Where the observer has well-developed cognitive-affective skills, a broader spectrum of hypothetical situations facilitates matching. A perplexed or uninvolved outcome is more likely to occur where the observer lacks affective skills. The observer's theoretical belief system, such as highly valuing empathy, may determine his or her motivation to participate.

The participating-helping phase has four possible outcomes: (a) do nothing despite experiencing matching because of knowledge of the situational context, the observer role, and/or stereotyping; (b) offer nonspecific emotional support, where the observer wants to help and equates "making the person feel better" with the most helpful response; (c) instrumental problem solving, reflecting the observer's style of communicating or ward philosophy; and (d) demonstrate understanding of the observed's experience. If understanding is demonstrated, the empathic process continues to the next cycle.

The mediators influencing this phase relate mainly to the context and the observer. The observer factors involve the role and state of the observer, stereotypical beliefs,

gender, habit, communication skills, and knowledge of empathic process and of the event. The situational context and the observed's state and expressivity can also influence outcome.

Gallop (1989) has addressed some conceptual difficulties of previous models such as distinguishing mediators of empathy from the process itself. Her mediators include contextual factors rarely acknowledged in other models, as well as those related to both the observed and the observer. Various phases of the empathic cycle can be examined empirically. The identification of possible outcomes facilitates the examination of alternative ways of increasing affective sensitivity and empathic ability. This model does not fragment empathy into context, empathizer or recipient but examines the interrelationship of all three throughout the cycle of the empathic process.

Relationship Between Empathy and Therapeutic Outcomes

Much of the counselling and psychotherapy literature described empathy as being essential to therapeutic outcomes. Truax and Carkhuff (1967) concluded that empathy was crucial to psychotherapy. Gladstein (1970) found a stronger relationship between empathy and psychotherapy than between empathy and counselling. In client-centred studies such as those of Barrett-Lennard (1962), clients' perceptions of an empathic therapist were related to positive counselling outcomes. However, Mitchell, Bozarth and Krauft (1977) suggested that earlier conclusions about interpersonal skills including empathy needed to be reexamined because of methodological difficulties. They recommended that variables that influence the therapist-client relationship needed to be considered.

Although more recent reviews report mixed opinions about the relevance of empathy, Gladstein (1983) noted that it continues to be viewed as important. The lack of consensus in conceptualizing empathy and the subsequent variety of measures used in studies probably contribute to these equivocal findings and make comparisons difficult. From the social and developmental literature, Gladstein (1983) concluded that empathy involves role taking and that while counsellors have the capacity for empathy, social norms and situational factors may interfere with effective helping. Empathic abilities vary widely as is evident in studies by Hogan (1969) and Mehrabian and Epstein (1972), but the stability of this ability across a variety of interactions is now being questioned.

Research findings in the nursing literature are similarly inconclusive and contradictory (see Appendix A, Table 2). The varying methodologies used by nurses have contributed to this confusion (Gagan, 1983). Nurse researchers have tended to borrow measures from other disciplines which may not be relevant to the nursing context. Until recently (Gallop, 1989; La Monica, 1981), instruments developed by nurses to measure empathy had no established reliability and validity (Brunclik et al., 1967; Kalisch, 1973; Layton, 1979). Few nursing studies have examined the effects of empathy on patient care. Nursing students who rated their teacher as superior showed more change toward self-actualization (Rosendahl, 1973). The self-concept of institutionalized elders improved with empathic nurses (Williams, 1979). As well, cancer patients experienced less anxiety and hostility when they were cared for by nurses receiving empathy training (La Monica, Wolf, & Oberst, 1987).

More recently, Brown (1990) in a qualitative interview approach, found a positive

relationship between nurse empathy and patient satisfaction with their care. Patients identified nurses' "being there" and "taking time to sit and listen" as most important in their relationship (p. 116, 118). Nurses and patients identified attitudes, both inhibitory and facilitative, that influenced the relationship. Nurses who were more empathic were more satisfied with nursing as a career.

Reid-Ponte's (1988) patient sample stated that they experienced more distress with nurses skilled in "perceiving, feeling and listening" (p.91), although the distress scores were low. She postulated that empathic listening encourages freer expression of distressful emotions. In contrast, Olson (1993) found a negative relationship between patients' distress and nurses' empathy. However, her sample of medical-surgical patients had very low distress scores and could not be described as distressed. Nurses' empathy and patients' perceptions of nurses' empathy were positively correlated.

Eastabrook's (1993) sample of patients, who received instrumental help (i.e. explanations, solutions, instructions) from more experienced, mental health nurses, exhibited greater compliance with drug regimes and clinic visits. As well, experienced nurses who were consistently assigned to patients, who offered a high level of support, and who followed up most missed appointments had significantly more compliant patients. In contrast, patient nonadherence was associated with the nurse's empathic response style of affective involvement.

Lancee, Gallop, McCay, & Toner (1995) examined the influence of nurses' limit-setting styles on the anger expressed by 97 psychiatric patients with high or low levels of impulsivity. Patients reacted with less anger to nurse actors who used an interpersonal

style combining empathy and instrumental help. Anger was not limited by empathic responses alone, without instrumental options.

In conclusion, despite difficulties in definition, measurement and research methodology on empathy, there appears to be a beginning basis for further empathic research. Very little is known about the therapeutic outcomes of empathy. Empathy measures borrowed from other disciplines need to be examined for their "fit" with nursing clinical practice. Current instruments, such as Gallop's (1989) scale, need to be evaluated for their reliability and validity as well as appropriateness for a variety of nursing contexts.

Mediators of Empathy

Empathy has been conceptualized as a three-phase process that is dependent upon the nurse attending to the meanings and interpretations that patients attribute to events in their experience (Gallop et al., 1990b). Within this model, mediating variables influence the outcomes of each phase and determine whether or not the nurse continues in the process toward helping the patient, such as with pain relief. These mediators involve nurses, patients, and the situational context. For example, mediators that may influence pain management practices include: (a) nurses' knowledge-beliefs about pain, age, experience, and birthplace; (b) patients' gender, age, culture and beliefs about expressing pain; and (c) situational contextual variables such as ward policies, beliefs, and habituated practices. There is also empirical support for some of these variables influencing empathy.

Nurse mediators. Knowledge about empathy, communication skills, and the current event involving the patient may influence outcomes Gallop et al., 1990a). Specific knowledge about the patient's subjective experience of treatment and related recovery

enables the nurse to understand the difficulties or issues encountered by patients (Gallop et al., 1990b). Knowledge is also important in providing a facilitating environment to be able to trust one's own judgement and not be mislead or overpowered by rote advice of others (Winnicott, 1949).

Empirically, no examination of pain knowledge-beliefs as a mediator of empathy has been found with nurses caring for patients after surgery. What has been established is that nurses have not valued patients' self-report (Brunier, Carson, & Harrison, 1995; Ferrell, McCaffery, & Grant, 1991), have mistrusted and disagreed with patients' pain intensity ratings, have used assessment tools minimally (Watt-Watson, 1987), and have used their own beliefs as a basis for care (Dalton, 1989). Nurses have expected patients to experience moderate to severe pain and have not seen this as unacceptable (Cohen, 1980; Kuhn et al., 1990; Lavies et al., 1992; Watt-Watson, 1987; Weis et al., 1983). Nurses have described conflict with physicians in managing pain, possibly related to their concerns about inadequate pain relief, undermedication, and overmedication (Ferrell et al., 1991). Nurses' communication with patients has tended to be brief and to focus mainly on giving advice or solutions rather than understanding the individual's experience (Graffam, 1970, Gallop et al, 1990b). Nurses' gaps in knowledge and misbeliefs about pain assessment and management have not been recognized in their self-evaluation, particularly their reluctance to give opioids (Brunier et al., 1995; Clarke et al., 1996). However, pain education programmes have resulted in improved clinician knowledge and beliefs that lasted at least 2 weeks (Myers, 1985; Wilson, Brockoff, G. Kyrst, Steger, & Witt, 1992), more adequate analgesic prescriptions (Grossman & Sheidler, 1985), and

completion of interdisciplinary pain projects within 1 year (Weissman & Dahl, 1995). Nurses with greater professional and continuing education were more knowledgeable (Vortherms et al. 1992) and more comprehensive in their stated assessment of the patient's pain experience (Dalton, 1989). Nurses designated as pain resources after an extensive pain management course were more accountable for pain relief but experienced some difficulties with coworkers and physicians in implementing their role (Ferrell et al., 1993).

Nurses' characteristics such as age, experience, education level, inservice education, and birthplace may also influence the empathic process. While research does not relate to the pain management and is not definitive because of the variety of measures used, nurses who were younger and/or less experienced were generally more empathic (Forsyth, 1979; Gallop et al., 1989; Mynatt, 1985; Pennington & Pierce, 1985; Reid-Ponte, 1992). Nursing education level has been positively related to empathy (Forsyth, 1979, Layton & Wykle, 1990; Kunst-Wilson et al., 1981), although Gallop's (1989) sample was too homogeneous to determine any relationship. Nurses' empathic levels have improved after empathy-focused educational programmes (Kalisch, 1979; La Monica et al., 1976; Layton, 1979; Olson & Iwasiuw, 1987). The influence of nurses' birthplace on empathy is not known. Nurses' cultural background has been associated with differences in inferences of patients' suffering (Davitz & Pendleton, 1969; Davitz, Sameshima, & Davitz, 1976) and pain knowledge levels (Brunier et al., 1995; McCaffery & Ferrell, 1995).

Patient Mediators. Patient characteristics have been reported to influence nurses'

responses. For example, nurses' empathic behaviours have varied with the patient's diagnostic category, as minimal levels of responses were evident with borderline personality patients (Gallop et al., 1990b). Nurses responded empathically only 25% of the time with burn patients (Hughes et al., 1990). Different levels of nurses' verbal empathy have depended on the types of client affective communication, as nurses most frequently identified patient feelings related to pain rather than anger or depression (Olson & Iwasiw, 1989).

No data were found that examined the relationship between nurses' empathy and patients' age, gender, birthplace, or pain beliefs such as willingness to communicate pain. However, patient characteristics have influenced caregivers' perceptions of patients' pain and need for intervention. Female patients have received fewer analgesics after surgery than male patients (Calderone, 1990; McDonald, 1994; Faherty & Grier, 1984), older adult patients have received fewer analgesics than younger adult patients (Duggleby & Lander, 1994; Melzack et al., 1987; Winefield, Katsikitis, Hart, & Rounsefell, 1990), and patients from ethnic minority groups have received less opioid analgesia postoperatively than did caucasian patients (McDonald, 1994). Patients' own beliefs about pain may influence their seeking and accepting help (Ward et al., 1993). Patients do not necessarily tell a caregiver when they are in pain (Carr, 1990; Lavies et al., 1992; Owen et al., 1990); yet nurses have inferred more pain when patients verbalized their discomfort or asked for relief (Baer, Davitz, & Lieb, 1970; Oberst, 1978).

Contextual mediators. The influence of the nursing work environment on empathy is not clear. Sparling and Jones (1977), using Carkhuff's instrument, found that nurses

working in a psychiatric setting were significantly more empathic than those in other settings. The self-selection bias of nurses' choice of work setting was not discussed. These findings were not supported by Forsyth's (1979) or Brunt's (1985) work using the Hogan Empathy Scale. Forsyth (1979) found that while clients' perceptions of psychiatric nurses' empathy was high, empathic ability was not found to be different in the five practice areas examined. Brunt (1985) found that nurses working in intensive care units did not differ in empathic ability from nurses in less technological settings. No significant differences were found between empathy ratings for nurses working in 5 psychiatric settings (Gallop et al., 1990b). No data were found describing the relationship between nurses' empathy and the ward context related to perceived colleague support for care decisions, philosophies, or policies. However, nurses with greater pain knowledge and expertise experienced conflict with both nursing and medical colleagues in attempting to improve pain management for their patients (Ferrell, Rhiner, & Ferrell, 1993).

Measures of Empathy

The confusion in the conceptualization of empathy is reflected in the variety of measures that have evolved. These have come mainly from the counselling and psychotherapy literature. Existing measures of therapist effectiveness had no established reliability and validity until empathy measures were developed by Truax (1961), Barrett-Lennard (1962), Truax and Carkhuff (1967), Hogan (1969), and Mehrabian and Epstein (1972). Comparisons between measures are difficult as researchers have varied in their focus on the patient and/or therapist, in their use of self-report or judged ratings and in their choice of real, simulated, or standard stimulus situations. Measures differ in their

conceptualization of empathy as a behaviour, personality characteristic, or process.

Nurse researchers have examined empathy primarily using instruments from other disciplines (see Appendix A, Table 3). Early measures developed by nurses (Brunclik et al., 1967; Clay, 1984; Kalisch, 1973) have no demonstrated reliability and validity and have not been used by other researchers. La Monica et al. (1987) was influenced by Carkhuff and developed her empathy scale to measure the effects of nurse empathic training on client outcomes. Gallop (1989) was influenced by Barrett-Lennard (1962) and developed a measure of empathy as a multiphase time sequenced process. Her measure was the first to separate mediators of empathy from the process itself.

More recently, empathy measures with established psychometric properties, have been criticized in several reviews (Chlopan, McCain, Carbonell, & Hagen, 1985; Feldstein & Gladstein, 1980; Gurman, 1977; Hornblow, 1980; Jarski, Gjerde, Bratton, Brown, & Mathes, 1985; Lambert, DeJulio, & Stein, 1978; Layton & Wykle, 1990; MacKay et al., 1990; Marks & Tolsma, 1986; Mitchell et al., 1977; Parloff, Waskow, & Wolfe, 1978). Salient aspects of the major measures used in nursing research will be discussed.

Truax-Carkhuff Scales (AE/EU). The Truax Accurate Empathy Scale (AE) (Truax & Carkhuff, 1967) was developed from the earlier scale of Truax (1961) and Rogers (1951) to evaluate the observed behaviour of the therapist. Although Carkhuff (1969) changed this measure from a nine-point scale to the five-point Empathic Understanding Scale (EU), these two objective measures are similar in construct and content. While reviews of the AE by Truax and Carkhuff (1967) and Truax and Mitchell (1971) have been voluminous and positive, other writers have raised concerns about the reliability and

validity of this tool (Chinsky & Rappaport, 1970; Feldstein & Gladstein, 1980; Gladstein, 1977; Lambert & DeJulio, 1977; Lambert et al., 1978; Mitchell et al., 1977; Rappaport & Chinsky, 1972).

Established reliability has been challenged. Rappaport and Chinsky (1972) suggested that repeated measures using a small number of raters interviewing the same therapist repeatedly are not independent and result in an inflated estimate of reliability. To eliminate the possibility of voice recognition by raters, they recommended using (a) a large number of raters interviewing each therapist once or (b) a large number of therapists who are rated once. Most studies reviewed by Mitchell et al. (1977) described therapist samples with a narrow range of empathic ability that did not include high facilitators as defined by these tools. Thus, it becomes difficult to interpret the impact of high empathy on outcomes, if ranges of scores are not significantly different from each other and indicate that many therapists are not very empathic.

Reliability is therefore inconclusive for these scales. Methodological shortcomings are evident, predominately around the raters used to collect data. Most studies lacked details about the training approaches and instruction content (Gormally & Hill, 1974; Lambert & DeJulio, 1977).

Construct validity has emerged over several decades as the major issue in science (Layton & Wykle, 1990) and requires evidence of both discriminant and convergent ability (Streiner & Norman, 1992). The scale in question must correlate positively with other measures of the same construct (convergence) but demonstrate conceptual independence from dissimilar constructs with a negative, or near zero, correlation

(discriminative). The AE lacked discriminative validity with other qualities such as genuineness (r=0.88) and warmth (r=0.87) (McNally & Drummond, 1974; Rappaport & Chinsky, 1972; Truax, 1972). Therefore, it may be more a measure of a therapist's general "good quality" rather than empathy. Convergent validity was not demonstrated for six measures of empathy including the EU (Kurtz & Grummon, 1972), suggesting that the measures are looking at different variables. However, Barrett-Lennard (1981) has suggested that the lack of correlation between various empathy tests is to be expected as these tools measure different aspects and stages of empathy.

A major question about the validity of these tools focuses on the use of patient data in evaluating the interaction. A scale's construct validity relates to its ability to make accurate references about a person (Streiner & Norman, 1992). Each level of these scales describes the degree to which a therapist responds to the feelings and meaning expressed by the other person. However, AE raters are trained to listen only to therapist responses and not to be influenced by patient content (Truax, 1972). How can one measure a therapist's sensitivity to the client's feelings if the patient's statements are not known and valued? Therefore, problems with construct validity exist for these tools.

Barrett-Lennard - Empathy Subscale. The Barrett-Lennard Relationship Inventory (BLRI) of 64 items includes a 16 item empathy subscale (Barrett-Lennard, 1962). This subscale can be administered in two forms: myself-to-the-other (MO) and other-toward-self (OS). Respondents agree or disagree on a six-point scale with no neutral position of zero. Barrett-Lennard's (1981) perception of empathy, as a process with three distinct phases, influenced Gallop's (1989) later work. Phase I, empathic recognition and

resonation where the therapist responds at a feeling level to the expressed experience of another. Phase II is the expressed empathic understanding of the therapist and focuses on the quality of the communication of the responding person. This phase does not imply that the message is both sent and received. Phase III is described as received empathy; here the feedback from the person receiving empathy is often more implicit than explicit. Thus the measurement and method used to examine empathy would differ depending on the phase of this cycle being examined.

The client evaluation of the therapist (other-to-self) (OS) representing Phase III's received empathy have been much more strongly related to outcome than those of any other empathy scale including EU (Kurtz & Grummon, 1972). This finding reflects Barrett-Lennard's (1962) premise that "it is what the client himself experiences that affects him directly" (p.2). Clients' positive perceptions of therapeutic conditions including empathy have been substantially related to positive outcomes (Gurman, 1977).

Reliability of the Relationship Inventory (RI) has been clearly established in Gurman's (1977) review of 14 studies of internal consistency and 10 studies of test-retest reliability. He found that the split-half reliability (0.86 client, 0.96 therapist) and mean internal consistency coefficients (0.84) for the Empathy subscale were high. Test-retest reliability showed considerable stability with a high mean test-retest correlation (0.89). These results were similar to Barrett-Lennard's (1962) own findings of split-half reliability (0.86) and test-retest reliability (0.89) across four therapy sessions. The majority of Gurman's studies used a one month time frame between tests although three reports found a high degree of stability over periods of several months.

Construct Validity has been supported by intercorrelations among the RI scales that have been reported in nine studies in either naturalistic or analogue settings (Gurman, 1977). Jarski et al. (1985) found significant intercorrelations between three measures of empathy that examine the observed behaviour of students, including the RI empathy subscale (0.60 - 0.76).

In summary, correlations between client ratings and positive counselling outcomes have been higher than those with any of the other empathy measures (Gurman, 1977; Kurtz & Grummon, 1972; Lambert et al., 1978). However, as the OS form is the most frequently used, the validity of patient ratings needs to be examined. Whether patients in non-psychiatric settings have (a) enough knowledge of health professionals and understanding of an abstract concept as reflected in questions such as "His own attitudes toward some of the things I say, or do, stop him from really understanding me" (1962, p.35) and (b) the confidence to be honest in their assessment of their caregiver need to be considered. Therapist self-ratings have been high and not related to either patient or audio-judged ratings (Kurtz & Grummon, 1972) and are therefore of questionable value in measuring empathic process and outcomes.

Gallop (SPIRS). The Staff Patient Interaction Response Scale (SPIRS) (Gallop, 1989) includes a stimulus-set protocol and scoring method. The stimulus set includes written responses to hypothetical patient statements in contexts that can be systematically manipulated to incorporate the independent variables being examined. On each of the four pages of this questionnaire are a patient description and five patient statements to which nurses write their best response. The four forms are equivalent but not identical,

with the order of the five statements being randomized on each page.

Gallop's (1989) scoring manual outlines categories of potential responses that reflect three ordered levels of care in the process of being empathic. The original 10 categories have been expanded to 11; the original platitudes, cliches category has been expanded to permit greater breadth of responses commonly identified from group analyses of hundreds of responses over a four year period (Lancee, personal communication, March 21, 1994). Within three levels of no care, solution, and affective involvement, each response category has been assigned a weight of -1, 0, 1, or 2. Responses which are categorized as belittling or contradicting the patient and likely to cause patient defensiveness exemplify the "no care" level and are weighted as -1. Responses judged to be platitudes and cliches or of questionable benefit to the patient are also no care level, but are given 0 as they will tend to terminate the interaction but not cause defensiveness. Responses reflecting the second level of care, which is seeking solutions to the patient's problem, are weighted as 1 and responses reflecting the third level of affective involvement are weighted as 2. As each response can be scored in multiple categories, forced choices are eliminated. Multiple choices for each response are allowed but only the highest category identified for a given response is considered, with one exception. The first category which represents belittling or contradicting the patient overrides all others, as "the negative content of this response cancels any concomitant positive content" (Gallop et al., 1990b, p.11). A total score for expressed empathy is obtained by calculating the weighted sum of the category scores.

Many of the predicted outcomes in the conceptualization of empathy, as described by

Gallop and colleagues (1990a), are operationalized in these categories. Gallop (1989) described psychiatric nurses expressing more empathic responses toward hypothetical schizophrenic patients than borderline patients. The majority of nurse responses were solution-focused or explored only the superficial meaning of patients' statements. Burcher (1992), using this tool, demonstrated that her community health nurse sample most frequently used inquiry or advice-giving responses in their interactions with new mothers. Affective responses were documented more often with this sample when it was the clients who initiated discussion of concerns.

The SPIRS is a recently developed measure with evidence of preliminary reliability and validity. Two nurse researchers, Eastabrook (1993) and Olson (1993) have used this tool with some modifications.

Eastabrook (1993) found that patients exposed to nurses who invited an exploration of feelings and expressed greater care or concern were more likely to be nonadherent. Nurses' instrumental support response style, telling patients what to do and giving advice, was associated with adherence. She proposed that the SPIRS be considered as a "description of response styles rather than a measure of the complex phenomenon of empathy" (p.105). Her findings of the negative empathy-adherence relationship may have been influenced by her methodology.

Eastabrook modified the SPIRS by using discrete component scores rather than a total score. She excluded platitudes in Gallop's category 2, and derived four components from the remaining nine response categories (SPIRS), each component being treated as a discrete nurse interactional style. The inviting exploration category was treated as a

separate component from solutions as it was thought to be conceptually different. A patient exposure to expressed empathy score was calculated for each of these interactional styles using the weighting of the SPIRS categories and these discrete scores were used in analyses rather than the total SPIRS. This scoring differed from that of Gallop (1989). Gallop (1989) gives the greatest weight (i.e. 2 points) to the affective involvement responses, also weights the solution behaviours (i.e. 1 point), and includes both of these in the total empathic score.

Although multiple choices for each response were permitted, Eastabrook did not indicate whether nurses responded with only one interactional style each. It would have been helpful to know the overall empathy scores for this sample. The highest mean percentage scores for the discrete scores were in the moderate range for affective involvement, both with the nonadherent (51.4%) and adherent (48%) patients. While the SPIRS scoring method can be used as a simple categorical scoring method, Gallop (1989) cautioned that the complexity of level 1 needs to be considered.

Olson (1993) investigated relationships between nurses' expressed empathy and patients' perceived empathy and distress. Nurse empathy measures included the SPIRS and the Behaviour Test of Interpersonal Skills (BTIS) (Gerrard, Boniface, & Love, 1980) and patient outcome measures were: (a) patient perceived empathy (BLRI) and (b) patient distress (Profile of Mood States [POMS], Multiple Affect Adjective Checklist [MAACL]). Gallop's patient descriptions and one patient statement across the four forms were modified to be more relevant to the medical-surgical nurse sample. The sample included 70 pairs of nurse and medical-surgical patients.

Evidence for convergent validity among the empathy measures was not strong (SPIRS, BTIS, BLRI). A modest significant correlation was found between the patient perceived empathy (BLRI) and the BTIS (r=0.35). Correlations with the BTIS category scores were lower (r=0.24 feeling, -0.26 non-feeling responses) or not evident (0.0 content). The correlation between the SPIRS and the BLRI was not significant (r=0.19). There was a significant relationship between the SPIRS and the BTIS (0.43). To be acceptable, correlations between measures of the same attribute should fall in the midrange of 0.4 to 0.8 (Streiner & Norman, 1992).

Differences between these tools may have contributed to the significant correlations between the patients' distress scores (POMS r=-0.53, MAACL r=-0.43) and the BTIS but not the SPIRS. However, these distress scores were very low (e.g. POMS M=33.36 SD 29.37, possible range 0-200) and variability in empathy may not have been possible with the more complex SPIRS. Reid-Ponte (1992) suggested that her POMS scores for patient distress were sufficiently low (M=79) to have influenced her findings that demonstrated that nurses who are perceptive good listeners elicited increased distress responses from patients (r=0.23, La Monica LEP). A comparison of the BTIS and SPIRS is required to determine their similarities and differences and the implications for the SPIRS as a satisfactory measure of empathy.

The BTIS was developed to measure four major components of interpersonal skills which include warmth, active listening or empathy, initiating, and assertiveness (Gerrard, 1982; Gerrard & Buzzell, 1980). In a previous study, Olson, Iwasiw, and Gerrard (1991) found no concurrent validity for the BTIS-active listening component. They

concluded that the BTIS could not predict clinical active listening skills and it should not be used to make critical decisions about practioners' communication skills. Another problem is the confusing scoring of the BTIS. The empathy range is narrow (≥ 3, range 0-4) and differentiation of levels is not clear. Olson stated, in personal conversation (1994), that Gerrard did not use a numerical rating. Olson (1993) did not use the above BTIS rating scale and she assigned her own rating. Therefore, the modest correlation between the SPIRS and the BTIS probably reflects the shared rating of the feeling responses despite the other differences between these measures. While the lack of correlation between the SPIRS and the BLRI is of some concern, these tools measure different aspects of empathy. As Olson's (1993) subjects were not distressed, an interpretation of the empathy scores is difficult.

In summary, the SPIRS has beginning reliability and validity. Previous difficulties with rater bias in empathy measures are reduced by the SPIRS' scoring manual. In spite of scoring and content differences, the SPIRS has significant correlations with the QMEE and the BTIS. Further testing is required to establish construct validity and the usefulness of this tool in a variety of contexts.

Comparison of Measures

Researchers have demonstrated that significant correlations exist between some empathy measures but not others, indicating they are not measuring the same variable (Jarski et al., 1985; Kurtz & Grummon, 1972; Layton & Wykle, 1990). Barrett-Lennard's (1981) theoretical division of empathy into three phases helps to explain the low correlations between measures of expressed empathy in phase 2 (EU, SPIRS, BTIS)

and those of perceived empathy in phase 3 (BLRI, ECRS) and the higher correlation between two phase 3 measures themselves (BLRI, ECRS). Barrett-Lennard's (1981) conclusion that tools are measuring different aspects and stages of empathy is reflected in the moderately successful attempts to establish construct validity with all of the measures reviewed. There is considerable variation, as well, in study design and sample characteristics, which contributes to this problem.

Hornblow (1980) suggests that empathy be defined in a broad way rather than focusing on selected characteristics or components. Gagan (1983) concludes that a measure is needed to examine the empathic process within the nurse-patient relationship. Unlike other measures, the SPIRS differentiates between the process of empathy and the mediators influencing it, including both cognitive and affective components. Gladstein (1983) emphasizes that therapists may have the capacity for feeling empathic but may not act on this because of other factors. This dilemma has serious clinical implications and the SPIRS appears to be the only tool available which would permit examination of this issue.

Pain

Pain is a subjective phenomenon that varies with each individual and each painful experience. The International Association for the Study of Pain (IASP) has defined pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (Merskey & Bogduk, 1994, p.210). The explanatory note with this definition emphasizes the subjectivity of the pain experience, that pain is more than a noxious stimulus, and that patients' self-reports of pain should be

accepted even when tissue damage is not clearly evident. The most prevalent theory from which this definition was developed is Melzack and Wall's (1965) gate control theory. The latter theory has been seminal in stimulating new ideas to explain painful phenomena and to explore new therapies for pain relief.

Relevance of Gate Control Theory

Melzack and Wall (1965) developed their model of pain mechanisms as an alternative to two main theories, the specificity and pattern theories. They challenged von Frey's (1894) [cited in Melzack & Wall, 1965] prevalent specificity theory that pain was a sensation resulting from a specific straight-line transmission from receptors to a central pain centre. This notion, that pain intensity was proportional to the degree of tissue damage, proved to be simplistic; for example, patients continued to complain of pain after nerve "pain" pathways were surgically ablated. Melzack and Wall proposed that while there was specialization in nerve fibres, sensory input could be modulated in the central nervous system to influence pain perception and response. This modulation in the dorsal horn of the spinal cord and the cerebrum continues to be central to current explanations of pain perception and responsiveness. Earlier theorists (Goldschneider, 1886 [cited in Melzack & Wall, 1965]; Livingston, 1943; Noordenbos, 1959) proposed that patterns of stimulus intensity and central summation were critical determinants of pain. Melzack and Wall (1965, 1973, 1982) integrated some of these concepts into their proposal, particularly that of Noordenbos (1959), that "fast blocks slow" in nociceptive transmission to the dorsal horn in the spinal cord. This notion that faster, larger myelinated fibre input could block painful, slower, smaller, unmyelinated or

minimally myelinated fibre input was pivotal to the "gating mechanism" suggested by Melzack and Wall (1965). Gate control theory emphasized that pain was not a simple, sensory experience but a complex integration of sensory, affective, and cognitive dimensions. A major contribution of Melzack and Wall (1965, 1973, 1982) has been their suggestion that pain perception involves modulation of noxious input at several levels of the central nervous system.

The gate control theory (Melzack & Wall, 1965, 1973, 1982; Wall, 1996) proposed that excitatory stimuli, both noxious and innocuous, are conducted by primary afferents to converge onto common second-order neurons in the dorsal horn. The substantia gelatinosa (SG) in the dorsal horn, is the major site for a "gating mechanism", where modulation of noxious stimuli results from complex excitatory and inhibitory processes. They postulated that increased activity in the large, non-nociceptive primary afferents reduces the noxious activity of the small, nociceptive afferents through cells in the SG that inhibit pain transmission. Pain transmission to second order neurons in the SG can be increased, if impulses in these small nociceptive fibres reach a critical threshold without being blocked. Nociceptive pathways ascend from these second order neurons to the thalamus and cerebral cortex. These ascending tracts transmit sensory-discriminative data about pain, contribute to the motivational-affective dimension of pain, and activate descending inhibitory systems. Complex neurochemistry involving excitatory and inhibitory neurotransmitters is involved in this nociceptive modulation (Portenoy, 1996).

Melzack and Dennis (1978) emphasized that noxious stimuli enter an already active nervous system that is a substrate of past experience, culture, anticipation, and emotions.

Cognitive processes act selectively on sensory input and motivation to influence pain transmission via the descending tracts to the dorsal horn. As a result, the amount and quality of pain are determined by individual factors such as previous pain experiences and one's concept of the cause of pain and its consequences. Cultural values can influence how one feels and responds to pain (Melzack & Wall, 1982). Therefore, pain is a highly personal experience and more than a noxious stimulus. Increasingly the plasticity of the nervous system is being recognized along with the individuality of the pain response.

The nervous system has a functional plasticity allowing it to react to changing situations by altering its functions (Willis, 1994; Woolf, 1991). As a result, the nervous system does not respond in a fixed way to a given stimulus but can alter its response properties dynamically. Receptive fields can expand from the injured peripheral site to surrounding uninjured tissue. Alterations in perceptions of stimuli can occur, for example, so that a normal stimulus such as touch may be felt as painful. Therefore, pain involves not only the periphery but can result from an altered central nervous system interpreting normal signals in an abnormal way. Consequently, a treatment implication is that prevention of pain signals from reaching the central nervous system peri- and post-operatively, may reduce immediate pain as well as long-term pain problems (Dahl, Rosenberg, Dirkes, Mogensen, & Kehlet, 1990; Katz, et al., 1992; Katz et al., 1995; Woolf, 1991).

In conclusion, the authors of gate control theory emphasize that pain is a complex phenomenon with sensory, affective, and cognitive dimensions (Melzack & Wall, 1965, 1973, 1982). Pain perception involves more than the transduction of noxious stimuli to

afferent pathways in the spinal cord and transmission to the thalamus and cortex. Pain perception and responsiveness to a given stimulus are variable and unpredictable because of inhibitory mechanisms that include both endogenous neural activity and cognitive factors that are unique to each person (Fields, 1987). Pain mechanisms have a plasticity in that they can change in response to tissue injury such as surgery. Cognitive expectations can influence the operation of the sensory apparatus (Wall, 1996), and pain perceptions can vary because of factors such as the meaning of pain. The subjectivity and variability of responses to pain have major implications for postoperative care. These unique responses have not been well recognized in management strategies. Ineffective pain relief has been documented in many clinical settings, including cardiovascular settings. To understand this continuing problem of unrelieved pain, patient pain measures need to include questions about previous pain experience and beliefs about current management as well as pain intensity.

Measures of Patients' Pain

Documented reports of the pain symptom often have involved a unidimensional rating to measure pain intensity, such as a visual analogue scale. These scales are quantitative measures of pain intensity and its location, and/or temporal features. The McGill Pain Questionnaire, developed from gate control theory, expanded pain assessment to include a multidimensional perspective of both qualitative and quantitative aspects of pain. More recently, the paucity of measures to examine patients' expectations and perceptions of their management experience has been recognized. Most of these measures have been utilized in single studies and have only rudimentary reliability and validity.

Pain intensity and quality. Visual analogue scales (VAS) to measure pain intensity have well documented reliability and validity (Huskisson, 1983; Price, Bush, Long, & Harkins, 1994; Price, McGrath, Rafii, & Buckingham, 1983). The VAS are easily administered and are understood by most patients without difficulty. Patients mark their level of pain intensity on a 10 cm line which has anchors of "no pain" and "worst pain ever". The distance between zero at the "no pain" end and their mark is the severity rating. The VAS have been used primarily to measure pain intensity and not the affective dimension of pain. Gracely, McGrath and Dubner (1978) have demonstrated that VAS with both sensory and affective verbal pain descriptors are valid and reliable. Their VAS affective label of "unpleasant" defined pain that was uncomfortable, distressing, or intolerable and this VAS was used in the current study.

The McGill Pain Questionnaire (MPQ) (Melzack, 1975) is the most widely used self-report measure of pain. The multidimensional nature of this measure is unique as it focuses on the quality of pain and not only its intensity. The standard form of the MPQ includes: (a) a body outline for location; (b) the present pain intensity (PPI) which contains six adjectives to describe an overall pain intensity; (c) a pain rating index (PRI) which sums the rank values of 78 adjectives in 20 categories describing sensory, affective, and evaluative qualities of pain based on Melzack & Torgerson's (1971) previous research; and (d) a list of nine adjectives which describe the pain pattern (Katz & Melzack, 1992). Strengths of the MPQ include well established reliability and validity (Chapman et al., 1985; Melzack, 1975; Reading, 1989; Wilkie, Savedra, Holzemer, Tesler, & Paul, 1990) and the three classes of adjectives which reflect the quality of the

patient's pain.

Several weaknesses exist for the MPQ. Difficulties may arise with interpreting some of the adjectives, particularly where English is not the subject's first language. No manual is available for administration instructions or scoring procedures which must be gleaned from Melzack's (1975) original paper (Wilkie et al., 1990). The time required to complete the MPQ has been found to be greater than the 10 to 15 minutes reported by Melzack (1975). McGuire (1984) reported that hospitalized cancer patients required an average of 24 minutes to complete the MPQ. Moreover, Cohen & Tate (1989) described the MPQ as too long for their postoperative sample and recommended the use of a shorter version. A short-form MPQ has been developed (Melzack, 1987) which includes a VAS, the Present Pain Intensity (PPI) rating, and only 15 adjectives which correlate highly with the parallel dimensions in the long-form MPQ. Preliminary results have demonstrated sensitivity to traditional clinical therapies such as analgesic use (Katz & Melzack, 1992). As the MPQ-SF requires only 2 to 3 minutes to complete, it was used with the postoperative patients in this study.

Pain experience. The seminal research of Marks and Sachar (1973) reported the undertreatment of medical inpatients with opioids. They asked patients not only to rate their pain intensity, but to describe the adequacy of pain relief and the emotional impact of unrelieved pain. Cohen (1980) used the same tool to demonstrate similar results - that patients experienced considerable distress due to unrelieved pain. In both studies, patients evaluated their pain relief as adequate despite experiencing severe distress. Hunt, Stollar, Littlejohns, Twycross, & Vere (1977) concluded that patients' expectations were

frequently too low, based on their uniform praise of their health care professionals, in spite of unrelieved pain.

Until the 1990s, few researchers asked patients about their expectations and beliefs concerning the pain experience. Ferrell and Rhiner's unpublished Patient Pain Questionnaire has been referred to in a study of elderly cancer patients in the home setting (Ferrell, Ferrell, Ahn, & Tran, 1994). In this measure, investigators used 14 visual analogue scales to examine knowledge and the degree of pain experienced by patients with persistent cancer pain. The eight knowledge questions predominantly focused on analgesics and their side effects; several relate to pain over a longer time period than is relevant for surgical patients. Two important affective items were included to determine the distress experienced by patients and family members because of the pain. Patients' expectations and beliefs about their pain were not directly solicited.

Only recently, have there been items published that compare patients' expectations of pain intensity and relief after treatment with the actual postoperative experience. The results are distressing and point to the importance of this area of inquiry. Patients generally expected and experienced moderate to severe pain (Donovan, Caulfield, & Bacchuber, 1995; Kuhn et al., 1990; Lavies et al., 1992). Although only one third of patients indicated complete pain relief, most were satisfied with their pain management (Lavies et al., 1992). When asked why they were satisfied despite pain, 75% of a surgical sample stated that pain was to be expected after an operation (Donovan, 1983). Moreover, while most patients stated their preference for complete pain relief or to be comfortable, their expectations for relief were minimal (Carr, 1990; Kuhn et al., 1990).

Lavies and colleagues (1992) suggested that this low expectation may have "allowed this situation to continue without public outcry" (p.318). Although Marks and Sachar (1973) cautioned 20 years ago against using the general question of satisfaction to determine analgesic responsiveness, only now are expectation questions being considered as an alternative to satisfaction ones. Miaskowski (1994) proposes several guidelines to make patients' satisfaction data more meaningful, including the importance of exploring incongruities between their ratings for pain intensity and satisfaction with relief. Nevertheless, the validity of asking patients to rate their concurrent care despite confidentiality assurances needs to be considered, as well as the lack of a patient standard for comparison.

The American Pain Society (APS) patient outcome questionnaire was developed from their quality assurance standards (APS-QA, 1991). These questions assessed patients' pain intensity, their teaching about reporting pain, caregiver responses to requests for treatment changes, and patient satisfaction and suggestions for improvement. The question which asked whether caregivers instructed patients to tell them when in pain was included in this study. Previously, Donovan et al. (1987) documented that fewer than half of their medical-surgical patients with pain remembered their caregivers' asking them about their pain. The APS questions have been modified and tested in two studies of medical-surgical hospitalized patients (Miaskowski et al., 1994; Ward & Gordon, 1994). Both studies reported that, although patients experienced moderate to severe pain, they were satisfied with their pain management. Patients were satisfied if the caregiver communicated that pain was a high priority, regardless of what they actually did (Ward &

Gordon, 1994). More than two thirds of patients in both studies remembered being told to tell their caregiver when they were in pain, but considerably fewer patients in Miaskowski et al.'s sample remembered being told that pain was a priority in care (34%) versus the 84% described by Ward and Gordon. Recommendations from both studies included asking patients about their expectations for pain management and being cautious about interpreting the satisfaction ratings. Ward and Gordon suggested including an open-ended question to determine problems with satisfaction and a brief side effects checklist. They also suggested that their inclusion criteria, requiring patients to have an identified acute painful condition, may have biased the sample; patients not recognized by clinicians to be in pain may have been excluded. The APS questionnaire recently was revised to include questions on patient concerns related to reporting pain and taking analgesics, the impact of pain on usual activities, and adequacy of information given to outpatients about their medications (APS, 1995).

Ward & Gordon (1996) used a slightly modified APS questionnaire with 306 participants who were (a) inpatients 24-72 hours postoperatively or 24-72 hours after admission, and (b) outpatients within one month of discharge or when attending a clinic. Results were similar to their 1994 study (Ward & Gordon, 1994), that undermedicated patients with unrelieved pain were satisfied with their care. Ward and Gordon (1996) proposed an interesting explanation for this paradox; that patients' expected the cyclical pattern of severe pain and then relief that occurs with the norm of irregular analgesic administration. Patients may not have understood the benefits or availability of scheduled analgesic dosing. A related question will be considered in future instrument development.

Most recently, investigators asked questions to examine the relationship between patient beliefs and the effectiveness of pain management. Wilder-Smith and Schuler (1992) reported 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 concluded that discussing pain therapy with patients is necessary for improved postoperative analgesia. Ward et al. (1993) identified eight concerns of cancer patients that influenced their reporting pain and their use of analgesics. These concerns included fear of addiction, concerns about side effects, and a belief that "good" patients don't complain of pain. Patients who were older, less educated, or had lower incomes demonstrated higher scores for several concerns. Undermedicated patients had significantly higher levels of concern and pain interference. The relationship between patients' self-reports of their willingness to use analgesics and the actual type and doses of analgesia prescribed and administered to them was not measured.

In summary, patient questionnaires have focused mainly on describing the pain symptom, usually its intensity. Recently, investigators have asked patients about their expectations of pain and their beliefs about optimal pain management. The questions relating to interaction between caregiver and patient focus mainly on obtaining analgesia or being informed about pain as a priority in care. While symptom-focused items are essential, data are also required about (a) patients' willingness to seek help and their perception of the appropriate time to do this, (b) the effectiveness of their treatment, and (c) their perception of their interaction with the caregiver.

Unrelieved Pain with Cardiovascular Patients

Patient reports of unrelieved pain have been documented in a variety of settings since Marks & Sachar's (1973) seminal report to the present (Ward & Gordon, 1996). This problem has now been described with patients in cardiovascular settings, including those with coronary bypass graft surgery (CABG) (Puntillo, 1990, 1994; Puntillo & Weiss, 1994; Valdix & Puntillo, 1995). Sixty cardiovascular surgical patients in Puntillo and Weiss' (1994) study, most with CABG, described pain on average that remained consistently moderate over the first 3 postoperative days.

In Puntillo's (1990) study, 24 cardiovascular surgical patients, including 10 CABG patients, retrospectively rated their pain in the intensive care unit (ICU) as moderate to severe. These ratings occurred within 5 days after discharge from the ICU. Most of these patients neither expected nor received total pain relief and were undermedicated; an average of 14 mg of morphine per 24 hours was administered although larger doses were prescribed. These patients perceived their nurses positively, although they identified pain as the second most frequently identified ICU memory. In this small sample, seven patients had no recall of pain, a result that may have been influenced by the retrospective nature of the study.

Puntillo and Weiss (1994) also documented inadequate analgesic administration, with patients receiving an average dose of 10.9 mg morphine equivalents per day over the first 3 days. Although doses were small, analgesia was the only significant mediator of pain intensity. Patient age or personality adjustment were not associated with any pain rating. The finding that patients with greater pain had a higher incidence of atelectasis has major

implications for the prevention of postoperative complications.

Procedural pain was moderate to severe for postoperative ICU cardiovascular patients undergoing chest tube removal (n=35) and endotracheal suctioning (n=45) (Puntillo, 1994). Pain ratings were not related to analgesia, and almost three quarters of this sample received no analgesics in the hour preceding the procedure. The average morphine-equivalent dose was less than 3 mg, when it was given. Puntillo emphasized that although nurses do not prescribe analgesics, they have tremendous control over the frequency, amount, and type of medications patients receive.

Maxam-Moore and colleagues (1994) also described inadequate analgesic administration to cardiovascular patients after surgery. A retrospective audit of 66 randomly selected charts indicated that only half of the average IV morphine dose prescribed for the first 72 hours was given [M=13.9 mg (SD 13.5)] and 37% of the average dose of prescribed oral analgesics was given [M=5.8 tablets (SD 5.4)]. One quarter of these patients received no morphine for their first 3 days after surgery. Patients at one site consistently received less analgesia than at the other. Smaller doses of IV morphine, not related to weight, were prescribed for women. Oxycodone was less likely to be prescribed or given to older patients as compared to those younger. Patient reports of pain during this period were not examined.

Considerable pain has been documented for patients prior to their discharge after coronary artery bypass surgery. In Moore's (1994) study, 15 men and 5 women were asked about their concerns, emotions, physical sensations, and helpful interventions prior to discharge on day 5 after surgery. Patients described discomfort that interrupted sleep

(50%); shoulder, neck, and back muscular aching (40%), and chest incision pain (65%) that, with coughing, "feels like I am going to explode." Patients identified medications, along with positioning or movement, as being helpful. No data were reported about pain intensity ratings, analgesics prescribed and given, or the use of internal mammary artery (IMA) grafts.

In summary, patients undergoing cardiovascular surgery have reported significant unrelieved pain, which remained consistent over the first 3 days. Procedures such as chest tube removal and endotracheal suctioning compounded this unrelieved pain. Prescribed analgesia was not given, and differences in prescribing were evident for gender and age.

Caregiver Pain Knowledge and Beliefs

Pain knowledge gaps and problematic beliefs, predominantly about analgesic use and related side effects, have been identified with professional caregivers. Discrepancies exist between caregiver and patient perceptions of pain. However, minimal examination of caregiver perceptions about the patient or contextual variables involved in assessment and management of pain has occurred. Only recently have patient measures included questions about their experience.

Beliefs about pain assessment and management. Researchers have asked nurses specific questions about pain assessment and management to determine their bases for practice. Nurses do not systematically ask patients about their pain (Watt-Watson, 1987). Beliefs about patient self-reports of pain reflect nurses' feelings that they have more expertise about pain than patients (Brunier et al., 1995). While many nurses have identified "asking the patient" as a pain assessment strategy, fewer than 50% identified this as the

most influential factor in care decisions (Ferrell et al., 1991; Jacox, 1979). Patient behaviours such as movement, facial cues, and verbal cues like moaning, were ranked as more important than patient's self-report. Using these behaviours as major pain indicators, however, would mean that patients had significant return of pain before being given any intervention. Graffam (1970) found that in almost one half of the stressful events observed in hospital, including 62% related to pain, complaints were made by patients when the nurse was at the bedside for some other reason. She concluded that although nurses think they know when a patient is suffering, the most salient cue is probably the patient's statement of distress. These data imply that nurses often use their own assumptions incorrectly, as a basis for pain management, and wait for severe pain to be obvious before intervening.

Nurses' experience and personal beliefs can influence their pain assessment. Nurses who experienced their own intense pain were more aware of their patients' pain (Holm, Cohen, Dudas, Medema, & Allen, 1989). Almost three quarters of nurses in Dalton's (1989) study reported that they were more empathic with patients having difficult pain management problems. Nurses have inferred greater pain when patients verbalized their discomfort (Baer, Davitz, & Lieb, 1970). Similarly, patients who asked for pain relief were thought to suffer more than other patients (Oberst, 1978). Patient characteristics such as diagnosis, age, gender, and culture may influence caregivers' perceptions of patients' pain and need for intervention (Calderone, 1990; Davitz & Davitz, 1981; McDonald, 1994; Melzack et al., 1987; Taylor, Skelton, & Butcher, 1984).

Caregivers expect patients to experience moderate to severe pain and do not aim to

give their patients as much relief as possible (Cohen, 1980; Kuhn et al., 1990; Lavies et al., 1992; Watt-Watson, 1987; Weis et al., 1983). It is paradoxical that caregivers perceived their pain management to be good or adequate although their patients indicated considerable pain. There is a discrepancy between what is possible in pain relief and actual practices, which is particularly evident with opioid administration.

For over 20 years, investigators have reported that clinicians hold negative attitudes toward opioid analgesics. They have underestimated the therapeutic dose range, overestimated the duration of action and have held unfounded fears of side effects, particularly addiction (Marks & Sachar, 1973; Charap, 1978; Diekmann & Wassem, 1991; Elliott & Elliott, 1992; Ferrell, McCaffery, & Rhiner, 1992; Fox, 1982; Hamilton & Edgar, 1992; Lander, 1990; McCaffery et al., 1990; Myers, 1985; Watt-Watson, 1987; Weis et al., 1983; Weissman & Dahl, 1990). These findings only partly explain why nurses fail to use analgesics in light of patients' pain (Close, 1990; Cohen, 1980; Donovan et al., 1987; Marks & Sachar, 1973; Miaskowski et al., 1994; Maxam-Moore et al., 1994; Paice et al., 1991; Watt-Watson & Graydon, 1995).

Nurses are responsible for assessing patients' pain and for intervening with modalities such as opioids. However, researchers continue to document that prescribed analgesia has not been administered. Cardiovascular surgical patients received infrequent, small analgesic doses and 25% were given no morphine over the first three postoperative days (Maxam-Moore et al., 1994). Surgical patients on their first postoperative day received an average of one analgesic dose (Carr, 1990) and 2.7 doses (Owen et al., 1990). Medical-surgical patients were given an average dose of less than 25% of the analgesics ordered for a 24

hour period, although the majority of these patients had considerable pain and said the analgesic was effective when given (Donovan et al., 1987). A surgical oncology sample was given only 11.7% of the average dose of analgesics ordered over a 24 hour period, although 77% of these patients had significant pain (Paice et al., 1991). In Abbott et al's (1992) study, analgesic doses given to 2400 Canadian patients were low overall and even lower for non-surgical patients. These researchers suggested that there is a problem in the degree of therapeutic (meaningful) interaction between patients and their caregivers in relation to effective pain management.

The degree to which nurses recognize problems in their pain practices is an important question. In recent studies, nurses have been asked to identify the importance of patient, caregiver and/or contextual barriers to effective pain management (Brunier et al., 1995; Clarke et al., 1996; O'Brien, Dalton, Konsler, & Carlson, 1996; Vortherms et al., 1992; Wallace, Reed, Pasero & Olsson, 1995). Patient reluctance to report pain was identified as the most important barrier (Brunier et al., 1995; Clarke et al., 1996; O'Brien et al. 1996; Vortherms et al., 1992) Nurses did not recognize their own reluctance to give opioids or patients' reluctance to take opioids as major barriers. Nurses saw themselves as being adequately prepared to manage pain (Wallace et al., 1995) and rated their pain relief management as good to very good (Vortherms et al., 1992). However, deficits in their knowledge about pain assessment and management were evident in the low mean scores (Brunier et al., 1995 [M=41%]; Clarke et al., 1996 [M=62%]; Vortherms et al., 1992 [M=56%]). Moreover, none of these researchers offered validation of these nurses' perceptions from their actual patient practices,

including drug administration.

Congruence of caregiver and patient perceptions of pain. Pain assessment is an interactive process between patients and caregivers. Patients' input is crucial to determine the extent and impact of their pain and optimal treatment options. Questions need to be asked about why nurses don't initiate the assessment process if they recognize patients' reluctance to report pain. Both nurses' and patients' expectations of the patient's role in pain assessment and management need to be examined. A comparison of nurses' and patients' beliefs about optimal pain levels and intervention modalities would also be helpful. On units where caregivers lacked knowledge about opioids, patients expected pain, had inadequate pain relief, were reluctant to take analgesia, and lacked knowledge of opioids (Cohen, 1980; Marks & Sachar, 1973; Lavies et al., 1992; Weis et al., 1983).

Minimal analysis of the interpersonal process that occurs between nurses' pain assessment and patients' responses has been reported. Paired caregiver-patient research has been focused mainly on discrepancies in pain intensity ratings (Choiniere, Melzack, Girard, Rondeau, & Paquin, 1990; Cleeland et al., 1994; Graffam, 1981; Grossman et al., 1991; Hodgkins, Albert, & Daltroy, 1985; Holmes & Eburn, 1989; Iafrati, 1986; Paice et al., 1991; Seers, 1987; Sutherland et al., 1988; Teske et al., 1983; Van der Does, 1989; Walkenstein, 1982; Zalon, 1993). Discrepancies have existed between nurses' documentation and patients' pain descriptions (Camp & O'Sullivan, 1987). Zalon (1989) examined nurses' empathy for their patients' experience of pain one to four days after abdominal surgery. However, her conceptualization of empathy was questionable and inadequately defined as the difference in pain intensity ratings between

these nurse-patient pairs ($N=119$). The modest correlations between ratings ($r=0.30$, $p<0.01$) may have related to inadequate assessment skills or understanding of appropriate postoperative pain levels, not empathy. Therefore, discrepancies reported in the above studies indicate a lack of caregiver validation of pain assessment and/or a lack of recognition of the importance of patients' self-report.

Several investigators have reported inconsistent relationships between caregiver and patient pain intensity ratings. Nurses' have underestimated the severity of patients' pain (Seers, 1987; Zalon, 1993), and specifically for patients with moderate to severe pain ratings ≥ 4 (0-10) (Grossman et al., 1991). Choiniere and colleagues (1990) compared patient and nurse assessments ($N=42$) of pain intensity during therapeutic procedures for severe burn injuries. Nurses' ratings were correct for 49% of patients at rest and 30% of patients during procedures. No analgesia was given to almost a quarter of these patients. Teske et al. (1983) found a low correlation between nurses' judgements of pain based on non-verbal behaviour and self-reports of pain from both acute ($r=0.32$, $p<0.05$) and chronic pain patients ($r=0.28$, $p<0.06$). Donovan et al. (1987) found no significant relationship between severity of pain and (a) the nurse discussing the pain with the patient, (b) the identification of pain as a problem on the care plan, or (c) the presence of a progress note about pain. The majority of patients in this sample and one third of Paice et al.'s (1991) sample indicated nurses did not discuss patients' pain with them. Therefore, nurses' assessment and/or interpretation of patients' pain cues frequently are not accurate, especially with severe pain. This problem is compounded when patient self-reports are not valued.

There has been minimal investigation of nurses' responses to patients in pain. An examination of nurses' responses to patients' expressions of distress indicated that 62% of these episodes were related to pain (Graffam, 1970). In almost one half of the patient-initiated complaints, nurses were at the bedside for another reason, and in only 2% of the time, were patients first approached by nurses. In over 50% of the distress incidents, nurse interaction concluded in one minute; only 13% of nurses explored the cause of the distress with the patient. Blocking behaviours such as not following patient cues, changing the subject, and leaving the room after the patient made an emotional statement were observed. Nurses' predominant responses included informing (33%), suggesting relief (17%), giving comfort (15%), or directing patients (14%). Comments that did not focus on patient needs (17%) included scolding, contradicting, ridiculing, controlling, and making no comments or multiple ones. There was minimal inquiry into the pain experience of the patient and most interactions were patient-initiated.

In summary, there is minimal published research that describes nurses' responses to patients experiencing pain. Caregivers and patients are not similar in their pain ratings, particularly where pain is severe. Moreover, caregivers' assumptions about pain, without patient validation, may contribute to ineffective pain management. Graffam's (1970) examination of interaction issues identified difficulties in both recognizing distress and responding to it.

Measures of Nurses' Knowledge and Beliefs

Current measures that assess nurses' pain knowledge do not address their perceptions or beliefs about patients in pain or contextual variables such as colleague

support for analgesic decisions. Published measures of nursing pain knowledge focus primarily on analgesic management and/or side effects such as addiction (Hamilton & Edgar, 1992; Kuhn et al., 1990; Lander, 1990; Lavies et al., 1992; McCaffery & Ferrell, 1990; McCaffery et al., 1990; Watt-Watson, 1987; Weisman & Dahl, 1990). Therefore, other questions are required to gain insight into current pain practices and to determine the direction of future interventions. Two of the published nursing measures are more comprehensive in their item content in that they include questions about both (a) knowledge of analgesics and (b) beliefs about causes of pain, expected levels of pain, and pain assessment and management (Hamilton & Edgar, 1992; Watt-Watson, 1987).

Hamilton and Edgar (1992) combined two of McCaffery's unpublished scales to survey the pain control knowledge of 318 nurses working in an acute care setting. The measure consisted of two parts: (a) true-false or Likert scale items on opioid classification and side effects such as addiction which are briefly described by McCaffery and colleagues (1990) and (b) 20 true/false statements that focus on pain assessment and management issues. Nine of these questions also related to analgesic use. No questions examined nurses' perceptions of patients' responses to pain or their role in pain management. The Part I items evolved from McCaffery's experience in educational programs and were pretested in 27 workshops ($\underline{N}$=2,459) (McCaffery et al., 1990). No reliability and validity were reported for Part II, although Ferrell and McCaffery (1993) presented reliability and validity data for this tool in an unpublished paper. Content was derived from recognized current standards of pain management and validated by pain experts. Construct validity was established by discriminating between scores of nurses at different

levels of expertise, although no values were given for these comparisons. Test-retest reliability was supported ($r=0.80$) by repeated testing in a continuing education class of staff nurses, and internal consistency by an alpha of >0.70.

Ferrell and McCaffery's (1993) latest tool, the Pain Management: Nurses' Knowledge and Attitude Survey, was developed from an earlier unpublished version (Ferrell & Leek, 1990). Neither version nor their psychometric properties has been published. Scoring for the earlier measure is not clear as Clarke and colleagues (1996) excluded questions 37 to 46 from the total percentage score while Brunier and colleagues (1995) did not. The later tool retained some previous items and included 22 true-false questions, 11 multiple choice questions, two Likert scale questions and two case studies each with one visual analogue and one multiple choice question. New items were focused to a lesser degree on factual content and were related to broader issues of children's perceptions and memories of pain, drug abusers' use of opioids, elderly patients and opioids, the impact of religious beliefs on pain management, and the need for individualized doses and multi-modality therapies. The remaining questions, excluding the case studies, elicited factual understanding of analgesics. The two case studies examined the impact of a patient's behaviour on the nurse's documentation of the patient pain rating and the subsequent analgesic dose administered. One broadly-worded question asked about the influence of culture on the pain experience. In accord with Lander (1990), a question was included about the perceived accuracy of patient ratings. No questions were asked about (a) nurses' current practices or (b) their perceptions of their competencies or difficulties in pain management. Only one question was focused on the nurse's perception of patient

beliefs, which was the impact of religious beliefs on pain management. None asked about the patients' responses to pain or their role in pain management.

Watt-Watson's (1987) measure, the Pain Knowledge Survey, has been developed and tested in a survey of nurses from medical-surgical settings (N=106) and baccalaureate nursing students (N=101) who were voluntarily attending a pain education programme. The content was derived from experience and the literature. Content validity was established by clinical experts. The tool consisted of 18 questions that assessed beliefs and practices related to pain assessment and narcotic administration through true-false, multiple choice, and fill-in-the-blank formats. Two open-ended questions were included to identify the most difficult nursing problems with patients in pain and nurses' current assessment tools and approaches. No questions asked about nurses' perceptions of patients' experience of pain or responses to pain.

In summary, all of these measures contain a large number of items that relate to knowledge gaps about analgesics, and study findings have demonstrated that serious problems do exist in this area. However, with the greater prevalence of published pain assessment and management information now available, the question that must be asked is why this information is not changing pain management practices. Knowledge is only one component of the dilemma and other factors may contribute to this problem.

From the review of the literature, it is possible to suggest areas that need further investigation in relation to nurses': (a) understanding of patients' experiences of and their responses to pain, (b) support from colleagues in pain management, (c) perception of problems with pain management on their unit, and (d) perceptions of their own

knowledge and competency. Some knowledge questions about commonly used opioids and their side effects need to be retained in assessment measures. However, one probably can assume that if these are not answered correctly, questions about lesser known analgesics also will be problematic. It is redundant to include the number of analgesic knowledge-type items previously used, unless the main objective is to examine analgesic knowledge. Questions concerning nurses' beliefs about giving opioid analgesics and their understanding of what patients bring to the pain context would be important to include.

Summary of Literature Review

Winnicott's notion of a facilitating environment addresses the need for an environment in which the uniqueness and variability of patients' pain responses are recognized by caregivers. Central to this construct are the interrelated caregivers' capacity for concern and in empathically responding to or holding patients. Nurse, patient, and contextual mediators as identified by Gallop (1989) may influence empathy.

The minimal research examining nurses' empathy and patient outcomes has demonstrated positive changes mainly in patients' mood. However, measurement of mediators of empathy in relation to age, education, and work setting has been inconsistent and findings are not always conclusive. The complexity of the conceptualization of empathy is problematic and reflected in the variety of instruments borrowed from other disciplines and used in nursing research. Greater rigor is necessary in defining the components of empathy and their related measures. Gallop's (1989) SPIRS permits examination of the different phases of the process of empathy, along with the mediators of nurse, patient, and contextual variables that can influence the actual expression of

empathy. This measure will be used in this study as it operationalizes empathic responding or holding which is central to the notion of a facilitating environment.

Investigators clearly document gaps in knowledge and problematic beliefs related to pain assessment and management for professional caregivers working in acute care settings. Current measures of pain knowledge-beliefs have focused predominately on analgesic management and broader questions concerning staff-patient perceptions and interactions need to be asked. Patients continue to experience unrelieved pain and their expectations and experiences related to pain need further assessment. Paired caregiver-patient data mainly describe discrepancies in pain ratings. There is minimal examination of the interpersonal process between patients and their assigned caregivers in the pain management process. The degree to which pain knowledge and beliefs are mediators of empathic responding is not known. Caregivers' perceptions of (a) their pain knowledge and competency in pain assessment and management and (b) barriers limiting effective pain management in their settings have not been validated using actual patient outcomes such as pain intensity and analgesic administration.

Bennett (1995) suggests that patterns of empathy in situational contexts need to be examined and related to dimensions of nursing process and care outcomes. Therefore, the relationship between nurses' empathic responses and patient outcomes related to pain intensity and analgesic outcomes will be examined in this study.

Proposed Conceptual Framework

Different explanatory models are needed to examine ineffective pain management. Winnicott's notion of providing a facilitating environment, which encourages holding

based on one's capacity for concern, forms the basis of one such model. The work of Gallop and Melzack and Wall also contribute to the conceptual framework directing this study (see Figure 1).

Winnicott suggests that everyone has an inherent potential capacity for concern which continues to be developed as an adult. This ability to establish trusting relationships is the basis for being able to understand the subjective experience of another person in providing a facilitating environment. Ideally, all caregivers, should bring a capacity for concern to their care which is reflected in their subjective inquiry and attuned responses to patients.

Melzack and Wall (1965) emphasize the subjectivity and variability of individuals' responses to pain. However, patients in pain are either not being heard, are not believed or are being dismissed as unreliable sources of information. Inadequate pain relief does not reflect a facilitating environment. Empathic responses can be influenced by patient, nurse, and contextual mediators as described by Gallop (1989). Both caregivers and patients represent many diverse cultural backgrounds, with little sharing of their beliefs about pain and its management. Patient characteristics can be used by staff to support personal assumptions about pain that have no basis in fact. Patients seem hesitant to communicate their moderate to severe pain, although pain relief is their preference. Professional time constraints and shorter hospital patient stays underline the need for patients to be equipped to take a more independent role in their care. Research questions will address facilitating environment in examining the relationship between nurses' empathic responses, and mediators related to (a) nurse characteristics and knowledge-beliefs about pain, (b) patient characteristics and beliefs about their pain

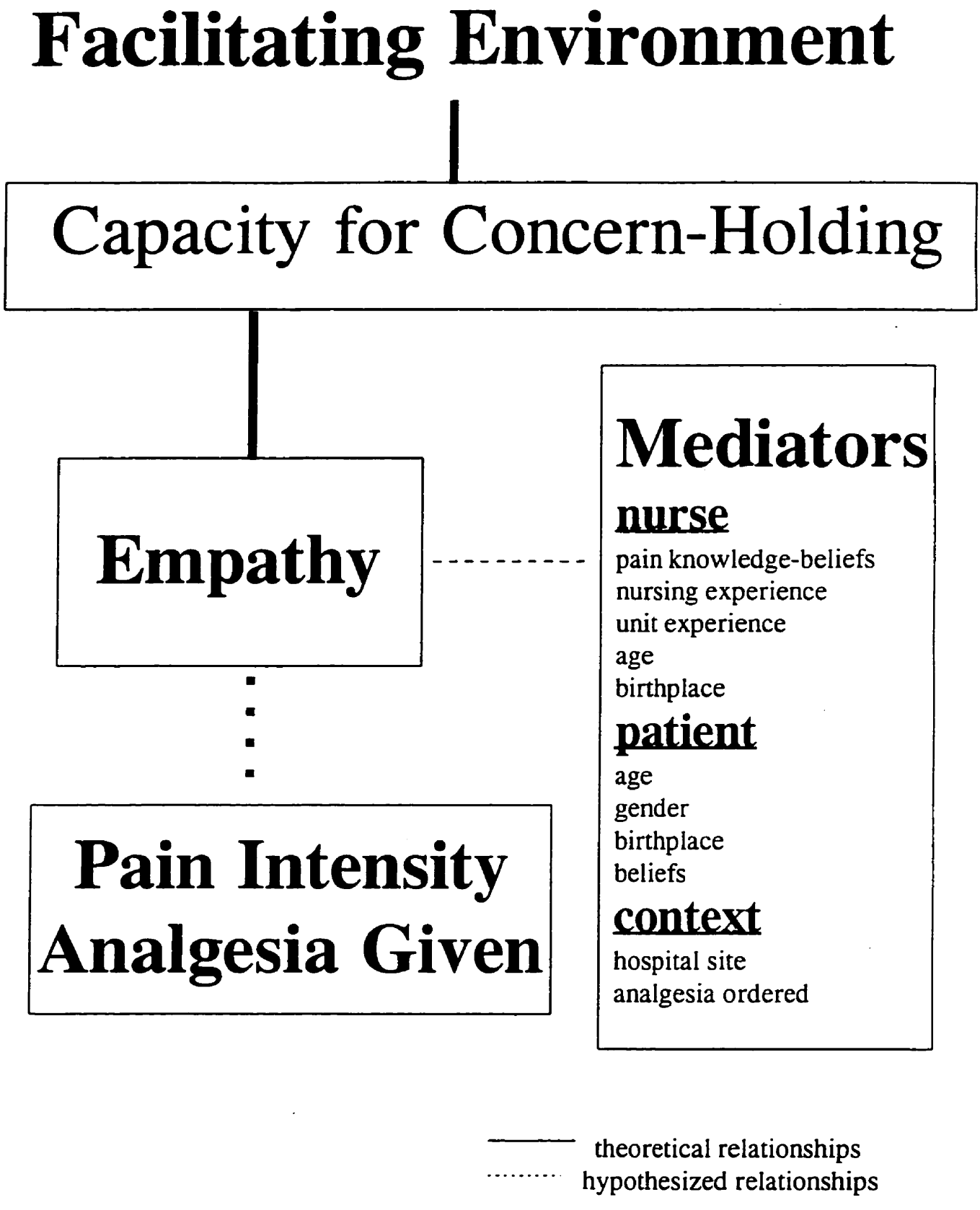

Figure 1. Proposed conceptual framework

experience, and (c) the contextual variables of hospital site and analgesia prescribed.

Winnicott suggests that being reliable, through empathic responses to minimize unnecessary stress, is essential to holding the patient within the complexity of health care. Patients need to be able to trust the health professional to be knowledgeable and concerned about helping them reach the goal of pain relief. Nurses' knowledge and beliefs about pain assessment and management may be a mediator of empathy. Economic restraints and staff cutbacks may impose challenges to holding in the work place. However, when patients are not asking for analgesics because of perceived nursing workload, one needs to examine who is doing the holding in this context. Research questions related to holding within the facilitating environment will examine the relationship between nurses' empathy and (a) patients' pain intensity levels and (b) the analgesic doses administered to them.

Chapter III

METHODOLOGY

Purposes

The immediate objective of this study was to examine the relationship between nurses' empathic responses and their pain management approaches with patients following surgery. To understand this relationship further, nurse and patient factors which may alter this process were investigated. The ultimate purpose was to identify variables which may be amenable to future intervention in modifying the clinical environment. These data will provide new directions for educators and clinicians in changing pain management practices and subsequent patient outcomes.

Hypotheses

1. Nurses' empathy will vary directly with the nurse mediator of pain knowledge and beliefs.
2. Nurses' empathy will vary with mediators that are nurses' characteristics: (a) directly with education level, amount of pain inservice education, westernized birthplace and (b) inversely with their age and years of nursing and unit experience.
3. Nurses' will express greater empathy when patient mediators include being male, younger in age, and believing in verbalizing pain.
4. Nurses with greater empathy will have patients who have lower pain intensity and are given higher analgesic doses.

Assumptions

1. All health professionals have a capacity for concern as a basis for empathy.
2. Therapeutic empathy is an essential component of the nurse-patient interaction.
3. Verbal expression of empathic understanding is essential to a therapeutic relationship.
4. Expressed empathy can be measured by the SPIRS and observed through patient outcomes.
5. Patients will experience some degree of pain after coronary artery bypass graft surgery.
6. Patients are capable of expressing their pain.
7. Indicators of effective postoperative pain management are minimal pain intensity ratings and analgesia adequate to maintain these ratings.

Definitions

Facilitating environment was defined as an appropriate adaptation within a relationship to the other's needs and involves a capacity for concern and holding (Winnicott, 1970). Caregivers are attuned to feelings being expressed by the patient and reflect this back to the patient. Mediators involving the nurse, patient, and context may influence this process (Gallop et al., 1990a).

Capacity for concern was defined as the ability to feel and accept responsibility in relationships. It is the basis for being empathic and is present to some degree in all health professionals (Winnicott, 1960).

Holding was defined as empathic care which minimizes impingements or disruptions that are felt as threats to one's personal existence (Winnicott, 1970). It involves repeated behaviours or interactions which occur in predictable ways (Winnicott, 1987), for

example analgesic administration to reduce pain intensity.

Therapeutic empathy was defined as the willingness to know and understand the experience of another and to engage in this process without reciprocity (Gallop, 1989).

Expressed empathy was defined as nurses' verbalized understanding of what is meaningful to the patient at that moment as measured by the SPIRS.

State mediators were defined as variables within the environment, both internal and external, which can influence a person's behaviour (Gallop, 1989) and which relate to the nurse (knowledge-beliefs, age , unit experience, birthplace), the patient (age, gender, birthplace, beliefs about expressing pain), and the context (hospital site, analgesia ordered).

Westernized birthplace was defined as countries where a caregiver's subjective inquiry into a patient's feelings and experience, for example about pain, would be acceptable. Nurses' westernized birthplaces included Canada, United States, Britain, Europe, Australia, Hong Kong, and the islands of the West Indies, Jamaica, and Trinidad.

Pain was defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Pain is always subjective." (Merskey & Bogduk, 1994, p.210).

Pain intensity was defined as patients' perceptions of their pain as measured on (a) several visual analogue scales for i. worst 24 hour and 3 hour pain on movement and ii. pain now at rest and with movement and (b) the Present Pain Intensity Rating (PPI) for a global pain rating (McGill Pain Questionnaire-Short Form [MPQ-SF], Melzack, 1987).

Pain experience was defined as patients' perceptions of their previous pain history, pain

expectations, current pain status and management, and nurses' interaction with them related to pain assessment.

Perceived nurse attending was defined as patients' perceptions of being listened to, helped, and understood by the nurse in relation to their pain management.

Pain knowledge was defined as facts based on empirical data that are published and widely available.

Pain beliefs were defined as statements accepted as fact without necessarily any scientific basis. Incorrect beliefs that are thought to be true and that prevent effective pain management were defined as misbeliefs.

Pain inservice education was defined as the amount of pain-related continuing education previously attended (i.e. none, <3 hours, a half or full day session, or other amount).

Design

A descriptive, correlational, mixed between-within subjects design was used to examine the study hypotheses.

Sample and Setting

The target nurse population was a convenience sample of consenting nurses who were working on four cardiovascular wards in three teaching hospitals. Patients who were approached for inclusion in the study were (a) on their third postoperative day following their first coronary by-pass surgery, (b) not experiencing complications, (c) able to understand, read and speak English, and (d) willing and able to take part in the study.

Procedure

Ethical approval of the research protocol was obtained from the University of Toronto

Office of Research Services as well as from the individual hospitals' Research Ethics Board. After hospital approval was granted, the Director of Nursing where appropriate and physicians caring for eligible study patients were notified that a nursing study was taking place. Nursing Unit Directors were informed of the study and they informed the nurses on their units. The nurse was requested to approach patients on their third postoperative day to obtain permission for release of their name to the investigator. Patients were seen and given a written and verbal explanation of the study, their rights regarding the study, the safeguards to preserve anonymity, and the risks and benefits of participation (see Appendix B.1). Written consent was obtained from patients who agreed to participate (see Appendix B.2).

Nurses who were participating in the study were asked to meet with the investigator. These nurses received verbal and written explanations about the study, including their rights, safeguards to provide anonymity, the risks and benefits of participation and assurance that participation would not influence their employment (see Appendix B.3). Written consent was obtained from nurses who agreed to participate (see Appendix B.4). All nurses who completed the study received a $20.00 stipend to compensate for their time.

Data Collection Methods

After consent to participate had been obtained, study participants were interviewed and given verbal instructions. All interviews were conducted by the same researcher. In order to match patient data with specific nurse responses, patients were interviewed on the same shift as their assigned nurses, from noon to the end of that shift. Pain

assessments and analgesic administration were the responsibility of the assigned nurse during this time period.

Nurses were interviewed once in a private area of the nursing unit for about 35 minutes and given the TPMI, SPIRS, and the Questionnaire Measure of Emotional Empathy (QMEE) (Mehrabian & Epstein, 1972) in a random order. The QMEE is a second empathy measure to tap concurrent criterion validity. If a nurse was unable to complete the questionnaires on the unit, she/he was asked to return them within 24 hours. All responses were returned in a sealed envelope, and were placed in a designated drawer if not given directly to the investigator.

Patients were interviewed for 8 to 10 minutes using the short form of the McGill Pain Questionnaire, with anchors of the pain intensity analogue relating mainly to pain on movement over several time periods. Additional Visual Analogue Scale (VAS) items asked about patients' expectations and perceptions of their pain management. Every question was read to the patient to facilitate accurate data collection and to increase the reliability of the findings. Demographic data were obtained from the subject and analgesic data from the chart.

Instrumentation

Nurse Sample

Toronto Pain Management Inventory (TPMI)

The Toronto Pain Management Inventory (TPMI) (see Appendix C.1) was developed for this study to examine nurses' knowledge and beliefs about pain management and their beliefs about patients' experience of and responses to their pain. The measure includes 27

questions of which 23 are visual analogue scales and 4 are open-ended questions. An initial demographic section provides data about education level, years of nursing experience, years working on this unit, amount of prior pain inservice education, gender, birthplace, language spoken at home, and age.

The TPMI visual analogue scales include (a) nine items asking for nurses' perceptions of the patients' experience and responses related to pain assessment and management (items 2-10), (b) eight items related to nurses' knowledge about opioids and their beliefs about administration (items 1, 11-17), and (c) six items which focus on nurses' perceptions of support from colleagues, their current practices, and their sense of competency in managing pain (items 18-23). Nine questions assess knowledge (items 1,2,5,11,12,14-17) and 14 questions ask about beliefs or what nurses think is true about pain management (items 3,4,6-10,13,18-23). Four open-ended questions permit qualitative data about actual practices and any difficulties experienced in managing pain. Visual analogue scales (VAS) have been used to measure a variety of subjective phenomena including pain, and have demonstrated sensitivity and high reliability (Huskisson, 1983). Multiple VASs are used in this scale to increase reliability (Streiner & Norman, 1992). To avoid using negative items, as well as to decrease acquiescence bias, almost one half of the items are phrased so that higher scores indicate greater knowledge (i.e. items 4,8,11,14,15,17,19-23) (Streiner & Norman, 1992). To generate the final score, the remaining items (i.e. 1-3, 5-7, 9, 10, 12, 13, 16, 18) are reversed (i.e subtracted from 100) and all 23 items summed. Values ranged from 0 (less knowledge) to 2300 (most knowledge) and all scores are given with a percentage score. VAS scores

are used for individual items, such as the ideal pain intensity rating, as well as for a total percentage score.

As this scale was newly developed, reliability and validity testing were required (Streiner and Norman, 1992). A pilot study was conducted over a 3 month period. The sample included 33 nurses working on a general surgical ward or a surgical progressive care unit and 42 patients in these settings, usually on their second or third day after surgery. There were no difficulties with patients or nurses completing the questionnaires.

Reliability. Pilot testing of the nurse measures established test-retest reliability over a 2 week period with an intra-class correlation coefficient (ICC) of 0.81.

Validity. Face validity was determined by the subjective judgement of nine nurse and medical experts in pain and surgery. Similarly, content validity was addressed by asking experts to validate that the content of the measure was consistent with the literature and clinical practice related to working with patients in pain in surgical settings. The measure was pretested with 37 graduating BScN students of whom 14 were diploma nurses from a variety of clinical settings. Criterion validity could not be addressed as there is no similar measure or "gold standard" for the concept of nurses' knowledge and beliefs in pain management.

Construct validity involved testing a priori hypotheses. The TPMI was significantly related to the SPIRS ($r=0.37$, $p=0.02$), nurses' education level ($r=0.35$, $p=0.02$), and nurses' inservice education ($r=0.35$, $p=0.05$). The predicted inverse relationships between the TPMI and nurses' or patients' age, nurses' unit experience, and patients' pain ratings were not demonstrated. The number of nurse-patient pairs was only 19.

Staff Patient Interaction Response Scale (SPIRS)

The SPIRS (see Appendix C.2) is a self-report measure with evidence of preliminary reliability and validity. Ratings are required of nurses' written responses to four sets of equivalent patient contexts and five statements. Eleven categories are used to rate the responses, within the three levels of empathic care: "no care", "solutions" and "affective involvement". The highest response category scored (i.e. -1,0,1, or 2), for each of the five statements across the four pages, is summed to obtain the final score used in this study. A scoring manual decreases raters' subjective interpretation and variation in scoring responses by providing set criteria which are typical for each category.

Reliability. Gallop et al. (1990b) documented an interrater reliability kappa of 0.80 and random checks of 20% of responses to maintain this level. Test-retest reliability with these psychiatric nurses was established with $r = 0.79$. In my pilot study using total SPIRS scores with surgical nurses, an ICC for test-retest reliability was 0.76 and for inter-rater reliability was 0.97.

Validity. Gallop (1989) established face and content validity using clinical experts and study participants. Concurrent criterion validity was demonstrated with a significant correlation with the QMEE ($r=0.67$) and a significant phi correlation of 0.78 between expert raters and the investigators' rankings (Gallop, 1989). Gallop (1989) tested a priori hypotheses in demonstrating construct validity.

In my pilot study, it was unexpected to find no significant relationship between the SPIRS and the QMEE ($r=0.30$, $p<0.09$). The small number of participants may have reduced the power to demonstrate a significant effect (Kraemer & Thiemann, 1987).

Therefore, the QMEE was readministered to the larger sample. In testing a priori hypotheses, the SPIRS demonstrated (a) a significant positive correlation with the TPMI, nurses' education level (r=.51 p<.0001) and inservice education (r=0.35, p<0.04), and (b) a negative trend with nurses' unit experience (r=-0.32 p<0.07) and experience in nursing (r=-0.29, p<0.1) as predicted. No significant relationship was demonstrated with nurses' age or patients' pain ratings.

Questionnaire Measure of Emotional Empathy (QMEE)

The QMEE (see Appendix C.3) requires subjects to imagine how they would feel in a variety of situations and has demonstrated reliability and validity (Mehrabian & Epstein, 1972). The authors' reported significant subscale intercorrelations, all exceeding 0.30, and split-half reliability for the entire measure as 0.84. Construct discriminative validity was evident in the lack of correlation with a social desirability scale (Crowne and Marlowe, 1960). The QMEE demonstrated criterion validity with Gallop's (1989) SPIRS and was used in the present study as well. In Part II, social desirability questions (Crowne & Marlowe, 1960) were added, to identify those responses contributing to extraneous variance because of their focus on impressing the investigator rather than on the construct being tested (Holden & Fekken, 1989).

Patient Sample

McGill Pain Questionnaire - Short Form (MPQ-SF)

The short form of the MPQ (see Appendix C.4) was adapted from the longer form of the MPQ in order to obtain pain information within a limited time period (Melzack, 1987). The MPQ-SF is a self-report measure of both the quality and intensity of pain.

Pain quality is evaluated by 15 verbal descriptors, both sensory (n=11) and affective (n=4). Each adjective chosen by the patient is ranked on a severity scale of 0=none, 1=mild, 2=moderate, and 3=severe. These severity ratings are summed to obtain scores for the sensory, affective, and combined sensory and affective subscales. The two indices of pain intensity included are the present pain intensity (PPI) and a VAS. The measure takes 2 to 5 minutes to complete.

The original measure, the MPQ-long form (MPQ-LF), has well-established reliability and validity. The predominant PRI indices of the MPQ-SF correlate highly with those of the MPQ-LF with patients experiencing labour (r=0.65-0.82), postsurgical (r=0.68-0.77), or musculoskeletal pain (r=0.67-0.93) (Melzack, 1987), and with cancer pain (r=0.84-0.93) (Dudgeon, Raubertas, & Rosenthal, 1993). Preliminary results demonstrate sensitivity to traditional clinical therapies such as analgesic drugs, epidural blocks and TENS (Melzack, 1987).

Additional Questions, Analgesic and Demographic Data

Several VAS pain intensity items extended the general VAS of the MPQ-SF, using anchors relating to pain on movement over several time periods. The "unpleasant" anchor for one analogue had been established as a valid and reliable affective label (Gracely et al., 1978).

Twelve additional questions formed the Patient Pain Experience Scale (PPES) (see Appendix C.5). To establish face and content validity, these questions were examined by clinical experts in surgery and pain management and were pretested with 25 cardiovascular patients. The PPES included 10 VASs related to patients' perceptions of

their previous pain history, pain expectations and beliefs, current pain status and management, and nurses' involvement in their pain assessment and management (nos. 1-7, 9-11). Patients were asked to rate their current nurse in answering three questions which focused on the nurse attending to their pain experience (nos.9-11). These questions provided the PPES-Attending score (PPES-A) which ranged from 0 (least attending) to 300 (most attending). Two questions about the nurses' pain-related communication required categorical yes-no responses (nos. 8, 12). An open-ended question focused on patients' perceptions of how they could have been helped more with their post-operative pain. Demographic data were obtained from the subject (see Appendix C.6) and analgesic data from the subject's chart.

Ethical Considerations

All subjects were assured of anonymity of their responses. Each subject was assigned a code number. Subjects' code numbers were kept in a locked file accessed only by the investigator for confidentiality. Only group statistics have been reported and no individual subject has been identified from reported results.

Risks and Benefits

There was no known risk to nurse or patient subjects. It was not anticipated that the information asked would jeopardize emotional well-being of the patient subjects and patients answered questions willingly. Where patients were experiencing discomfort and asked for help, the investigator asked the subjects' permission to communicate this to their nurse to obtain appropriate intervention. Nurses who had questions about any content in the questionnaire were given available information to clarify the point at the

termination of the study. It was not anticipated that participation in the study would be directly beneficial to the subjects. Participants requesting an abstract of the study were sent one at the completion of this project. Ultimately, the knowledge gained from these measures will contribute to the development of education programmes, which could help both nurses and patients in pain to more effectively interact with each other to improve pain management in surgical settings.

Data Analysis

Initially, descriptive statistics were completed to analyze the data for normality and to determine if the data met the parametric test criteria. Nominal, ordinal, and interval data were obtained from the demographic questions; interval data from the TPMI, SPIRS, and QMEE; ordinal and interval data from the MPQ-SF; and nominal and interval from the PPES (see Appendix C.6). Data from the rating scales were analyzed as interval, as in most circumstances where score distribution is not severely skewed, this approach will not introduce severe bias (Norman & Streiner, 1994, p.29). In spite of the number of analyses completed, the level of significance for all tests was retained at 0.05 because of the exploratory nature of this study.

Parametric statistical use requires meeting the assumptions about the population from which the sample was taken. The assumption of normality, that sample scores were normally distributed, was examined using scatterplots. The skews of distributions of total scores were minimal (0.04-0.38), excluding that for worst 24 hour pain which was in the moderate range (-0.5). Norman and Streiner (1994) suggest that real versus theoretical data show some degree of skew, and the negative skew for 24 hour pain was anticipated

from previous findings. Because of the robust nature of parametric statistics, they were used for all analyses involving interval data (personal communication, Streiner, 1995). Kleinbaum and Kupper (1978) state that if the normality assumption is not badly violated, conclusions will generally be reliable and accurate using robust statistics such as parametric tests.

Pearson correlations were used to examine all hypotheses with interval data. Chi-squared analyses were used to examine relationships between nominal and nominal-ordinal data in hypothesis two, that is birthplace, education level, and inservice education. Analysis of variance (ANOVA) was used to examine within group and between group differences for the dependent interval variables of (a) empathy, (b) knowledge, (c) characteristics of age and experience, and (d) patients' pain intensity and experience ratings, by nurses' birthplace and hospital site. For significant ANOVAs, post-hoc comparisons using Tukey's Honestly Significant Difference test (Norman & Streiner, 1994) were used to determine the source of the difference. Differences between two independent groups required t-tests, and Levene tests were used to confirm homogeneity of variance (Norusis, 1993). Hierarchical multiple regression models were used to explain variance in scores for SPIRS, TPMI, 24 and 3 hour pain intensity ratings, and the amount of analgesics given. Dummy coding was used to indicate the categories of site and birthplace. Standardized residual scatterplots and the Durban-Watson statistic were used to validate the linearity and homoscedasticity of the regression models (Norusis, 1993).

Content analyses of the qualitative data from open-ended questions have not been included in this dissertation. Future analyses will examine (a) practices and challenges

identified by nurses and (b) ways of helping after surgery identified by patients.

Sample Size

Sample size justification was based on Cohen's approach (1988). Given a power level of 0.8, an alpha level of 0.05 and an effect size of 0.30 for a medium effect, the minimum sample size required was 68. The final sample of 94 nurses met this requirement and allowed for a large number of nurse-patient pairs (n=80). The final sample of 225 patients more than met this requirement for analyses of pain ratings and analgesia.

Chapter IV

RESULTS

This chapter is divided into four major sections. The first section includes descriptive data for the nurse and patient samples. In the second section, the four hypotheses directing this study are addressed. In the third section, pain knowledge and belief findings are described in relation to empathy and pain management. The fourth section includes the regression models that outline the variables contributing to variance in nurse empathy, pain knowledge and beliefs, analgesics administered for pain, and pain intensity.

Descriptive Characteristics of the Sample

Nurse Sample

Data were collected from 94 nurses on four cardiovascular units, two of which were in one hospital site. Ten nurses (9.6%) of the 104 who were approached either refused to participate (n=4) or did not return the questionnaire (n=6). Half of the non-participants were from the fourth site (n=5). Reasons for refusals related mainly to current workload requirements. One subject refused to complete the SPIRS because he "couldn't write answers to statements like that".

The nurse participants included 86 women and 8 men, the majority of whom were born in Canada and spoke English at home (see Table 1). Their level of education included 82 (87%) nurses with a diploma in nursing, 10 (11%) with a nursing baccalaureate degree, and 2 (2%) with a non-nursing baccalaureate degree and a nursing diploma. Although ages ranged from 22 to 55 years, 76% of this sample were less than 40 years old (mean=35, SD=8.7) (see Table 1). The years of nursing experience ranged widely from less than one

Table 1

Descriptive Characteristics of the Nurse Sample

	n[1]	%
AGE		
a. 22-29 years	32	34
b. 30-39 years	39	41.5
c. 40-49 years	13	13.9
d. 50-55 years	10	10.6
BIRTHPLACE		
a. Canada/USA	50	54
b. Philippines	18	19
c. Islands (West Indies, Jamaica, Trinidad)	11	12
d. Europe/Australia	6	7
e. South America	3	3
f. Eastern Europe/Russia	2	2
g. Hong Kong	1	1
h. India/Pakistan/Sri Lanka	1	1
i. Africa	1	1
LANGUAGE SPOKEN AT HOME		
a. English	77	82
b. Filipino	12	13
c. Eastern Europe	3	3
d. Italian/German/Portuguese	1	1
e. Chinese	1	1
NURSING EXPERIENCE		
a. <1-5 years	44	46.8
b. 6-10 years	16	17.
c. 11-20 years	22	23.4
d. 21-34 years	12	12.8
UNIT EXPERIENCE		
a. < 1 year	7	7.4
b. 1-5 years	72	76.6
c. 6-10 years	8	8.6
d. 11-20 years	7	7.4
PAIN-RELATED CONTINUING EDUCATION		
a. none	49	52
b. < 3hrs.	30	32
c. half day	8	9
d. full day	3	3
e. other	4	4

[1] n=from total group of 94 except for birthplace (N=93)

year to 34 years, although 47% of nurses had worked 5 years or less [median=6 years, mean (SD)= 10 (8.5) years]. Unit experience ranged from 2 months to 20 years but the majority (60%) had worked for less than 5 years on the current unit [median=mean (SD)=4 (3.9) years]. The vast majority (84%) had participated in minimal (<3 hours) or no pain-related inservice education.

There were no significant differences in nurses' age, education, gender, birthplace, language, or unit experience by site. There were significant differences in participation in inservice education by site ($X^2(12)=27$, $p<0.008$); 70% of nurses had some inservice education at site 1, 45% at site 2, 58% at site 3, and 20% at site 4. The differences in years of nursing experience were not significant by site (sites: 1=11 years, 2=12 years, 3=10 years, 4=6 years; $F_{3,90}=2.5$, $p<0.07$). The nursing care delivery pattern was total patient care at all sites except site 4 which used the functional approach of dividing patient care into tasks which are then assigned to several staff.

There were significant differences for nurses' age ($F_{4,88)}=2.89$, $p<0.03$) and experience by birthplace ($F_{4,88}=3.65$, $p<0.008$). Differences in unit experience were not significant although nurses from the Philippines had worked the longest on their current unit. Means, standard deviations and significant differences using Tukey's Honestly Significant Difference (HSD) post-hoc comparisons for age and experience by birthplace are shown in Table 2.

Patient Sample

Data were collected from 225 patients on the same four cardiovascular units used for the nurses' data collection. Fifteen (6%) of the 240 patients who were initially approached were not included in the study. Of these, 10 (4%) patients refused to participate. Reasons given

for nonparticipation included fatigue and/or nausea (n=8), participation in another study (n=1), and anger at the current medical care (n=1). The interview was terminated by the investigator with five patients (2%) who had agreed to participate but who were unable to continue because they were not well enough (n=3) or not sufficiently fluent in English (n=2).

The sample included 52 women and 173 men. The majority were born in Canada and spoke English at home (see Table 3). Participants' ages ranged from 33 to 83 years, with 68% between 50 to 69 years. The majority of patients (n=194, 86%) identified the chest/ shoulder area as most painful, with the leg being identified by 11% (n=24). Within the first 24 hours after surgery, 10% (n=23) of patients had received patient-controlled analgesia (PCA) and 54% (n=122) had received one or two doses of routine indomethacin. Surgery for the majority (n=192, 85%) involved an internal mammary artery as well as saphenous vein grafts, with the mean number of grafts being three.

Slightly more than half of the subjects remembered having seen a video related to the surgery or attending a preadmission course (n=121, 54%). Of this group, 56% (n=68) remembered no pain-related content, 19% (n=23) remembered being told to expect pain, and 17% (n=21) remembered being told to expect pain and to ask for help. Only one patient described a nurse telling him to rate his pain and to ask for help when his rating went above three.

There were no significant gender differences in most severe pain location, attendance at a peri-operative preadmission course or video, patient-controlled analgesia (PCA), or indomethacin administration. Women were significantly older than men ($t(223)=3.21$,

Table 2

Means(SD) and Significant Differences in Nurses' Age and Experience by Birthplace

	Canada N=49	Islands/South America N=14	Europe/Australia Hong Kong N=7	India/Africa Eastern Europe N=4	Philippines N=18
AGE (years)					
Mean(SD)	32(8)	36(9)	36(10)	38(8)	40(9)
Differences*[1]					
EXPERIENCE(years)					
Mean(SD)	7(6)	13(10)	9(9)	7(9)	15(11)
Differences*[2]					

* underlined birthplaces are not significantly different

[1] $p<0.05$ ($F_{4,88}=2.89$, $p<0,03$) [2] $p<0.01$ ($F_{4,88}=3.65$, $p<0.008$)

Table 3

Patient Characteristics related to Language and Birthplace

	n	%
LANGUAGE SPOKEN AT HOME		
a. English	197	87.6
b. Italian/German/Portuguese	14	6.2
c. Eastern/European	6	2.7
d. Indian	5	2.2
e. African	1	0.4
f. Hebrew	1	0.4
g. Spanish	1	0.4
BIRTHPLACE		
a. Canada/USA	139	61.8
b. Europe/Australia	46	20.4
c. Eastern Europe/Russia	15	6.7
d. India/Pakistan/Sri Lanka	10	4.4
e. South America	4	1.8
f. Islands	3	1.3
g. Africa	3	1.3
h. Middle East	3	1.3
i. Philippines	1	0.4
j. Greece	1	0.4

$p<0.002$] (see Table 4). A greater percentage of men received a mammary graft (88%) than did women (75%) ($X^2(1)=5.77$, $p<0.02$).

There were no significant differences in patient age, birthplace, location of most severe pain, and the number of bypasses received by site. The sites did differ significantly on the frequency of pain management resources being offered, including patients (a) attending a preadmission course or video and (b) receiving postoperative patient-controlled analgesia (PCA) and/or indomethacin (see Table 5).

Table 4

Distribution of Patients' Ages by Gender

	GENDER		
AGE (years)	Female n (%)	Male n (%)	Total n (%)
N(%)	52 (23)	173 (77)	225 (100)
33-49	4 (8)	24 (14)	28 (12)
50-59	10 (19)	55 (32)	65 (29)
60-69	21 (40)	67 (39)	88 (39)
70-83	17 (33)	27 (16)	44 (20)
Mean(SD)	65(8.7)	60(9.0)	61(9.2)

Table 5

Significant Site Differences in Patient Pain Management Resources

	site 1	site 2	site 3	site 4	X^2(df3)
1. Preadmission course/video	79%	41%	27%	68%	43.3***
2. PCA used postoperatively	11%	5%	21%	0%	15.5**
3. Indomethacin given postoperatively	61%	72%	44%	46%	10.3*

* $p<0.02$ ** $p<0.001$ *** $p<0.0001$

Analyses Which Tested the Specific Hypotheses

Nurses' Empathy and Pain Knowledge and Beliefs (Hypothesis I)

Empathy (Staff Patient Interaction Response Scale [SPIRS], Questionnaire Measure of Empathy [QMEE])

The SPIRS is scored from -20 (least empathy) to 40 (most empathy). The QMEE is scored from 33 (least empathy) to 132 (most empathy). To code the SPIRS, inter-rater reliability was established between an experienced SPIRS rater and the investigator using total scores for every fifth participant for 25% of the sample (ICC=0.94). SPIRS scores for this sample (see Figure 2) ranged from 2 to 32, with a mean of 19.76, a standard deviation of 5.88, and a median of 20. The majority of subjects (53%) scored 20 or less, with only 3% scoring 30 or greater. Differences in SPIRS scores by site were not statistically significant ($F_{3,89}=1.64$, $p<0.19$) [mean (SD): site 1=21 (5.6), 2=19 (6.5), 3=20.5 (5.8), 4=17.9 (5.5)] (see Figure 3). QMEE scores (Figure 4) ranged from 64 to 116 with a mean (SD) of 97.8 (8.93) and were similar among sites. There were no significant correlations between the SPIRS and the QMEE for the total group ($r=0.09$, $p=0.42$) or by site.

The SPIRS has three levels of empathic responses (i.e. level 1=no care, 2=solution, 3=affective involvement), with categories for each level. Examples of responses for two vignettes, that reflect all three levels of empathy, are outlined in Table 6. Further examples of no care level 1 responses (platitudes, presumptuous advice, irrelevant opinion) across all vignettes are described in Appendix D-Table 1. Only 20 nurses' responses asked about pain as the reason for patients asking to be left alone and/or not to have activity. Of these pain-

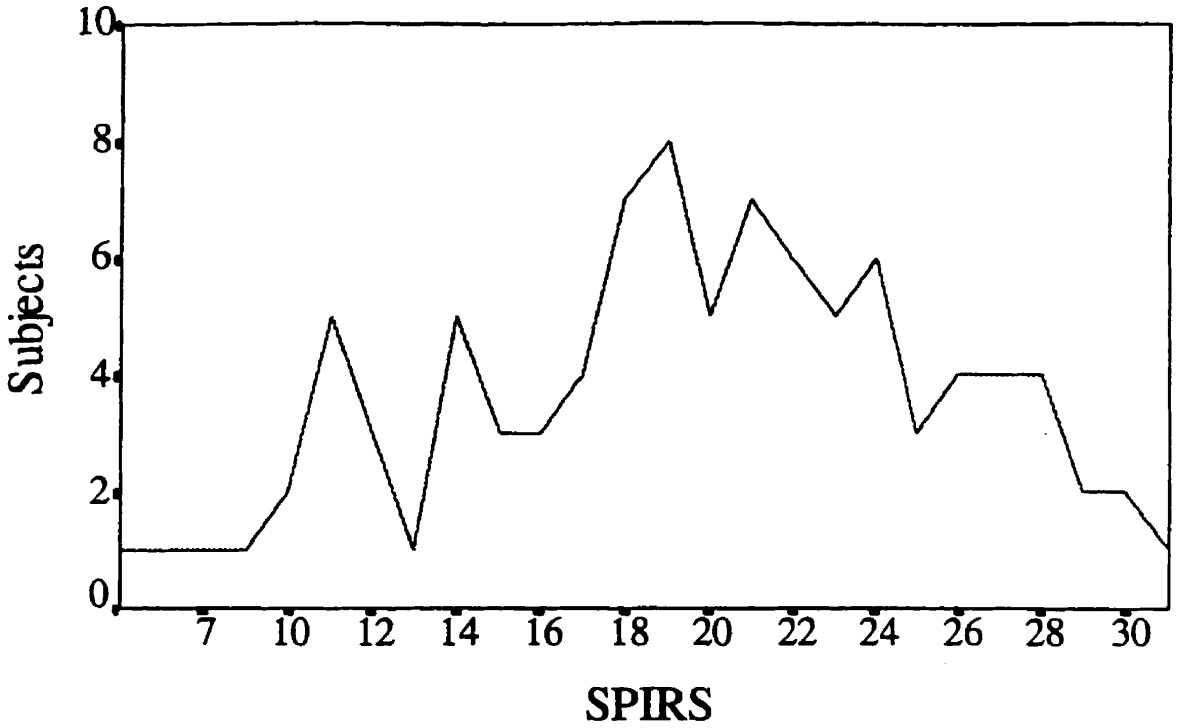

Figure 2. Distribution of SPIRS Scores

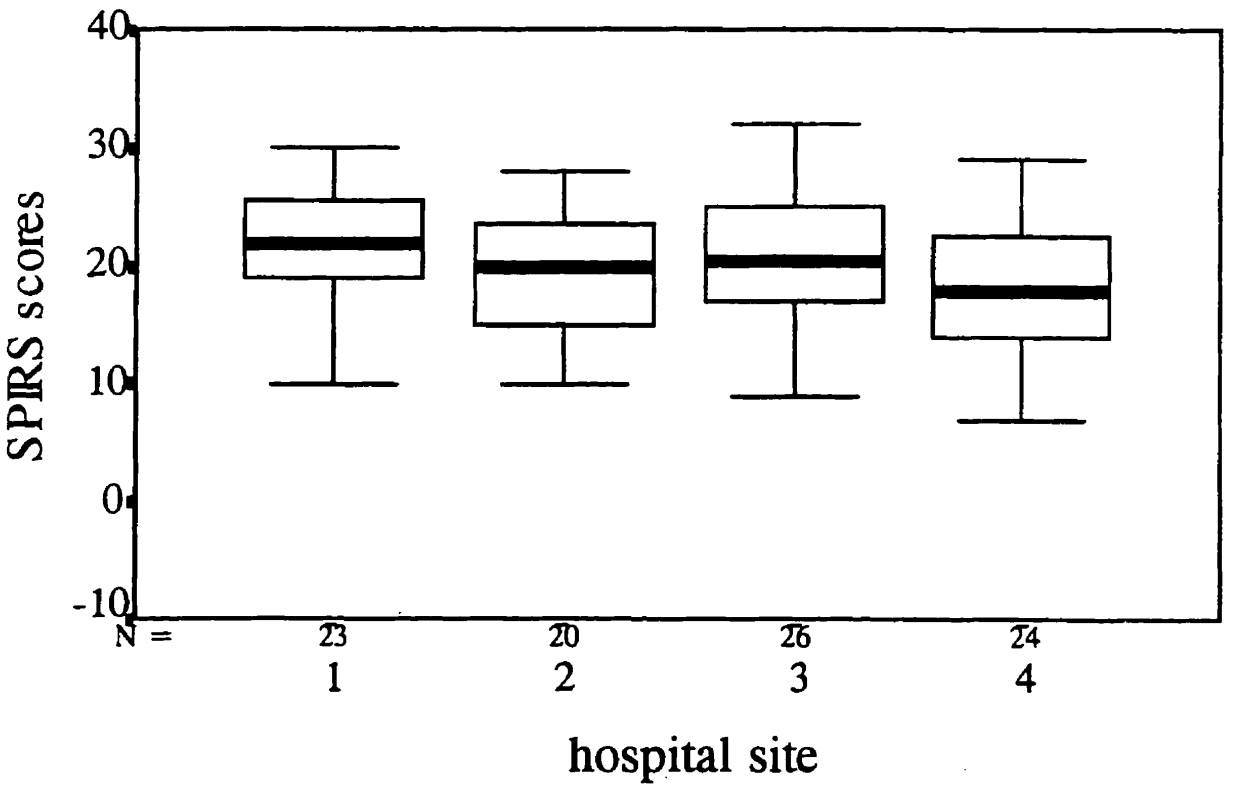

Figure 3. Boxplots for SPIRS scores by hospital site

Table 6

Examples of Levels of Nurses' Empathic Responses to SPIRS Vignettes

Frank is a patient in his mid-sixties. He was admitted to hospital 4 days ago for pneumonia. ***"I want to be left alone - I don't want to go any where."***

Nurses' level of empathic responses:

Level 1 - No Care
- In the chair Frank!
- While you are under our care, we expect you to do what we ask.

Level 2 - Solution
- These tests are important for you.
- I'll leave you and come back later.
- Why do you feel that way?

Level 3 - Affective Involvement
- You seem upset, are you worrying about what happened?
- It is pretty scary isn't it.

Charles is a patient in his mid-thirties. He was admitted to hospital 2 days ago for severe chest pain. ***"I don't want to burden my family with my problem."***

Nurses' levels of empathic responses

Level 1 - No Care
- Your family needs to know.
- Your well-being is the most important concern of your family.
- You'll be alright.

Level 2 - Solution
- Why do you feel this way?
- What do you mean?
- I can talk to them if that would help.

Level 3 - Affective Involvement
- You seem concerned about how your family will cope.
- Is your family worried about what is happening to you?

focused questions, only 5 responses were to the patient admitted for chest pain.

Pain Knowledge and Beliefs (TPMI)

The TPMI scores ranged from 1219 (53%) to 2063 (90%), with a mean of 1565 (SD=151.2) (68%) (Figure 5). The median was 1557 (68%). Only 15% of nurses (n=14) scored ≥75%, with 56% (n=53) of nurses scoring ≤69%. There was a significant difference in TPMI scores between sites ($F_{3,90}$=5.08, p<0.003) (see Figure 6). Means, standard deviations and significant differences using HSD post-hoc comparisons for TPMI scores by site are shown in Table 7.

Relationship between empathy (SPIRS) and pain knowledge-beliefs (TPMI)

The hypothesis that nurses' empathy will vary directly with greater pain knowledge was supported to a modest degree. A positive correlation was found between higher empathy and greater pain knowledge and beliefs for the total sample (r=0.37, p<0.0001). When the group of nurses who were born in the Philippines were excluded (n=18, 20%) this correlation increased to r=0.47 (p<0.0001). The excluded group had scored at low levels on both measures. There was no significant correlation between the QMEE and the TPMI (r=-0.01, p<0.96). Correlations between the TPMI and the SPIRS by site are described in Table 8.

Significant correlations between the SPIRS and individual TPMI items were in the expected direction but modest, and included nurses' (a) agreeing with patients' statements about their pain (r=0.21), (b) believing that patients do not overstate their pain (r=0.31), (c) giving opioids for chronic pain (r=0.25), (d) giving morphine if pain is severe postoperatively (r=0.28), and (e) experiencing difficulty with having analgesic orders

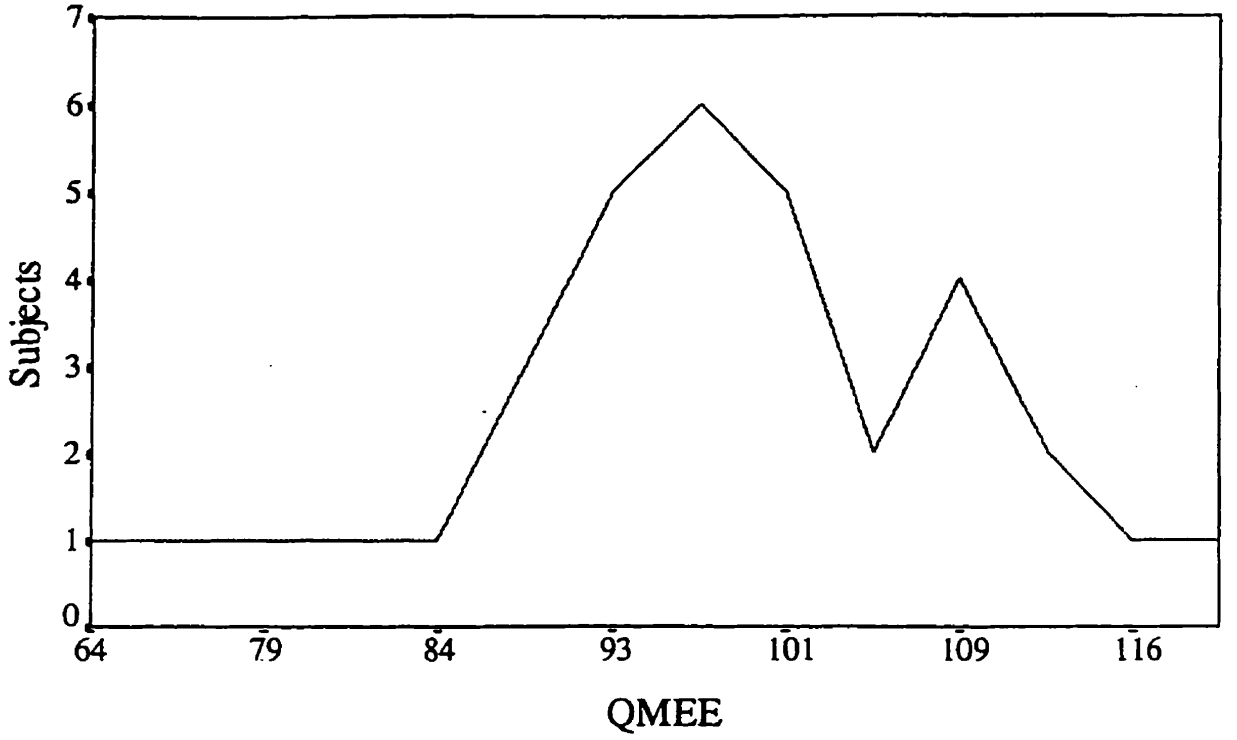

Figure 4. Distribution of QMEE scores

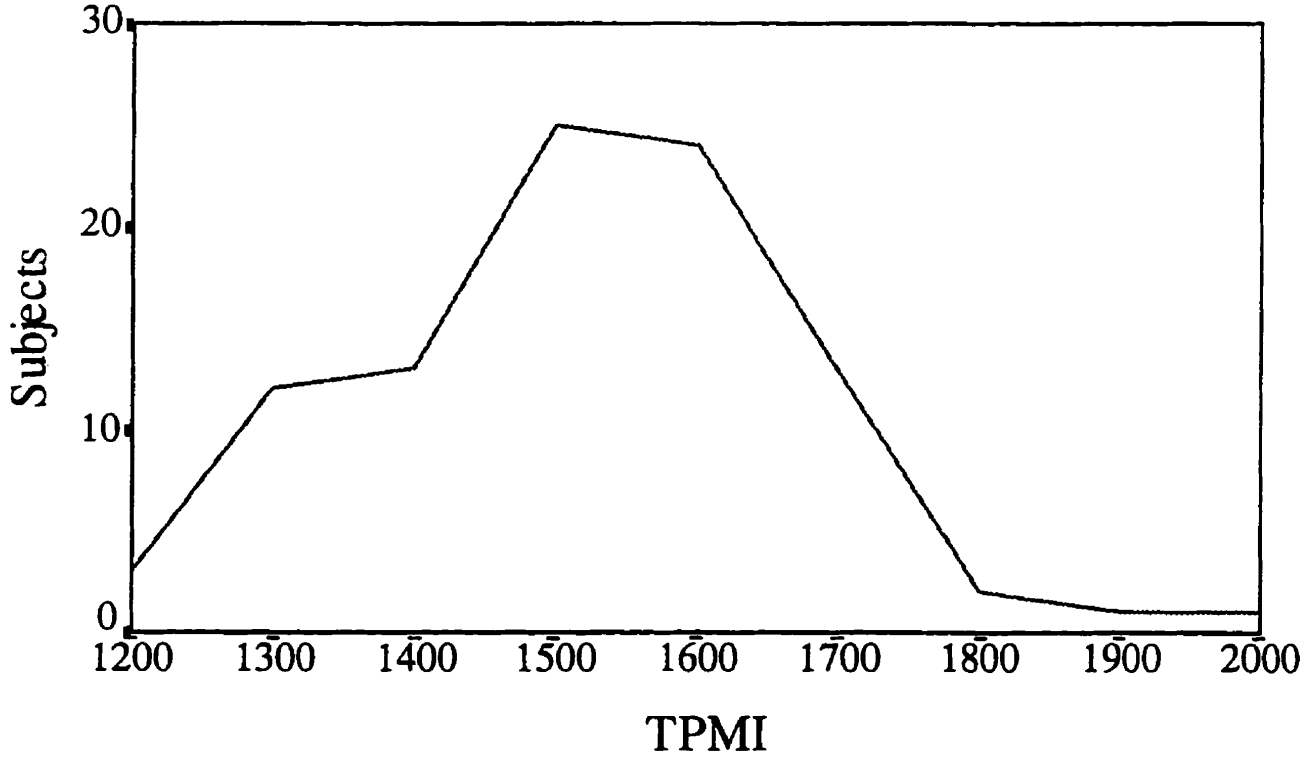

Figure 5. Distribution of TPMI scores

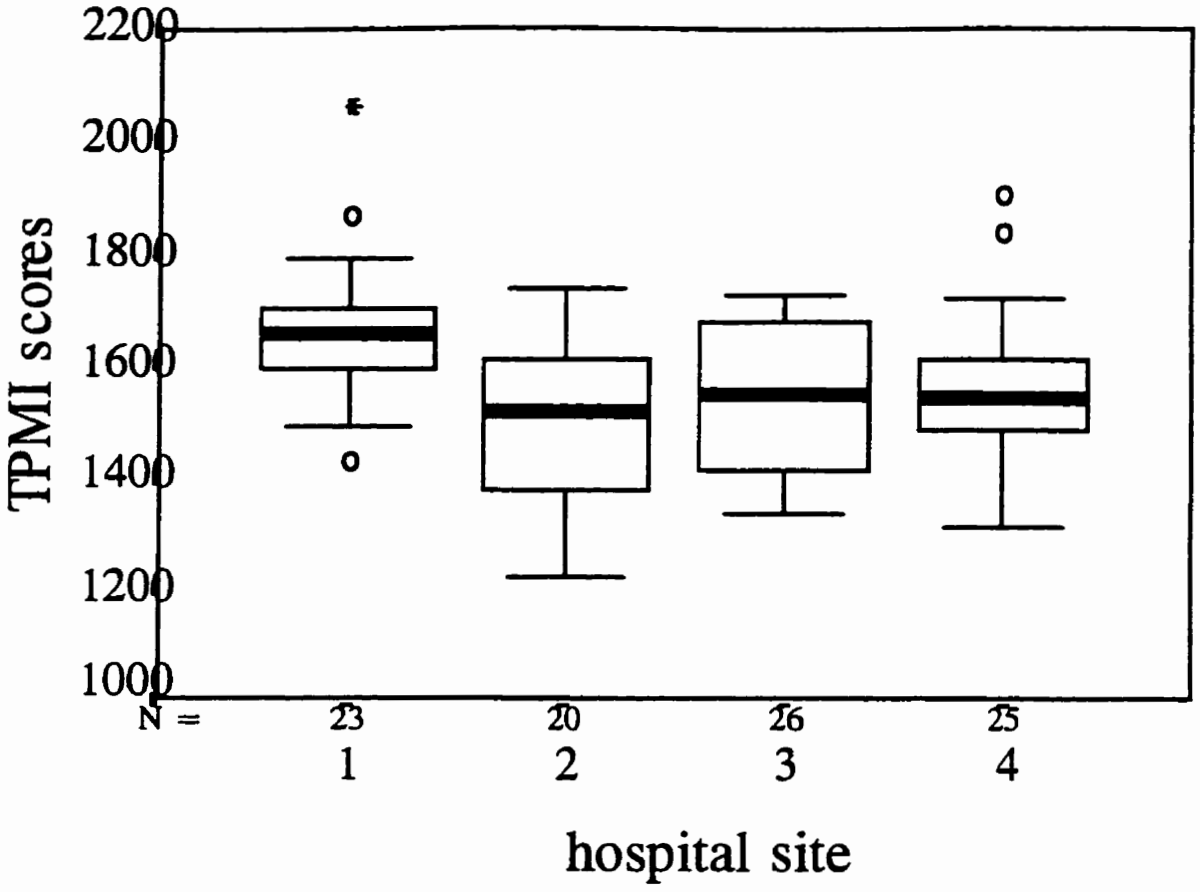

Figure 6. Boxplots for TPMI scores by hospital site

Table 7

TPMI Means(SD) and Significant Differences by Site

TPMI	Hospital Site			
	1 N=23	4 N=25	3 N=26	2 N=20
Means	1655(72%)	1556(68%)	1554(68%)	1489(65%)
Standard Deviations	141	140	131	159
Differences*				

* underlined sites are not significantly different ($F_{3,90}=5.08$, $p<0.003$)

Table 8

Correlations between Empathy and the TPMI by Hospital Site (Pearson r).

TPMI	Hospital Site			
	1 N=23	2 N=20	3 N=26	4 N=24
SPIRS	.36(.09)	NS	.43(.03)	.44(.03)

changed when patients continue to experience pain ($r=0.22$).

Differences in pain knowledge and beliefs between nurses who were the most empathic (SPIRS ≥ 22.67, upper 33%) and those who were the least empathic (SPIRS ≤ 18, lowest 33%) are described in Appendix D-Table 2. The least empathic nurses were (a) more likely to think patients overstate their pain and (b) less likely to request higher opioid doses for continuing pain. They would also be less likely to give (a) morphine postoperatively for continued pain, (b) opioids orally, or (c) analgesics for chronic pain.

Significant differences between the most and least empathic nurses are not large and scores for both groups on several TPMI items reflect problematic pain knowledge and/or beliefs. The non-significant differences in mean values also demonstrate some problematic similarities between these two groups (see Appendix D-Table 2). Patients of both groups are seen to experience moderate to severe pain postoperatively. There seems to be a consistent pattern in misbeliefs for both groups, that pain is dependent on tissue injury such as surgery, and that some patients become addicted to prescribed opioids. Both groups are unlikely to ask patients about their pain, expecting them to voluntarily ask for help when needed. The majority of nurses in both groups perceive themselves to be very competent in pain management with adequate pain knowledge. The majority of nurses stated they use a pain rating scale two-thirds of the time in their pain assessment.

Nurses' Empathy and Nurses' Characteristics (Hypothesis II)

The hypothesis that empathy would vary inversely with nurses' age, years of experience and experience on the current unit, and vary directly with education level and inservice education was minimally supported (see Table 9). For the total sample, only a modest

relationship supported younger nurses being more empathic than those who are older (Table 9). As this relationship was stronger in the lowest empathy group, the possibility of it not being linear was considered. However, testing the quadratic term in a regression model did not add anything of significance. There were no significant correlations between empathy and inservice education or education level for the total sample or for the high and low empathy groups. There were no significant correlations between high empathy and any of the nurse characteristics examined.

No significant differences were found between the most empathic and least empathic nurses for education, continuing education, experience or unit experience. While the most empathic nurses tended to be younger (33.5 versus 37 years), with slightly less experience (9.5 versus 11.3 years), these differences were not statistically significant.

The original nine birthplace categories (see Table 1) were collapsed to 5 to facilitate statistical analyses. There was a significant association between the SPIRS and five birthplace categories (Eta=.45) and the differences in SPIRS ratings related to these categories were statistically significant ($F_{4,87}=5.49$, $p<0.001$). Means, standard deviations, and significant differences using HSD post-hoc comparisons for SPIRS scores by birthplace are shown in Table 10. Differences in QMEE ratings related to place of birthplace were not statistically significant.

Table 9

Relationship between Empathy (SPIRS) and Nurses' Characteristics (Pearson r).

	age	unit experience	nursing experience	continuing education	education level
SPIRS					
Total	-0.29(.005)	____	-0.19(.07)	____	____
Lowest	-0.51(.001)	____	-0.46(.005)	____	____
Highest	____	____	____	____	____

Table 10

SPIRS Means(SD) and Significant Differences by Birthplace.

SPIRS	Europe/ Australia/ Hong Kong N=7	Islands/ South America N=14	Canada N=49	India/ Africa/ Eastern Europe N=4	Philippines N=18
Mean	23.14	23.0	20.4	13.5	16.2
Standard Deviation	3.6	5.4	5.3	3.7	6.2
Differences*	_____			_____	

* underlined birthplaces are not significantly different ($F_{4,87}=5.49$, $p<0.001$)

Nurses' Empathy and Patient Characteristics (Hypothesis III)

The hypothesis that empathy would be greater with patients who were male, younger in age, and verbalizing their pain, was not supported. No significant correlation was demonstrated between empathy and patient gender or age, although there was a modest trend ($r=0.33$, $p<0.1$) for the most empathic nurses to be working with older patients (SPIRS ≥ 22.67, $N=27$).

Nurses' Empathy and Patients' Pain Ratings, Analgesia and Perceived Experience (Hypothesis IV)

Patients' Pain Ratings

There were no significant differences between sites for any of the pain measures. The means, standard deviations, and levels of responses for the analogues describing pain are summarized in Table 11. Most patients (87%) described no pain or mild pain when they were not moving. However, 68% of patients described moderate to severe pain when they moved or did their deep breathing and coughing exercises at the time of the interview. Pain on movement was rated as moderate to severe by 77% of patients in the previous three hours and by 86% in the previous 24 hours. Considerable individual variability was evident for all pain ratings on movement (see Table 11, Appendix D-Figure 1). The mean rating of how unpleasant the most severe pain had been in the previous 3 hours was in the moderate range [mean(SD)=48(30)], although 32% of patients said it was very unpleasant (≥ 70).

The Present Pain Intensity (PPI) is an overall pain intensity measure of the MPQ-SF and is scored from 0 to 5. PPI scores for this sample ranged from 0 to 5 with a mean (SD) of 2.6 (1.1). For 47% of patients, the PPI was 3 or greater indicating considerable pain in the

Table 11

Mean Scores and Percentage Distribution of Visual Analogue Pain Scales.

VISUAL ANALOGUE SCALES	Mean(SD)	MILD 0-39 n (%)	MODERATE 40-69 n (%)	SEVERE 70-100 n (%)
Pain now not moving	13(18)	196 (87)	25 (11)	4 (2)
Pain now moving	50(26)	73 (33)	79 (35)	73 (33)
Most severe pain in last 3 hours	57(25)	51 (23)	74 (33)	100 (44)
Unpleasantness of last 3 hour pain	48(30)	75 (33)	78 (35)	72 (32)
Most severe pain in last 24 hours	65(25)	31 (14)	65 (29)	129 (57)

previous 3 hours.

The scores for the MPQ-SF adjectives describing the sensory (range 0-33) and affective (range 0-12) components of pain, both individually and as a total (range 0-45) were low. The sensory adjectives total ranged from 0 to 33, with a mean (SD) of 9.1 (5.3); the most frequently chosen were tender (74%), sharp (71%), and stabbing (49%). The affective adjectives total ranged from 0 to 12 with a mean (SD) of 2.7 (2.5); the most frequently chosen was tiring-exhausting (60%). The correlation between this affective score and the unpleasant VAS was only moderate ($r=0.54$, $p<0.0001$). The total adjective scores ranged from 0 to 45 with a mean (SD) of 11.8 (7.0). Adjectives with the highest means were only in the mild category and included stabbing [1.01 (1.2)], sharp [1.56 (1.2)], tender [1.51 (1.1)], and tiring- exhausting [1.29 (1.2)]. Men's ratings for the adjectives "shooting" and "sharp" were significantly higher than for women (0.82 vs 0.31, $p<0.003$; 1.71 vs 1.06, $p<0.0001$). Women rated "gnawing" higher than men (0.50 vs 0.23, $p<0.02$).

Analgesia

Analgesics ordered and given in the previous 24 hours were converted to standardized parenteral morphine equivalents (Gilman, Rall, Nies & Taylor, 1990). These data indicated that patients were undermedicated in this sample (optimal standard dose: 50-60 mg SC morphine equivalents/24 hours). The average amount ordered per 24 hours was 33 mg (SD=24) of morphine equivalents, ranging from no analgesic orders (n=2) to 200 mg. Eighty percent of this sample had orders for less than 50 mg of morphine equivalents. Analgesics ordered included tylenol 3 (95%); stronger opioids such as dilaudid SC, demerol IM, anileridine PO, morphine SC, codeine PO or percocet (28%); tylenol plain (9%); and/or inappropriate demerol PO or talwin (2%). Orders were (a) standard doses and not by patient weight (i.e. tylenol 3 tabs 1-2) and (b) to be given as needed at the nurses' discretion (i.e. q4h PRN). Average orders for women tended to be higher (39 mg) than for men (31 mg) [$t(df223)=1.86$, $p< 0.06$].

The average amount of morphine-equivalent analgesia given was 14 mg (SD=9.6), and the doses ranged from none given (n=5) to 60 mg. In this sample, 80% of patients received 16 mg or less of analgesia over the previous 24 hours, which included part of their second postoperative day. Of the 5 patients receiving no analgesics: (a) 2 also had no orders and both had severe 3 and 24 hour pain, (b) 1 had mild, 1 had moderate, and 1 had severe pain, (c) 3 patients were from site 4 and 2 patients (1 with mild pain) from site 3. On average, patients received 47% of the analgesics prescribed. Analgesics given were tylenol 3 (89%); more potent opioids including dilaudid SC, demerol IM, morphine SC, anileridine PO, and percocet PO (19%); tylenol plain (6%); and/or inappropriate demerol PO or

talwin (2%). There were significant differences for analgesics prescribed and given between two sites in the same hospital. Means, standard deviations, and significant differences using HSD post-hoc comparisons for analgesics ordered and given at the four sites are shown in Table 12.

Analgesic orders for 10% (n=23) of patients included some PCA orders in the previous 24 hours, although most PCA orders were discontinued by the afternoon of the second day. The prescriptions for these PCA patients averaged 46 mg equivalents per 24 hours, with 70% having <40 mg ordered. As expected, these orders were greater than those for patients with no PCA (n=202), 80% of whom had analgesic orders for <40 mg. in the previous 24 hours. The analgesics taken by PCA patients averaged 18mg, with 80% receiving 20 mg or less in the previous 24 hours. These data indicated that PCA was

Table 12

Means(SD) and Significant Differences for Analgesics Ordered and Given in the Previous 24 Hours by Site

ANALGESICS (morphine equivalents)	HOSPITAL SITE 4 N=56	2 N=39	3 N=68	1 N=62	$F_{3,221}$
ORDERED[1] Mean(SD)	20(5.8)	28(11.1)	39(26.5)	43(31.6)	12.10*
Differences**					
GIVEN[2] Mean(SD)	10(4.8)	13(7.2)	17(13.3)	14(7.8)	7.36*
Differences**					

* p<0.0001

** underlined analgesics ordered and given are not significantly different

minimally used, perhaps because of its limited availability on the second postoperative day; excluding PCA patients made little difference in administration averages as 80% of the remaining sample ($\underline{n}$=203) received $\leq$15 mg. versus $\leq$16 mg. for the total group.

Perceived Patient Pain Experience

The means, standard deviations and medians for the Patient Pain Experience Scale items (PPES) are summarized in Appendix D-Table 3. The majority expected to have either severe (55%) or moderate (37%) pain postoperatively, and had experienced previous severe pain (90%) ($\geq$70). Patient expectations and comments such as "You know it's going to hurt so you don't let it bother you", "Pain means it's healing, I'm getting better", and "I expected pain - it's a big operation" may explain the rather small group (32%) who described their pain as very unpleasant. There were no significant correlations between expected pain and actual ratings. Although concern for addiction was at the low end, patients continually qualified their response by saying they were not concerned because they were not or would not take analgesics very often. "If I had to take it regularly I'd be very concerned." Good or excellent relief from pain on movement was described by 69.8% of patients after receiving analgesics. However, 51% rated their pain in the severe range before receiving the next medication and 83% would not voluntarily ask the nurse for medication.

Data describing nurse-patient interaction indicated that two-thirds of patients ($\underline{n}$=150) did not remember their nurse asking them a specific question about their pain. The proportion of patients remembering specific questions about their pain varied significantly by site ($X^2(3)=8.76$, $p<0.03$), with 47% of patients saying yes at site 1, 31% at site 2, 32% at site 3 and 21% at site 4. Patients whose nurses did ask specifically about their pain said

their nurses were more attending (PPES-A, $r=0.85$, $p<0.001$). The majority (56%, $n=126$) did remember a nurse asking them to tell him/her when they had pain but this did not correlate strongly with perceiving their nurse as attending (PPES-A, $r=0.29$, $p<0.0001$) or perceiving that they received medication as often as necessary ($r=0.14$, $p<0.03$).

Patients' perceptions of their analgesic management were that most (86%) were given the medication as often as necessary. Frequent comments included "Doctors and nurses are the ones who know what medications I should take", "They are doing their best", "I can stand it-I don't like pills", "I have a high pain tolerance" and "I came here to have pain-you expect it from surgery". However, this perception of appropriate medication was only weakly related to their ratings for WORST 24 hour pain ($r=0.13$, $p<0.05$), pain NOW on movement ($r=0.18$, $p<0.006$), and PPI ($r=0.14$, $p<0.03$). This perception was not significantly related to patients perceiving their nurse as attending to their concerns about their pain. The majority did not think that the nurse listened (73%) or understood (73%) about their pain or that telling the nurse about their pain would be helpful (72%). Patients qualified their answers with "I don't like to bother them", "Compassion is needed - they should not wait until pain is so bad to give something" and "Nurses should ask...and not wait for patients to tell them". Patients at all sites commented that they did not like taking tylenol #3 because of nausea and /or constipation.

The PPES-A ratings of patients' perception of nurses' attending to their pain ranged from 0 to 300 [mean (SD)= 79.8 (131)] and differed significantly by site ($F_{3,221}=3.56$, $p<0.02$). Means, standard deviations and significant differences using HSD post-hoc

comparisons for PPES-A by site are shown in Table 13. Nurses perceived as being attending to patients' pain were more experienced ($r=0.22$, $p<0.05$) and tended to have higher pain knowledge-belief scores ($r=0.21$, $p<0.06$).

In summary, most patients did not remember their nurse asking them a specific question about pain. Most did not think that their nurse listened or understood, or that telling the nurse about their pain would help them. Most patients described previous severe pain, expected moderate to severe pain, and experienced moderate to severe pain. Although many had excellent relief when analgesics were taken, most would not voluntarily ask for it and most stated medication was received as often as necessary.

Nurses' Empathy and Patients' Pain

The sample included 80 nurses who were assigned to 203 patients over the study period. Data from multiple patients with the same nurse were aggregated to form 79 nurse-patient pairs for the SPIRS and 80 pairs for the TPMI. Although aggregation averaged individual data, it also minimized extreme scores. The hypothesis that nurses with higher empathy would

Table 13

Means(SD) and Significant Differences for PPES-A Scores by Site

PPES-A	Hospital Site			
	4 N=56	2 N=39	3 N=68	1 N=62
Mean(SD)	39(100)	76(131)	83(134)	116(143)
Differences*				

* underlined sites are not significantly different $F_{3,221}=3.56$, $p<0.02$

have patients who would experience lower pain ratings and receive more analgesics was not supported. Correlations between nurses' empathy (SPIRS) and patients' pain measures for the total sample were not significant or weak (e.g. SPIRS: % time received analgesic $r=0.28$, $p<0.01$) (Appendix D- Table 4). Significant or trend correlations are summarized by site in Appendix D-Table 5.

Patients with the most empathic nurses (upper third) described their pain as less sharp ($r=-0.35$, $p<0.07$) and aching ($r=-0.47$, $p<0.02$) but more gnawing ($r=0.41$, $p<0.03$). They had fewer analgesics ordered for them ($r=-0.46$, $p<0.02$). There was a positive trend for these patients to perceive their nurses as being more attentive to their pain ($r=0.35$, $p<0.07$) (see Appendix D-Table 4).

The nurses in the lowest SPIRS group (lowest third) had patients describing less throbbing ($r=-0.52$, $p<0.003$) but more stabbing pain ($r=-0.38$, $p<0.04$). Within this lowest group, a modest positive correlation existed between SPIRS scores for (a) analgesics given and (b) patients perceiving they received analgesics when needed (see Appendix D-Table 4). A trend was evident for these nurses not to ask a specific pain question and for patients not to volunteer if they needed medication.

No significant differences were found between nurses with high or low empathy for patient pain ratings (MPQ-SF), analgesia, or patient perceived experience. There was a trend for patients to describe higher 3 hour pain intensity ratings with more empathic nurses (see Table 14). In examining patient responses for both high and low nurse empathy groups, both patient groups were concerned about addiction. They both felt they were receiving medication as often as necessary despite moderate to severe pain before the next dose.

Table 14

Differences in Patients' Pain Measures between Nurses with Lowest and Highest Empathy

	SPIRS		
	lowest third(≤18) N=30	highest third(≥22.67) N=27	t_{55}
PATIENTS' PAIN RATINGS (MPQ-SF)			
Adjectives			
a. affective	3	3	0.45 NS
b. sensory	9	10	1.42 NS
c. total	12	13	1.23 NS
Present Pain Intensity (PPI)	2.5	2.6	0.70 NS
Visual Analogue Scales			
a. Worst pain last 3 hrs	53	62	1.96 .06
b. Worst pain last 24 hrs	63	69	1.34 NS
c. Pain on movement	46	52	1.12 NS
d. Pain now (not moving)	12	12	0.04 NS
e. How unpleasant (3 hrs)	48	53	0.93 NS
ANALGESIA			
a. analgesics ordered	29	34	1.23 NS
b. analgesics given	12	14	1.70 NS
PATIENT PAIN EXPERIENCE SCALE (PPES) (%)			
Concern about addiction taking opioids	34	38	0.53 NS
% Time get pain medication when needed	92	97	1.03 NS
Pain rating before taking next medication	55	56	0.24 NS
Pain relief when move after medication	70	70	0.16 NS
Tell nurse voluntarily if need medication	10	11	0.15 NS
Nurse listened well today about your pain	20	32	1.43 NS
Nurse understands today about your pain	19	32	1.50 NS
Telling nurse about your pain would help	21	32	1.35 NS

Neither group would tell the nurse voluntarily if a medication were needed. While the least empathic nurses were thought by patients to listen, understand, and help to a lesser degree with pain, means for both groups were low and differences between groups were not statistically significant.

Correlations between analgesics ordered and given, pain intensity ratings, and pain relief were moderate or non-existent and are summarized in Table 15. The correlations between medications ordered and given were in the moderate range. The significant correlations between the most severe pain intensity in the previous three hours and (a) higher ratings for pain before the next dose and (b) unpleasantness of this pain were strongest at site 4. No significant correlations existed between patients' perception of analgesia received and their actual analgesic orders or administration. No significant correlations were demonstrated between patients' relief from analgesia and (a) their perception of analgesia received and (b) actual analgesic orders or administration.

Correlations between analgesics given and pain ratings (MPQ-SF) were not significant between sites and were weak for the total sample. The latter included the (a) most severe 24 hour pain intensity rating ($r=0.17$, $p<0.009$), (b) most severe 3 hour pain intensity rating ($r=0.16$, $p<0.02$), (c) pain intensity rating NOW on movement ($r=0.15$, $p<0.03$), and (d) Present Pain Intensity ($r=0.15$, $p<0.03$). The only correlation for analgesics prescribed was weak with pain NOW at rest ($r=0.16$, $p<0.02$).

Relationships between patient characteristics and analgesia were examined. There was a weak inverse correlation for the total sample between patients' age and analgesics prescribed ($r=-0.14$, $p<0.04$) but not for analgesics administered. Neither correlation was significant

by site. A correlation between women and higher analgesic orders did not exist ($r=0.12$, $p<0.06$).

Table 15

Correlations Between Analgesics Ordered and Given, Pain Ratings and Pain Relief By Site

Correlation (Pearson r)	Total Group	Hospital Site			
		1	2	3	4
	N=225	N=62	N=39	N=68	N=56
analgesics ordered[1]: analgesics given[1]	0.47(.001)	0.48(.001)	0.67(.001)	0.41(.001)	0.45(.00)
analgesics ordered: patient said got med[2]					
analgesics given: patient said got med					
pain previous 3hrs: pain rating pre-med[3]	0.56(.001)	0.52(.001)	0.51(.001)	0.56(.001)	0.64(.001)
pain previous 3hrs: unpleasantness of pain	0.65(.00)	0.67(.001)	0.59(.001)	0.56(.001)	0.78(.001)
relief from meds[4]: analgesics ordered					
relief from meds: analgesics given					
relief from meds: patient said got med					

[1] analgesics ordered or given in morphine equivalents in previous 24 hours
[2] patient perception of receiving medication as often as needed
[3] patient perceived pain rating before receiving the next analgesic dose
[4] patient perceived relief of pain when moving after taking medication

Pain Knowledge and Beliefs Findings

A modest significant correlation existed between empathy and pain knowledge-belief scores ($r=0.37$, $p<0.0001$). As previously discussed, the TPMI scores were not very different for the high and low empathy groups (see Appendix D-Table 2). To further understand these results, (a) correlations between the TPMI and nurse characteristics and (b) differences between nurses with high and low knowledge were examined.

No significant correlations existed between the TPMI and nurses' age, unit experience, nursing experience, or education level. A weak positive correlation was evident between pain knowledge and continuing education ($r=0.21$, $p<0.05$) despite 84% of nurses having had little (32%) or no (52%) pain-related inservice education. Correlations between the TPMI and the QMEE, SDS, MPQ-SF, PPES items, and PPES-A are summarized in Appendix D-Table 6. Only weak trends were demonstrated between TPMI and WORST 3 hour pain ($r=0.20$, $p<0.07$) and pain NOW on movement ($r=0.21$, $p<0.06$). Nurses citing lower ideal pain ratings tended to have patients who were more willing to tell them when a pain medication was needed ($r=-0.32$, $p<0.003$) and who had greater pain relief ($r=-0.24$, $p<0.03$). Nurses with the least knowledge were associated with patients taking medications and having inadequate pain relief ($r=0.52$, $p<0.007$). This finding suggests that the type, dose and/or time interval of analgesic administration were not adequate for these patients.

Differences for empathy, nurse characteristics, and individual TPMI items between nurses in the upper and lowest third of TPMI scores are described in Table 16. Nurses with greater knowledge were significantly more empathic and were perceived by patients as listening, understanding, and helping more than those nurses with less knowledge. However, the PPES-

Table 16

Differences in Empathy (SPIRS, QMEE, PPES-A), Nurses' Characteristics and Pain Knowledge-Beliefs between Nurses with High and Low Knowledge.

	TPMI TOTAL		
	lowest Knowledge (≤1501, N=30)	most knowledge (≥1640, N=32)	t
Means			
SPIRS	17	23	4.39 (df60) .001
QMEE	98	98	.09 (df60) NS
PPES-A	48	99	2.14 (df50) .04
NURSE CHARACTERISTICS			
a. Experience in nursing (years)	9	10	0.86 (df60) NS
b. Years on this unit	5	4	0.27 (df60) NS
c. Nurse Age (years)	36	35	0.19 (df60) NS
TORONTO PAIN MANAGEMENT INVENTORY ITEMS (TPMI)			
Total TPMI score	1395(61%)	1725(75%)	16.13 (df60) .001
Items significant (%)			
a. feel knowledge adequate	66	78	2.30 (df60) .03
b. pain management competent	73	88	3.70 (df60) .001
c. agree with patients	64	93	5.16 (df60) .001
d. patients overstate pain	33	14	4.16 (df60) .001
e. ask patient to wait for meds	45	20	4.73 (df60) .001
f. expect patient to ask for meds	61	48	2.42 (df60) .02
g. expect patient to tell if pain	58	47	2.25 (df60) .03
h. ideal pain rating postop	22	11	2.90 (df60) .005
i. pain rating before next dose	39	26	2.75 (df60) .008
j. postop patients in severe pain	39	18	4.06 (df60) .001
k. give opioids for chronic pain	49	73	3.87 (df60) .001
l. ask for higher dose if pain continues	50	80	4.15 (df60) .001
m. give morphine after surgery	46	82	4.94 (df60) .001
n. decrease morphine if nauseated	34	15	3.02 (df60) .004
Items not significant			
1. patients addicted from opioids	12	9	NS
2. difficulty changing orders	22	17	NS
3. physicians support decisions	71	80	NS
4. postop patients with mild pain	36	46	NS
5. postop patients with moderate pain	58	55	NS
6. give opioids orally if a choice	74	80	NS
7. pain relief depends on surgery	54	39	NS
8. nurses support decisions	73	80	NS
9. use of rating scale	70	64	NS

A means for both groups were not high. Significant differences existed between knowledge and beliefs about patient input (items c, d,e) and opioid administration (items k,l,m,n). Mean scores for nurses expecting patients to tell them when they are in pain and to ask for help (items f,g) were high for both groups. Both groups did not significantly differ in (a) their expectations that few patients have mild pain postoperatively (item 4) and (b) that pain relief is dependent on tissue damage (item 7). Both groups described moderate postoperative pain as the norm (item 5). Addiction concerns were evident with both groups (item 1). While nurses with the highest TPMI scores rated themselves as more knowledgeable and competent than did the lower group, means for both groups were high (items a, b).

The TPMI was significantly associated with birthplace (Eta=.39), and differences in TPMI ratings related to birthplace were statistically significant ($F_{4,88}=4.04$, $p<0.005$). Means, standard deviations and significant differences using HSD post-hoc comparisons for the TPMI by birthplace are shown in Table 17. Filipino nurses were the least likely to ask for dose changes for unrelieved pain ($F_{4,88}=3.89$, $p<0.006$) and were more likely to believe patients overstate their pain than were other groups ($F_{4,88}=3.44$, $p<0.01$). Patients of nurses who believed patients overstated pain tended to receive fewer analgesics ($r=-0.23$, $p<0.04$).

Differences for patient pain ratings (MPQ-SF), and perceived pain experience were statistically significant for several ratings (see Table 18). Several pain intensity ratings (MPQ-SF) were statistically higher for patients of the most knowledgeable nurses, although mean scores for both groups were inappropriately high. Analgesics ordered and given were inadequate for both groups. Patients found more knowledgeable nurses more helpful and understanding and better listeners. However, they would not ask them for help more readily. There were no significant differences related to patients' age or gender.

Table 17

TPMI Means(SD) and Significant Differences by Birthplace.

TPMI	Islands/ South America	Europe/ Australia/ Hong Kong	Canada	India/ Africa/ Eastern Europe	Philippines
Mean(%)	1651(72%)	1622(71%)	1575(69%)	1437(63%)	1479(64%)
SD	168	188	141	139	105
Differences*					

* underlined birthplaces are not significantly different ($F_{4,88}$=4.04, $p<0.005$)

Table 18

Differences in Patient Pain Measures between Nurses with Low and High TPMI Scores

	TPMI		
	lowest knowledge (≤1501, N=25)	highest knowledge (≥1640, N=27)	t_{50}
McGILL PAIN QUESTIONNAIRE-SHORT FORM (MPQ-SF)			
Adjectives			
a. affective	2	3	1.30 NS
b. sensory	8	10	1.90 .06
c. total	13	11	1.99 .05
Present Pain Intensity (PPI)	2	3	1.62 NS
Visual Analogue Scales			
a. Worst pain last 3 hrs	51	62	2.34 .02
b. Worst pain last 24 hrs	59	67	1.68 .1
c. Pain on movement	43	52	1.84 .07
d. Pain now (not moving)	15	13	0.48 NS
e. How unpleasant (3 hrs)	40	51	2.11 .04
ANALGESIA			
a. analgesics ordered	27	35	1.89 .07
b. analgesics given	12	14	1.24 NS
PATIENT PAIN EXPERIENCE SCALE (PPES) (%)			
a. % time get needed medication	95	96	0.18 NS
b. nurse listened well about pain	16	33	2.14 .04
c. nurse understands about pain	16	32	2.07 .04
d. telling nurse would help	16	33	2.21 .03
e. % time tell nurse need med	19	7	1.90 .05

Regression Models for Empathy, Pain Knowledge-Beliefs, Analgesics Administered, and Pain Intensity

Empathy

Hierarchical multiple regression was used to determine which nurse variables contributed to the variance in the SPIRS empathy scores. Variables were ordered and entered sequentially into the model depending on their potential for future intervention. Variables with the least possibility for intervention were entered first. Dummy variables were used to indicate the categories of site and birthplace, with the contrast category for site being site 1 and for birthplace, being Canada.

In the first model, nurse characteristics of age, experience, and birthplace were entered first as they are fixed variables with no possibility of intervention in the clinical situation. These variables had a significant association with the SPIRS however, and could be indicators of the need for intervention related to updating knowledge and/or working through cultural differences related to empathy. Hospital site was entered next, followed by the pain knowledge variable (TPMI), the latter being the primary variable for potential future intervention. The TPMI explained the only significant contribution (5%) in this model. The other variables retained for the final model were age which explained 9% and birthplace which explained 16% of the variance. Experience and site were deleted as they did not explain anything in the presence of age, birthplace and TPMI.

Nurses' age is the only significant nurse characteristic to explain some of the variance in SPIRS scores, contributing 9% in the final model. Although birthplace explains 17% of the variance, this contribution is not significant in the presence of age and knowledge. The TPMI

variable when entered last significantly contributes 5% of the variance, with the total model explaining 31% of the variance in SPIRS scores. When the order of birthplace and knowledge in this model is reversed, knowledge explains 14% and birthplace explains 8% of the variance in SPIRS scores. Previous analysis indicated a significant association between knowledge and birthplace (Eta=0.39, $F_{4,88}=4.04$, $p<0.005$) which may contribute to this finding.

Standardized residuals were plotted to examine the linearity and homoscedasticity of the final model. The Durban-Watson statistic of 2.03 indicated no correlation between residuals. The final model is described in Table 19 ($F_{6,85}=6.3$, $p<0.0001$).

Table 19

Hierarchical Regression Analysis for Empathy (SPIRS)

Step	Variable Added	R	R^2	Change in R^2	F	p
1.	Nurse Age	0.30	0.09	___	9.16	0.003
2.	Birthplace[a]	0.51	0.26	0.17	5.92	0.0001
3.	TPMI	0.56	0.31	0.05	6.30	0.0001

[a] 1=Canada/USA, 2=Europe/Australia/Hong Kong, 3=Islands/South America, 4=Philippines, 5=India/Africa/Eastern Europe

Pain Knowledge and Beliefs

Hierarchical multiple regression was also used to determine which nurse variables contributed to variance in the pain knowledge and belief scores (TPMI). Dummy variables were used to indicate the categories for birthplace and site. The contrast category for birthplace was Canada and for site, was site 1. Continuing education was the only variable removed from the first model as it did not explain any variance.

In the final model, the fixed variables of birthplace followed by site were entered first. Birthplace explained 16% of the variance in the TPMI scores, with only a trend in significance for the one category of the Islands and South America. Site explained 11% of the variance which was significant for the site categories 2 and 3. The SPIRS variable was entered last as a potential variable for intervention. The SPIRS variable, although significant, explained only 4% of the variance in the final model. When the order of variables was changed so that birthplace was entered after the SPIRS, the SPIRS explained 10% and birthplace explained 6% of the variance in the TPMI scores. Previous analyses demonstrated a significant association between the SPIRS and birthplace (Eta=0.45, $F_{4,87}=5.49$, $p<0.001$) which may contribute to this finding.

Standardized residual scatterplots indicated linearity and homoscedasticity for the final model. The Durban-Watson statistic was 2.25 indicating no correlations between residuals. The final model explained 31% of the TPMI variance and is described in Table 20 ($F_{8,83}=4.67$, $p<0.001$).

Table 20

Hierarchical Regression for Pain Knowledge and Beliefs (TPMI)

Step	Variable Added	R	R^2	change in R^2	F	p
1.	Birthplace[+]	0.39	0.16	____	4.0	0.005
2.	Site	0.52	0.27	0.11	4.48	0.003
3.	SPIRS	0.56	0.31	0.04	4.67	0.0001

[+] 1= Canada/USA, 2=Europe/Australia/Hong Kong, 3=Islands/South America, 4=Philippines, 5=India/Africa/Eastern Europe

Analgesics Administered

Hierarchical multiple regression was also used to determine which variables explained analgesics administered to patients. In the original model, two contextual variables, site and analgesic orders, were considered the most difficult to change and were entered first. After controlling for these variables, patients' age and pain ratings including most severe pain for 24 and 3 hours, pain on movement, and Present Pain Intensity were entered. Finally, nurses' empathy and knowledge-belief items (TPMI) with a significant association with analgesics administered were entered. The latter items related to continuing morphine with nausea, addiction, and patients' overstating their pain. Analgesic orders were significant in explaining 20% of the variance, as was the belief to continue morphine with nausea which explained 3%. Both variables were included in the final model. Site explained 7% of the variance, 24 hour pain rating explained 6% and the belief that patients overstate their pain explained 3%. All three variables were retained in spite of not being significant. The other pain ratings, addiction, and the SPIRS were removed as they did not explain anything in this model.

In the final model, analgesic orders explained 20% of the variance in analgesic administration. Site explained 8% of the variance although this contribution was not significant. When these contextual variables were held constant, patients' 24 hour pain intensity rating explained 4% and the two nurses' beliefs about pain management explained 7% of the variance in analgesic administration.

Standardized residual scatterplots examined the linearity and homoscedasticity for the final model. The Durban-Watson statistic was 1.99 indicating no correlation between

residuals. The final model explained 39% of the variance in analgesic administration ($F_{7,72}=6.43$, $p<0.0001$) and is described in Table 21.

Table 21

Hierarchical Regression for Analgesics Administered

Step	Variable Added	R	R^2	Change in R^2	F	p
	CONTEXT					
1.	Analgesic orders	0.45	0.20	____	19.64	0.0001
2.	Site	0.53	0.28	0.08	7.17	0.0001
	PATIENTS' PAIN					
3.	Pain last 24 hrs	0.57	0.32	0.04	6.97	0.0001
	NURSES' PAIN KNOWLEDGE-BELIEFS					
4.	Reduce opioid if nausea	0.60	0.36	0.04	6.72	0.0001
5.	Patients overstate pain	0.62	0.39	0.03	6.43	0.0001

Worst Pain in Previous 3 hours

Patients rated their worst pain during the previous 3 hours when they were being cared for by a specific nurse assigned to them. Hierarchical regression was used to determine which variables explained this rating. In the original model, the outcome variable of analgesics given was entered first, as this variable involved several shifts of nurses and may be difficult to change. Nurses' scores for empathy and pain knowledge were entered next. In the third step, patients' pain experience ratings related to intervention were entered in the following order: previous worst pain intensity, inadequate pain relief after medication, pain before the next analgesic dose, and patients' unwillingness to tell their nurse when analgesics were needed. Analgesics given and the SPIRS were not significant but were retained as they explained 5% and 3% of the variance respectively in this model. The TPMI, previous worst pain rating, and patients' unwillingness to tell, contributed little and were removed. The patient pain experience ratings explaining significant variance were retained and included inadequate relief (11%) and pain pre-medication (16%).

In the final model, the variance in the worst 3 hour pain was explained by analgesics given (5%), nurses' empathy (3%), patient ratings of inadequate relief (11%), and pre-medication pain (20%). All variables were significant excluding analgesics given.

Standardized residual scatterplots were used to validate the linearity and homoscedasticity of the model. The Durban-Watson statistic was 2.06 indicating no correlation between residuals. The final model explained 39% of the variance for worst pain ratings in the previous three hours ($F_{4,74}=11.6$, $p<0.0001$) (see Table 22).

Table 22

Hierarchical Regression for Worst Pain in Previous 3 Hours

Step	Variable Added	R	R^2	Change in R^2	F	p
	OUTCOME					
1.	Analgesics given	0.22	0.05	___	3.95	0.05
	NURSES' EMPATHY					
2.	SPIRS	0.28	0.08	0.03	3.16	0.05
	PATIENTS' INTERVENTION RATINGS					
3.	Inadequate relief	0.44	0.19	0.11	5.90	0.001
4.	Pre-analgesic	0.62	0.39	0.20	11.60	0.001

Worst Pain in Previous 24 Hours

Patients also rated their worst pain in the previous 24 hours, which included their second postoperative day. The responsibility for the patient during this period was aggregated between two or three nurses, unlike the single nurse assigned during the specified 3 hour pain rating period. As the correlation between ratings for worst 3 hour pain and 24 hour pain was high ($r=0.82$, $p<0.0001$), a hierarchical regression model was used for the 24 hour pain rating to compare its similarity with the 3 hour model.

In the first model, the two variables of analgesic orders and analgesics given were entered first as they seemed difficult to change. Nurses' empathy and knowledge were next, followed by patients' belief about addiction. Patients' pain experience ratings related to intervention were entered in the following order: previous worst pain intensity, pain before the next analgesic dose, inadequate relief after medication, and patients' unwillingness to tell their nurse when analgesics were needed. Analgesics given was significant in explaining 7% of the variance and was retained for the final model. Pain intervention ratings explaining significant variance were also retained and included previous worst pain (16%) and pain premedication (21%). Unwillingness to tell the nurse also contributed a significant 3% and was included. Although inadequate relief contributed a non-significant 2%, it was retained. Analgesic orders, nurses' empathy and knowledge, and patients' belief about addiction did not explain anything in this model and were removed.

In the final model, analgesics given explained 7% of the variance in worst pain intensity in the previous 24 hours. Patients' ratings about their past pain experience (14%) and pain before receiving the next dose of analgesia (19%) contributed significantly to explaining

variability in worst pain scores. Inadequate relief from medication explained 5% of the variance but was not significant. Unwillingness to tell the nurse about needing a medication was significant but explained only a small part of the variance in this model (3%).

Standardized residual scatterplots validated the linearity and homoscedasticity for the final model. The Durban-Watson statistic was 1.82 indicating no correlation between residuals. The final model explained 48% of the variance in worst pain intensity over the previous 24 hours ($F_{5,74}=13.71$, $p<0.0001$) (see Table 23).

Table 23

Hierarchical Regression for Worst Pain in Previous 24 Hours

Step	Variable Added	R	R^2	change in R^2	F	p
	OUTCOME					
1.	Analgesics given	0.27	0.07	____	6.24	0.02
	PATIENT					
2.	Previous pain	0.46	0.21	0.14	10.27	0.0001
3.	Inadequate relief	0.51	0.26	0.05	8.84	0.0001
4.	Pre-analgesic	0.67	0.45	0.19	15.35	0.0001
5.	Not tell nurse if analgesic needed	0.69	0.48	0.03	13.71	0.0001

Chapter V

DISCUSSION

The overall purpose of this study was to examine the relationship between nurses' empathic responses and their pain management approaches as reflected in the pain ratings and analgesic administration for their patients following surgery. To understand this relationship further, nurse and patient variables that might contribute to this process were also investigated. The immediate goal was to identify potential variables for future interventions in order to modify the clinical pain management environment. The ultimate goal was to reduce or eliminate postoperative pain. To reach these goals, data were collected to examine four hypotheses.

This chapter is divided into three major sections. The first section includes a discussion of the four hypotheses related to nurses' empathy and (a) their pain knowledge-beliefs, (b) their characteristics, and (c) patients' pain ratings, administered analgesia, perceived experience, and (d) patient characteristics. As these hypotheses were not strongly supported, nurses' pain knowledge-beliefs in relation to empathy and pain management were explored further and these data are integrated into this section. In the second section, findings reflective of the organizational culture of the data collection sites are examined in relation to pain management. Methodological issues are discussed in the final section.

Hypotheses

Nurses' Empathy and Pain Knowledge-Beliefs

Association Between Empathy and Pain Knowledge-Beliefs

Gallop et al. (1990a) suggested that knowledge of the event and/or the empathic process can act as a mediator to influence whether or not a person will be empathic and help the other person. In this study, a positive relationship between empathy and pain knowledge-beliefs was only modestly supported. Pain knowledge and beliefs explained only 5% of the variance in the SPIRS regression model. Empathy explained only 4% of the variance in the TPMI regression model. SPIRS and TPMI mean scores were in the middle range of responses. Although the SPIRS scores had a broad range of 30, the majority were in the middle to low range and tended to reflect solution or no care responses rather than affective involvement. SPIRS scores did not differ across hospital sites. Similarly, lower SPIRS scores have been documented with nurses caring for medical-surgical patients (M=20.33) (Olson, 1995) and psychiatric patients (M=22) (Gallop et al., 1990b). Gallop et al. (1990b) also found no site differences in SPIRS scores among nurses in psychiatric settings.

The majority of TPMI scores were moderate despite a broad range of scores (37%). Although scores were significantly different between sites, they were not high at any site. Inadequate knowledge and problematic beliefs about pain management, particularly related to analgesic administration, have been clearly documented with nurses and physicians for over 20 years (Brunier et al., 1995; Clarke et al., 1996; Cohen, 1980; Elliott & Elliott, 1992; Fife et al., 1993; Fox, 1982; Grossman & Sheidler, 1985; Hamilton & Edgar, 1992; Lander, 1990; Lavies et al., 1992; Marks & Sachar, 1973; McCaffery et al., 1990; Von

Roenn et al., 1993; Votherms et al., 1992; Watt-Watson, 1987). Comparisons of overall scores between studies are difficult because a variety of measures have been utilized to assess health professionals' knowledge and beliefs about pain. However, the common content for these measures is analgesic administration, and the prevalence of moderate scores reflects an inadequate understanding of this issue.

Differences Between Nurses with High and Low Empathy

As the relationship between empathy and knowledge was only modest, further analyses were undertaken to examine whether the most empathic nurses, those scoring in the upper third of the SPIRS (M=26), knew more about pain management than those with the least empathy in the lower third of the SPIRS (M=13). It is of concern that nurses with the highest empathy scores were not much more knowledgeable (TPMI M=71%) than the least empathic nurses (TPMI=66%). Deficits and inconsistencies in knowledge and misbeliefs about pain management were evident in both groups. It is encouraging that high empathy nurses believed that only a few patients overstated their pain (M=17%), as this item explained 3% of the variance in the analgesics given regression model. These nurses also agreed with patients' input about their pain more than the least empathic nurses did. However, even the most empathic nurses would give opioid analgesics to postoperative patients experiencing pain, on average, only 75% of the time. It is therefore not surprising that these nurses described almost one quarter of their patients as experiencing severe postoperative pain.

Problematic and inconsistent knowledge and beliefs were similar for both groups in relation to patients' (a) addiction levels, (b) appropriate pain levels, and (c) participation in

pain assessment and management. Nurses overestimated the frequency of addiction relative to the actual <1% of hospitalized patients taking opioids (Miller & Jick, 1978; Porter & Jick, 1980) and relief was incorrectly described as proportional to tissue damage approximately one half of the time. The ideal rating given for pain after surgery and before administering analgesics was in the mild range or less; yet nurses described only slightly more than one third of their patients as rating their pain as mild or less. Patients were asked to wait for their medication approximately one third of the time. Both groups expected patients to tell them when in pain and to ask for help at least 50% of the time. Nurses in both groups stated they used an assessment scale at least two thirds of the time, yet most patients did not remember this. It is not clear whether the use of assessment measures was merely an espoused belief or if the questions were problematic, for example, asking for pain ratings at rest versus on movement.

Nurses expressed confidence in their ability and knowledge related to pain management independent of empathy levels, although nurses of both levels demonstrated problems with knowledge and beliefs. Most of these nurses had graduated from diploma programmes, an average of 10 years previously, with minimal or no recent pain-related inservice education.

Differences Between Nurses with High and Low Knowledge

Differences between the most knowledgeable nurses (upper third of the TPMI, $\underline{M}$=75%) and the least knowledgeable nurses (lowest third, $\underline{M}$=61%)) were examined for specific TPMI items, in order to determine the degree to which these groups differed and to identify specific deficit areas. The most knowledgeable nurses were more empathic (SPIRS $\underline{M}$=23) than nurses with the least knowledge (SPIRS $\underline{M}$=17). There were significant differences on

two thirds of the TPMI items, with several differences being clinically important for effective pain management. Incorrectly reducing the morphine dose for patients with nausea after surgery explained 4% of the variance for analgesics given; the most knowledgeable nurses, on average, reported doing this less frequently (15% of time versus 34% for lowest TPMI). It is problematic, however, that one third of the total group would reduce the morphine dose with nausea $\geq$25% of the time. The most knowledgeable nurses had high scores for (a) agreeing with patients, (b) believing that most patients do not overstate their pain, and (c) not making their patients wait for analgesics. Moreover, they would give ordered morphine and ask for increased orders more readily for postoperative pain than would nurses with less knowledge. The most knowledgeable nurses reported that approximately 20% of their postoperative patients had severe pain versus the approximately 40% reported by nurses with the lowest knowledge scores. However, nurses in both groups had knowledge gaps and problematic beliefs related to addiction, appropriate pain levels, and the patients' role in pain assessment and management that could limit empathic responses.

Therefore, significant differences evident between these two groups indicated that nurses with the most knowledge had a good understanding of some important components of pain assessment and management. However, nurses in both groups had several similar knowledge deficits and misbeliefs that would interfere with empathic responses to patients in pain.

Misbeliefs about Pain Management

Misbeliefs about pain management evident in this study both confirm other findings and increase our understanding of nurses' beliefs about addiction and patients' role in pain assessment and management. Moreover, a comparison has been possible between (a) nurses'

perceptions of their pain knowledge and competency and (b) actual practice outcomes, including patient perceptions of their pain experience.

Addiction from the use of opioid analgesia continues to be of concern to nurses. In this sample, 44% of nurses stated that 10% or greater of hospitalized patients become addicted, which is substantive, but less than the 66% of nurses reported in a previous study (Watt-Watson, 1987). However, it is encouraging that most nurses (90%) knew that the incidence of addiction was less than 25%, which is similar to nurses (84%) cited by Clarke and colleagues (1996). In two other Canadian studies, Hamilton and Edgar (1992) reported that 71% of nurses identified a <25% likelihood of addiction, and Brunier et al. (1995) reported that 30% of nurses did not know the correct response about addiction frequency. Nurses have expressed concerns about addiction even after as short a period as 36 hours after surgery (Gujol, 1994). For at least 30% of nurses, there has been little progress in changing misbeliefs and fears of patient addiction to prescribed opioids in hospitals. These nurses may have been influenced by the anti-drug, media campaigns that make no distinction between the abuse and therapeutic use of opioids. Addiction beliefs may be so entrenched that careful discussion of these is required along with the usual prevalence data in order for changes in practice to occur.

The patient's self-report is the single most reliable indicator of the existence and intensity of acute pain (AHCPR, 1992). However, a paradox exists between pain management guidelines that advocate the importance of soliciting patient input and nurses' expectations of patients' volunteering this information. A further contradiction is that patients' unsolicited self-reports are not always believed or valued in relation to relief interventions. Distrust of

patients' self-reports of pain is evident for approximately 30% of nurses in this study, who disagree with their patients ≥25% of the time. The belief that patients overstate their pain (40% nurses believed ≥25% time) explained 3% of the variance in analgesics administered in this study. Other researchers have described this problem. Patients' pain reports have been believed more on the first postoperative day than on the second day (Gujol, 1994). Over 20% of cancer patients were thought to exaggerate their pain and only 68% were thought to report pain reliably (Vortherms et al., 1992). In Brunier and colleagues' sample (1995), 27% of nurses did not agree with believing the patients' pain report; while patient self-reports were cited as the most accurate by 94% of nurses, assessments from nurses and doctors were rated as more important (57%). Compounding this problem in my study were nurses' expectations that patients usually would communicate their pain and need for help, whereas most patients indicated that they would not do so. The patient's role in successful pain management is crucial. If patient input to assessment and management is not elicited and valued, adequate pain relief will not be achieved.

Nurses in several recent studies have identified nurse-related barriers to optimal pain management in their setting, but they did not link these barriers to their own skill level. The majority of nurses identified (a) inadequate pain assessment and relief and (b) inadequate staff pain knowledge as major barriers in their settings (Brunier et al., 1995; Clarke et al., 1996; Vortherms et al., 1992; Wallace et al., 1995). However, when nurses were asked to rate their nurse colleagues' (Vortherms et al., 1992) or their own pain management skills (Wallace et al., 1995), the majority was very positive. The meaning of these findings is not clear in relation to actual pain management practices; these nurses demonstrated significant

gaps in knowledge, but their interventions with patients were not evaluated. In the present study, nurses' perceptions of having very good knowledge and competency in pain management were not confirmed by their knowledge-beliefs scores or by clinical evidence reflected in their patients' high pain ratings, inadequate analgesic administration, and minimal perceptions of their nurse as a resource.

In summary, most nurses rated their pain knowledge and management competence as excellent. It is disconcerting that although these nurses had minimal or no recent pain-related inservice and were not recent graduates, they did not recognize their knowledge gaps and misbeliefs as problematic. The sources of their pain information are not known. Clarke et al. (1996) found that hospital orientation programs offered the least information about pain, and that most nurses said they learned more from informal information sources, such as personal experience and colleagues, than from formal education. More than two thirds of the nurses in Dalton's (1989) sample said they were influenced by their own beliefs about pain when assessing patient reports of pain.

Nurses' Empathy, Pain Knowledge-Beliefs, and Nurses' Characteristics

No significant associations have been reported between the total SPIRSscores and nurses' age, experience, or education, although belittling category responses were fewer with younger nurses (Gallop et al., 1990b). In this study, the SPIRS was significantly associated with the two characteristics of age and birthplace, which explained 9% and 17%, respectively, of the variance in SPIRS scores. The hypothesis that younger nurses were more empathic than older nurses was modestly supported for the total group, although this relationship was stronger in the least empathic group. It is not clear why there is an inverse relationship between empathy

and both age and experience in the lowest empathy group and why these relationships weaken as empathy scores increase. Younger, more empathic nurses may become frustrated and leave this clinical setting with time; they may be conditioned by the setting to express their empathy less; and/or there may be a ceiling with empathy, beyond which nurses cannot move because of ability and/or knowledge.

Knowledge-belief scores were not significantly related to nurses' age, experience, or education level. There was a significant association with birthplace which explained 16% of the variance in knowledge scores. A weak positive relationship was evident with pain inservice education, in spite of the vast majority's having had minimal or no pain inservice. Knowledge has been positively associated with nurses' education level, recent pain inservice, specialized nursing experience such as oncology, and a willingness to attend pain-related classes (Brunier et al., 1995; Clarke et al., 1996; Vortherms et al., 1992). Wallace et al. (1995) reported that more experienced nurses believed they had less knowledge to manage pain than those with less experience. Unfortunately, the lack of variance for the education variables in the present study limited analyses.

The lack of subjective inquiry evident in the SPIRS scores and the moderate pain knowledge-belief scores may be a reflection of the nurses' nursing diploma education level, an average experience of 10 years from graduation, and a lack of pain-related inservice education. Repeated experience with similar patients over time may reduce individualistic interactions, and non-reflective responses may replace concern. Approximately 40% of these nurses had worked on their unit for 5 years or longer.

Nurses' birthplace had significant associations with both empathy and pain knowledge-

beliefs. Nurses from the two non-Western birthplace categories scored significantly lower on the SPIRS, which may have reflected the SPIRS' emphasis on subjective inquiry within the therapeutic relationship. The process of empathy is a Western notion in which reflection and discussion of feelings are valued. This process is crucial to understanding the complex nature of the pain experience, but may not be a familiar or an acceptable approach for nurses from non-Western cultures. Discussion of a painful experience with a patient, including the meaning of pain and their feelings about treatment, may be considered intrusive. The Filipino nurses (20% of the sample) also had lower TPMI scores; furthermore, the significant positive relationship between empathy and knowledge was stronger when scores from the Filipino group were excluded. Brunier and colleagues (1995) also reported that nurses educated in the Philippines had significantly lower knowledge scores than nurses educated in Canada or Britain. Analgesics in some countries, particularly opioids, are not readily available and their use is restricted. For example, mainland Chinese physicians are legally permitted to prescribe only a maximum daily dose of 100 mg of oral morphine (Hong Zhang, 1995). Prior to 1992, morphine was used minimally in the Philippines and only recently have regulations been initiated there to increase its availability for cancer pain (Laudico, 1995). Filipino nurses' greater age and experience, as compared to nurses from other categories, may also reflect less up-to-date education. While inadequate knowledge in Western countries has been problematic despite the availability of considerable resources, non-Western cultural beliefs and experiences need to be recognized for their impact on pain management practices in Westernized settings.

In summary, the regression models for both empathy and pain knowledge-beliefs

explained almost a third of the variance in scores. Birthplace explained variance in both models, which raises several questions. Is the subjective inquiry required for empathy a culturally unfamiliar and/or unacceptable concept to non-Westernized nurses? To what degree have pain assessment and management content been included in the nursing programs of the various cultures and to what degree are universal misbeliefs being addressed and changed by current teaching strategies? Unfortunately, approaches to pain management, including an examination of current misbeliefs are not a usual component of hospital orientation programmes. Research also has demonstrated that knowledge and beliefs are passed on informally (Clarke et al., 1996).

Nurses' Empathy and Patient Pain Measures

Relationships between empathy and patient pain measures for the total group were non-existent or weak, although patients reported considerable pain. Few significant differences were found between the most and least empathic nurses in relation to patients' pain intensity ratings, analgesia, or perceived pain experience.

Empathy and Pain Intensity

The majority of patients in the total sample reported significant unrelieved pain intensity, regardless of the nurses' empathy level. There was a weak and unexpected trend for patients' worst recent pain to be greater with more empathic and more knowledgeable nurses. Similarly, individual site examinations of pain empathy and pain intensity demonstrated two moderately significant relationships, also in an unexpected positive direction. At site 1, where mean SPIRS scores were the highest, patients expressed higher overall pain intensity (MPQ-SF PPI) with the more empathic nurses. At site 2, with a broad range involving lower SPIRS

scores, patients had lower sensory adjective scores (MPQ-SF). Another counter-intuitive finding was that patients of nurses in the lowest SPIRS group reported lower pain ratings before the next analgesic dose. The possibility that the most empathic nurses give patients permission to be honest about their pain, and the tools with which to communicate it, needs further examination. More knowledgeable nurses did not have patients with lower pain intensity ratings.

Two regression models were examined for worst pain intensity rating: (a) in the previous 3 hours when the patient's assigned nurse could be identified (39% variance explained) and (b) in the previous 24 hours which involved an aggregation of the two to three nurses assigned per patient (48% variance). Empathy explained some variance in the 3-hour rating, but not in the 24-hour rating, probably because of the aggregate nature of the nurse sample. Nurses' pain knowledge and belief scores were not predictors in either model as had been expected. The 24-hour rating may be a more global pain rating because patients' pain history and their reticence to ask for medication explained variance only in this model. The contribution of these two variables to pain intensity has major implications for admission assessments and patient education, as well as for ongoing monitoring of patients' expression of pain. The similarity in several predictors for both pain intensity ratings suggested that problems involving interventions with analgesics continued from the second to third postoperative day. The reasons for the inadequate analgesic administration, considerable pain prior to the next dose, and insufficient pain relief, are not clear and need further examination. Other findings suggest that (a) the patients' role in pain assessment and management is not understood by either patients or nurses, (b) both have fears about side

effects, and (c) unit differences exist in analgesic practices. In a previous regression model for pain intensity with a similar CABG sample, the only significant predictor of the 15% variance explained was analgesics given and not patient characteristics (Puntillo & Weiss, 1994).

A common clinical belief is that coronary bypass patients do not experience much pain after surgery. Empathic nurses in this study may have assumed this as well. However, most patients in this sample reported unrelieved pain (M=65) that did not differ significantly by site or by gender, and that was comparable to data from other studies. Valdix and Puntillo (1995) reported similar findings with cardiac surgical patients (51% bypasses) whose mean rating for worst pain intensity 36 hours after surgery was 7.2 (0-10). The MPQ-SF adjective ratings for the affective and sensory components of pain were described by patients in my study as not high, which was similar to results with Valdix and Puntillo's (1995) sample (M=2.9 & 8.7). Patients most frequently described their pain as tender (74%), sharp (71%), and tiring-exhausting (60%), which was similar to the reports from Valdix and Puntillo's (1995) sample (tender=62%, tiring-exhausting=62%). In an earlier sample that included 81% cardiac surgical patients, Puntillo and Weis (1994) reported lower worst pain scores (M=5-5.2), but the use of the more painful internal mammary artery grafts (IMA) was not documented. Pozehl, Barnason, Zimmerman, Nieveen & Crutchfield (1995), using the adjectives and PPI of the MPQ, documented minimal pain [PPI (0-5)=0.67] for their 194 CABG patients on the third day after surgery. However, only 50% had an IMA graft, only 30% had both saphenous and IMA grafts, and no data were given describing the amount of analgesia received, which may have influenced these ratings. It also was not stated

whether the present pain intensity (PPI) rating was assessed at rest or with patients moving or deep breathing and coughing. No gender differences for pain intensity ratings were evident in any study.

There appears to be a common assumption that pain decreases quickly postoperatively, even with coronary bypass patients, and that minimal pain management is required by the second or third postoperative day. However, pain intensity after coronary artery bypass grafts (CABG) (a) is usually consistently more intense over the first 3 days, (b) decreases between the third and sixth postoperative days (Bohachick & Eldridge, 1988; Heye, 1991; Puntillo & Weiss, 1994) and (c) may continue even after hospital discharge (Redeker, 1993). Pain from coronary bypass surgery involves a sternotomy incision, localized chest wall trauma, and a leg incision of varying lengths for the saphenous vein harvesting. Even the most empathic nurses in this study may not have recognized that CABG patients with IMA grafts may have a special problem with pain because of the longer time involved, the surgical positioning, and the complexity required in harvesting procedures including electrocautery (Cohen et al., 1993; Heye, 1991; Jansen & McFadden, 1986). Using an 11-point numerical scale, patients receiving IMA have been shown to have significantly more pain on their 5th postoperative day than patients not receiving an IMA (6.35 vs 3.82, $p < 0.0002$) (Cohen et al., 1993). The majority of the present sample received an IMA as one of several grafts and most patients reported their worst pain to be moderate to severe and in the shoulder-chest area.

Unrelieved pain has numerous consequences. Postoperative pain can result in pulmonary, circulatory, and gastrointestinal complications (Benedetti et al., 1984; Craig, 1981; Kehlet,

1986; Kollef, 1990). Unrelieved pain can precipitate a generalized sympathetic response, the most important aspects of which involve the cardiovascular system in relation to an increase in the major determinants of myocardial oxygen consumption (O'Gara, 1988). Atelectasis after cardiovascular surgery has been found to be greater in patients with higher pain intensity (Puntillo & Weiss, 1994). Patients in pain may restrict their breathing and coughing exercises, and the ambulation necessary to prevent complications. Patients in this study described knowing exactly how deeply to breathe and how strongly to cough to prevent anticipated pain. The Agency for Health Policy and Research (AHCPR, 1992) has emphasized the importance of effective pain management in order to meet current requirements for earlier patient mobilization, reduced hospital stays, and reduced costs. Wasylak et al. (1990) reported that 38 hysterectomy patients using patient-controlled morphine for 48 hours after surgery ambulated more quickly, were discharged earlier, and had less disability 2 weeks after discharge than a PRN control group. Most important of all are research evidence, that suggest that early treatment of acute pain, where possible before it begins, may prevent ensuing long-term pain (Bach, Noreng, & Tjellden, 1988; Dworkin, 1996; Kalso, 1996).

In summary, the majority of patients in the present study experienced moderate to severe pain independent of nurses' empathy and knowledge. Similar findings of unrelieved pain have been reported in several other studies involving CABG patients.

Empathy and Analgesia

No relationship was demonstrated between nurses' empathy scores and analgesic prescription or administration. However, these data document that problems existed in these

settings related to analgesia as a pain relief strategy. Although the regression model for analgesics administered did not include empathy, it did include two nurse knowledge-belief mediators along with contextual and patient variables, which explained 39% of the variance. The largest predictor of analgesics administered was analgesic orders (20% variance), not the patients' pain rating (24 hours; 4% variance) that I had expected.

Undermedication was evident at all sites, although analgesic orders and administration varied significantly by site. The average dose of 14 mg of morphine equivalents given in the past 24 hours was similar to doses reported in other cardiovascular studies (Maxam-Moore et al., 1994; Puntillo, 1990; Puntillo & Weiss, 1994). Earlier studies have documented that patients in medical and/or surgical settings also have received the minimal analgesic doses possible (Abbott et al., 1992; Carr, 1990; Close, 1990; Donovan et al., 1987; Faherty & Grier, 1984; Owen et al., 1990; Paice et al., 1991; Winefield et al., 1990). Similar to results in this study, minimal or no relationship has been reported between pain intensity and opioid analgesics administered to patients (Donovan et al., 1987; Taenzer, 1983; Winefield, Katsikitis, Hart, & Rounsefell, 1990). In the present study, nurses' inadequate analgesic administration indicated that they did not anticipate that pain would increase with mobilization. Previously, patients have rated the increasing activity required after surgery as being much more stressful than nurses did (Carr & Powers, 1986). Critical care nurses have been more likely to believe patient pain reports immediately after surgery and to administer higher analgesic doses at that time than later at 36 hours (Gujol, 1994). Inadequate analgesic administration has been reflected in coronary bypass patients themselves identifying (a) pain as the third highest ranking stressor in the previous 6 to 8 days after surgery and (b)

getting pain medications as the 10th highest stressor ($N=30$) during this period (Carr & Powers, 1986).

Standing orders in the present study, if available, included morphine only for the first 24 hours after surgery. This is problematic for patients with moderate to severe pain. Katz's (1995) examination of the role of perioperative analgesia in preventing long-term pain, suggests that multimodal analgesia needs to be extended well into the postoperative period. Inflammatory processes that develop in the 72 hours after surgery can amplify postoperative pain and strong opioids such as morphine may be necessary. In contrast, a weak analgesic, acetaminophen with or without codeine, was the usual analgesic ordered and given in the previous 24 hours for these 3rd day postoperative patients. Frequently, patients identified a related problem that the side effects of Tylenol #3 were the reason for not requesting it and/or refusing it. Patients from cancer outpatient clinics have identified constipation (85%) and nausea (83%) as the two most important barriers to taking analgesics for pain management (Ward et al., 1993), and similar concerns were expressed by my sample. Moreover, patients who are nauseated do not always receive the prescribed antiemetic (Kuhn et al., 1990).

Data indicated that some patients needed a shorter interval between doses, higher doses, and/or a stronger analgesic. A moderate to strong relationship existed between the worst pain intensity ratings and both the unpleasantness of the pain and considerable pain before the next dose. The ratio between analgesics prescribed and administered was only moderate ($r=0.47$, $p<0.001$), which was similar to the 50% reported by Maxam-Moore et al. (1994). Higher doses of analgesics were prescribed for a medical surgical population

(M=51mg/24h) (Donovan et al., 1987) and a surgical oncology population (M=95mg/24h) (Paice et al., 1991), but doses administered by nurses were again in the low range of 12.4mg/24h and 11.1 mg/24h, respectively. In the present study, neither analgesic orders nor administration were significantly related to patients' perceptions of receiving adequate analgesia or pain relief. In several studies, nurses' reluctance to administer opioids was identified as a problem by only about one half of nurses (Brunier et al., 1995; Clarke et al., 1996; Vortherms et al., 1992). Nurses in the investigator's sample rated themselves highly, yet administered less than one half of the analgesics available, in spite of patients' moderate to severe pain.

Patients with the most empathic nurses did not have higher analgesic doses prescribed and administered than those with the least empathic nurses. The modest positive relationship between nurses with the least empathy and analgesic administration was unexpected. These data raise the question of whether there is a maximum ceiling for nurses administering analgesics, above which even more empathic nurses will not go because of inadequate knowledge. Nurses with the most empathy were moderately associated with patients' having fewer analgesics prescribed, a result which was also unexpected. Although these orders could have been influenced by nurses on the opposite shift, this finding raises several questions. Do more empathic nurses use modalities other than analgesics to reduce pain? Do more empathic nurses support patients to a greater degree, with the result that patients do not request additional analgesia as often?

Nurses' pain knowledge-beliefs were not significantly related to analgesic prescription or administration. A weak negative relationship was demonstrated between nurses' knowledge

and patients' telling the nurse they needed medication. The degree to which more knowledgeable nurses encourage patient involvement in decisions and pain practices needs further exploration. As expected, nurses with the lowest pain knowledge-belief scores were associated with patients having inadequate pain relief in spite of taking medications.

In summary, the majority of patients were undermedicated for moderate to severe pain, both in regard to analgesics prescribed and administered. These data supported findings in previous studies with both coronary bypass patients and other surgical patients. Analgesic prescription and administration were not related to nurses' empathy or to their pain knowledge and beliefs.

Empathy and Patients' Pain Experience Scale (PPES)

Relationships between empathy and items on the PPES that related to medication and nurse-patient interaction were few or non-existent. Possible reasons for these unexpected findings need to be examined. A weak relationship between the SPIRS and patients' perceptions of receiving adequate analgesia increased to moderate when only the lowest SPIRS scores were included in the correlation. The meaning of this finding is not clear. Patients may have remembered receiving analgesics only when pain became a problem, and not when medications were administered routinely. Moreover, variance was minimal; most patients felt they received medication as often as they needed it, although many were experiencing moderate to severe pain. As has been reported in other research, the majority of these patients expected to have severe pain postoperatively and brought to this experience a previous history of severe pain. Several studies have reported high levels of satisfaction with pain management, despite unrelieved pain (Donovan, 1983; Kuhn et al., 1990; Lavies et

al., 1992; Miaskowski et al., 1994; Ward & Gordon, 1994, 1996).

Several discrepancies were evident between nurses' and patients' perceptions of the interpersonal process involved in pain management. Two thirds of patients did not remember their nurses' asking a specific question about their pain that day, although the majority of nurses caring for these patients said they used a pain assessment scale two thirds of the time. The majority of patients rated their pain intensity as severe before receiving the next medication dose, although at least two thirds of nurses stated that the pain rating should be mild both after surgery and before the next analgesic dose. Patients' statements indicated that they expected health professionals to know what medication they needed and that most would not usually ask their nurse for a pain medication were similar to Zalon's (1993) findings. The belief that "good patients do not complain" may have influenced their reticence (Ward et al., 1993). In contrast, the majority of nurses believed that patients would usually tell them when in pain and ask voluntarily for analgesics. Seers (1987) also found that while 68% of nurses expected patients to ask for medication, 42% of patients expected nurses to know when they needed something.

In several studies, 30 to 40% of nurses did not recognize patients' reluctance to take opioids as being a barrier to pain management (Brunier et al., 1995; Clarke et al., 1996; Vortherms et al., 1992). A substantive number of patients have reported not remembering any nurse discussing their pain with them (Donovan et al., 1987, 45%; Paice et al., 1991, 38%). These data suggest that decisions about opioid administration have been based on nurses' assumptions and have not been validated with patients. Nurses have reported not assessing pain relief because they thought patients would tell them if pain persisted

(Graffam, 1981).

Health professionals have attributed more pain to people who were able to verbalize their distress than to those who were non-verbal (Baer, Davitz, & Lieb, 1970; Barnhouse, Kolodychuk, Pankratz, & Olinger, 1988) and have not intervened if patients did not verbally express their pain (Bond & Pilowsky, 1966). Perhaps this assumption was a basis for nurses' decisions about analgesic administration for this sample. However, this assumption would not explain nurses' saying they used an assessment tool that two thirds of patients did not remember. Patients were asked about the nurse who cared for them on the day of the interview in order to minimize memory lapses. Nurses may have been giving the investigator their "best" answer and not describing their actual practice, and/or patients may not have recognized the intent of the nurses' question. Questions that are general, such as, "How are you?", "Do you need anything", or even, "do you have pain?", do not elicit sufficient and/or accurate pain data.

Patients have denied experiencing pain but not rated it zero when a scale was used (Carr, 1990; Donovan et al., 1987; Francke & Theeuwen, 1994). Over 20 years ago, Marks and Sachar (1973) recommended the use of more detailed and focused questioning to obtain sufficient information about the patients' actual pain. Frequently patients are asked to rate their pain when sitting or lying still rather than to rate pain when they move. The two ratings for pain at the time of the interview (a) at rest and (b) when moving differed considerably; therefore, nurses who asked for only one rating would not have obtained an accurate picture of their patients' pain. Patients' use of immobilization to control pain (Donovan et al., 1987; Ferrell & Schneider, 1988) may not be recognized by nurses.

There was some evidence that nurses with more empathy and pain-related knowledge were perceived by patients as attending to their pain needs to a greater degree than other nurses. A modest positive trend was evident between the PPES-A and both the TPMI ($r=0.21$, $p<0.06$) and the SPIRS for the most empathic nurses ($r=0.35$, $p<0.07$). The small number of nurses in the highest SPIRS group ($N=27$) may explain the lack of significance for the latter correlation. It is of concern that the majority of patients in this sample did not perceive the nurse as asking them about their pain experience in a meaningful way. The reasons for this response are not clear and need to be explored further. Nurse responses on the SPIRS tended to be platitudes and solution responses of exploration and advice-giving, rather than a reflection of concern. In order to understand patients' pain experiences, nurses need to explore patients' superficial comments for their meaning and to validate patients' actual perceptions and feelings. Breast surgery patients have reported that nurses did not ask about their pain after the first postoperative day; therefore, they perceived that pain was normal and temporary and that it was unusual to use analgesics in this stage (Francke & Theeuwen, 1994). CABG patients may be receiving an impression that moderate to severe pain is the norm, that stronger opioids are discontinued after the ICU, and that the only analgesics available make them nauseated or constipated. PPES-A scores varied by site. Site 4 nurses were perceived as attending to patients' needs the least; this result may reflect the small percentage of their patients (21%) who remembered their nurses' asking specific questions about pain.

In summary, patients' prior experience, preoperative expectations, and postoperative experiences all included moderate to severe pain. Patients' perceptions of receiving the

necessary analgesia were not related to what they actually were given. The majority did not remember being asked specifically about their pain, and most did not see nurses as attending to their pain experience. Most patients would not voluntarily ask their nurse for analgesia.

Nurses' Empathy and Patient Characteristics

No significant relationships were found between nurses' empathy and patient age, gender or facility in expressing their pain. Zalon (1989) found that patient age was not related to empathy, but she defined empathy as the discrepancy in patient-nurse pain intensity ratings. Nurses' pain knowledge and beliefs also were not significantly related to patient characteristics. No other data for comparisons have been found.

Organizational Culture and Pain Management

Bennett (1995) suggests that the influences of organizational culture and nursing care delivery systems on empathy need to be examined for practice changes to occur. Culture involves language, assumptions, and behaviours that reflect overt norms and values of the organization as well as implicit meanings that can affect decision making (del Bueno & Vincent, 1994). These norms and values are reflected in the policies and practices of individual settings and/or the institution as a whole, including nursing care delivery patterns. This situational context can act as a mediator in influencing one's involvement in the empathic process (Gallop et al., 1990a). Understanding patients' pain experience and intervening for effective pain management were not priorities on the study units, a finding that was evident in patients' unrelieved pain, inadequate analgesic practices, minimal pain-related inservice education, and minimal patient involvement in pain management.

Pain relief was not valued in these settings as considerable pain seemed to be an expected

component of the postoperative experience. It may even have represented some moral value, as reflected in the framed Patient's Prayer in one site that hung in the corridor near the nursing station:

> Thank you [God] for the pain which makes me realize I am alive-
> I exist! Help me to bear that pain with courage.

The minimal accountability for pain intervention was evident in the pain intensity ratings that were similar at all sites, with moderate to severe pain being the predominant norm.

Several site differences underlined philosophical variations that influenced pain management practices. The impact of individual unit policies, whether explicit or implicit, was evident in the prescription and administration differences between two wards in the same hospital. Analgesic prescription across all sites was much lower at one site where PCA had been minimally implemented for postoperative pain management. Analgesic doses at Site 4 were less than 50% of the highest prescriptions at Site 1. This minimalist philosophy was also reflected at Site 4 in nurses' administering the lowest analgesic doses of all sites. However, across all sites, nurses compounded the problem of inadequate prescribing by giving less than half of the average maximum dose prescribed. Research has demonstrated that the perceived existence of a policy for a specific practice has correlated with that practice, whether or not the policy actually existed (Brett, 1989; Coyle & Sokop, 1990; Kirchoff, 1982). An implicit policy in these units seemed to be that little analgesic use was required, based on the assumption that patients have minimal pain after their first postoperative day or that pain does not warrant treatment.

Schein (1992), in his model of culture, encouraged an assessment beyond the stated values level of what ought to be to the basic underlying assumptions that guide actual

practices. Several common assumptions were identified in this study that might influence decisions about interventions and patients' involvement in these. Espoused values of mild or less pain as the ideal rating did not guide practice for this sample, as higher pain intensity levels were described as the norm. Nurses assumed patients would voluntarily ask for help with pain management, but patient data indicated otherwise. Ongoing education about pain was not valued for either patients or nurses. Most patients remembered no preparation for communicating or managing their pain. Although many nurses in this sample were not recent graduates, the majority had attended minimal or no inservice education related to pain management. Only 20% of nurses at Site 4 had participated in pain-related inservice education as compared to 70% at Site 1. Nurses at all sites felt very confident in both their knowledge and competence in managing pain and might not have utilized education opportunities even if they were offered.

Nurses brought similar empathic perspectives to this context because SPIRS scores did not differ by site. However, patients' perceptions of their interaction with nurses differed by site. Patients at Site 4 described their nurses as asking significantly fewer pain-related questions and as understanding, listening, or helping less about their pain than patients reported at other sites. This difference may reflect the functional nursing care approach used at this site. In this pattern, nurses are assigned to specific tasks rather than to patients and the lowest-skilled and therefore lowest-paid worker is used where possible. This approach is mechanistic, impersonal, and results in extreme fragmentation of care which in turn reduces staff and patient satisfaction (Tappen, 1995). Accountability is to the task, not necessarily to the patient and her/his care episode. While the total nursing care pattern at the other sites

should have encouraged patient-focused care for the nurses' shift period, problems with accountability for pain relief and patients' perceptions of their pain needs being attended to were evident there as well. Head nurses' expectations about the use of research findings have been shown to influence staff nurses' expectations (Varcoe & Hilton, 1995), and the variability in units may have related to nursing manager philosophies about both nursing priorities and pain management strategies. Strauss, Fagerhaugh, and Glaser (1974) argue that staff are not accountable for much of the interaction occurring with patients in pain. They suggest that without strong accountability for pain work, improvement in pain management will continue to be fortuitous and/or temporary and not a collective organizational concern.

Over 20 years ago, Strauss et al. (1974) suggested that much pain work is peripheral to staff practices and that only when authorities understand the importance of accountability for pain relief will patient care improve. There continue to be no legal requirements that pain relief be a major focus of care. However, the Canadian Council on Health Facilities Accreditation (CCHFA) (1995) has recently included documentation of pain assessment and interventions, including patient responses, in their accreditation standards. The degree to which their surveyors include pain-related questions in hospital assessments will determine the degree to which administrators will seriously examine the issue of accountability for optimal pain relief. Unless effective pain management is recognized as an integral component of patient care (for example as a fifth vital sign), the changes necessary in pain practices will not occur.

Methodological Issues

Several methodological considerations must be addressed in evaluating the results of this

study. Strengths and limitations will be discussed in relation to sample size, sample characteristics, significance level, site, aggregate data analyses, instrumentation, and social desirability.

Sample Size

A strength of this study was the large number of subjects for each of the nurse and patient groups. However, analyses involving differences between the four individual hospital sites or high-low SPIRS and TPMI scores reduced some sample sizes to less than 30 subjects per group. As a result, the power to demonstrate significance for some analyses may have been reduced.

Sample Characteristics

Nurses' education levels were too similar to examine the influence of preparation level and inservice education on other nurse or patient variables, and this lack of variance was a weakness in this study. The number of BScN-prepared nurses in this study (11%) was less than the 14% registered with the College of Nurses of Ontario and the average of 27% across the United States. Most nurses in this sample were diploma prepared with minimal or no continuing education. The homogeneous nature of the patient sample, however, was a strength in minimizing the confounding effect of diagnosis and treatment; all patients had undergone their first coronary bypass surgery without complications, most with IMA grafts.

Significance Level

As significant findings were few, explanatory rather than confirmatory analyses were used to explore as many hypotheses as possible. The alpha level of 0.05 was retained in spite of the greater possibility of a type I error with multiple tests. Although a Bonferroni correction

could have been used to determine a more stringent alpha level, Norman and Streiner (1994) recommend that this not be done because it results in a conservative overcorrection. A lower alpha would have limited the results available for the analyses used to determine directions for future research.

Site

To minimize variability in the setting, all four sites were cardiovascular surgical wards in three teaching hospitals, whose patients underwent coronary artery bypass surgery. All sites offered some form of patient education, usually a video of the peri-operative procedures. However, the type of nursing care delivery pattern used at Site 4 differed in focus from the one at the other three sites, which may have contributed to several lower scores from this ward. Site 4 used functional nursing where a team of three nurses, including one registered practical nurse (RPN), divided each patient's care into tasks which were then assigned to each team member. Most teams had one RN coordinating the team, another RN responsible for medications and overall patient assessments, and an RPN giving hands on physical care. Fragmentation and lack of continuity of care are problems with this approach, which was evident in patients' perceiving their nurses to be less empathic at this site. Total patient care, where each patient is assigned to one nurse per shift, was practised at Sites 1, 2, and 3.

As patients at Site 4 were assigned to a team of nurses, a decision had to be made about which nurse was appropriate to be linked with the patient for analyses. The registered nurse documenting the patient's care in the chart was the nurse designated to be paired with the patient subject for analyses. RPN's were not included because their preparation and accountability for practice are not equivalent to those of registered nurses. The College of

Nurses of Ontario's (1991) nursing documentation principle stated (a) that each RN or RPN documents in writing the care that she or he gives, (b) that records are written by the person who saw the event or performed the action, and (c) that documenting demonstrates one's accountability for care. Therefore, accountability for pain assessment and management, including analgesic administration, was attributed to the registered nurse who documented the care for the patients participating in this study. Her or his SPIRS and TPMI responses were linked with that patient. Although the investigator was careful to clarify the documentation-care link, a drawback of using this site was that decisions may have been attributed to a nurse who was not as directly involved as the pairing implies.

Aggregate Data Analyses

An important contribution of this study was the paired analyses, which permitted validation of nurse-beliefs with nurses' actual practices related to analgesic administration and pain intensity. In the sample of 94 nurses, 80 were paired with at least one patient to a total of 199 patients linked with nurses completing the SPIRS and 203 patients linked with nurses completing the TPMI. Patient scores were averaged where more than one patient was cared for by the same nurse. For analyses related to 24 hour analgesia and pain intensity ratings, scores of these nurses were used to represent all nurses caring for the patient in the previous 24 hours.

Both strengths and weaknesses of aggregation for paired analyses were considered. Nurse measures were not independent for each patient linked with the nurse. Therefore, patient data were averaged for each nurse-patient pair, which may have been (a) a limitation in reducing the uniqueness of the data or (b) a strength in minimizing atypical extreme scores

that would skew the results. For analyses of gender within the paired data, patient data were averaged in relation to gender to maintain the uniqueness of this data. As 88% of patients spoke English at home and 82% were born in Canada or Europe, it was decided not to examine the variables of birthplace or language in the aggregated patient-nurse pair analyses.

Data were collected that described both a 3-hour, nurse-patient linked segment and a 24-hour period to capture the variability of pain. Data collected in the longer 24 hour period for analgesic administration and worst pain intensity ratings involved two or three nurses who cared for each patient. Therefore, the scores of the nurse assigned to each patient during the day shift of the 3rd postoperative day were used in analyses to represent all nurses assigned in the previous 24-hour period. The 3rd day after surgery was expected to be the most painful because of patients' increased activity and it was anticipated that analgesics would be necessary during this period. Although analgesic administration was minimal and pain intensity ratings were uniformly high across all sites, and 3 hour pain correlated highly with 24hour pain ($r=0.82$, $p<0.0001$), attributing these aggregate scores to one nurse may have reduced statistical relationships in subsequent analyses.

Instrumentation

The MPQ-SF and the SPIRS had established reliability and validity, but the TPMI and PPES were designed for this study. All measures were pilot tested with a surgical population. Nurses and patients answered the measures without difficulty, with the exception of one nurse who refused to complete the SPIRS. A strength of this study was the comparison of nurses' and patients' responses. Because the SPIRS measured responses to hypothetical contexts and the TPMI measured beliefs about pain practices, patients' perceptions of their

pain experience (PPES) were used to validate the nurses' data. The SPIRS rater was blind to scores from the other measures.

The SPIRS scores varied by birthplace, with the two non-Western groups scoring significantly lower than the other groups. These results may have been related to limitations of the SPIRS, which may be a culture-bound instrument both in its items and its scoring criteria. Subjective inquiry, which is so important to being empathic, may not be acceptable or familiar to nurses from non-Western countries. Questions may be seen as intrusive, and thus minimizing them may be equated with providing better health care (Meleis & Jonsen, 1983). Evidence used to validate the most empathic SPIRS category of affective involvement involves direct expressions reflecting concern and/or patient feelings. However, nurses with non-Western values may believe that feelings and the meaning of events should be discussed only with family or close friends. Family decision-making about health care as an indicator of caring and filial responsibility takes precedence over individual rights, which contrasts with the Western value of individual autonomy (Klessig, 1992). Nurses' responses to the SPIRS family-related statements frequently appeared to be platitudes based on assumptions that may reflect their cultural family obligation for health-care decisions (Barker, 1992). In several cultures, including Filipino, outright disagreement is avoided and harmony is given precedence over one's individual beliefs or feelings. Therefore, inquiry beyond the surface meaning expressed in several SPIRS patient statements may have been seen as confrontation, particularly by women, who make up most of the nurse sample from non-Western countries. There was no significant difference in the QMEE scores by birthplace.

There was no significant relationship between the two nurse empathy measures, the

SPIRS and the QMEE, in this study. This finding differed from the previous moderate correlation of 0.67 ($p<0.001$) reported by Gallop (1989) with a psychiatric nurse population. An examination of the items of the QMEE reveals several problems for this surgical, multicultural nurse sample in relation to item context, meaning, and clarity. For example, the QMEE is to be scored highly on several questions (nos. 20, 24, 26, and 32) for responding emotionally to another's distress. However, whether one is to interpret the context as personal or professional is not clear; this trait may be preferred in one's personal life but the opposite preferred on a busy surgical unit, where calmness and decision making under pressure is valued. Mehrabian and Epstein (1972) identify two questions as a subscale to measure sympathetic tendency, which is not empathy (nos. 26 and 33); two other items could also be included in this subscale (no. 7 and 30). The meaning of two items (nos. 11 and 12) is not clear, and the question labelling foreigners is inappropriate for this multicultural group. In conclusion, the QMEE and SPIRS differ in an important way. While the QMEE measures only whether or not one responds to another's distress, the SPIRS evaluates how one responds to the meaning of what is being expressed. A different measure that examines the type of subjective inquiry would be more relevant to examine criterion validity in future studies.

The TPMI was a new measure with only preliminary reliability and validity. While pretesting and the use of clinical experts indicated face and content validity, the pilot study demonstrated only some evidence of construct validity. The modest relationship between empathy and the TPMI and the minimal contribution (5%) of the TPMI to the empathy regression model may have reflected a lack of validity with some TPMI items. For example,

the words "of route" need to be added to the end of item 11 to decrease ambiguity in the question. Further psychometric testing is required to examine the validity of this measure.

Social Desirability

The lack of significant correlations between the Social Desirability Scale and both the SPIRS and the TPMI indicates minimal variance related to desirable responses and is a strength. The nurses were not randomly selected, which may have resulted in a biased sample of nurses with greater interest in and knowledge about pain issues. However, the refusal rate was low, and the moderate scores did not reflect any particular pain expertise. While these subjects may not be representative of all nurses working in cardiovascular settings, the participation rate was high, and it is likely that the findings can be generalized to nurses working in these sites. The high response rate was influenced by the stipend recognition of the nurses' effort in completing the questionnaires.

Participation was anonymous for both nurses and patients. Unit directors did not know which of their staff had participated. Most nurses completed the questionnaires within 24 hours, either on the unit or overnight in their own home. All responses were sealed in an envelope and placed in a designated drawer, if not given directly to the investigator. Although the nurse data were collected quickly in approximately 2 months, patient data collection continued for another 3 months. This time frame was a strength as nurses focused on their part in the study and were not as interested in the ongoing patient interviews. Data were collected from all CABG patients meeting the study criteria so that the patient link with a particular nurse was not obvious.

Chapter VI

IMPLICATIONS FOR THEORY, RESEARCH, AND PRACTICE

This study is unique in its comparison of nurses' empathy, pain knowledge, and beliefs with the actual pain experiences and beliefs of the patients assigned to them during a specific period. Previously, paired clinician-patient research has been focused mainly on discrepancies in pain intensity ratings (Choiniere et al., 1990; Cleeland et al., 1994; Graffam, 1981; Grossman et al., 1991; Hodgkins et al., 1985; Holmes & Eburn, 1989; Iafrati, 1986; Paice et al., 1991; Seers, 1987; Sutherland et al., 1988; Teske et al., 1983; Van der Does, 1989; Walkenstein, 1982; Zalon, 1993). Nurses have documented less than 50% of their patients' descriptions about their pain (Camp & O'Sullivan, 1987). Non-paired comparisons between clinicians and patients in the same units have described caregiver knowledge gaps particularly related to opioids, inadequate pain relief for many patients, and patients' expectations of pain and reluctance to take analgesia (Cohen, 1980; Lavies et al., 1992; Marks & Sachar, 1973; Weis et al., 1983). Implications of this study will be addressed in relation to the (a) development of the theoretical model based on these findings, (b) possible improvements in clinical pain practices, and (c) research directions for the future.

Theory

The original theoretical model for this study proposed relationships between nurses' empathic responses in recognizing patient cues in the facilitating environment and the process of holding as reflected in the two patient outcomes of analgesics administered and pain intensity. Potential nurse and patient mediators of empathy were included in order to identify future areas of intervention that would modify pain management practices. The

findings in this study supported proposed relationships to some degree. The bivariate and regression relationships for key variables are outlined in Figure 7. The complexity of the pain management process is evident from the involvement of nurse, patient, and contextual variables in explaining some of the variance in the outcome scores.

Facilitating Environment and Patient Outcomes

A facilitating environment as described by Winnicott (1960) requires recognition of the high variability in patients' responses to, and expression of, pain. Most patients in this study indicated that their nurses did not understand their pain experience very well and were not helpful resources. These responses do not describe therapeutic empathy, where patients feel clinicians are attuned to what they are experiencing and that their environment is safe and comfortable. Many patients did not remember being asked about their unique pain experience in spite of nurses saying they usually used an assessment scale; this discrepancy suggests a problem with recognizing the importance of individual needs and providing a facilitating environment. It is problematic that the majority of nurses in this study expected patients to voluntarily ask for help with pain and did not realize that most patients would not ask. As well, the type of question that clinicians ask may produce misleading information. For the majority of these patients, pain was only mild at rest, but moderate to severe on movement; nurses who did not explore beyond general questions about pain would not have known this difference. Management decisions, therefore, that are based on assumptions of what patients may or may not be experiencing, will reflect a lack of empathic involvement and will not be effective.

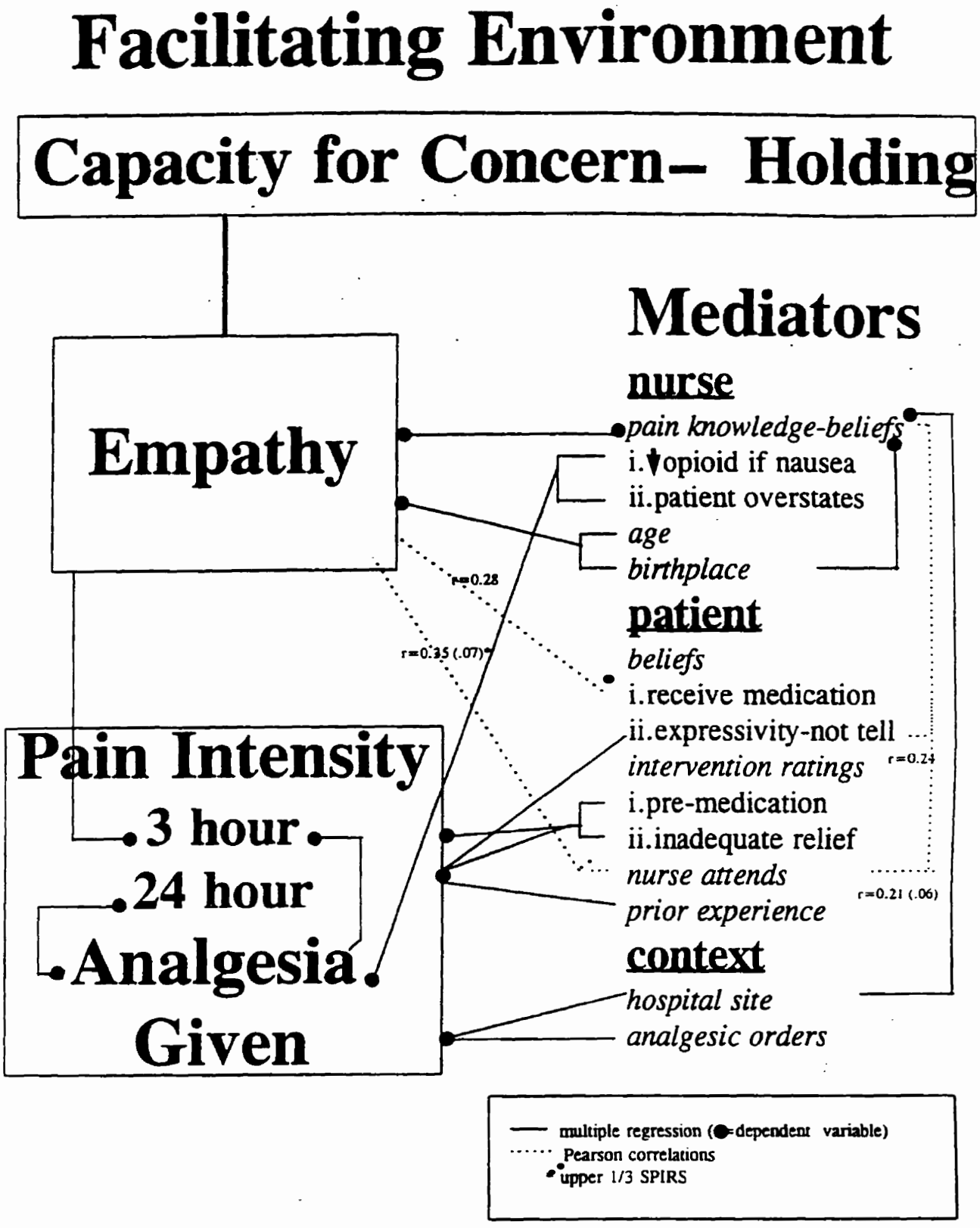

Figure 7. Revised conceptual framework based on findings

Holding within a facilitating environment occurs when the caregiver responds to patients as individuals and adapts to patients' needs in order to protect them from unnecessary stress (Winnicott, 1960). Contrary to the hypotheses, nurses' empathic responses were not associated with patients' experiencing less pain or being given more analgesia. Empathy scores were only moderate and the question of what contributes to empathy was only partly explained in this study. Almost one third of the variance in empathy scores was explained by pain knowledge-beliefs, age, and birthplace. The most empathic nurses were not much more knowledgeable than the least empathic group. These findings raise the question of whether expressed empathy was limited for this nurse sample because of inadequate knowledge and problematic beliefs around issues such as appropriate postoperative pain relief and analgesic dosing, opioid side effects, and the patient role. For example, nurses who were able to enter Gallops' (1989) inducement phase of the empathic process may have been receptive to explicit and/or non-verbal cues about the patients' pain experience and, therefore, may have been able to proceed on to the matching phase. They may have wanted to help the patient but were restricted by incorrect beliefs and lack of knowledge of effective interventions. Many of these nurses were not recent graduates and had no recent pain-related inservice education. The problem could be that nurses who were older and/or from non-Western countries may not have valued subjective inquiry and patient self-report as the bases for effective care and may have had inadequate knowledge levels to be effective.

Mediators

Nurse

Knowledge-Belief Mediators. In each phase of the empathic process (Gailop et al.,

1990a), mediating variables can influence whether nurses express their empathy in a helping response. In this study, nurse mediators were only minimally related to the patient outcomes of analgesics administered and pain intensity. Two nurse beliefs, (a) that postoperative morphine should be reduced with patient nausea and (b) that patients overstate their pain restricted the empathic response of holding through analgesic administration. The lack of trust in patients' self-report suggested that some nurses had their own benchmark of what pain level was acceptable, and possibly when and how it was to be expressed. Further exploration is required to explain why nurses gave only 47% of the average analgesic dose prescribed for patients who experienced moderate to severe pain. Levels of professional education and inservice education were very similar within this nurse group and did not provide enough variance for analysis. The majority of these nurses, independent of their empathy or knowledge-belief levels, perceived their nurse and medical colleagues to be supportive of their pain management decisions. However, nurses who lack knowledge of their patients' pain levels and options for treatment will be unlikely to challenge the status quo. Where nurses have been actively involved in improving pain practices, such as in the position of Pain Resource Nurse, difficulties have been experienced with both co-workers and doctors (Ferrell, Grant, Ritchey, Ropchan, & Rivera, 1993).

Characteristics. Younger nurses were more empathic, with age contributing 9% of the variance in empathy. An explanation is difficult and may relate to younger nurses having more recent education and shorter experience within the unit culture. Nurse birthplace contributed significantly to both empathy (17% of the variance) and knowledge-beliefs (16%). The specific cultural beliefs, compounded by professional programmes, that

influenced these nurses' decisions about pain management are not known. To understand another's experience, questions about meaning and feelings are required, and these may not have been considered appropriate, as previously discussed. Pain itself may be perceived as having a purpose, sometimes moral or religious, and may be regarded as a positive experience to be endured. In many non-Western countries, unrelieved pain is accepted as common, and opioids are minimally available, even for cancer patients. In any culture, tacit beliefs become a part of background meanings that influence how people view their current context (Benner & Wrubel, 1989). Although these beliefs unconsciously guide our everyday practices and may not be readily recognized, they are important to examine for change to occur (Schein, 1992). Both staff and patients will need help to differentiate those culturally-valued beliefs that are helpful from those that are based on inaccurate knowledge about pain and its treatment. Discussion of the meaning of pain and past experiences with pain, as well as current expectations about it, will be an essential component of any staff or patient education programme.

Patient

Patient expressivity was problematic because most patients would not ask for help voluntarily. High ratings for pain before medications and inadequate relief despite medication contributed to patients' pain intensity along with their past pain experience. Patients may not have (a) recognized their right to optimal pain relief, (b) been able to articulate their pain in a way that health professionals could understand, (c) been knowledgeable about pain management options, and/or (d) been supported by caregivers in previous requests for help. Ward and colleagues (1993) reported patients' interpersonal communication concerns about

taking analgesics, such as "good patients do not complain." Future examination of concerns in addition to that of addiction is required to determine their influence on patients' disclosing their pain. 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 (Ward et al., 1993). Patients undergoing CABG surgery tend to be older and reluctant to disclose pain as well as their concerns about treatment.

Patients who receive preoperative teaching have better postoperative outcomes (Hathaway, 1986), including shorter hospital stays than control subjects (Wasylak et al., 1990). In the present study, 54% of patients had attended a preadmission programme or had seen a video about the surgery, but three quarters did not remember that any pain assessment or management strategies were discussed. It will be important for future patient educators to carefully consider the timing and type of education programmes, along with the importance of reinforcement strategies. Izawa (1971) suggested that spaced practice sessions over time are more effective than massed sessions where all teaching is given at one time. Ferrell, Rhiner, and Ferrell (1993) proposed that brief teaching sessions, which use a combination of methods, are more effective when patients are already dealing with health issues and pain. Anxiety has been reported to be greatest in the 24 hours before surgery (Cupples, 1990); therefore, preoperative anxiety could interfere with learning at this time. Most nurses in the present study had attended minimal or no recent pain-related inservice and may not have been well enough prepared to educate their patients. There was a trend for nurses with more pain knowledge to be seen as attending more to patients' pain, in spite of the homogeneous nurse sample.

Context

Organizational Culture (Hospital Site Differences and Similarities). Site differences were demonstrated for (a) nurses' pain knowledge-beliefs and their inservice education, (b) patients' perceptions of their interaction with the nurse, and (c) contextual issues of analgesic prescriptions and administration. As one would expect, patients at the two sites where the most analgesics were administered, remembered being asked specific pain questions and rated their interaction as more effective. Conversely, patients at the site where the least analgesia was administered described minimal interaction with their nurses. Nurses at the latter site had the least inservice education and low knowledge-belief scores; in addition, their functional nursing approach focused on tasks not on patients' overall needs. However, patients at all sites were undermedicated and reported considerable pain independent of nurses' empathy and pain knowledge-belief scores.

Pain relief was an espoused value at several sites. However, pain as a management issue was not a priority at any site, as indicated by the minimal analgesic use and pain inservice education for both patients and nurses. The prevalence of PRN acetaminophen with or without codeine by the 2nd postoperative day implied an expectation of minimal pain and did not reflect the individuality of responses to pain. The greatest contributors to analgesic administration were the contextual variables of analgesic orders (20%) and site (8%), but not the more appropriate patients' pain intensity (4%). Standing orders for analgesia need to be questioned. For example,. why is parenteral morphine ordered for the first 24 hours and then not changed to oral morphine or oxycodone with acetaminophen for moderate to severe pain? Why are the least effective opioids most frequently prescribed? The most

common order is codeine with acetaminophen which is a mild opioid that causes nausea in many patients. When patients receiving opioids are nauseated after surgery, nurses tend to reduce or discontinue the opioid rather than give an antiemetic. Some patients with nausea were taken off the opioid and given plain acetaminophen on the 2nd day after bypass surgery! Many analgesic practices have not changed over years; consequently, these practices become unreflective rituals that remain uncontested over time.

The investigator did not examine unit or hospital policies or standards related to pain assessment and management. However, data supported that implicit values rather than formal statements were guiding practices in these sites. The TPR (vital signs) flow sheet on one unit included a graph area for pain intensity that was not used for any patients in this study. This recognition of pain as a fifth vital sign is an excellent move toward greater nurse accountability, but unfortunately this expectation was not valued and/or understood by nurses at the bedside. Nurses at another site were progressive in their use of patient-controlled analgesia (PCA) postoperatively, but they did not include a pain rating on their record sheet! At another site, a framed patient prayer acknowledging unrelieved pain (see p. 155), was placed on the wall by the nursing station, very close to the elevator where it was visible to all visitors.

In summary, there were some important differences by site. However, the similarities in pain levels and inadequate analgesic administration reflected implicit or explicit beliefs that pain relief was not valued or a priority in postoperative care. In future research, nurses will be asked to identify the current policies and/or standards that most influence and direct their care. Values may be so implicit in the unit culture that nurses may not recognize them.

Summary

This study provides a partial understanding of factors that contribute to empathic behaviour. While nurse characteristics and pain-knowledge explained almost a third of the variation in empathy, a significant portion remains unknown. A future study involving nurses with high pain knowledge-belief levels would determine whether significant variance in empathy exists for this group. Further psychometric testing of the TPMI is required as the validity of some of its items may haved contributed to the modest results. The influence of birthplace and the appropriateness of the SPIRS for non-Western health professionals also need further exploration.

This study contributes to an increased understanding of the complexity of the patients' pain experience. Some important contributors to the amount of analgesics administered and to pain intensity are identified in the regression models. The largest predictor of analgesia administered is context related, that is analgesic prescriptions and site and not patients' pain intensity as expected. Pain intensity ratings are weakly related to analgesic administration and are not related to analgesics prescribed (excluding pain NOW at rest). Most of the variance in pain intensity (3 hour) is explained by patient intervention ratings; the amount of analgesics administered and empathy explain minimal variance. The influence of other patient beliefs associated with barriers to taking analgesics needs to be explored in more depth. It is distressing that empathy and overall pain knowledge and beliefs are not predictors of greater analgesic doses being administered and lower pain intensity. The lack of variance in nurses' educational preparation precluded analyses of the impact of education on patient outcomes in this study. Education needs to be examined with different samples.

Clinical Practice

The majority of patients in this study experienced moderate to severe pain and were undermedicated regardless of the hospital site and/or culture. Nurses did not anticipate the extent of discomfort resulting from increased activity after CABG surgery, which included an IMA graft for most patients. Patients' perceptions of nurses' attending to their pain experience were not positive, and there were discrepancies in nurse and patient perceptions of their interaction in assessing pain.

Nurses in this study were not perceived by patients as being helpful, their knowledge about pain assessment and management was inadequate, and their use of subjective inquiry as reflected in the empathy scores, was more superficial than caring. By contrast, nurses in this sample were very confident in their pain knowledge and management abilities, which corroborates previous research findings (Brunier et al., 1995; Clarke et al., 1996; Vortherms et al., 1992; Wallace et al., 1995). This positive self-perception may be an obstacle to nurses' participating in any inservice programme, particularly with contextual stressors related to staff downsizing, nursing care delivery patterns, and budget restrictions. The findings from this study will help to encourage a recognition that patients at all sites experience significant pain, which may prevent optimal recovery.

Pain content and expectations for pain assessment, management, and documentation, need to be a required component of initial staff orientation and continuing inservice education programmes. In order to clarify patient concerns, nurses themselves need more education about assessment approaches and management options, including opioids. Tacit beliefs that are culturally grounded may limit empathic responses, and beliefs based on

incorrect knowledge need to be recognized and clarified. Evidence of research utilization in practice needs to be rewarded in performance evaluations. Ferrell, Whedon, & Rollins (1995) propose that all new staff be required to demonstrate their competency in basic pain management principles before caring for patients. They also suggest that pain problems be given the same priority in patient-care conferences as other health issues.

Successful assessment and management of postoperative pain is partly dependent on establishing a positive relationship between the caregiver and patients (AHCPR, 1992). When nurses report using an assessment tool that patients do not recall being used, a problem exists. Either the communication process is ineffective or espoused values are not being practised. Patients' self-reports are the most reliable indicator of their pain experience, yet at least a third of these nurses disagreed with patients' ratings and/or believed patients overstated their pain. These beliefs would not facilitate the development of an empathic environment, where patients can trust the caregiver to see them as a person with unique needs. Therapeutic empathy requires more than a superficial interaction in order to understand the experience of another (Gallop et al., 1990a). Non-specific questions, such as, "Are you all right?" or "Do you need anything?," will not result in effective pain management. Educational strategies must emphasize the variability in patients' pain perceptions and responses and discourage nurses' standardized expectations of postoperative pain. The rationales for nurses' administering only 47% of the analgesia prescribed need to be examined.

Most patients did not remember anything about pain being discussed in the current perioperative videos and/or classes related to their bypass surgery. Patients lack knowledge

about the unfamiliar world of being a patient, including pain management. Many patients in this sample were not openly expressive about their pain and even may have denied pain if asked a general question or to rate their pain at rest. Patients who do not complain of pain may be compliant and quiet because they have withdrawn from an environment where unrelieved pain is an ongoing impingement. Moderate to severe pain may be perceived as the norm. Some patients' inability to remember preoperative teaching and to request postoperative relief may be a coping strategy to deny a perceived traumatic experience. These patients need caregivers' support and teaching to recognize the inappropriateness of this strategy for optimal recovery.

On admission, patients' knowledge and concerns about experiencing pain need to be clarified, along with their previous pain history and pain expectations. Patients need to know that excellent pain relief is possible for most people and that several treatment options are available. The process of holding involves teaching patients when and how to articulate their pain experience, including pain intensity, quality, duration, and impact. It also involves helping patients to understand the importance of keeping pain levels as low as possible and of taking an active role in seeking help with moderate to severe pain. More effective patient and family pain education resources are required to enable patients to be more involved in their own pain management. I believe that with education, patients who are competent and willing can self-administer their own analgesics, not only through patient-controlled pumps (PCA) but orally as well.

Pain management is peripheral in staff responsibilities (Strauss, Fagerhaugh & Glaser, 1974); moreover, the acute-care hospital organization model does not encourage attention

to the interactional aspects of pain management (Fagerhaugh & Strauss, 1977). Accountability for pain management varies. For example, some physicians prescribe inadequate doses of analgesics, nurses do not necessarily administer what is prescribed, and patients do not express their need for help with pain. Balancing priorities is complex when the acuity of patients increases while the nursing staff to care for them is reduced. However, nurses' role of monitoring analgesia (Donovan, 1990) was not evdent with this sample. Although important site differences in this study were evident related to analgesics, inservice education, and staff-patient interaction, pain management at the best sites was not very effective.

Changes in pain practices will not occur readily unless hospital administrators and unit managers initiate formal policies that are proactive in requiring pain relief practices. As well, quality improvement measures are required to monitor the implementation and effectiveness of these policies. The revised hospital accreditation standards now include documentation of pain assessment, management, and patient responses to treatments for pain (CCHFA, 1995). This pain-related documentation contributes to legitimizing policies that require greater accountability for pain relief. Unless pain management becomes an institutional priority, major modifications will not occur.

Research

The focus of future research will need to examine (a) the psychometric properties of both the SPIRS and the TPMI, (b) the indicators of organizational culture that facilitate or obstruct effective pain relief, and (c) interventions to clarify pain knowledge gaps and misbeliefs of both caregivers and patients. Further testing of the validity of the SPIRS

measure is required with health professionals from a variety of cultural groups, including those born and educated in non-Western countries. The scoring categories may place emphasis on behaviours such as asking about feelings, which are not seen as therapeutic or even permissible in other cultures. This measure also needs to be examined with nurses of varying education levels. The SPIRS could be tested across all teaching levels of professional programmes as an indicator of empathic development related to curricula goals and to the integration of interpersonal process content.

The TPMI is a new measure whose reliability and validity require further examination with a variety of nurse populations. The modest relationships found with the TPMI may relate to the validity of some of its items and further psychometric testing is required. The measure was able to differentiate between the scores of this nurse sample in relation to different cardiovascular settings and nurses' birthplace, an indicator of construct validity (Streiner & Norman, 1992). Factor analysis will be necessary to confirm the dimensions used in this measure in relation to nurses' beliefs about opioids, the patients' pain experience, and nurses' perceived competency and support in practice.

The importance of understanding organizational culture in health care environments needs to be addressed for change to occur (Schein, 1992; Van Ess Coeling, & Wilcox, 1988). Patients in this study described ineffective pain management, regardless of hospital site. The cultural norm, that caregivers accept, ignore, or minimally treat pain, seemed entrenched in all wards. This implicit value needs to be recognized and challenged, not only with individual caregivers, but with the institution as a whole. Practice modifications, including application of research, are more likely to occur when these modifications are required by

official policies or given formal recognition as being important (Coyle & Sokop, 1990; Varcoe & Hilton, 1995). However, institutional support must involve more than paper philosophies espousing optimal pain management. Ferrell et al. (1995) propose that institutional structures to support pain relief efforts must be in place for management practices to improve. Their institutional assessment measure provides questions to examine four categories of support for pain relief: (a) forms and documentation for pain assessment, protocols, and medication guidelines; (b) educational resources for basic and ongoing education; (c) policies that pain relief is expected and monitored; and (d) innovative strategies and quality improvement projects that confirm the priority of pain. These questions emphasize the importance of a commitment by the entire institution and will be important in future research to assess an institution's accountability for pain management.

In future intervention studies, educational strategies for both nurses and patients need to be examined, as well as the impact of these strategies on pain practices. Discussion of beliefs that obstruct effective practices are as important to include as factual content. Previous research has demonstrated contradictory evidence about the benefits of pain inservice education for nurses. Reports have not always been clear about the content and methodology used, and studies do not use standardized approaches. Education sessions that are limited to techniques for assessment and management have not been as effective as sessions that address a broader understanding of pain as well as the process of management. Donovan and Dillon's (1987) nurse sample did not identify patients' pain any more frequently after education about pain assessment, treatment modalities, and standardized care plans for pain. Similarly, oncology nurses attending a 45-minute class on documentation of eight categories important

for pain assessment did not significantly change their documentation practices after the inservice (Camp-Sorrell & O'Sullivan, 1991). In contrast, oncology nurses demonstrated improved scores following a more comprehensive 3 hour programme that included both knowledge and beliefs (Myers, 1985). The improved scores were maintained for 2 weeks, although the impact of nurses' new learning on pain practices in the clinical setting was not measured. Several of these researchers recommended that educational sessions be short and repeated over time. The interpersonal process involved in the encouragement of patients to share their thoughts and feelings about their pain experience was not mentioned in these studies.

Longer, more comprehensive programmes have been successful in changing knowledge and beliefs about cancer pain. Two cancer pain education initiatives have utilized the concept of role models to facilitate the application of teaching in changing pain practices (Ferrell et al., 1993; Weissman & Dahl, 1995). Ferrell et al.'s (1993) 40-hour course included both classroom teaching about major pain content and clinical application on patient-care units. The participants became Pain Resource Nurses (PRNs) ($\underline{N}$=26), and formal and informal support were available as they developed their role. Although the change in their pretest-posttest scores was 35%, the impact of their learning on patient pain relief was not measured. The Wisconsin Cancer Pain Initiative Role Model Program involved one day of lectures and small group sessions, including case-based workshops (Weissman & Dahl, 1995). Posttest knowledge scores improved markedly for the participants, who included 196 physicians and nurse educators together with their clinical partners. As well, proposed action plans were developed by these teams to be implemented in their settings. Twelve months

later, 64% of these teams had completed or partially completed their projects to improve pain practices. While these programmes may not be realistic in surgical settings in the current context of staff and fiscal restraints, their focus on clinical application and role models to improve pain practices is important to consider. Both programmes emphasized the need for institutional support and resources to encourage information transfer to practice. Both encouraged interdisciplinary efforts to change ineffective pain approaches. Ferrell et al.'s (1993) PRNs communicated more readily with physicians about their patients' experiencing pain.

Most patients in the current study remembered little or nothing being discussed with them about pain assessment or management. Therefore, current educational approaches for these patients need to be revised to give patients the tools to communicate pain and the permission to do so. Several researchers have documented changes in patients' behaviour following education, while others have focused on clarifying patient concerns that interfere with pain relief. A COACHING protocol for outpatients with lung cancer resulted in greater agreement between patients' and nurses' assessments post-teaching (Wilkie, Williams, Grevstad, & Mekwa, 1995). This protocol involved teaching patients to monitor their pain changes in relation to pain location, intensity, quality, and pattern and to communicate these to their health professional. Patient education about pain therapies has increased patients' use of analgesics after surgery (Scott, Clum, & Peoples, 1983; Wilder-Smith & Schuler, 1992). Misbeliefs about pain treatment are prevalent as patients have expressed similar concerns about analgesics whether or not they have had pain (Ward et al., 1993) or cancer (Levin et al., 1985; Ward & Gatwood, 1994). Ward and colleagues also found that several

concerns involved interpersonal communication such as, "good patients do not complain;" therefore, any patient intervention would need to emphasize patients' right to optimal pain relief and their role in obtaining it. The effectiveness of giving pain guidelines preoperatively to patients, including a simple pain assessment tool and treatment options, could be validated with postoperative pain intensity ratings and analgesics received using a randomized sample.

Future research will include a two-phased intervention study designed to involve both patients and their nurses. As patients are now admitted immediately prior to surgery and nurse cutbacks have decreased time available for inservice education, interventions will be simple and brief to emphasize key points. For such a study, one group of patients will be given simple pain-related guidelines in their preadmission package. A brief follow-up clarification session will be given preoperatively (a) by telephone to patients at home and (b) after their admission to hospital. Telephone coaching has been found to be effective with convalescing cardiac patients (Gortner & Jenkins, 1990) and will be useful to begin teaching before the brief time period between admission and surgery. A short video addressing common concerns about opioids, simple assessment tools, and management options would be shown on the second day after surgery to reinforce previous teaching. Cupples' (1990) CABG patient sample, who received pre- and post-admission information about the surgery, were more knowledgeable postoperatively and were discharged home more quickly. Postoperative pain intensity ratings and analgesics administered will be used to validate the degree of learning and/or belief change. Nurse sessions will include interpersonal process content along with pain information and beliefs and policies that direct current practices.

Both patients' perceptions of their nurse's attending to their pain and their nurses' empathy and knowledge-beliefs about the pain experience will be assessed after the intervention.

Conclusion

The purpose of this study was to examine the relationship between nurses' empathic responses and their pain management approaches as reflected in patients' pain intensity rating and analgesics administered after surgery. Nurse, patient, and contextual mediators that might influence this process were also examined. Nurses and patients were paired to permit a comparison of nurses' empathy and mediators such as pain knowledge-beliefs with their actual practices for patients following coronary bypass surgery. Winnicott, Gallop, and Melzack and Wall contributed to the theoretical basis that directed this study.

Nurses in this study were only moderately empathic, which did not significantly influence patient outcomes of pain intensity or analgesics prescribed. The weak positive trend between nurses' empathy and patients' worst pain in the previous 3 hours was unexpected and needs further exploration. The trend, that patients of the most empathic nurses believed that they had received sufficient analgesia and that their nurse understood their pain experience to a greater degree, was encouraging and needs further examination.

This study provided evidence of a problem between nurses' empathy and their pain knowledge and beliefs; only a moderate positive relationship existed between the SPIRS and the TPMI. Deficits in knowledge and problematic beliefs were evident for nurses independent of their empathic level. Nurses may wish to help the patient in pain but may not have sufficient knowledge to do so. Nurses' birthplace was the major predictor of both empathy and pain-knowledge belief scores; therefore, empathy, as a Western notion, needs further

examination with regard to the SPIRS and to the pain practice expectations of subjective inquiry. An important component of this study was its examination of perceptions of nurse-patient pairs. These responses demonstrated discrepancies between nurses' expressed beliefs about their pain assessment and management and their actual practices as confirmed by their patients. Nurses' espoused ideal of minimal pain was contradicted by patients' high pain ratings, and their stated use of an assessment scale was not confirmed by most patients. Nurses and patients accepted moderate to severe pain as the norm, and neither recognized the inadequacy of the analgesic administration and related pain relief. Both nurses and patients needed clarification of the patient role in pain management. These data will be used to develop pain education programmes for patients undergoing bypass surgery, their families, and the nurses caring for them.

The multidimensional nature of unrelieved pain is evident in the regression models for the patient outcomes of analgesics administered and pain intensity. These models helped to explain a significant degree of variance for these outcomes; it is interesting that patients' pain intensity contributed less to the amount of analgesics administered than did context mediators and two nurse knowledge-belief items. The lack of a relationship between empathy or overall pain knowledge-beliefs and analgesics administered was not expected. Empathy contributed only minimally to variance in 3-hour pain intensity ratings. Both the consistent unrelieved pain across all sites and the differences in analgesic practices suggest that an examination of organizational culture is required in relation to institutional practices. The contribution of patients' prior pain experience, pain ratings, and unexpressivity about their pain to the pain intensity models gives direction to both practice and future research.

These findings emphasize the complexity of the pain management process, including the interaction between the patient and caregiver. In future research and practice examinations, the relationship amongst nurse, patient, and contextual variables will need to be included.

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APPENDIX A

LITERATURE REVIEW: EMPATHY

TABLE 1

Conceptualization of Empathy in Nursing Literature

REFERENCE	DEFINITION	COMPONENTS if GIVEN
1950s to 1960s		
Ludemann (1968)	"a feeling of entering into the feeling or spirit of another person, and a consequent sense of being similar to or nearly identical with the other person"; uses Katz (1963) delineation of raw\simple and sophisticated empathy to differentiate experienced feeling from the process involving both subjective feelings and objective analysis.	
Speroff (1956)	"process whereby one learns to understand another and, thereby, mutually share experience with him\her...ability to put oneself in another's position"	
Travelbee (1964)	"is a forerunner of sympathy; a neutral process which unlike sympathy does not imply action based on this perception of accurate thinking and feeling"	
Triplett (1969)	"a healthy form of identification which...enables one to feel for and with another to understand his experiences and feelings...projecting oneself into the situation and feelings of others"	
Zderad (1969)	"is man's movement toward oneness with the other by sharing the other's being in a situation; sympathy is empathy plus"	clinical empathy is divided into three phases: internalization, inner response and reobjectification
1970s		
Baumgartner (1970)	"involves both the intellectual and emotional nature of man; is the ability to project oneself into the emotions of another" "implies the ability to participate deeply in emotionally charged situations without being overwhelmed by them"	

Carper (1978)	"is the capacity for participating in or vicariously experiencing another's feelings" "is an important mode in the esthetic pattern of knowing"	
Ehmann (1971)	"is a therapeutic tool...to share experience the feelings of the patient...is temporary and one partakes of the quality and not the degree of feelings. The main motive...is to achieve an understanding of the patient"	model includes identification, incorporation and reverberation
Kalisch (1973)	"ability to enter into the life of another person, to accurately perceive his current feelings and their meanings ... must be effectively communicated, both verbally and nonverbally, so that the patient experiences the feeling of being understood by the nurse; is not sympathy"	
1980s		
Forsyth (1980)	"concept analysis of empathy provides provisional criteria or conditions which may be necessary whenever empathy exists: consciousness, temporality, relationship, validation, accuracy, intensity, objectivity, freedom of evaluation"	
Kunst-Wilson et al. (1981)	"ability to perceive accurately the perceptual feelings of another and to communicate this understanding to her"	perceptual and action component
Rawnsley (1980)	"content of empathy is the vicarious emotional response to the perceived emotional tone of another; as a brief experience of the feeling state of someone outside the self; as a transient internalization of which it is like to be the other without being overwhelmed by the identification; as a state of emotional relatedness; is metafeeling; process... is transactional"	
Wheeler (1988)	"a process acting as a signal within and between subsystems"	Uses Martha Rogers'systems paradigm:nursing science as a unifying model for empathy.

1990s

Holden (1990)	"capacity to "feel into" the patient versus "feel with" or sympathize with the patient; is emotional knowing through the process of sharing in the patient's psychic state by means of projective identification, recognizing that the objective state belongs to the patient; is objective detachment"	
Gallop et al 1990	"within the clinical setting, is the action of the patient and the reaction of the health professional"	three-phase, time-sequenced process rather than multidimensional phenomenon, to include inducement, matching and participatory-helping phases; derived from Barrett-Lennard
Olsen (1991)	"ability to perceive the meanings of another person and to communicate that understanding to another." * reconstructs the concept of empathy from nursing, psychology, philosophy; all empathy experiences are ultimately based on a common humanity; what varies is the criterion upon which the empathizer is able to recognize the humanity of another.	
Williams (1990)	"a unitary construct involving a multidimensional phenomenon with emotion, cognitive, communicative & relational components"	a multidimensional model

TABLE 2

Nursing Research Related to Empathy

Reference	Definition	Objective\Method	Outcome\Limitation
Becker & Sands (1988)	uses those of Davis' IRI	examine the relationship of self-reported empathy with clinical experience among jr level BScN students; N=35 women & 6 males; Davis Interpersonal Reactivity Index (IRI) with 4 scales	No significant changes in scores across all time periods; gender differences not conclusive as small N; nsg students <Personal distress than psych students; small N & new tool
Brown (1990)	"taking the role of the other, viewing the world as the other sees it and vicariously experiencing the other's feelings	case approach to determine if relationship between nse empathy & pt satisfaction; N=12 nse-pt pairs & 12 leaders; BLRI(MO), ECRS, interviews	nse empathy positively influences pt satisfaction', 'being there' & 'taking time to sit & listen' most NB; time constraints for interviews, elite sample not randomized
Brunclik et al. (1967)	"teacher's ability to know students' preferred responses re attitudes & emotional reactions"	tool development to measure empathy with faculty & students; N=35 nursing schools	Empathy Inventory
Brunt (1985)	"process where helpers experience clients' world, then use perceptions in therapeutic manner"	examine relationship between technology & empathy; N=54RNs from 2 ICUs & 2 nonICU; Hogan Empathy Scale, Perceived Technology Scale new	no relationship between technology and empathy; nses longer on unit were less empathic; overall empathy scores moderate; setting, years in nursing not significant; small sample, new tool
Clay (1984)	"ability to perceive the meanings and feelings of another person and communicate this understanding to patient"	tool development to teach and assess empathic interaction skills in clinical and classroom settings; pilot: videos of pt-nse interactions N=? students & faculty	acceptable reliability & validity; coding of interactions problematic where over\underactivity
Eastabrook (1993)		examination of factors influencing drug & clinic visit adherence; N=888 schizophrenic pts, 41 clinics; SPIRS, Adherence Checklist & Assessment Scale	instrumental support corr with adherence but affective involvement response style did not; used component rather than total SPIRS scores.
Forsyth (1979)	"empathic individuals are those who possess keen insight, imaginative perceptiveness & social acuity about others"	examination of empathic ability re nse characteristics and pt perceptions vs actual ability; N=70 RNs & 70 pts from 2 hospitals; Hogan Empathy Scale , Barrett-Lennard Relationship Inventory (BLRI)	scores in mid & upper ranges; empathy corr negatively with nsg experience, positively related with nse education, pts perceived nses as empathic (98%) whether they were or not; no significant relationship with marital or parental status, education, length, level or practice setting; males higher than females but small no.

Gagan (1983)	"in interactive sense (is) the ability to perceive the meanings and feelings of another person and to communicate that understanding to other"	evaluation of methodology for measuring empathy, BLRI in particular	
Gallop et al. (1989)	"therapeutic empathy is the wish to know or understand the subjective experience of the patient"	hypothesis predicted that label of "borderline personality disorder" (BPD) would decrease expressed empathy to hypothetical patients; N=113 RNs in 5 short-stay acute settings; Staff Patient Interaction Response Scale	less empathic for BPD patients; youngest subjects more empathic with fewer belittling responses; new tool, verbal responses only
Gallop et al. (1990b)	"empathic process is dependent on the nse paying attention to the meanings & interpretations pts place upon events in their lives, is a dynamic process"	examination of influence of diagnostic labelling on the expressed empathy of nses; N=113 RNs in 5 short-stay acute psych settings; Staff Patient Interaction Scale	majority responses were in "solution" mid-category of empathy; majority "belittling" responses were with borderline personality disorder patients; new tool
Hardin & Halaris (1983)	"dynamic process where the empathizer 'steps' into other's shoes & the other feels understood; nse also partially withdraws from subjective involvement with the patient, viewing her in objective, accepting way & reflecting accurate perceptions back to pt"	comparison of nses' & pts' plus high & low empathy nses' non-verbal behaviours with level of empathy; videos; N= 5 psych nse specialists & 5 non-acute orthopedic pts; BLRI, PLATO IV.	highly empathic nses had mod level of activity vs high level with low empathy nses, small no.,biased sample, new tool.
Hills & Knowles (1983)	none given	documentation of actual behaviour of nses in initial interactions with pts; videoed vignettes of common interpersonal situ; N=47 RNs from gen med-surg wards in 2 hospitals; stratified into 3 experience levels; Carkhuff's Empathy & Respect Scale.	empathy scores below the minimally facilitative levels; advice & info-giving most frequent; nses with previous supervised practice were more reflective; small no.
Hughes, Carver & MacKay (1990)		description of nses giving emotional care to burn patients during dsg change; N=17 nse-pt pairs; analyzed recorded responses	nses offered empathy 25% time; small no.
Kalisch (1971b)	"ability to sense the pts' world as if it were your own, but without ever losing the 'as if' quality;operationalizes into interactive (perceive & communicate) & predictive empathy	examine outcome of empathy teaching program (12.5 hrs) for 1st year assoc degree nsg students (N=49); 2 experimental & 2 control gps; Truax AES, BLRI, Empathy Test	method of didactic teaching, role playing and modelling was most successful in increasing interactive empathy; maintained at 6 wks.; pts see no difference in gps; same person was teacher & evaluator

Kunst-Wilson et al (1981)	"ability to perceive accurately the feelings of another person and to communicate this understanding to him"	examine relationship between level of nsg education & self-perceived and actual ability of nsg students N=66 undergrads & 50 graduate nsg students; video, Interaction Affective Sensitivity Scale.	level of nsg education related to self-perceived and actual ability to accurately perceive others' feelings; performance levels as good as other professional students at same stage; new tool, small no. per level
La Monica (1981)	"a central focus and feeling with and in the client's world; involves accurate perception of the client's world by the helper, communication of this understanding to the client, and client's perception of the helper's understanding"	establish construct validity of ECRS to measure nses' empathy; N=173 RNs & 127 nse graduate students	Empathy Construct Rating Scale (ECRS) e valid & reliable tool
La Monica (1983)	As above	describes 16 hour human relations training program designed from outcome research with nses, to raise empathy levels of helpers	
La Monica et al, (1976)	"one individual hearing or understanding another...experiencing another person's world as if you were he"	provision of a program to increase ability to perceive & respond with greater empathy; Carkhuff Index of Communication & Empathy Scales; N=24: 12 control & 12 program	nurses had extremely low empathy levels; program did increase ability to perceive & respond with empathy; query long term effects; small no., effect of increased empathy on clinical practice ?
La Monica et al, (1987)		assessment of effects of nse empathy training on client outcomes of anxiety, depression, hostility & satisfaction with nsg care and the impact of group instruction on nses' empathy levels; N=109 RNs & 656 pts from 4 cancer wards in exp & control gps; ECRS, LaMonica/Oberst Pt Satisfaction Scale	pts with nses in experimental group had less anxiety & hostility than pts prior to study; empathy training did not increase nse or pt-rated empathy; pt chosen by nses for ECRS ratings.
Layton (1979)	"sensitivity to current feelings and the verbal facility to communicate this understanding in a language attuned to the client's current feelings"	examine teaching of empathy with jr & sr nsg students; N=56; video simulations, new tool plus BLRI and Carkhuff Empathy Scale	only junior students benefitted from teaching; only gps including rehearsal along with modeling & labelling better than control gp; jrs improved over time from 1st to 2nd post-test; small no.
Layton & Wykle (1990)	"concept is not unitary and is more complex than it initially appears"	test hypotheses: i.RN's empathy score> RNA's ii.e empathy tolls corr+ with each other; N=18RN, 32RNA in 2 state mental hospitals; Layton's Empathy Test, EU,BLRI, ECRS	RN >empathy than RNA; EU corr ECRS & Empathy Test, ECRS corr BLRI; small RN gp.

MacDonald (1977)		exploration of differences in empathy between male and female nursing students; N=4 groups of 15:males in nsg, females in nsg, men not nses, females not nses; Hogan's Empathy Scale	men in nursing highest in empathy,then non-nse females, nse-females and lastly non-nse males.
MacKay, Hughes & Carter (1990)	"accurate perception of client's world by helper, communication of this understanding to the client and client's perception of the helper's understanding"	examination of relationship between nurses'use of empathy & pts self-disclosure; N=12 nse-pt pairs in burn unit; Gazda, Walters & Childers tool	98% nse responses to pt factual info & problematic results as nse empathy levels low; not related to clinical experience, education or training; small no.
Mansfield (1973)	"accurate empathy involves both sensitivity to current feelings and verbal facility to communicate this understanding in a language attuned to the client's feelings"	documentation of verbal & nonverbal behaviours facilitating empathic communication in initial interactions between psych nse & pts; N=6 pts. & 1 MScN; videos; Truax Accurate Empathy Scale	high levels of empathic communication noted; small numbers & focus on initial contact only
Mynatt (1985)	"verbal & non-verbal behaviour which communicates a sensitivity to & reasonably accurate understanding of another's frame of reference"	examination of relationship between empathy & other characteristics of students & teachers in 4 nsg programs; N= 10 teachers/20 students per program; Truax Relationship Scale, filmed interaction	student empathy level inversely related to experience, no sign. difference for faculty, students, programs; no rel between student perceived teacher empathy & teacher level of empathy
Northouse (1979)	"ability to see the uniqueness & differences in others"	examination of relationship between trust & empathy in nse-nse dyads; N=36 teachers from 3 diploma schools; Hobart Fahlberg Empathy Ability	specific trust negatively correlated with empathy
Olson (1993)	"nurse expressed empathy is the skill of understanding what a person is saying & feeling, & communicating this understanding verbally"	investigating relationships existing between nse expressed empathy and pt perceived empathy & distress; N=70RN & 70 medsurg pts; 2 hospitals; SPIRS,BTIS, POMS, MAACL	neg corr between nse empathy & pt distress, pos corr between nse empathy & pt empathy (BTIS); SPIRS in same direction but not significant; corr SPIRS & BTIS = .43
Olson & Iwasiw (1987)	"has three components: effective, cognitive & communicative	measurement of active listening skills on before & after program (n=6 hrs); N= 26 RNs in 1st yr nsg ; Behaviour Test of Interpersonal skills, 28 scenarios	significant increase in active listening skills.

Olson & Iwasiw (1989)	"verbal empathy is the accurate restatement of the feeling and content of another's message"	investigation if differences exist in nses'verbal empathy in response to clients'having pain, depression, anxiety or anger; N=66 in 6 acute care hospitals & 2 health agencies; videos; Behavioural Test of Interpersonal Process	references to pts' expressed feelings were greater for pain than for depression or anxiety; attempted to suppress more expressions of anxiety or anger than pain
Pennington & Pierce (1985)	"ability to recognize, sense, understand feelings that another has associated with behavioural and verbal expressions and to accurately communicate this understanding"	examination of power of 7 demographic variables to predict empathic interactions between nsg home staff and pts; N=127 from 11 long-term care facilities with 13% RNs; Truax & Carkhuff Empathic Understanding for Interpersonal Process	staff who were younger, with 5 years experience or less were the most empathic
Reid-Ponte (1992)	states that a commonly mentioned but poorly understood concept; refers to others'definitions but doesn't state preference	examination of relationship between empathy skills of primary nses and distress levels of their pts; N=65 RNs & pts on 11 surgical units in one setting; La Monica Empathy Profile	greater use of nse empathy decreased pts' distress; nses scored low in empathy & pts scored low in distress; verbal responses decreased with nses' age & years of experience; greater education correlated with decreased perceiving, feeling & listening scores; the greater the nse skill the greater the distress experienced by pts
Rogers, I. (1986)	"a central focus and feeling with and in the client's world; involves an accurate perception of the client's world by the helper, communication of this understanding to the client, and the client's perception of the helpee's understanding"	examination of relationship between undergraduate BScN student empathy ratings & their educational level; N=135 from 2 programs; La Monica ECRS	main effect for school program but not for level status; no relationship between grades and empathy; subjects had moderately well developed empathy; possible culture bias against self-reporting.
Rosendahl (1973)	"ability to sense learners' private world as if it were your own without losing the "as if" quality"	examination of change toward student self-actualization with a perceived empathic teacher-student relationship; N=31 in 1 school; Truax & Carkhuff Relationship, Personal Orientation Inventory.	students giving superior teacher-student rating showed more change; small no.
Shamian et al. (1986)		to determine nse & pt-family perceptions of empathy of health professionals in emerg dept;RN=23, pt-family=61; ECRS	all empathy rating were in good to very good range; no discrimination with pt-nse, pt-dr or nse-nse scores
Stetler (1977)	"process where helper understands the feelings/experiences of another in here & now face-to-face encounter; successfully communicates this understanding	relationship between empathy as perceived by a helpee and the communication of a helper in a therapeutic encounter; N=32 RNs; actor simulations; BLRI	no difference in behaviours of low & high empathizers; supportive reinforcement & giving information related to empathy; further validation needed of content categories; small no.

Sparling & Jones, 1977	exact meaning ambiguous	examination of contextual variables assqciated with a nurse's ability to be empathic with patients; N=57: 29 psych nses & 28 med-surg; Carkhuff	nses in psych setting more empathic ; demographic variables of age, sex, marital status, educational level and length of experience not significant
Williams (1979)		analysis of whether high & low levels of nurses' empathic communication changed the self-concept of institutionalized aged clients during therapy; N=73 pts in 4 homes with 2 RNs; Truax Scale for rating accurate empathy	empathic nurses did increase self-concept
Zalon (1989)	"accurate perception of the client's world by the helper"	investigate relationship of nses empathy for post-op pts pain with humanistic nsg environment, pts age & time since surgery; VAS, Humanistic Behaviour Scale	no relationship between nse empathy & variables, nses' ratings of pts pain less than pts; pt ratings, time since surgery, time spent with patients account for 13% variance in nse ratings

Table 3

Major Measures of Empathy Used in Nursing Research

Measure	Empathy Definition	Description	Psychometric Properties	Use in Nursing Research
Empathy as a Behaviour				
Empathic Understanding Scale (EU) (Carkhuff, 1969,1971)	Ability to recognize, sense, and understand others' expressed feelings and to accurately communicate understanding to other.	From Truax (1961) & Truax & Carkhuff's (1967) Accurate Empathy Scale. 5-point rating of therapists' verbal responses with minimally facilitative level being the midpoint of 3 (therapist and person express same affect and meaning). Judges rate interviews or audiotapes.	Narrow range of scores. *Reliability:* interrater differences at high levels. Little test-retest evidence. Few raters for many segments with few therapists. *Validity:*lacks discrimination from other ratings e.g.warmth.	Used in Hills & Knowles, 1983; Kalisch, 1971; LaMonica, 1976; Layton, 1979; Mansfield, 1973; Mynatt, 1985; Pennington & Pierce, 1985; Sparling & Jones, 1977; Williams, 1979. Scores low. Content of responses unknown.
Relationship Inventory (RI) -Empathy Subscale (Barrett-Lennard 1962)	A multilevel, complex process with 3 phases of relational response, each differing in locus and content: I.empathic recognition and II.expressed empathy of therapist and III. received empathy of patient. Experiencing process and content of other's awareness.	16 items, within 64 item RI, rated on 6 point scale of agreement with no neutral position. Rating of self by therapist (myself-to-other [MO]) and by patients (other-to-self [OS]).	*Reliability:* split-half and test-retest. *Validity:* factor analysis for construct; little agreement between MO-OS ratings and conclude that different sources of assessment; not developed for hospital populations.	Used in Brown, 1990; Forsyth, 1979; Gagan, 1983; Hagan & Halaris, 1983; Kalisch, 1971; Layton, 1979; Layton & Wykie, 1990; Stetler, 1977. Suitability for hospital setting questioned.
Empathy Construct Rating Scale (ECRI) (LaMonica, 1981)	Accurate perception of the client's world by therapist, communication that understands to client, and client's perception that therapist understands.	84 items rated on 6-point Likert scale. Raters are clients, peers, or therapist. Paper and pencil self-report. Revised unpublished measure-LaMonica Empathy Profile (LEP)-30 forced choice items to minimize social desirability not controlled for in ECRS.	*Reliability:* split-half *Validity:* little discriminative ability. No published data for LEP.	Used in LaMonica, 1981, 1987; Reid-Ponte, 1992; Rogers, 1986; Shamian et al., 1986. First nurse-designed measure.

Measure	Empathy Definition	Description	Psychometric Properties	Use in Nursing Research
Empathy as a Personality Characteristic				
Questionnaire Measure of Emotional Empathy (QMEE) (Mehrabian & Epstein, 1972)	A personality attribute; a vicarious emotional response where one has a heightened responsiveness to another's emotional experience and is more likely to engage in helping behaviour.	33 statements ask therapist to rate self on responses to situations involving feelings; agree-disagree on 4-point scale.	*Reliability:* split-half *Validity:* Questionable construct validity re broad definition and discriminative ability.	Used in Gallop (1989) for construct validity.
Empathy Scale (Hogan, 1969)	Act of reconstructing for oneself, another's mental state; capacity to adopt a broad moral viewpoint.	39 true false questions ask about 4 components of social self-confidence, even temperedness, sensitivity, and nonconformity.	*Reliability:* test-retest *Validity:* factor analysis confirmed 3 constructs; measure. relevance of several items questionable.	Used in Brunt, 1985; Forsyth, 1979; MacDonald, 1977; trait
Empathy as a Process				
Staff Patient Interaction Response Scale (Gallop, 1989; Gallop et al., 1990b)	Wish to know or understand the experience of another; a process dependent on attention of nurses to meanings and interpretations patients give to events in their lives; a 3-phased, time-sequenced process with mediators and potential outcomes at each phase.	4 equivalent pages, each with a patient description and 5 patient statements to which the nurse writes verbal responses. Order of 5 statements randomized per page. Responses are rated using 11 scoring categories of responses grouped within 3 levels of care: I. no care, II. solution, and III. affective involvement.	*Reliability:* interrater reliability and test-retest *Validity:* criterion with QMEE	Used in Burcher, 1992; Eastabrook, 1990; Gallop, 1989; Gallop et al., 1990b; Olson, 1993. Nurse-designed measure based on Gallop's conceptual model of empathy. Includes nurse, patient and context mediators. Scoring manual standardizes interpretation.

APPENDIX B

STUDY EXPLANATIONS AND CONSENTS FOR PATIENTS AND NURSES

Clinical Information Sheet - Patient

I am involved in a nursing study with Dr. Paul Garfinkel related to pain management and nurse-patient interaction. A part of this study is to ask patients about their postoperative experience and any pain they had during this time. Your physician is aware of this study.

You may not benefit directly from the study. The information ultimately will be used to design nurse education programmes toward more effective pain management in the future.

I would like to explain this study so that you can decide if you are willing to take part. The interview will take 8 to 10 minutes. You will be asked to rate your pain by making a mark on several lines and to check some adjectives which may describe your pain. You will be asked to mark several other lines in answering questions about what pain you expected to have and how well you think your pain has been managed. Several questions ask about your age, place of birth and language and pain location. I would like to look at your chart to see how much pain medication you have been given.

From your answers and those of other patients, we hope to have a clearer idea of how to be more effective in minimizing unrelieved pain for patients having surgery.

It is your decision whether or not you want to participate in the study. Your decision will not influence the care you are receiving in any way.

If you agree to participate, your answers to all questions will be completely confidential. Your name will not be on the answer sheet and will not be used in any report of the study.

You can stop participating at any time and can refuse to answer any question. This will not affect the care you receive.

Do you have any questions? Are you willing to participate?

Patient Consent

Judy Watt-Watson has explained a nursing study that she is doing with Dr. Paul Garfinkel that asks patients about their experience with pain since their surgery.

I understand that the interview will take 8 to 10 minutes and that I will be asked:

(a) to rate my pain by making a mark on several lines
(b) to check some adjectives which may describe my pain
(c) to mark several other lines about what pain I expected to have and how well I think my pain has been managed.
(d) questions about my age, language and birthplace, and pain location.

I understand that all answers are confidential, that my name will not be on the questionnaire nor will I be identified in any written report of the study.

I understand that I am free to withdraw from the study at any time and to refuse to answer any questions; this decision will not affect my care.

I understand that I will not benefit directly from the study but the information obtained may benefit patients in the future.

I give permission for Judy Watt-Watson to obtain information from my chart about my pain medication orders and how much medication I have received.

I have been offered a copy of this form and a later summary of the study results if I wish.

I_____consent to take part in this study.

_____ _____

Subject Signature Witness Signature

_____

Date

If you require more information, please call Judy Watt-Watson who is a PhD student and nursing faculty member, University of Toronto (978-2069).

Clinical Information Sheet - Nurse

I am involved in a nursing study with Dr. Paul Garfinkel of the University of Toronto to examine pain management and nurse-patient interaction. Patient data is required for validity testing of hypotheses.

I would like to explain this study so that you can decide if you are willing to take part. The study takes about 35 minutes and involves answering three questionnaires on:

(a) knowledge and beliefs about pain management and beliefs about patients' experiences of and responses to pain.

(b) nurse-patient interaction using nurse written verbal responses to short hypothetical statements of patients experiencing some difficulty.

(c) general interaction measure for validity.

You may not benefit directly from the study. From your answers and those of other nurses, we hope to develop more effective educational programmes for nurses, in order to improve pain management in the future.

It is your decision whether or not you want to participate in the study and what ever you decide is fine. Whether or not you decide to participate will in no way affect your job.

If you agree to participate, your answers to all questions will be completely confidential. Your name will not be placed on any answer sheets and will not be used in any report of the study. You are free to withdraw from the study at any time and to refuse to answer questions if you wish. If you agree to participate and complete the questionnaires, you will be given a stipend of $20.00 for your time.

Do you have any questions? Are you willing to participate?

Consent - Nurse

Judy Watt-Watson has explained to me the purpose of this nursing study with Dr. Paul Garfinkel which is to examine pain management and nurse-patient interaction.

I understand that the study involves three questionnaires and takes about 35 minutes.

I understand that I may not benefit directly from the study. The data from my answers and those of other nurses will be used to develop more effective educational programmes for nurses, in order to improve pain management in the future.

I understand that all answers are confidential, that my name will not be on the questionnaire nor will I be identified in any written report of the study.

I understand that I am free to withdraw from the study at any time and to refuse to answer any questions; this decision will in no way affect my job.

I have been offered a copy of this form and a later summary of the study results if I wish.

I understand that I will be given a stipend of $20.00 when I complete all questionnaires.

I understand that if any questions arise, I can contact Judy Watt-Watson at 978-2069.

I_____consent to take part in this study.

_____
Subject Signature

_____
Date

APPENDIX C

INSTRUMENTATION

Appendix C.1

TORONTO PAIN MANAGEMENT INVENTORY

Nurse Information

a. **Education Level:** RN___ BScN___ MScN___ Other____
b. **Years of nursing experience:** _____ years
c. **Years working on this unit:** _____ years
d. **Gender:** F___ M___
e. **Place of birth:** _____
f. **Language spoken at home:**_____
g. **Age:** _____years
h. **Prior Pain Continuing Education Sessions:**
none___ <3 hrs.___ half day___ full day___ other_____

PLEASE PLACE A MARK (/) ON THE FOLLOWING LINES

1. What percentage of patients in hospital who take narcotics for pain become addicted?

0%_____100%

2. With effective management, what pain rating should patients experience after surgery?

0 _____100
NO Pain WORST Pain Ever

3. How often do patients tend to overstate their pain? (ie. what percentage of the time)

0%_____100%
Never Always

4. How often do you agree with patients' statements about their pain?

0%_____100%
Never Always

5. To what degree does adequate pain relief depend on the type of surgery the patient has had?

0%_____100%
Never Always

6. How often do patients tell you without being asked that they are having pain?

0%_____100%
Never Always

7. How often do patients ask you voluntarily for an analgesic?

Never 0%_____100% Always

8. What percentage of post-operative patients where you work experience mild or less pain?

0%_____100%

9. What percentage of post-operative patients where you work experience moderate pain?

0%_____100%

10. What percentage of post-operative patients where you work experience severe pain?

0%_____100%

11. What percentage of the time would you give narcotic analgesics orally where there is a choice of route?

Never 0%_____100% Always

12. What pain rating should patients have before the next analgesic dose is given?

0 _____100
NO Pain WORST Pain Ever

13. How often do you tell patients that they need to wait for their next analgesic?

Never 0%_____100% Always

14. How often would you give analgesics to patients with chronic pain if they can be distracted?

Never 0%_____100% Always

15. A 45 year old construction worker complains of severe incisional pain two days after surgery in spite of tylenol no.3 tabs ii q4h. Would you give him the ordered morphine 10mg SC q4h?

Never 0%_____100% Always

16. Mrs. N's morphine has been increased within a range because of her unrelieved pain. She has begun to experience nausea and is given an antiemetic. Your nursing colleague suggests you should also decrease the morphine dose. Would you follow this advice?

Never 0 _____100 Always

17. Mr. Z., in spite of receiving morphine 10mgm SC q4h, continues to have moderate pain on his first post-operative day. Would you ask the physician for a higher dose?

Never 0 _____ 100 Always

18. How difficult is it to have analgesic orders changed when patients continue to experience pain?

0 _____ 100
NOT Difficult Extremely Difficult

19. To what degree do nurses on this unit agree with your decisions about managing a patient's pain?

Never 0% _____ 100% Always

20. To what degree do physicians on this unit agree with your decisions about managing a patient's pain?

Never 0% _____ 100% Always

21. How often do you use a rating scale to assess pain (eg 0-10)?

Never 0% _____ 100% Always

22. How adequate do you feel your current knowledge is about pain assessment and management?

0 _____ 100
NOT Adequate Very Adequate

23. How competent do you feel in effectively managing patients who are having pain?

0 _____ 100
NOT Competent Very Competent

24. List the main approaches you use to evaluate the effectiveness of your pain management?

_____

_____

_____

25. Are your patients using patient-controlled pumps for analgesics? Yes___ No___.

If yes, list the ways these pumps have affected your approach to pain management?

26. What is the most difficult problem(s) for you in assessing and managing pain?

27. Many studies conclude that pain is not managed well in medical-surgical settings. In your opinion, why does unrelieved pain continue to be a problem?

THANK YOU VERY MUCH FOR YOUR HELP
Judy Watt-Watson

Appendix C.2

Code No.____

PLEASE WRITE A SHORT RESPONSE TO EACH PATIENT STATEMENT AS IF YOU WERE TALKING TO THE PATIENT.

Anne is a patient in her mid-twenties. She was admitted to hospital 2 days ago for tests and possible surgery.

While under your care this patient says:

"I just want to stay in bed - please."

You answer:

"My family would worry if they knew about this."

You answer:

"Life's not worth living. There is nothing anyone can do."

You answer:

It's really nice having a nurse who understands me, not like the others."

You answer:

"Please don't ask anymore questions-don't you ever give up?"

You answer:

Joan is a patient in her mid-fifties. She was admitted to hospital 3 days ago for tests following a sudden occurrence of jaundice, fatigue and dark urine.

While under your care this patient says:

"Would you please just leave me alone."

You answer:

"Please leave me alone, I just don't want to get up."

You answer:

"You're different from all the others. I can really talk to you."

You answer:

"Don't waste your time with me. I'm better off dead."

You answer:

"This is the last thing my family needs."

You answer:

Frank is a patient in his mid-sixties. He was admitted to hospital 4 days ago for pneumonia.

While under your care this patient says:

" Why should I get up - there is no place to go."

You answer:

"You're the only one who treats me like a real person, not just a job."

You answer:

"Why do you keep trying to talk to me anyway."

You answer:

"People at home are going to have trouble with this."

You answer:

" You've no idea how I feel. I wish I were dead and what can you do anyway?"

You answer:

Charles is a patient in his mid-thirties. He was admitted to hospital 2 days ago for severe chest pain.

While under your care the patient says:

"Everyone around here just tells me what to do, you're the only one who listens."

You answer:

"I want to be left alone - I don't want to go anywhere."

You answer:

I don't want to answer anymore questions - please let me alone."

You answer:

"I don't want to burden my family with my problem."

You answer:

"I wish staff would just let me kill myself - that's the most helpful thing they could do."

You answer:

Each individual phrase of a response (made by the respondent) to a SPIR stimulus statement (uttered by a client) is rated (by the rater) by assigning one or more category labels to it.

e.g. STIMULUS: *life is not worth living...*
RESPONSE: *we all go through rough times*
RATING: B1 (platitude)

DEFINITION: Category Label

A category label consists of a letter and a number. The letter represents a class of categories. The number represents specific categories of a class.

examples of classes:

A is the class of responses which are very likely to produce defensiveness in others.

E is the class of responses which do not tend to produce defensiveness, tend to keep the discussion going and address the underlying feelings expressed in the stimulus statement.

examples of categories:

B2 is an category of class B where the respondent either: talks about self, thanks or accepts flattery from the client or looks for reassurance from client.

examples of B2:

- *"I always try to be as understanding/helpful as possible".*
- *"I'm glad that you enjoy talking to me".*
- *"I really hope that you enjoy coming to see me".*

NOTE: If no answer is given to a stimulus item, then category X1 is assigned to indicate this.

RATING STRATEGIES

The assignment of category label to response can be arrived at by a top-down strategy (starting with decisions about class) or bottom-up strategy (starting with decisions about categories). Whatever the strategy for arriving at a given category label, the choice must conform to the class as well as to the category. In practice, when making difficult ratings both strategies are employed.

Multiple category labels can be assigned to a response because of two reasons.

1. It is possible that the response itself is not a single entity and has different aspects (phrases) to it which can be and should be rated separately. For category, the overall tone of a response may be negative such that it is very likely to cause defensiveness (class A1), however, the response may contain individual phrases which are positive in tone.

2. It is possible that a given response which falls in the D, E, or F categories, may be interpreted as addressing more than one category and/or eliciting more than one response from a client.

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THE TOP-DOWN STRATEGY

This strategy consists of asking a series of questions.

1. If this was said to someone in the position of the client would the client tend to feel belittled, overpowered, humiliated, or feel the need to defend his/her position or perspective?

   If YES or VERY LIKELY to this question, then class is always A

   But, if parts of the response are less likely to cause defensiveness, then rate as A1 as well as any other category which is applicable.

2. If NO or NOT LIKELY to above question, then class is not A

   In which case ask yourself...

   > If this was said to someone in the position of the client would the interaction tend to be terminated either by the client or by the respondent?

   If YES or PROBABLY, then class is either B or C. [see step 5]

3. If NO or NOT LIKELY to above question (ie. response tends to keep the interaction going), then class is D,E,or F.

   In which case determine whether the response addresses the UNDERLYING FEELINGS expressed or implied by the client.

   If NO then class is D.

4. If the response does address the UNDERLYING FEELINGS expressed or implied by the client then class is either E or F.

   In which case determine whether there is any enquiry about the origin or cause of these feelings.

   If there is no such enquiry, then the class is E.
   If there is such an enquiry, then the class is F.

5. The difference between class B and C is less clear. As is indicated on the scoring form there is a gradient of helpfulness.

   Responses in class B tend to have less to do with the client, are more generic, tend to be of-the-shelve, less relevant, less specific, less immediate, at arm's length, and are more likely to be respondent-oriented than client-oriented.

6. Once a class is chosen, review all categories of that class(s) and select ONE which most closely describes the response. If there are no categories listed which describe the response then:

   I. Review the decision process to see if it is possible to select a different class.

   or II. Use a BOTTOM-UP strategy (see next page)

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THE BOTTOM-UP STRATEGY

This strategy consists of choosing the set of all categories which most closely describe the response. Thi selection process must be followed with a confirmation protocol as described in the next series of steps.

1. If some or all categories selected are from class A (ie. belittles, sarcasm, etc.), then no furthe checking is necessary.

2. If all categories selected are from class B or C, then confirm that:

   The response tends to terminate the interaction and is not likely to make the client feel belittled, overpowered, humiliated, or make the the client feel the need to defend his/her position or perspective?

3. If there are any categories from class D but not from E or F, then confirm that:

   The response tends to keep the interaction going but is about the situation described in the stimulus statement rather than about the underlying feelings expressed or implied by the client.

4. If there are categories from E or F, then confirm that:

   The response tends to keep the interaction going and addresses the underlying feelings expressed or implied by the client. "Low self-esteem" is an implicit underlying feeling of most clients.

5. If there are categories from F, then confirm that:

   The response inquires about the origin or cause of these underlying feelings. Note, underlying feelings may be expressed or implied. "Low self-esteem is an implicit underlying feeling of most clients.

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NO ANSWER GIVEN | X1

VERY LIKELY TO CAUSE DEFENSIVENESS: Rate response as whole [Rate also parts that do not cause defensiveness]	
belittles discounts concerns negates perspective accuses sarcasm demands specifics fully abdicates responsibility makes non-refutable explanation	A1

TENDS TO TERMINATE INTERACTION: Rate one for each phrase	
platitude cliche repetition obvious flattery	B1
talks about self thanks or accepts flattery from client looks for reassurance from client	B2
gives presumptuous advice gives irrelevant opinion offers useless action	B3
passes responsibility back to client	B4
expresses care or concern expresses interest	C1
advises what to do explains situation gives relevant opinion offers useful action or referral	C2

TENDS TO KEEP DISCUSSION GOING: Rate as many as apply	
prompts for further discussion invites exploration further questioning	D1
recognizes reality of situation gives refutable interpretation	D2
addresses feelings	E1
addresses low self-esteem inquires after causes of feelings	F1

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CIRCLE the number which most closely corresponds to your degree of agreement o disagreement

Strongly Disagree 1 2 3 4 Strongly Agree

1. It makes me sad to see a lonely stranger in a group.	1	2	3	4
2. People make too much of the feelings and sensitivity of animals.	1	2	3	4
3. I often find public displays of affection annoying.	1	2	3	4
4. I am annoyed by unhappy people who are just sorry for themselves.	1	2	3	4
5. I become nervous if others around me seem to be nervous.	1	2	3	4
6. I find it silly for people to cry out of happiness.	1	2	3	4
7. I tend to get emotionally involved with a friend's problems.	1	2	3	4
8. Sometimes the words of a love song can move me deeply.	1	2	3	4
9. I tend to lose control when I am bringing bad news to people.	1	2	3	4
10. The people around me have a great influence on my moods.	1	2	3	4
11. Most foreigners I have met seemed cool and unemotional.	1	2	3	4
12. I would rather be a social worker than work in a job training center.	1	2	3	4
13. I don't get upset just because a friend is acting upset.	1	2	3	4
14. I like to watch people open presents.	1	2	3	4
15. Lonely people are probably unfriendly.	1	2	3	4
16. Seeing people cry upsets me.	1	2	3	4
17. Some songs make me happy.	1	2	3	4
18. I really get involved with the feelings of the characters in a novel.	1	2	3	4
19. I get very angry when I see someone being ill-treated.	1	2	3	4
20. I am able to remain calm even though those around me worry.	1	2	3	4
21. When a friend starts to talk about his problems, I try to steer the conversation to something else.	1	2	3	4
22. Another's laughter is not catching for me.	1	2	3	4
23. Sometimes at the movies I am amused by the amount of crying and sniffling around me.	1	2	3	4
24. I am able to make decisions without being influenced by people's feelings.	1	2	3	4
25. I cannot continue to feel OK if people around me are depressed.	1	2	3	4
26. It is hard for me to see how some things upset people so much.	1	2	3	4
27. I am very upset when I see an animal in pain.	1	2	3	4
28. Becoming involved in books or movies is a little silly.	1	2	3	4
29. It upsets me to see helpless old people.	1	2	3	4
30. I become more irritated than sympathetic when I see someone's tears.	1	2	3	4
31. I become very involved when I watch a movie.	1	2	3	4
32. I often find that I can remain cool in spite of the excitement around me.	1	2	3	4
33. Little children sometimes cry for no apparent reason.	1	2	3	4

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is TRUE or FALSE as it pertains to you personally. Circle T for TRUE or F for FALSE.

T	F	1. Before voting I thoroughly investigate the qualifications of all the candidates
T	F	2. I never hesitate to go out of my way to help someone in trouble.
T	F	3. It is sometimes hard for me to go on with my work if I am not encouraged.
T	F	4. I have never intensely disliked anyone.
T	F	5. On occasion I have had doubts about my ability to succeed in life.
T	F	6. I sometimes feel resentful when I don't get my way.
T	F	7. I am always careful about my manner of dress.
T	F	8. My table manners at home are good as when I eat out in a restaurant.
T	F	9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
T	F	10. On a few occasion, I have given up doing something because I thought too little of my ability.
T	F	11. I like to gossip at times.
T	F	12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
T	F	13. No matter who I'm talking to, I'm always a good listener.
T	F	14. I can remember "playing sick" to get out of something.
T	F	15. There have been occasions when I took advantage of someone.
T	F	16. I'm always willing to admit it when I make a mistake.
T	F	17. I always try to practice what I preach.
T	F	18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
T	F	19. I sometimes try to get even, rather than forgive and forget.
T	F	20. When I don't know something, I don't at all mind admitting.
T	F	21. I am always courteous, even to people who are disagreeable.
T	F	22. At times I have really insisted on having things my own way.
T	F	23. There have been occasions when I felt like smashing things.
T	F	24. I would never think of letting someone else be punished for my wrongdoings.
T	F	25. I never resent being asked to return a favour.
T	F	26. I have never irked when people expressed ideas very different from my own.
T	F	27. I never make long trip without checking the safety of my car.
T	F	28. There have been times when I was quite jealous of the good fortune of others.
T	F	29. I have almost never felt the urge to tell someone off.
T	F	30. I am sometimes irritated by people who ask favours of me.
T	F	31. I have never felt that I was punished without cause.
T	F	32. I sometimes think when people have a misfortune they only got what they deserved.
T	F	33. I have never deliberately said something that hurt someone's feelings.

SHORT-FORM McGILL PAIN QUESTIONNAIRE

I am going to read some adjectives. Please tell me the ones that describe your WORST pain in the last 3 hours. Please rate the adjectives that that describe your pain.

	NONE	MILD	MODERATE	SEVERE
THROBBING	0) _____	1) _____	2) _____	3) _____
SHOOTING	0) _____	1) _____	2) _____	3) _____
STABBING	0) _____	1) _____	2) _____	3) _____
SHARP	0) _____	1) _____	2) _____	3) _____
CRAMPING	0) _____	1) _____	2) _____	3) _____
GNAWING	0) _____	1) _____	2) _____	3) _____
HOT-BURNING	0) _____	1) _____	2) _____	3) _____
ACHING	0) _____	1) _____	2) _____	3) _____
HEAVY	0) _____	1) _____	2) _____	3) _____
TENDER	0) _____	1) _____	2) _____	3) _____
SPLITTING	0) _____	1) _____	2) _____	3) _____
TIRING-EXHAUSTING	0) _____	1) _____	2) _____	3) _____
SICKENING	0) _____	1) _____	2) _____	3) _____
FEARFUL	0) _____	1) _____	2) _____	3) _____
PUNISHING-CRUEL	0) _____	1) _____	2) _____	3) _____

Please think about the pain you have had since your surgery. I am going to ask you some questions about this pain.
Please put a mark across each line to answer the following questions like this:

---

1. What pain do you have **NOW** when you don't move?

No Pain 0 _____ 100 Worst Pain Ever

2. Take two deep breaths and cough (or move). What pain do you have **NOW** ?

No Pain 0 _____ 100 Worst Pain Ever

3. What is the **MOST SEVERE** pain you have had **in the last 3 hours** when you move?

No Pain 0 _____ 100 Worst Pain Ever

4. How **UNPLEASANT** has this **MOST SEVERE** pain been?

Not Unpleasant 0 _____ 100 Extremely Unpleasant

5. What is the **MOST SEVERE** pain you have had **in the last 24 hours** when you move?

No Pain 0 _____ 100 Worst Pain Ever

PPI

0 NO PAIN _____
1 MILD _____
2 DISCOMFORTING _____
3 DISTRESSING _____
4 HORRIBLE _____
5 EXCRUCIATING _____

Appendix C.5

Part II. PATIENT PAIN EXPERIENCE SCALE

1. What pain did you **EXPECT** to have after surgery?

No Pain 0 _____ 100 Worst Pain Ever

2. How bad was the WORST pain you have experienced before?

No Pain 0 _____ 100 Worst Pain Ever

3. How much has medication relieved your pain when you move?

Not at all 0%_____ 100% Completely

4. What pain have you had just before you receive medication?

No Pain 0 _____ 100 Worst Pain Ever

5. How often do you tell the nurse when you need a pain medication without being asked first?

Never 0%_____ 100% Every Time

6. How concerned are you about becoming addicted from taking narcotic analgesics?

NO Concern 0 _____ 100 Very concerned

7. How often do you think you get the pain medication you need?

Never 0%_____ 100% Every Time

8. Did your nurse today ask you **specific** questions about your pain (ie.0-10)?
Yes_____ No_____

9. How well has your nurse today listened to what you say about your pain?

NOT Well 0 _____ 100 Very Well

10. How well do you feel your nurse understands about your pain?

NOT Well 0 _____ 100 Very Well

11. How much do you think telling the nurse about your pain would help you?

Not at all 0%_____ 100% Completely

12. Did your nurse today ask you to be sure to tell him/her when you have pain?
Yes_____ No_____

Appendix C.6

Part III:

Demographic Data

1. Age: _____ years .
2. Gender: M_____ F_____
3. Pain Location: leg___ chest___ shoulder(s)___ back___
   other_____
4. Place of Birth _____
5. Language spoken at home _____
6. Attended Pre-Admission Course: Yes___ No___
7. Surgical Procedure: ACB_____ ACB + IMA_____

Part IV:

Chart Data

1. Analgesics ORDERED (drug, dose, route, time)

_____

_____

_____

_____

_____

2. Analgesics GIVEN (drug, dose, route, time)

_____

_____

_____

_____

_____

3. Current Nurse_____

Appendix C.7

Level of Measurement and Data Source for Study Variables

Variable	Measurement Level	Data Source
	NURSE	
Empathy	interval	SPIRS, QMEE
Pain Knowledge and Beliefs	interval	TPMI
Characteristics		
age	interval	TPMI
education level	nominal	TPMI
inservice education	nominal	TPMI
nursing experience	interval	TPMI
unit experience	interval	TPMI
birthplace	nominal	TPMI
	PATIENT	
Pain	interval	MPQ-SF
	interval	PPES (1-4, 6, 7, 9-11)
	nominal	PPES (8, 12)
Analgesia	interval	PPES (Part III)
Characteristics		
age	interval	PPES (Part III)
gender	nominal	PPES (Part III)
expressivity	interval	PPES (5)
birthplace	nominal	PPES (Part III)

APPENDIX D

ADDITIONAL FINDINGS

Table 1

Examples of Problematic Level 1 Empathic Responses Across all SPIRS Vignettes

1.3 "Life's not worth living. There is nothing anyone can do."
I don't think that's right - while there's life there's hope.(218)
You are young and there's so much ahead of you. (230)
Come on, don't be so negative. Anything is possible with God. How would you like to talk to the chaplain? (521).
Life is precious, you do believe that...be positive and look on the bright side. (206)
Well my dear, try to look at the bright side of life. There are more less fortunate out there than you. (241)
There are a lot of people that can help you if you are willing to cooperate. (240)

1.4 "It's really nice having a nurse who understands me, not like the others."
Now look here Anne, you are not going to cause conflict between the nurses. (519)
The staff here tries to understand you, not only me. (501)
All the nurses are very understanding. (12)
I try to do the best I can. (219)
Thanks. (228)

1.5 "Please don't ask anymore questions - don't you ever give up?"
Well, I feel good when my patients are feeling better both mentally and physically. (502)

2.4 "Don't waste your time with me. I'm better off dead."
Don't say that! ...We all go to some place one day when God is ready. In the meantime, we all have to face the challenge - be strong. You can do it. (I believe in bringing the best in people. I don't usually have patients throwing me out of their rooms or telling me off!). (522)
Now don't say that: you are one of the best patients I've ever had. (502)

2.1 "Would you please leave me alone."
I need to do my work. (210)

3.5 "You've no idea how I feel. I wish I were dead and what can you do any way?"
Sure I do.....(213)

3.5 "Why do you keep trying to talk to me any way."
Why not you seem like a friendly enough guy. (506)
I enjoy talking to you (239)

4.3 "I don't want to answer anymore questions - please leave me alone."
Please don't be difficult - I'm just trying to help you. (218)

4.4 "I don't want to burden my family with my problem."
Your family is there to support you...focus on getting stronger they'll feel better too. (226)
Your family will understand your sickness.(233) You are not a burden to your family. (501)
Try to understand you are not a burden, your family cares about you. (505)
This is the time when family should stick together...you need each others' support. (230)

Table 2

Differences in Pain Knowledge and Beliefs Between Nurses with High and Low Empathy

	SPIRS		
	lowest third (≤18) N=36	highest third (≥22.7) N=31	t (df=65)
SPIRS Mean	13	26	15.77 (.001)
PAIN MANAGEMENT INVENTORY (PMI)			
Total	1506(66%)	1635(71%)	3.98 (.001)
Significant Items (%)			
a. patients' pain ratings agreed with	75	87	2.17 (.04)
b. patients overstate their pain	26	17	2.15 (.04)
c. analgesic orders difficult to change	13	27	2.15 (.04)
d. analgesics given for chronic pain	53	68	2.21 (.03)
e. morphine given for postop pain	52	72	2.41 (.02)
f. higher dose requested if pain continues	61	77	2.09 (.04)
g. patients having severe postop pain	35	23	2.11 (.04)
h. give oral opioid if choice	74	83	2.02 (.05)
Non-significant Items			
a. patients become addicted to opioids	13	9	NS
b. ideal pain rating postop	17	18	NS
c. pain relief dependent on surgery	56	44	NS
d. patients expected to ask for meds	58	52	NS
e. patients expected to tell if pain	55	51	NS
f. patients having moderate postop pain	57	59	NS
g. patients having mild postop pain	38	41	NS
h. pain rating before the next dose	33	27	NS
i. patient asked to wait for meds	34	27	NS
j. morphine decreased if nausea	27	20	NS
k. physicians support decisions	77	79	NS
l. nurses support decisions	78	83	NS
m. use of pain scale	69	66	NS
n. pain knowledge adequate	70	73	NS
o. pain management competent	80	83	NS

Table 3

Patient Pain Experience Scale Individual Scores

PPES (0-100)	Mean(SD) %	Median %
Preop expectation of pain rating postop	69(24)	70
Worst pain ever experienced previously	88(21.8)	100
Pain relief when move after medication	69(1.8)	75
Pain rating before taking next medication	55(1.8)	60
Tell nurse voluntarily if need medication	12(20.4)	0
Concern about addiction from taking opioids	33(38.6)	10
% Time receive needed medication for pain	95(16.0)	100
Nurse listened well today about your pain	26(43.7)	0
Nurse understands today about your pain	26(43)	0
Telling nurse about pain would be helpful	27(44.2)	0

Table 4

Correlations between SPIRS and Patients' Pain Measures (Pearson r)

	SPIRS		
	total	lowest(≤18) third	highest(≥22.67) third
	N=79	N=30	N=27
PATIENTS' PAIN RATINGS (MPQ-SF)			
I. Adjectives			
a. sensory total			
b. affective total			
c. total			
II. Present Pain Intensity			
III. Visual Analogue Scales			
a. Worst pain last 3 hrs.	0.20(.07)		
b. Worst pain last 24 hrs.			
c. Pain on movement			
d. Pain now (not moving)			
e. How unpleasant (3hrs)			
ANALGESIA			
a. analgesics given		0.39(.04)	
b. analgesics ordered			-0.46(.02)
PATIENT PAIN EXPERIENCE SCALE			
a. % Time get medication when need it	0.28(.01)	0.44(.01)	
b. Concern about addiction from opioids			
c. Pain rating before next medication		-0.39(.03)	
d. Nurse ask specific pain questions			
e. Tell nurse if need medication			
PPES-A			0.35(.07)

Table 5

Correlations between SPIRS and Patients' Pain Measures by Hospital Site (Pearson r).

SPIRS	Hospital Site			
	1 N=21	2 N=14	3 N=24	4 N=20
PATIENT PAIN RATINGS (MPQ-SF)				
I. Adjectives				
1. sensory total		-0.65(.01)		
a. stabbing	0.43(.05)			
b. gnawing				0.49(.03)
c. tender	0.43(.05)			
2. affective total				
a. fearful	0.42(.06)			
b. punishing-cruel		-0.65(.01)		
3. total				
II. Present Pain Intensity (PPI)	0.46(.04)			
III. Visual Analogue Scales				
a. 3 hr pain unpleasant				
PPES				
a. % time get medication	0.55(.01)	0.70(.005)		
b. pain rating before next med				

Table 6

Correlations between TPMI and Patients' Pain Measures (Pearson r)

	TPMI		
	total	least knowledge (≤1501)	most knowledge (≥1640)
	N=80	N=25	N=27
PATIENTS' PAIN RATINGS(MPQ-SF)			
Adjectives			
a. sensory			
b. affective			
c. total			
Present Pain Intensity (PPI)			
Visual Analogue Scales			
a. Worst pain last 3 hrs.	0.20(.07)		
b. Worst pain last 24 hrs.			
c. Pain on movement	0.21(.06)		
d. Pain now (not moving)			
e. How unpleasant (3 hrs)			
ANALGESIA			
a. analgesics given			
b. analgesics ordered			
PATIENT PAIN EXPERIENCESCALE (PPES)			
c. get medication when needed			
d. fear addiction taking opioids			
e. tell nurse if need medication	-0.24(.03)		
f. relief from medication		0.52(.007)	
PPES-A	0.21(.06)		

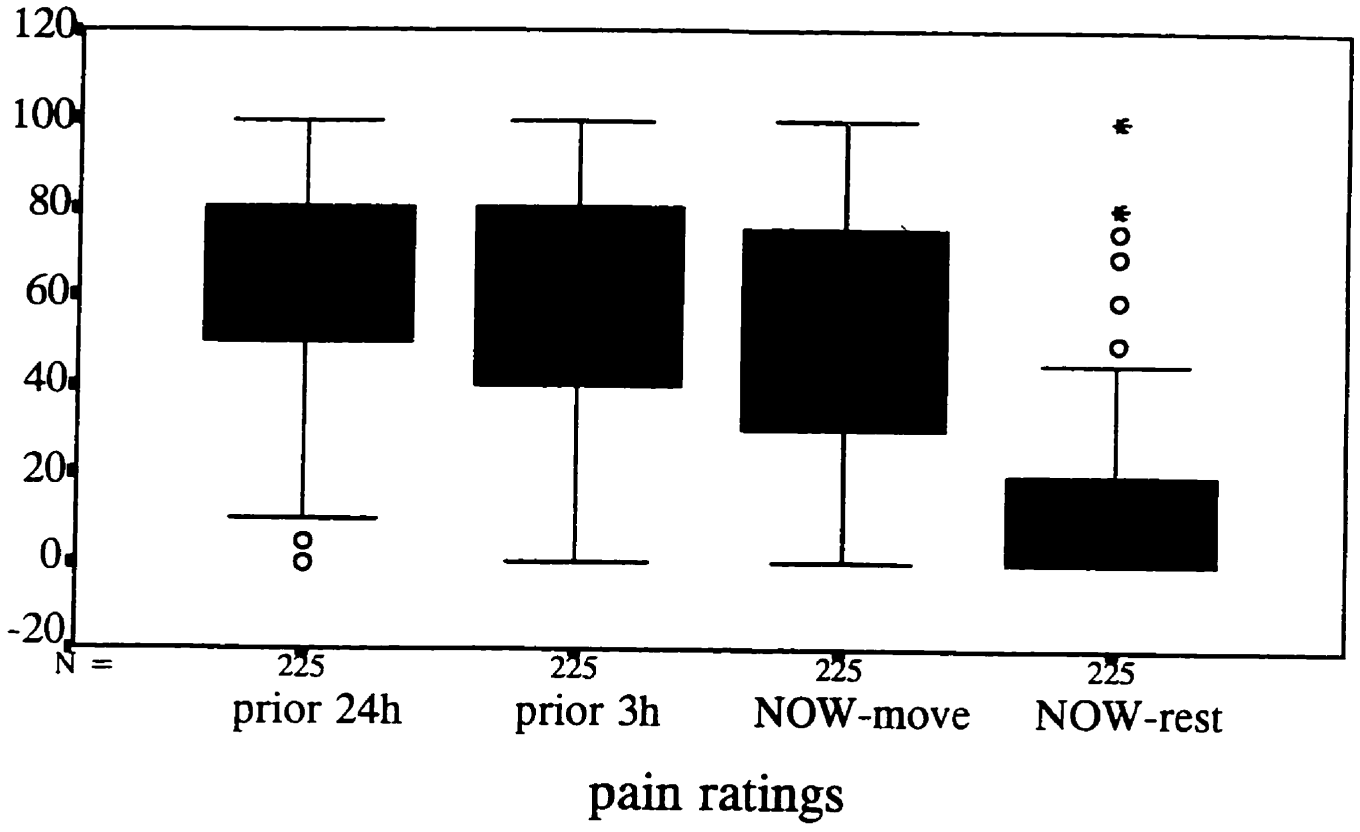
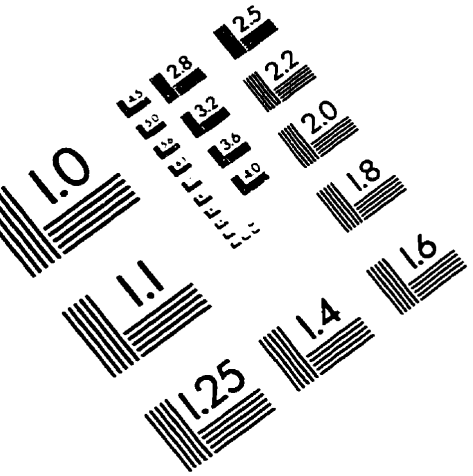
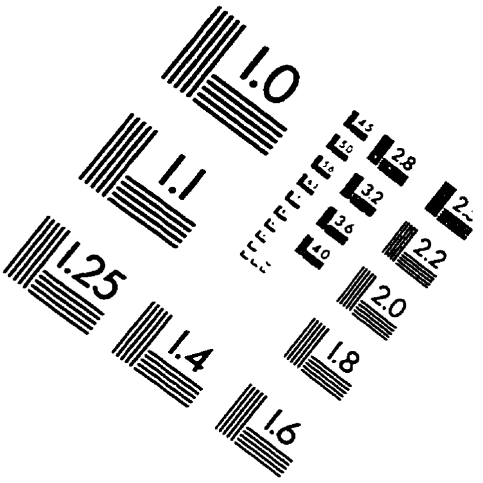
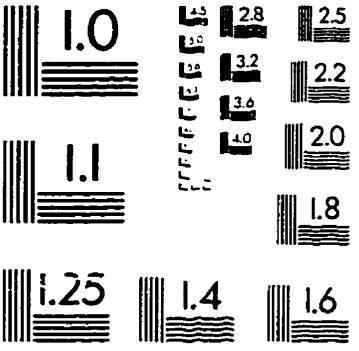


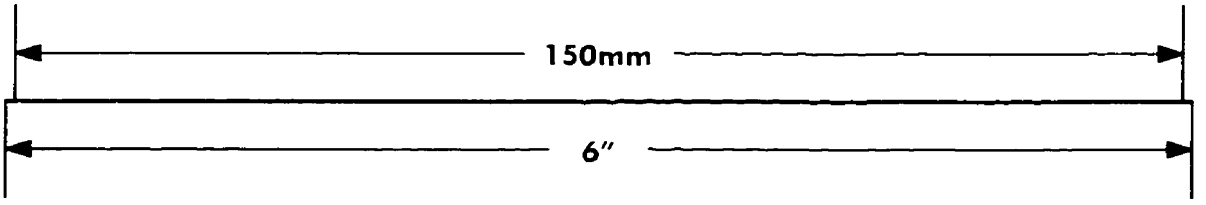
Figure1. Boxplots for VAS pain ratings

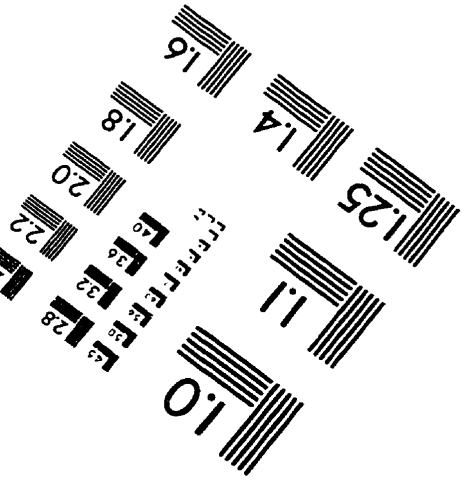
IMAGE EVALUATION TEST TARGET (QA-3)

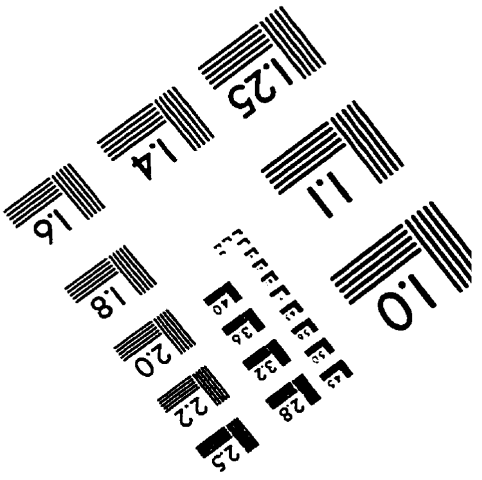












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